LAND IS NOT THE SETTING:  

THE LIGHTNING FIELD AND ENVIRONMENTS, 1960-1980

A DISSERTATION  

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DOCTOR OF PHILOSOPHY

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ABSTRACT

The following dissertation—“Land Is Not the Setting: The Lightning Field and Environments, 1960-1980”—examines land art and ecological thought in the 1960s and 1970s through a sustained and unconventional investigation of Walter De Maria’s single work The Lightning Field of 1977. A large, site-specific sculpture consisting of four hundred sharpened steel poles arranged in a regular grid, The Lightning Field is a remarkably variable object and site which present a range of experiences from reflective metal palpably shifting in form and orientation with the angle of the sun to a dramatic stage for electrical fireworks. The focus of this study extends the manifold nature of The Lightning Field to examine how this single work enfolds not only various modes of experience, but, more importantly, the most significant strands of De Maria’s artistic practice beginning around 1960 alongside competing conceptualizations of the environment throughout the 1960s and 1970s. During this period, the idea of an environment was rapidly on the move. Artists and critics employed the term to suggest gallery installations, ecosystems, multimedia projections, and natural sanctuaries. In short, the concepts “environment” and “ecology” experienced two decades of rich investigation in social and intellectual registers, and the emergence of land art provides unique access to their larger turns within the period.
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Projects, like ideas, begin in many places and across many conversations. Though this dissertation may arise most directly from a particular trip to *The Lightning Field* taken in August 2006, I would like to acknowledge here some of the people most important to its realization. First among these is Pamela M. Lee, my advisor at Stanford University and a seemingly tireless source of insight, voice of support, and trotter of the globe. Maria Gough has been an intellectual model, and, along with my other committee members, Pavle Levi and Bryan Wolf, instrumental in the shaping and refining of what follows. Colleagues at Stanford and one glorious apartment in North Adams, Massachusetts who have offered invaluable conversation and reflection over recent years include Karen Rapp, Soyoung Yoon, Mary Campbell, Kiersten Jakobsen, Kevin Smith, Sara Levavy, Emily Brink, Sam Johnson, Jim Thomas, and David Breslin. I thank Eddie Vazquez and Dan Hackbarth in particular for being steadfast friends as much as indispensable interlocutors. Thanks also to Jill Davis in the Art and Art History Department and Peter Blank in the Art Library for all of their support.

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# Table of Contents

ABSTRACT ........................................................................................................ iv

ACKNOWLEDGEMENTS .................................................................................. v

LIST OF FIGURES ............................................................................................ ix

INTRODUCTION ................................................................................................. 1

CHAPTER ONE:
ONE OR MANY ENVIRONMENTS ............................................................. 20
  Boxes
  Light
  Environment/environment
  LAND
  Words and Things: On the Conclusion of Environments

CHAPTER TWO:
THE CRUCIBLE OF NATURE ......................................................................... 72
  Danger at Dwan Gallery
  A Brief History of Ecology
  Ecologic Art
  (Eco)Systems Aesthetics
  The Scale of the Whole Earth
  Land Is Not the Setting

CHAPTER THREE:
PHOTO-ENERGY AND THE MEDIA OF LAND ART .................................. 139
  Walter De Maria’s Magazine Work
  Index Redux
  “Situations of Energy”
  Photomechanical Mediation
  Other Entropies
  Teledynamic Environments
  Energy Forms

CHAPTER FOUR:
LAND ART IN THE 1970s? ......................................................................... 193
  Earthworks, Revisited
  The Public Life of Ecosystems
  Beyond Biomes: The Harrisons
  Embedded Environments
  On the Road
  Earth (as) Sculpture
LIST OF FIGURES

Note: figures, at the suggestion of the Stanford University Registrar, are not included due to copyright restrictions.

Figure 1.1: Walter De Maria, *The Lightning Field*

Figure 1.2: Walter De Maria, *The Lightning Field*

Figure 1.3: Walter De Maria, *The Lightning Field*

Figure 1.4: Walter De Maria, *Calendar*

Figure 1.5: Walter De Maria, *Ball Drop*

Figure 1.6: Walter De Maria, *Boxes for Meaningless Work*

Figure 1.7: Allan Kaprow, *Untitled Environment*

Figure 1.8: Walter De Maria, view of *The Arch* and *The Columns* at Paula Johnson Gallery exhibition

Figure 1.9: Walter De Maria, view of Paula Johnson Gallery exhibition

Figure 1.10: Robert Whitman, *Flower*

Figure 1.11: Walter De Maria, Press release for *Pure Dirt / Pure Earth / Pure Land* at Galerie Heiner Friedrich

Figure 1.12: Walter De Maria, *Pure Dirt / Pure Earth / Pure Land*

Figure 1.13: Walter De Maria, *The Color Men Choose When They Attack the Earth*

Figure 1.14: Walter De Maria, *Dirt Box*

Figure 2.1: Walter De Maria, *Bed of Spikes*

Figure 2.2: Walter De Maria, *The Lightning Field*

Figure 2.3: Walter De Maria, *Mile-Long Drawing*

Figure 2.4: Walter De Maria, *Danger* advertisement in *Artforum*, April 1969
Figure 2.5: Las Vegas Piece

Figure 2.6: Advertisement for CBS Reports on Silent Spring in New York Times, April 3, 1963

Figure 2.7: Ecologic Art at John Gibson Projects for Commission

Figure 2.8: Peter Hutchinson, Storm King Mountain Project

Figure 2.9: Dennis Oppenheim, Nebraska Project

Figure 2.10: Robert Morris, Mirror Cubes

Figure 2.11: Dennis Oppenheim, Time Line

Figure 2.12: Dennis Oppenheim, Directed Seeding

Figure 2.13: Apollo 17, “The Blue Marble”

Figure 2.14: R. Buckminster Fuller, Operating Manual for Spaceship Earth

Figure 2.15: Whole Earth Catalog, Fall 1968

Figure 2.16: Whole Earth Catalog (detail), Fall 1968

Figure 2.17: Ronald Bladen, The X

Figure 2.18: Walter De Maria, Drawings for Mile-Long Walls in the Desert

Figure 2.19: Walter De Maria, Drawings for Mile-Long Walls in the Desert

Figure 2.20: Robert Smithson, Spiral Jetty

Figure 2.21: Walter De Maria, Desert Cross

Figure 2.22: Richard Serra, Shift

Figure 2.23: Michael Heizer, Double Negative

Figure 3.1: Walter De Maria, The Lightning Field in Artforum, April 1980

Figure 3.2: Walter De Maria, The Lightning Field in Artforum, April 1980

Figure 3.3: Walter De Maria, The Lightning Field in Artforum, April 1980
Figure 3.4: Walter De Maria, *High Energy Bar*

Figure 3.5: Walter De Maria, advertisement in *Artforum*, June 1973

Figure 3.6: Walter De Maria, *Avalanche*, Spring 1972

Figure 3.7: Walter De Maria, *Avalanche*, Spring 1972

Figure 3.8: Walter De Maria, *Avalanche*, Spring 1972

Figure 3.9: Walter De Maria, *Avalanche*, Spring 1972

Figure 3.10: Walter De Maria, *Avalanche*, Spring 1972

Figure 3.11: Walter De Maria, *Avalanche*, Spring 1972

Figure 3.12: USC O, *We Are All One*

Figure 3.13: Robert Smithson, *Fossil Quarry with Four Mirror Displacements*

Figure 3.14: Television Gallery Gerry Schum, *Land Art Poster*

Figure 3.15: Robert Smithson, view of gallery at *Earth Art*, Cornell University

Figure 3.16: Robert Smithson, *The Sandbox Monument*

Figure 3.17: Robert Smithson, *Untitled* work at *Earth Art*, Cornell University

Figure 3.18: Rudolf Arnheim, *Entropy and Art: An Essay on Disorder and Order*

Figure 3.19: Giovanni Anselmo, *My Shadow Projected to Infinity from the Top of Stromboli During Sunrise on 16 August 1965*

Figure 3.20: Robert Barry, *Inert Gas Series (Argon)*

Figure 3.21: Robert Barry, *1600 kc Carrier Wave (AM)*

Figure 3.22: Robert Barry, *88 mc. Carrier Wave (FM), 1600 kc. Carrier Wave (AM), 0,5 Microcurie Radiation Installation, and 4,5 cm. Microwave Installation*

Figure 3.23: Walter De Maria, *Two Lines Three Circles on the Desert*

Figure 3.24: Walter De Maria, *Bed of Spikes*
Figure 4.1: Walter De Maria, *New York Earth Room*

Figure 4.2: Robert Morris, *Untitled Earthwork*

Figure 4.3: Robert Morris, *Earthwork*

Figure 4.4: Robert Morris, *Untitled Earthwork*

Figure 4.5: Agnes Denes, *Wheatfield*

Figure 4.6: Robert Smithson, *Broken Circle*

Figure 4.7: Earth Day Poster in *Washington Magazine*

Figure 4.8: Helen Mayer Harrison and Newton Harrison, *Shrimp Farm: Survival Piece #2*

Figure 4.9: Newton Harrison, *The Encapsulated Aura*

Figure 4.10: Helen Mayer Harrison and Newton Harrison, Crab Tank of Harrison Studio

Figure 4.11: Helen Mayer Harrison and Newton Harrison, *Lagoon Cycle*

Figure 4.12: Roderick Nash, Diagram illustrated in *The American Environment*

Figure 4.13: Dan Graham, Photograph of ChemCourt atrium

Figure 4.14: Dan Graham, *Pavilion/Sculpture for Argonne*

Figure 4.15: Tetsumi Kudo, *Cultivation by Radioactivity in the Electronic Circuit*

Figure 4.16: Tetsumi Kudo, *Pollution—Cultivation—New Ecology*

Figure 4.17: Stanley Kubrick, *2001: A Space Odyssey*

Figure 4.18: Ant Farm, *50’ x 50’ Pillow*

Figure 4.19: Ant Farm, “Enviromints” in *Inflatocookbook*

Figure 4.20: Ant Farm, *CAP 1500*

Figure 4.21: Ant Farm, *Cadillac Ranch*

Figure 4.22: Robert Smithson, *Amarillo Ramp*

Figure 4.23: Walter De Maria, *Olympic Earth Sculpture*
Figure 4.24: Walter De Maria, 4/6/8

Figure 4.25: Walter De Maria, *Equal Area Series*

Figure 4.26: Walter De Maria, *The Vertical Earth Kilometer*

Figure 4.27: Walter De Maria, *The Broken Kilometer*

Figure 4.28: Walter De Maria, *The Vertical Earth Kilometer*
INTRODUCTION

This is a dissertation about a single work of art, *The Lightning Field*, completed by Walter De Maria outside Quemado, New Mexico in 1977. It will not be limited, however, to the site, year, or artist of this work’s making. Rather, this will be a study of the expansiveness through which one can productively position a work of art across time and the historically-embedded matrices of ideas through which it communicates. By all practical measures, *The Lightning Field* experienced a lengthy development, having been conceived in 1972 and planned in several steps which involved locating and purchasing a permanent site in western New Mexico, creating a test field in 1974, raising the necessary money through the newly-founded Dia Art Foundation, and, finally, developing a system to render, measure, and secure the four hundred sharpened steel poles that comprise the finished work. Despite this unusually complicated set of practical measures needed to create *The Lightning Field*, this study will be interested in a much longer and more intellectually expansive view of its development, not returning to the particular history I have just outlined, for instance, until the fourth and final chapter. Throughout, it will consider how *The Lightning Field* distills a series of artistic practices ranging from Fluxus performance and minimalist sculpture, to photoconceptual magazine publications and ecological land reclamation. Ultimately, De Maria’s single work of 1977 will serve as a cipher for artistic concerns about the environment and ecology that came together in the constellation of practices in the late 1960s known as land art and which had all but
dissipated and transformed by the time *The Lightning Field* actually appeared a decade later.¹

A grid array of poles measuring an average height of twenty feet and extending one mile long by approximately one kilometer wide, *The Lightning Field* is a site-specific work of art that exercises considerable viewing restrictions upon its visitors. Arriving in a group no larger than six people, one must experience the work for no less than a full day and night. Having made arrangements with the Dia Art Foundation and paid a significant fee, one arrives in the town of Quemado in remote Catron County to be dropped off at the site of the work and stay overnight in an adjacent cabin. As visitors are also required to sign a form prohibiting any photography or filming of De Maria’s work and its site, *The Lightning Field* must be experienced first-hand.

Despite these protocols and restrictions, the presence of *The Lightning Field* to spectators is as allusive to description as it is deliberate in its planning and duration. During the course of a day, different angles of the sun’s position in the sky dramatically change the color and visibility of the work—at high noon a few poles shine brightly forward as the remainder of steel points in the middle- and background dissolve into a seemingly infinite expanse. Only a few hours later, a mellowed evening sun casts the poles in solid yellow hues, defining their limits and contours clearly in colors that deepen with draining crepuscular light. To this end, De Maria’s work inspires and even demands

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¹ A brief note on terminology: I employ the term “land art” in reference to the body of art created in North American and Europe with earth or using ecological systems. Other names for these of works of art, such as “earthworks” and “environmental art” will occasionally be used as substitute. Land art, however, will serve as the primary term, as it is also the description favored by De Maria in the sentence that concludes his own account of *The Lightning Field*: “Isolation is the essence of Land Art.” Walter De Maria, “The Lightning Field,” *Artforum* 18:8 (April 1980): 58.
intense scrutiny in the language one cultivates to approach its elusive form, as poet Carol Moldaw exhibits in the opening lines of her eponymous poem on *The Lightning Field*:

> Four hundred equidistant stainless steel poles, twenty-five by sixteen, gird and grid the mile-long kilometer-wide field that was once a plain. Like polished spears, with solid tapered tips, they rise over twenty feet. Sounding the air, attuned to the light’s least vibrato, between dawn and dusk they all but disappear. It was the hope of lightning drew us here, and for an hour or so there is lightning—violent strikes, frequent, sharp, and silent above the mountains ringing the plain but the poles do not require lightning, they are aggregate enough.  

As Moldaw makes plain, the expectation of lightning actually striking these poles is but one facet of a complex of experiences at *The Lightning Field*, which include the isolation and drama of Western deserts, the scale and interrelation of human activity to the land, and the epistemological tension of vision and imagination.  

But for the visual and ekphrastic issues it poses to its spectator, with few exceptions *The Lightning Field* has the curious distinction of appearing numerously and prominently in reproduction without being matched in kind by serious scholarly investigation. Two publications of the early 1980s largely governed its reception. One is the major essay to appear after the work opened to the public, John Beardsley’s “Art and Authoritarianism: Walter De Maria’s ‘Lightning Field,’” (1981), which describes the control through which the artist and Dia limit access to the Field and the rights to its reproduction in print. The other is De Maria’s own publication of six photographs of the Field in *Artforum* magazine in 1980 alongside a page of “Some Facts, Notes, Data,  

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Information, Statistics and Statements.” Between these two early entries, De Maria’s work has been rendered for the field of art history as both experientially and communicatively restricted to the particular images and information provided by the artist. Contributing also to this state of affairs is the fact that De Maria has himself systematically withdrawn from providing information to critics and historians about his art in general since the 1970s and quite conspicuously limited reproduction rights and access to this oeuvre. As a result, his work has been notably absent from several key publications. His participation in Cornell University’s seminal exhibition *Earth Art* in winter 1969, for instance, was cut from the show’s catalog, while, more recently, the artist himself withheld any and all visual reproductions of his art from Suzaan Boettger’s large compendium of land art, *Earthworks: Art and the Landscape of the Sixties*, of 2002.³

Due to similar constraints of accessibility, De Maria’s reception, like that of *The Lightning Field* itself, has failed to evenly measure his importance to the history of art after 1960. Many of his earliest critics were quite right in identifying the artist as one of the more thoughtful and articulate in the diverse group who began working with land and ecology in the late 1960s, but subsequent accounts have focused almost exclusively and too myopically on De Maria as a recalcitrant figure and even, to one scholar, one whose art should be considered “insidious,” “inaccessible,” and even “apparently meaningless, but sinister-seeming.”⁴ Consequently, this dissertation will also position *The Lightning Field* as a lens through which to examine the first two decades of De Maria’s art with greater nuance. I bracket the dates of this study to begin with his early career following a

move from the Bay Area to New York in 1960 and conclude with his publication of *The Lightning Field* in April 1980. In the spirit in which this entire study is a history written in reverse, I also borrow its title phrase from De Maria’s own words that begin this 1980 magazine edition, where he asserts, “*The Lightning Field* is a permanent work. The land is not the setting for the work but a part of the work.”

Less a direct statement of fact than an indirect nod in the direction of *The Lightning Field*’s complicated relationship to conceptualizations of the earth and its materiality, this statement embodies much of the disavowal at the heart of land art. It certainly was at times an art that worked with “land,” but the brut sense that earth or dirt was simply the working material of land art—its “medium” in a crude sense of the term—has contributed to a host of misapprehensions in the reception of this body of work since its first public exhibitions in 1968. This dissertation thus appears under the heading of De Maria’s phrase to register a lack of resolve in land art’s relation to the land. Whatever this relationship, it is not merely passive nor a mere backdrop to otherwise central artistic actions. Indeed, one of the primary motivations for the turn to environmentality in the art of the late 1960s came through the invigoration of new ideas about the biological and technological connectedness of the globe. For too long, land art has been understood as outside or even opposed to the emerging accounts of ecology and environmental sustainability that shaped dynamic new visions of the planet and provided the ethical backbone of the environmental movement. One of the chief contentions of this dissertation will be that land art in fact maintained an intimate, if often troubled, sense of environmentalism from its very origins.

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5 De Maria, “The Lightning Field,” 58.
**Land Art and Ecology**

*The Lightning Field* itself has long held an unsettled relationship to the formation and subsequent reception of land art. Quite paradoxically, De Maria’s 1977 work, alongside Michael Heizer’s *Double Negative* (1969) and Robert Smithson’s *Spiral Jetty* (1970), occupies a central place among the canonical monuments of this field, and yet, De Maria’s site in New Mexico was completed several years after land art itself had seemingly dissolved as a cohesive collection of practices. As defined in its earliest stages by varied approaches to incorporating aspects of the earth into artistic production—such as Heizer’s depressions upon desert ground in the American West or Dennis Oppenheimer’s incision into a hillside in Oakland, California—land art became synonymous in its earliest period with the grit of actual piles of dirt as a working material and the remoteness of ephemeral locations outside a New-York-centric gallery system.6 This work was consolidated as a “movement” primarily by two exhibitions which took place, respectively, in fall 1968 at Virginia Dwan’s gallery in New York and the following winter of 1969 at Cornell University. As both staged indoors, these shows necessitated that some amount of land art’s production be capable of circulation, and, fittingly, artists displayed photographs, sketches, models, and even a few piles of dirt.

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6 It is important to note that several key artists working out of the St. Martin’s art school in London, including Richard Long and Jan Dibbets, also developed land practices at precisely the same time as their American counterparts. I will not address these artists at length in this study, however, as their work does not fit into the particular history of *The Lightning Field* we examine. Including also the Englishman Hamish Fulton and Scotsman Ian Hamilton Findlay, this group of British artists have received notable treatment in museum exhibitions and catalogs. See Rudi Fuchs, *Richard Long* (London and New York: Solomon R. Guggenheim Museum and Thames and Hudson, 1991); Richard Long, *Richard Long: Walking the Line* (London: Thames and Hudson, 2002); Bruno Corà, *Jan Dibbets* (Modena: Logos, 2007); Michael Auping, *Hamish Fulton: Selected Walks 1969-89* (Buffalo, NY: Albright-Knox Art Gallery, 1990); Ben Tufnell and Andrew Wilson, *Hamish Fulton: Walking Journey* (London: Tate Britain, 2003); *Nature Over Again After Poussin: Some Discovered Landscapes* (Glasgow: Collins Exhibition Hall, University of Strathclyde, 1980); Ian Hamilton Finlay, *Works in Europe, 1972-1995*, ed. Zdenek Felix (Ostfildern, Germany: Hatje Cantz, 1995).
Thus, from the outset, the earliest terms of land art were set according to a series of binary divisions: outdoor/indoor, site-specific/exchangeable, ephemeral/enduring, remote/centralized. On half seemed built in “nature,” the other half created for indoor display and exhibition.\(^7\)

When *The Lightning Field* itself finally arrived in 1977, the reception of land art had already begun to shift from an initial stage of early criticism to increasingly developed accounts positioning it more canonically within the history of art. The earliest essays to address this nascent field—whether describing the art as earthworks, earth art, or land art—tended to adopt the form of travelogues. As with the prominent examples of Philip Leider’s “How I Spent My Summer Vacation,” or Lawrence Alloway’s “Site Inspection,” these essays quite practically provided a first-hand account of the large, remote land objects for audiences unable to make the lengthy western trek connecting Los Angeles, Las Vegas, and Salt Lake City to see these works in person.\(^8\) Accordingly, these essays also tend to be filled with the particularities encountered by their respective authors on the road, inscribing the large, sculptural version of land art into a circuit of travel and art tourism.\(^9\) This tendency is no less true of *The Lightning Field*. After the


\(^9\) As I complete this dissertation at the close of the first decade of the twenty-first century, the travel-interest in the “grand tour” of first-generation earthworks has experienced something of a spike. See, for instance, the recent publication of Erin Hogan’s *Spiral Jetta: A Road Trip through the Land Art of the American West* (Chicago: The University of Chicago Press, 2008); and also, Jeffrey Weiss, “On Land Art Today,” *Artforum* 47:1 (September 2008): 131-32.
work’s official completion in fall 1977, De Maria and the Dia Art Foundation invited critic Kenneth Baker to stay at the work’s site for a series of days and to write a primary account which might interest and perhaps draw art audiences living faraway from Quemado, New Mexico. But in also adopting the approach of a travelogue of encounters and experiences, some met en route to *The Lightning Field* and others at the work itself, Baker’s essay, the earliest major piece of writing on De Maria’s *Field*, did not meet Dia’s and the artist’s criteria. Quite remarkably, it appeared in print only recently, some thirty years after the fact, in 2008.10

The criticism that did appear in press at the time of *The Lightning Field*’s completion already announced a new phase in the reception of land art, which I would categorize in three parts. The first is the land art compendium. If indeed the first generation or phase of land art had come to a close by the late 1970s, the historiographic impulse of this group of texts would be to review and record. In 1977, John Beardsley organized the first major museum exhibition of land art—*Probing the Earth: Contemporary Land Projects*—for the Hirshhorn Museum and Sculpture Garden in Washington, D. C. A few years later, he followed up with the publication of *Earthworks and Beyond: Contemporary Art in the Landscape* (1984), the first major retrospective text of earthworks in North America and Western Europe from the late 1960s onwards. Beardsley’s initial publication has since been followed by a number of volumes which

address the first decade or so of land art’s emergence and the sustained importance of environmental art “beyond” the era of earthworks.\textsuperscript{11}

The second position to emerge represents a solidification of land art’s reception as a late modernist art form. Primarily forged in the influential criticism of Rosalind Krauss, this viewpoint was laid out first in her publication \textit{Passages in Modern Sculpture} the very year of \textit{The Lightning Field}’s completion in 1977 and reiterated two years later with the essay “Sculpture in the Expanded Field.” In the first of these works, Krauss develops a two-pronged history of sculpture after Rodin which is characterized on the one side by ratio-technical, design objects and on the other by what she frames as the triumph of sculpture that engages its spectator through exterior, actual space. As this argument follows, the history of modern sculpture culminates with minimalism in the 1960s and its transition into earthworks, or, sculpture that enacts spaces to be physically traversed and embodied. For Krauss, the appearance of a work such as Heizer’s \textit{Double Negative} announced a compounded culmination of modernist abstraction with what she calls the “syntax” of sculpture to emerge from the 1960s.\textsuperscript{12} Taking her lead from “The late Ludwig Wittgenstein [which] questions the notion that there can be something we might call a private language,” and “Merleau-Ponty, in \textit{The Phenomenology of Perception}, [when he] attacks [the] notion of abstractable aspects of the senses,” the “syntax” Krauss identified in minimalism and land art was one of a language externalized in the world.\textsuperscript{13} If, then, in \textit{Passages of Modern Sculpture}, Krauss claims land art as enacting a kind of semiotic

\textsuperscript{13} Krauss, \textit{Passages in Modern Sculpture}, 261, 239.
operation, this assertion would find stronger articulation still in “Sculpture in the Expanded Field.” In this latter essay, she quite famously submits the entire field of art created outside the gallery system to four points on a structuralist grid: marked sites, site-construction, axiomatic structures, and sculpture. Therefore, between these two arguments, land art was rendered not only as heir to minimalism, but also as elevating the latter’s relationship to language as a code for the entire field of land art itself.

Finally, at this same moment, the historiography of land art would also establish a canon of subject matter, which, quite astoundingly, focused around a single artist. Picking up on the direction of Krauss’s position, Craig Owens would further strengthen the connection between land art and linguistically oriented criticism, first in the essay “Photography en abyme” published in 1978 and then in “Earthwords” the following year. He discusses Robert Smithson in both essays, picking up on the relationship of the artist’s language in his numerous essays and his sustained interest in photomechanical media. For Owens, the numerous reversals, empty centers, and textual apparatuses in Smithson’s work align it “with the techniques of poststructuralist theory—Derrida’s deconstructive reading, for example, or Foucault’s archaeology,” that were beginning to shape the criticism of the impending 1980s.\(^\text{14}\) Thus, in one sense, Owens’s work served a bridge between the late expression of minimalist aesthetics Krauss had located in “Sculpture in the Expanded Field” and the emerging work of artists using photography and appropriation techniques in the 1980s. What Owens could never have imagined in 1978, however, is the degree to which his criticism would anticipate the nearly exclusive focus on Smithson in land-art scholarship of the ensuing decades. Indeed, the essay

“Earthwords” was inspired by a recent publication of Smithson’s collected writings, and this level of intimate access to the artist’s extensive written works would be followed by the deposit of his and his partner and fellow land artist Nancy Holt’s personal papers at the Smithsonian Institution in 1986. As a result, Smithson’s body of work has been treated to some half-dozen critical studies or book chapters, a revised edition of collected writings, and a major traveling exhibition. His land-art colleagues have likewise received no such monographic attention in scholarly books or book chapters.

More recently, there have been a number of critical shifts away from models of late modernist art and post-structuralism in the field of land art scholarship, but most remain tied to Smithson as the figure through which this field has been implicitly shaped. The present study will depart from these tendencies. Through the centering focus on The Lightning Field, it will develop the work of De Maria in connection with a number of other land artists such as Oppenheim and Peter Hutchinson whose work has

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17 Heizer and Oppenheim have each recently received major retrospective exhibitions, both organized independently by Germano Celant. *Dennis Oppenheim: Explorations* (Milan: Charta, 2001); *Michael Heizer* (Milan: Fondazione Prada, 1996). De María’s art, on the other hand, has appeared selectively in exhibitions, but nothing approaching a comprehensive examination of his work has appeared since a sculpture show held relatively early in his career in 1972 at the Kunstmuseum Basel. More recently, scholar Jane McFadden has completed a dissertation on De Maria and published two critical essays. McFadden, “Practices of Site: Walter de Maria and Robert Morris, 1960-1977,” (Ph.D. dissertation: University of Texas at Austin, 2004); “Toward Site,” *Grey Room* 27 (Spring 2007): 36-57; “Earthquakes, Photoworks, and Oz: Walter de Maria’s Conceptual Art,” *Art Journal* 68:3 (Fall 2009): 68-87.
not received extensive treatment in the critical literature and others such as Allan Kaprow, Robert Barry, and Dan Graham whose work has not been considered under the lens of environmental art at all.

In doing so, my approach will employ a working method grounded in ecology. In common discourse, the term ecology has assumed a rather singular connotation as a set of ethical concerns committed to sustaining the life systems of the earth. While certainly true and of the utmost importance, this sense of the term tends to level the historical contingency of ecology as not only a practice and ethic of earthcare, but also a conceptual approach to understanding the natural environment itself. In response, this dissertation will place great emphasis on the emergence of ecological thinking within the 1960s. Where previous studies have found little connection between land art and ecology, I will turn to the latter as a far more structural set of ideas subtending the relationship of art to the substance and systems of the earth. Drawing upon such thinkers as Raymond Williams, Rachel Carson, Gregory Bateson, Niklas Luhmann, R. Buckminster Fuller, and Arne Naess, I will examine the breadth of proposals to emerge in environmental theory concerning about the interconnectedness of biotic and social systems of production. As this dissertation will demonstrate, land artists as a whole did not adopt or promote any singular notion of the earth. Rather, their art came into being at a moment when a striking imperative and also diversity took hold in conceptions about the planet. Thus, for land artists, earth became a kind of testing ground of ecological possibilities put into practice.

Moreover, ecology is not solely a historical subject for this study but also a rhetorical method. *The Lightning Field* is itself an object complexly integrated into a lengthy historiography of land and environment art, on the one hand, as well as the local
environment of its particular location in western New Mexico, on the other. To properly grasp the interrelation among these various sites of production, my expanded investigation of this work of art requires a specifically ecological approach, encompassing the Field’s open systems of communication with other land art projects, events and ideas of the environmental movement, and its geographical site. I do not simply propose that The Lightning Field is open to variable interpretation—more precisely, its temporal and interpretive variability is interwoven with the manifold environments of its making. My method of investigating De Maria’s work is therefore not a comprehensive study of his singular output as an artist, nor do I propose to systematically cover the entirety of environmental art created in the two decades addressed by this study. Instead, focusing on the ecological networks of The Lightning Field will lead my argument through four crucial moments or pockets in the history of land art, each comprising one of the following chapters. Together, these collectively offer a critical guide through the negotiation of ecology and aesthetics from 1960 to 1980.

Terms and Chapter Summaries

As suggested in my title, the various historical and historiographic moments of The Lightning Field will be considered as “environments” in the work that follows. I use this term both conventionally in the sense one refers to biological matter as “environmental,” but also in a range of related meanings that encompass the myriad artistic groups and exhibitions embodied in The Lightning Field. Fundamentally, an environment is a formation that provides cohesion, even legibility, for that which it contains and which sustains it. But in writing about the environmental movement and the
history of ecological thought in the 1960s from the perspective of the early twenty-first century, one must also address the motivations for speaking about “the environment” in a moment when its future stability lies very much in peril. To this I would respond that such questions must strike a balance between ethical imperative and historical contingency. One cannot over simplistically assign the value of environmentality to the fact that we live in a moment in which the disastrous effects of industrial behavior on the planet’s biotic activity increasingly appears in headlines and documentary films. Rather, we have inherited a more heightened consideration of these problems over recent decades, now possessing the opportunity to grasp environmental dynamics from the 1960s onwards that are too often rendered by the presentist immediacy of crisis or the futurist singularity sustainability. The idea of environments, plural, of the recent past push beyond the sum total of extractions, pollutants, and imbalances that tend to shape such discussions. Ultimately, these are problems concerning how we situate ourselves in the world and the viability of those relationships across temporal and geographical displacements. Issues of environments therefore prove central not only to the period of land art that stretches approximately a decade from 1967 to the completion of The Lightning Field in 1977, but more fundamentally to broader concerns in postwar art history about how bodies interact with objects in the world, how objects relate to their particular sites, and how art in general addresses larger circuits of ecological production and regulation.

Thus, the range of “environments” named in this dissertation’s title will provide the structure of its four ensuing chapters. These proceed chronologically by taking up different facets of The Lightning Field in development throughout De Maria’s career.
from 1960 to 1980. Chapter one addresses *The Lightning Field* as an environment of experience in connection to De Maria’s earliest sculptural objects. The core of this analysis examines the emergence of “Environments” as a type of artistic work and term of criticism in the early 1960s in and around New York. The so-called gallery Environments created by the cadre of artists variously associated with Happenings and Fluxus events broke open a traditionally closed understanding of an environment as an arrangement of sociological and spatial conditions that act upon individuals. I begin with a reading of *The Lightning Field* as a prime example of this kind of artistic work, operating upon two fundamentally different intellectual orders: one of geometrical measure and universal pattern, the other of bodily engagement and atmospheric contingency. This dynamic, in turn, leads us through the vital period of the gallery Environment, from De Maria’s early work in simple plywood boxes to his polemical *Land Show* of 1968 where he filled Heiner Friedrich’s Munich gallery two-feet deep in dirt. Rather than assume a confluence or collapse between the natural environment and notion of the gallery Environment, the argument of this chapter proposes that the latter introduces a series of aesthetic concerns that make possible land art’s more direct engagement with the earth later in the decade, the subject of the following chapter.

Chapter two examines the intellectual underpinnings of the environmental movement in the 1960s alongside early works of land art in the period 1968-70. It is presently a matter of little debate that Rachel Carson’s *Silent Spring* sent shockwaves through the general public’s awareness of environmental issues upon its publication in 1962, especially after the author’s appearance in a highly anticipated television event in 1963. Instead of rehearsing this story once again, this chapter develops the more wide-
reaching relationships between popular environmental accounts such as appear in Carson’s book, Stewart Brand’s *Whole Earth Catalog* (first published in 1968), and Buckminster Fuller’s *Operating Manual for Spaceship Earth* (1969). For artists including not only De Maria but also Heizer, Hutchinson, Oppenheim, and Smithson, whose land art emerged largely and collectively from minimalist sculptural practices, I demonstrate the ways in which land art itself cohered around ecological ideas absorbed and transformed through tenets of minimalism. In this regard, I take up earlier studies that claim the connection between minimalism and land art, but instead of positioning the latter as a late expression of the former, I show the ways land art altered the very organization of the minimalist artistic object. Thus the emergence of land art is understood in this account as a self-generating system, which, like the ecosystems it would engage as material and subject matter, could only integrate new environmental ideas as they were worked through existing sculptural notions of serialism, scale, and the status of the object.

The third chapter considers the importance of photomechanical mediation in the field of land art. Taking up the photographic version of *The Lightning Field* published in 1980, I position this magazine entry within a larger arena of multimedia and photoconceptual practices of the late 1960s and early 1970s that address notions of environment and ecology. Drawing also upon other examples of De Maria’s work for magazines, this chapter examines the importance of energy and specifically what I term “photo-energy” as a concept binding ecological claims merging social, biological, and artistic spheres of production. Energy fields and ecological energetics provide a critical language for reinterpreting both the media of land art and camera-based conceptualism,
casting new light on such entrenched terms of the period as the dematerialization of art and the indexicality of photography.

The fourth and final chapter will continue to pursue ecological energy as a concept motivating land practices and environmental thinking in the 1970s. Fundamentally, the question posed in this chapter concerns the sustainability of land art itself, as the field had been received since the late 1960s. I look at such diverse practices as the *Survival* ecosystems built by Helen Mayer Harrison and Newton Harrison, Dan Graham’s pavilion structures, and the sprawling inflatable architecture and mobile environments of Ant Farm to map out the formation of a new set of ecological practices more closely attuned to the increasingly social and corporate life of environmentalism from the 1970s onwards. It is during this decade, for instance, that a predictive, steady-state model of ecosystems that predominated in the 1960s gives way to more localized, chaotic notions of environments. Pursing the ramifications of this shift, chapter four addresses the historical moment of *The Lightning Field*’s construction. In doing so, it considers De Maria’s other, late land works, including *The Vertical Earth Kilometer* (1977), and, ultimately, his art’s disengagement from the politics of environmentalism that characterize other projects of the late 1970s. To follow, a brief conclusion examines the current status of *The Lightning Field* today as a work both paused in time, being permanently and pristinely maintained by the Dia Art Foundation, and part of evolving ecological issues in its local environment.
Of Time and the History of a Thing

In 1962, the Mesoamerican art historian George Kubler published a short but unusually prolific little book, *The Shape of Time: Remarks on the History of Things*. As the author lays out in his “Preamble,” the purpose of this book, which has since been read by artists and art historians across a remarkably broad spectrum, “is to draw attention to some of the morphological problems of duration in series and sequence.”19 Kubler’s concern lay in a certain displacement of form in the analysis of art that had come to pass by the early 1960s: formal development having become a stale biological metaphor for how works of art propagate over time. Much like a living organism, generations of objects were imagined to have an early, tentative germination stage followed by a mature, middle period and concluded by a late, ornate denouement. Indeed, in one of the earliest significant essays on land art, critic Sidney Tillim reiterates this formula by describing the objects on display at *Earth Works* in 1968 as a “20th-century form of the picturesque,” which he understood as an “overcultivation” and “sentimental[ization]” of the mature “modernist idiom.”20 Kubler’s eloquent response to such bald formulae would be to suggest that an alternative model might be better chosen from thermodynamics:

> Perhaps a system of metaphors drawn from physical science would have clothed the situation of art more adequately than the prevailing biological metaphors: especially if we are dealing in art with the transmission of some kind of energy; with impulses, generating centers, and relay points; with increments and losses in transit; with resistances and transformers in the circuit. In short, the language of electrodynamics might have suited us better than the language of botany.21

The approach of the present study to the single work of *The Lightning Field* adheres to this sense of the work of art as a hub of signals and relays. Although the following

chapters proceed mostly chronologically, each adds to the multiplicity of channels pulsing through De Maria’s work of 1977. More precisely, Kubler’s formulation of an electrodynamic historical methodology in the early 1960s anticipates the very modes of development that De Maria’s work would experience in the ensuing decade. Throughout, this study’s view of *The Lightning Field* will be one of open networks of communication rather than a “development” in linear terms. Befitting the work’s name, it must be understood as a multivalent *field* of temporal impulses.

Furthermore, against Kubler’s own inclination in 1962 to substitute an electrodynamic metaphor of art historical change for a biological one, he quite presciently anticipates the marriage of these two systems of knowledge throughout the decades that follow. From the sixties onwards, biology would not so much give way to communications theories or cybernetics, but the conjunction of all these fields as energy systems or ecologies of information would emerge as powerful, all-encompassing explanatory models of social dynamics, plant life, and works of art alike. Proceeding with Kubler’s notion that “a work of art serves . . . , like a relay, as the point of departure for impulses that often attain extraordinary magnitudes in later transmission,” we turn to *The Lightning Field* as one such relay center for the energies and currents of the preceding land art and environmental politics that converge in this late earthwork.²²

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²² Ibid., 20.
CHAPTER ONE:
One or Many Environments

This first chapter concerns the primary experience of *The Lightning Field* (figs. 1.1 – 1.3). At once static and dynamic, the site of the *Field* outside Quemado, New Mexico properly reveals itself only by direct encounter. Upon my first visit, there was no lightning, or at least none of the half-dozen or so isolated electrical storms to appear on the horizon ever passed directly overhead. But as its better critics have noted, *The Lightning Field* only partially concerns lightning.¹ While trudging through gnarled and spotty turf, weighty clumps of muck clinging like barnacles to the soles of Wellington boots, one must realize in person that the experience of this isolated collection of four hundred tall metal spikes turns on the variable interactions of light, metal, and oneself more than spectacular lightning strikes. When lightning does occur, it must be observed from a distance, to the side, or even, in photographic reproduction. The *Field*’s main existence, the work that viewers encounter the vast majority of the time, is a sculpture that one inhabits and that unfolds gradually during the full diurnal cycle its visitors are required by the artist to stay at the site. De Maria’s work, meaning both the metal poles and their arrangement across a high desert plain, must be explored, traversed, perambulated. *The Lightning Field* is a work one both inhabits and observes.

The fundamental complication of De Maria’s 1977 work arises from the conjunction of rather straightforward facts about its constructed, sculptural components and variables presented by the land, atmospheric conditions, and one’s

own presence. I will begin with the facts. At a two-inch diameter and average height of approximately twenty feet, each pole creates a relationship of scale two to three times human height. This height is relative, as pole length is calibrated to the topography of the land such that the tips of the four hundred poles establish a flat plane. Compositionally, *The Lightning Field* is arranged in a grid, twenty-five poles along the east-west side by sixteen running perpendicularly north-south. Each of the four hundred total poles is spaced at an even two hundred twenty feet at right angles, producing a rectangle one mile by approximately one kilometer.\(^2\) The Field's spacing results in each pole acquiring a quality of near sovereignty from the others around it, marking each as an individual work of sculpture. At close range, the contrast in sheen and surface quality of stainless steel claims a distinction of difference from the scrubby ground in which it takes root. Thus, steel, shape, and scale delimit a sculptural form from its desert plain, but not to the extent of uncoupling entirely.

The precision and calibration of *The Lightning Field*'s metal poles can appear self-defining and therefore all but self-sufficient, but these elements alone are incomplete without the disruptive presence of spectators at the site. While the module of Field's spacing creates a rule that generates each individual point and governs the overall form, one's presence within De Maria's grid of steel poles interrupts such expectations of regularity. As the artist has himself stipulated, “It is intended that the work be viewed alone, or in the company of a very small number of people. . . . Part of the essential content of the work is the ratio of people to the

\(^2\) Due to *The Lightning Field*'s fixed module, the work actually measures one mile by one kilometer and six meters.
space.” Simply put, *The Lightning Field* is a work that requires activation from its visitors. As one moves around and through the array of metal poles, qualities such as line and edge that initially appear secure, if not knowable in advance of one’s arrival, change dramatically with position and time. A remarkable exchange takes shape, for instance, between the jagged boundary edge formed along the tips of the poles and the undulating line across the upper limit of the Datil Mountains surrounding the Field. In relation to one another, the poles are governed in height by a single plane formed across their sharpened tips, one that would “support an imaginary sheet of glass” says the artist, but in relation to the spectator, the height of the poles collectively varies with topographical position, registering changes in the ground plane, like the firing of tall, thin pistons at a glacial speed. Walking through the work, a topological system of line and edge emerges, and which exists only through the relative position of a body.

It is tempting to claim that the experience of walking *The Lightning Field* turns upon a distinction between what Niklas Luhmann has called first- and second-order observation. Luhmann, a German sociological systems theorist, created a theory of social order which extended arguments about recursive or autopoietic systems developed in biology into areas such as law, religion, mass media, and love. In *Art as a Social System*, he writes of the difference between observing an object simply as separate from oneself, what he calls first-order observation, and observing an object while being aware of one’s own involvement as observer, a second-order observation. At first blush, this distinction might seem to fit *The Lightning Field* well,

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such as when Luhmann claims, "The first-order observer lives in a world that seems both probable and true. By contrast, the second-order observer notices the improbability of first-order observation."4 By this line of reasoning, The Lightning Field of calibration and mathematical measure would be one that exists independently of its observer—spacing, line, and planarity being determined according to internal relationships calculated separately from and preceding the arrival of any actual spectator to the Field.

Further, the meshing of line and edge through the position of an observer within The Lightning Field could be considered a kind of second-order observation. Under a first-order reading of De Maria’s work, the poles themselves appear as the figure of The Lightning Field, individual, sculptural markers against a ground of New Mexican terrain. Yet, the presence of one or more spectators within the work inverts this compositional order. Observing the Field through one’s own position within it, its regularities of spacing and singularity give way to an open-ended series of momentary views. In addition to the play of edge and line through such movement, one also enters into a nexus of observation with other spectators in the Field. Like the act of inscribing a figure onto a page of graph paper, the entry of each person into the work alters the sense of the Field’s steel rods from positive, independent sculptural objects to negative points through which to place the location and vector of other observing beings. Rather than simply a figure/ground reversal, to speak of composition as figured by each active body within the Field’s grid means that composition is continuously generated by an aleatory and real-time activity. The

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position of spectators within the Field not only disrupts its compositional order as “probable and true,” but does so in a manner that inscribes the observing subject into the ensuing experience of the work’s form.

This, however, is also where Luhmann’s orders of observation break down as an explanatory device for the two modes of experiencing The Lightning Field. His two orders are bound together by what he terms a structural coupling, the convergence of two structural systems that may perform related tasks but remain distinct in their internal order. In the case of second-order observation, the coupling arises from first-order observations that are now perceived as observations.\(^5\) The Lightning Field, however, splits between two modes of perception that are incapable of observing one another, one a self-generating world of number and the other open to the contingencies of a fluidly chaotic sensory experience. The two are less structurally coupled than coupled in the body of the spectator. As this chapter will go on to examine, the experiential divide staged at The Lightning Field turns precisely on the role of the observing body as an active participant with and within an environmental sculpture. As suspended between an expansive interplay of sculptural form and site, on the one hand, and inward structure and consistency, on the other, The Lightning Field invokes the problem of how a single work can simultaneously constitute and inhabit an environment. To pursue this question, we will look to the history of environmental sculpture itself through De Maria’s body of work in the 1960s.

\(^5\) In Luhmann’s words, “We shall speak of second-order observation when two observations are coupled in such a way that both fully realize the features of first-order observation while the second-order observer, in indicating his object, refers to an observer of the first order, and, in so doing, distinguishes and indicates an observation as observation.” Ibid., 60.
Boxes

To elicit *The Lightning Field* by the terms I have introduced so far—between measure and ambulation, *a priori* pattern and atmospheric contingency—sets the stage to consider the idea of an environment in the late 1950s and early 1960s. It was at this time that properly named artistic “Environments” began to appear first from Allan Kaprow and soon from a cadre of artists variously associated with Happenings and Fluxus in and around New York City. It is precisely this community that De Maria encountered upon moving to New York in 1960 following completion of a master’s degree in art at the University of California, Berkeley. The work of this chapter will therefore employ the preceding account of *The Lightning Field* to look back two decades at the origins of artistic Environments, a term I will leave capitalized to distinguish it from lower-case “environments” that refer more generally to the conditions of one’s surroundings in the world. Although *The Lightning Field* cannot be unmoored from the unique character of its remote, outdoor site, the sculptural side of the work arises out of this tradition of artificial, indoor Environments. The strong bivalence of *The Lightning Field* is thus caught between an environmental site and a sculptural Environment. Furthermore, to stage such a discussion of the late 1950s and early 1960s around *The Lightning Field* is no mere comparison or distant juxtaposition. To re-state a fundamental tenet of my larger argument: *The Lightning Field* was completed in 1977 but is best understood as an open repository for nearly two decades of experimentation in the work of De Maria. As a cipher of environmental art, the *Field* distills and interprets years of disparate artistic production.
From the inception of his mature practice, De Maria’s work set out to test, if implicitly, the limit conditions of the following premises: (i) every idea requires a material form, and (ii) no experience of objects in the world is ever truly singular.\(^6\) His resulting artistic body of work not only makes possible the kind of deep, incommensurable experiential split already identified in *The Lightning Field*, but also signals a much more trenchant move in the larger field of contemporary art concerning the bind between artistic objects and their surroundings.

De Maria’s first objects to test these premises did so with the simple means of plywood and pencil. When he arrived in New York in 1960, the artist recalls having already built two or three of the plain, wooden boxes that would characterize much of his work in the early 1960s. The first significant exhibition of De Maria’s “bafflingly simple boxes,” as Jack Smith once called them, took place from January to February 1963 at a small gallery space named 9 Great Jones Street he operated for a short period of time alongside the artist Robert Whitman.\(^7\) In the half-year De Maria and Whitman ran 9 Great Jones Street in 1963, the two put on such events as De

\(^{6}\) These two statements are working axioms that I locate throughout De Maria’s practice in the period 1960-1980, and do not appear in any written statement or interview published by the artist. Nonetheless, they are remarkably close to one of Mel Bochner’s more complex *Notecards* from c. 1969-1970 that reads: “NO THOUGHT EXISTS WITHOUT A SUSTAINING SUPPORT / BUT LANGUAGE MAKES US THINK ITS POSSIBLE TO / HAVE CONCEPTS – THIS CONCEPT-PERCEPT / DUALISM IS TOO SIMPLE TO CONVEY WHAT ACTUALLY / OCCURS FOR NO THINKING CAN BE DONE WITHOUT / THINKING ABOUT / SOMETHING / ‘SEEING’ ISN’T THINKING, / NOR, IS THE SAME WHAT CLOUDY PROCESS OF / ‘CONJURING UP’ THE ‘CONCEPT’ TYPE / ART WANTS TO CONVEY / LANGUAGE IS NOT TRANSPARENT” *Solar Systems and Rest Rooms: Writings and Interviews, 1965-2007* (Cambridge, MA and London: MIT Press, 2008). Bochner’s provocative statement also raises a thematic about language and “concept” art that will appear throughout the discussion that follows. I will not claim that De Maria’s exploration of the axioms I define above constitute a conceptualist art practice in the sense this term would acquire through the work of Bochner and others in the late 1960s. A discussion of De Maria’s conceptualism appears in chapter three. For an argument that locates early sixties conceptualism in many of De Maria’s same circles, see Julia Robinson, “From Abstraction to Model: George Brecht’s Events and the Conceptual Turn in Art of the 1960s,” *October* 127 (Winter 2009): 77-108.

Maria’s exhibition of plywood sculpture in January-February, performances by Whitman (Flower in March and Hole in May-June), screenings of silent films from the collection of Joseph Cornell, and, once, a boxing match. It is here we might take a closer look.

Examples of works exhibited by De Maria at 9 Great Jones Street include Calendar, Ball Drop, and Boxes for Meaningless Work, all three dating to approximately 1961. Calendar consists of two pieces of plywood—one attached vertically to the wall and another cantilevered by a hinge—and a brass chain of 365 links (fig. 1.4). The work also contained instructions written by De Maria that direct its user to let out one link in the brass chain each day until the cantilevered plank has been fully extended, at which point the process begins again. As a functional timepiece, Calendar might effectively mark the approximate passing of a year, but it operates poorly as a tool to communicate specific days or months. In fact, the work enacts a peculiar sense of temporal change. Calendar’s arc progresses very slowly for the majority of its 365 days only then to move rapidly in the closing weeks of the year, making plain that 365 links on a chain achieve an entirely different sense of time when experienced as a half-circle than as one day after another in a straight line.

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9 Calendar’s written directions read: ATTACH HOOK AT TOP TO HOLDER WHICH SHOULD BE SET ON FLAT WALL 6 FEET FROM FLOOR. COUNT OUT THE NUMBER OF DAYS WHICH HAVE PASSED IN THE YEAR FROM THE 365 LINK CHAIN AND PLACE THAT LINK ON TOP NAIL WITH END LINK ON OTHER NAIL. EACH DAY OF THE YEAR LET ONE LINK OUT FROM THE CHAIN, AND LET CALENDAR SWING OUT. AT END OF THE YEAR FOLD THE MOVABLE ELEMENT BACK, PLACE CHAIN IN TOP HOLE, THEN LET FIRST LINK OUT AND BEGIN THE PROCESS ANEW.
The physical interaction of *Calendar* with its viewer is an aspect of nearly all the wooden sculpture De Maria produced in the 1960s. But where performativity appears consistently in these works, tactile engagement was never to supplant or overcome the status of the boxes as visual sculpture. This nuanced relationship is articulated clearly in *Ball Drop* (fig. 1.5), a large rectangular plywood box taller than average head-height (six feet four inches) and about as wide as a body (two feet). Ball Drop has a shallow depth (six inches) that provides just enough space for two niches connected internally by a vertical channel not visible to the naked eye. A small wooden ball sits in the lower niche. If the game was not clear enough already, De Maria lightly inscribed the work in pencil with the words, “Place Ball in Hole Above.” As one follows this instruction, the wooden ball falls from the upper niche down through the internal passage to strike percussively below. The action, naturally, may be repeated.

From *Calendar* to *Ball Drop*, the real game of marking time in both works derives less from a progression of days building into weeks and months than in the acting out of cycles and returns. Both works go up and down, up and down, without a record of time transpired, space displaced, or any means by which to realize development in the long term. The participant loads *Ball Drop* and gravity returns the ball to its original condition. As would be the case years later with *The Lightning Field*, calibration, regularity, and literalism merely signal a place to begin, one which turns out to be a ruse.

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10 After exhibiting the original version of this work at 9 Great Jones Street in 1963, De Maria later serialized *Ball Drop* as five duplicate boxes in 1964. *Calendar* was also refashioned for De Maria in the early 1970s by Robert Fosdick, who went on to engineer and supervise the construction of *The Lightning Field*. 
Given the extensive reception of New-York-based sculpture from the 1960s, my use here of anthropomorphic references and the terminology of “literalism” needs clarification in light of Michael Fried’s extraordinarily influential and controversial criticism of Minimalism. However, I will not take up “Art and Objecthood” as a complete essay, as the literature on this text is impressively thorough (and further, a more extensive discussion of The Lightning Field and Minimalism appears in chapter two).¹¹ Let us instead isolate a particularly relevant slice of Fried’s argument pertaining to anthropomorphism and performance. In identifying the qualities of minimalist, or what Fried calls “literalist,” sculpture created mainly by Donald Judd, Robert Morris, Carl Andre, and Tony Smith, he claims these works are guilty of anthropomorphism on three grounds: human-like scale, physical hollowness, and mundane composition. These are the qualities of sculptural boxes that characterize their “objecthood.” As follows from Fried’s argument, anthropomorphism is not about looking like a human body, but rather the work of art addressing other human bodies as another person in the room. This argument speaks well to the manner Ball Drop addresses its spectator—its own dimensions of human-like height and width, hollowness, and simple rectangular form comporting like a body—and, further, to the kind of extended, repetitive time it invites.¹²


¹² Pamela M. Lee has recently discussed the anxieties of endless repetition at heart of “Art and Objecthood” in her chapter “Presentness is Grace,” in Chronophobia: On Time in the Art of the 1960s (Cambridge, MA and London: MIT Press, 2004), 36-81.
Ball Drop’s primary mode of repetition occurs in the action of playing the work’s game, incorporating spectator and object into an ongoing task divided between labor and leisure. It would be too simplistic in light of Fried’s argument—and incorrect—to characterize the spectator’s participation as a kind of theater. Fried defines theater as existing between the arts, suggesting a muddying of the boundaries that constitute the specific medium for each of those “arts” that hold the binary position opposite “objecthood.” When art does not address itself—internally within a specific work and historically within a specific medium—then it must address an audience, generating a distinction between absorption and theatricality that would inform Fried’s subsequent interpretation of modernity’s history of art.13 Thus, the stakes of performance in “Art and Objecthood” rely on a mode of address rather than the actual gestures or actions performed by actors in a theatrical scenario. In turn, Fried’s notion of the theatrical runs curiously parallel to the manner that De Maria’s wooden boxes—and Ball Drop in particular—use performative action to destabilize an otherwise secure and self-sufficient mode of understanding the work.

Ball Drop can be understood as anthropomorphic in Fried’s sense only when seen as a bodily presence, for it changes dramatically as one enters into close range to actually use the work. In reaching up into a hole just at or above one’s line of sight, letting the ball drop, hearing a sound echo out from another hole that is very

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close but still not directly in view, Ball Drop's anthropomorphism shifts from bodily address to bodily engagement. In other words, from “theatrical” to a real theater of action. As construed by the work, these two modes have no means of fitting back together. Performance does not pull Ball Drop into a middle ground between the arts but in fact separates it into distinct epistemological zones of comprehension: the one self-contained and self-given, and the other extended in time and rendered through a procession of irregular actions and noises. As a whole, De Maria’s wooden boxes can be understood self-sufficiently as visual sculpture or can be put to use. Their performative possibilities are separate and not inherent to the sculptural form. As Jill Johnston wrote in her review of De Maria’s 9 Great Jones Street exhibition: “[De Maria’s boxes] are not conventional art objects, but purified structures exemplifying everyday surfaces and volumes, inviting contemplation and/or participation” (my emphasis).  

In a third work included in the exhibition, De Maria would characterize the status of spectator participation with his sculpture as “meaningless.” In Boxes for Meaningless Work (fig. 1.6), he inscribed two open-top plywood boxes placed side-by-side with the following instructions: “BOXES FOR MEANINGLESS WORK. TRANSFER THINGS FROM ONE BOX TO THE NEXT BOX BACK AND FORTH, BACK AND FORTH ETC. BE AWARE THAT WHAT YOU ARE DOING IS MEANINGLESS.” Here the material literalism of square-cut plywood is matched only by that of repetitious text bidding repetitious activity.

Importantly, the phrase “meaningless work” also appears in the lengthy title of the influential text published by La Monte Young and Jackson Mac Low in 1963,

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An Anthology of chance operations concept art anti-art indeterminacy improvisation meaningless work natural disasters plans of action stories diagrams Music poetry essays dance constructions mathematics compositions. This volume—which was designed by George Maciunas and has come to stand as a touchstone for experimental music, performance, visual arts, and poetry of the early 1960s—was originally planned as an edition of Chester Anderson’s East Coast version of Beatitude to be guest-edited by Young. But after many months of delays and contributor additions (and subtractions), it appeared as an independent volume.\footnote{On the events surrounding the publication of An Anthology, see: “Wie George Maciunas die New Yorker Avantgarde kennenlernte,” in 1962 Wiesbaden Fluxus 1982: Eine kleine Geschichte von Fluxus in Drei Teilen, ed. René Block (Wiesbaden: Harlekin Art and Berlin: Berliner Künstlerprogramm des DAAD, 1983).}

The influence of An Anthology registered almost immediately when Maciunas packaged the experimental range of its contributions to proclaim a new artistic movement he named Fluxus. He then set about planning a Fluxus journal based on the example of Young and Mac Low’s publication.

For De Maria’s part, he contributed several short texts to the original 1963 edition. One of these, entitled simply “Meaningless Work,” describes such activity as follows:

Meaningless work is individual in nature and it can be done in any form and over any span of time—from one second up to the limits of exhaustion. It can be done fast or slow or both. Rhythmically or not. It can be done anywhere in any weather conditions. Clothing if any, is left to the individual.\footnote{Walter De Maria, “Meaningless Work (March 1960),” in An Anthology, eds. La Monte Young and Jackson Mac Low (New York: George Maciunas, c. 1962/1963).}

Despite the erotic evocation of this language, De Maria clarifies that “Caution should be taken that the work chosen should not be too pleasurable, lest pleasure becomes the purpose of the work. Hence sex, though rhythmic, cannot strictly be called
meaningless.” Meaningless work, then, is anything that perpetuates and cancels itself, or what Roland Barthes would later term the neutral.\(^{17}\) It is a climax indefinitely deferred, and as such precludes the instantaneousness or presentness Fried would soon claim as the prime criterion of serious art.

Nevertheless, “meaningless work” should not be taken as an umbrella term for De Maria’s entire early career. Within the artist’s reception, scholars have afforded much weight to this phrase, ranging from explanations that subsume his entire production in the 1960s under its heading to those that extend De Maria’s associations with other contributors to An Anthology to write his work strongly into the cultural trajectory of the “event score.”\(^{18}\) The kind of infinite looping and deferred completeness adherent to “meaningless work,” however, implicates only one half of the split or bifurcated experience of De Maria’s wooden sculpture. The lure of ascribing “meaningless work” across De Maria’s sculptural production may be tempting, because the historian is left with such little written material by the artist or critics of his early boxes, but ultimately unsatisfactory. These boxes share some affinity with Minimalism (as a term largely crystallized by Fried himself), with the event scores of early American Fluxus, and, as I will argue below, with Kaprow’s

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\(^{17}\) Roland Barthes, *The Neutral*, trans. Rosalind E. Krauss and Denis Hollier (New York: Columbia University Press, 2005). Near the end of these lecture notes, Barthes distinguishes *The Neutral* from “‘Minimal Art,’ New York, 1960s” with the following tantalizing phrase: “On the scale of intensities, the Neutral, in its mythical representation, is associated with restriction, erasure, minimum: Neutral would be a kind of minimal shine. \(\rightarrow\) It’s partly right, it’s partly false,” 199.

Environments. But taken on their own, De Maria’s boxes do not fit properly within any of the ways we presently understand sculpture during the early 1960s.

To clarify this contention, we might look to another entry by the artist in *An Anthology* where he describes a work titled *Column with a Ball on Top*: “I HAVE BUILT A BOX EIGHT FEET HIGH. ON TOP PLACE A SMALL GOLD BALL. OF COURSE NO ONE WILL BE ABLE TO SEE THE BALL SITTING WAY UP THERE ON THE BOX. I WILL JUST KNOW IT IS THERE.”¹⁹ This account fittingly introduces De Maria’s sculptural sense of invisibility, which, significantly, is not reducible to the simple fact of hiding objects from sight. I would argue that precluding the golden ball in *Column with a Ball on Top* from one’s visual field provides a weak sense of invisibility, a mere spatial obstruction of what would otherwise be perfectly visible. Alternatively, De Maria’s *Column* shares a strong sense of invisibility with other of the plywood boxes. These works exist incompletely among: knowing *a priori* the setup of the sculpture, seeing the work in space as a simple and complete geometrical form, and groping around at close proximity for objects that may or may not be tangible. These aspects of the work as a whole produce a strong invisibility in that one cannot comprehend the complete work either in real time or synthetically. De Maria’s modes of invisibility also call to mind the influential account of this subject for sixties sculpture by the French philosopher Maurice Merleau-Ponty, but I hold this argument aside for greater consideration below. Of De Maria’s strong invisibility, the incommensurable modes of interacting with his sculpture does not merely obscure one’s visual field—a spatial constraint—but creates skewed planes of understanding.

¹⁹ De Maria, “*Column with a Ball on Top,*” in *An Anthology*, ed. Young and Mac Low.
Therefore, the work associated with each of De Maria's wooden boxes—
moving a chain, lifting a wooden ball into a slot, transferring objects between boxes,
and reaching atop a tall column—might be repetitious and self-effacing in and of
itself, that is, it might be “meaningless” in the artist’s sense, but the sum effect is one
of separating the total sculpture into distinct zones of awareness. Vision fails to ever
meet touch, form eludes real presence, and geometry escapes movement in space. In
other words, these are differential sculptures in which the complete work is defined
through a conceptual separation among distinct and incommensurable experiential
conditions. Their invisibility is of the entire body.

Tellingly, De Maria's boxes lose their differentiation only when subsumed
within a larger performance. In Maciunas’s *Homage to Walter De Maria*, dated
January 13, 1962, he instructs,

Bring all boxes of Walter De Maria, including the 4 ft. x 4 ft. x 8 ft. box to
performance area by the most difficult route, like via crowded subway or
bus, through skylight, window or fire escape; and then take them back as
soon as they are brought in.20

It is perhaps all too convenient that Maciunas would pay “homage” to De Maria by
recoding his boxes through the dynamic space and fleeting duration of a
performance. Indeed Maciunas’s version of these boxes fits more cleanly with an
emerging Fluxus mode of repetition—carried out through the written instructions
of a score—that characterizes early works by the likes of Young and George Brecht
more than those of De Maria. But Maciunas nonetheless persisted in attempting to
incorporate De Maria’s sculpture within the fold of early Fluxus. Maciunas had first

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20 Maciunas’s printed score reproduced in Thomas Kellein, *Fluxus* (London and New York: Thames and
Hudson, 1995), 76.
publicly used the term “Fluxus” for a 1961 event at his short-lived AG Gallery in New York. Soon afterwards, as he began his concerted effort to organize a group of artists around the term in 1963, he initially signed on De Maria as the editor of American visual art and sculpture for the planned Fluxus magazine (while Dick Higgins would edit theater, politics, and Happenings). De Maria never submitted any material for his hypothetical editorship. His variously off-and-on associations with Young, Maciunas, and even Robert Morris in the early 1960s are important, but, as I have claimed, it is a mistake to link his work too closely with any particular artist or group during this period.

The most important development for De Maria’s emerging practice is to be found in the boxes themselves. Despite claims that the first inklings of the artist’s later land art practice appear in his contributions to *An Anthology*, it is the boxes that initiate a dynamics of wholeness and partiality, objectness and participation that later animate *The Lightning Field*. Accordingly, as we return now to the site of the *Field*, it is to examine how the strong and weak invisibility formulated in the early boxes plays out at a more complex register when introduced to the fluctuations of atmospheric light.

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21 De Maria’s role is noted by Jon Hendricks in *Fluxus Codex* (Detroit: Gilbert and Lila Silverman Fluxus Collection and Harry N. Abrams, 1988), 230.
Light

Light is perhaps the condition that most dramatizes *The Lightning Field* as a time-based, environmental work of art. When one arrives at the site in early afternoon—the hour pre-arranged by De Maria and the Dia Foundation—the sun is positioned nearly overhead, which all but diminishes any angle of displacement between rays of sunlight and the vertical ray of each pole. Within the *Field*, poles in close proximity to the visitor produce intense pockets of reflected light, while those at a mid-distance and beyond have the curious effect of gradually disappearing into the distant horizon. De Maria has estimated that “During the mid-portion of the day 70 to 90 percent of the poles become virtually invisible due to the high angle of the sun.”\(^2^3\) During this time, one experiences *The Lightning Field* as a series of singular poles that seem to extend interminably. At other moments during the day, when the sun rests closer to the horizon line, as occurs in the early morning and late evening, the radiance of light reflecting off steel is less brilliant. One apprehends the field of poles as a field. Thus, in crepuscular light, the parameters of the four hundred steel poles come into view as an entire entity, closed and discrete. And it is during these moments of low-intensity light that the poles themselves are at their most dramatic: transforming from near white to shades of yellow and orange, playing in concert with the late-evening hues shape-shifting through clouds in the sky.

During the course of a day’s cycle, one’s first-hand knowledge of *The Lightning Field* alternates from perceiving a seemingly infinite array of singular, vertical poles to apprehending an enclosed space measured by regular points. That

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\(^2^3\) De Maria, “The Lightning Field,” 58.
is to say, the bivalence of the Field between the composition of metal poles and the composition as perceived by a mobile subject within the grid operates on a parallel register with the effects of light. But lest *The Lightning Field* begin to appear as split exclusively by binaries, there is one more notable light event that occurs in a brief moment between sunset and dusk. As one looks out from the back porch of the adjoining cabin when the sun appears at its lowest visible angle during the final minutes of daylight, there is a moment when light briefly catches the sharpened tips of all four hundred poles. In that fleeting instant, the Field is lit as if by glowing orbs dispersed evenly across its imaginary plane of glass. Thus, during a single day’s cycle of light, the appearance of *The Lightning Field*’s steel poles, all 38,000 pounds of them, exists variously but never simultaneously as line, plane, and volume.

While light makes *The Lightning Field* visible, it is the temporal condition of light that makes it invisible. Indeed, given the language we have culled around De Maria’s work thus far—of bodies, presence, and especially invisibility—it will be useful to briefly note some points of distinction between De Maria’s sculpture and the phenomenology of Maurice Merleau-Ponty. While Merleau-Ponty’s early work, *Phenomenology of Perception*, became available to the English-speaking world in 1962 and his late, incomplete, and posthumously-edited *The Visible and the Invisible* did so only later in 1968, critics have noted that much of the sculpture produced in the United States in the interim shares significant correspondences with both the early and late work of the philosopher.24 While De Maria’s sculpture might engage

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24 Alex Potts provides a comprehensive account of the early and late Merleau-Ponty and sculpture of the 1960s in the final third of *The Sculptural Imagination: Figurative, Modernist, Minimalist* (New Haven, CT and London: Yale University Press, 2000). On the American reception of Merleau-Ponty, see Rosalind
similar issues concerning bodies and invisibility, it renders their relationship
differently than other phenomenological boxes of the mid-decade.

Bodily perception occupies the main argument of Phenomenology of
Perception. Merleau-Ponty argues that our bodies experience the world only as a
partial and utterly time-bound entity. “The world is not what I think, but what I live
through,” he contends, meaning that against epistemologies that would privilege
vision or the mind as the receptacle of a complete sense of being, we must pass
through the world via a series of incomplete sensations.25 Indeed, this notion of
bodily engagement speaks well to the experiential quality of De Maria’s boxes as we
have encountered them thus far, but the primary difference between Merleau-
Ponty’s account and the work in question lies in the other element of the boxes,
their alternate experience as geometrical, a priori, and spatially given. In the
Phenomenology, nothing in the world is completely given—all is based on a partial
horizon determined by one’s position. This account does not allow different modes
of experiencing wholeness versus partiality. Perception is never in space, implying a
pre-given and knowable ground, only of space.

In The Visible and the Invisible, of which Merleau-Ponty finished only the
opening section before his death in 1961, the philosopher extends his theory of
perception to the field between subject and object.26 As he describes: “The close, the

Krauss, “Richard Serra, a Translation,” in The Originality of the Avant-Garde and Other Modernist Myths
from minimalism to conceptualism in the 1960s, see Edward Anthony Vazquez, “Aspects: The Art of Fred
Sandback” (Ph.D. Dissertation, Stanford University, 2009).
xvi-xvii.
26 Le Visible et L’Invisible did not appear in French until 1964, having been edited by Claude Lefort and
including a chronological section of notes by Merleau-Ponty following the section of finished text.
far-off, the horizon in their indescribable contrast form a system, and it is their relationship within the total field that is the perceptual truth.” To account for this intertwining of perception, Merleau-Ponty incorporates a language of “flesh” and “chiasmus” to argue, importantly, that the imbeddedness of language in the world structures this interconnection of subjects and objects. Given the accessibility of the world’s flesh to every being, the “invisible” for Merleau-Ponty is therefore not an unknowable perception but instead one that has not yet occurred. “The invisible is there without being an object . . .,” he argues; “The invisible is what is not actually visible, but could be (hidden or inactual aspects of the thing—hidden things, situated ‘elsewhere’—‘Here’ and ‘elsewhere’).” In contrast, the invisibility of De Maria’s work—whether of form in his early boxes or atmospheric light and space in The Lightning Field—is not a function of that which has yet to be revealed, but a holistic condition of visibilities which co-exist but remain structurally uncoupled.

29 Merleau-Ponty, The Visible and the Invisible, 229 and 257.
30 I have described this relation as one of incommensurability, but we might look to Merleau-Ponty’s own dialogue with Leibnitz in The Visible and the Invisible to cast this relation as, instead, incompossible. In the idea of the incommensurable, the claim follows that the experience of The Lightning Field or Ball Drop cobbled together through physical movement has no common ground to provide a comparison with the completeness of a grid or pure rectangular prism. Both are perceived within the body of a spectator, but never in comparable modes of knowing. To the incompossible, Merleau-Ponty spends considerable time in his late volume worrying about the possibility of objects in the world as Leibnizian monads that seem to work in concert with one another, seem to share a substance, but ultimately act in complete and unalterable independence. Thus, it is crucial for Merleau-Ponty to clarify his notion of a material chiasmus as “worked-over-matter-men,” infusing the blanket of space between the perceived gaps of subjects and objects. There is no monadology to The Lightning Field, but Leibnitz’s notion of the incompossible does obtain to the structural impossibility of an unfolding or flesh or chiasmus between the orders of this work.
It is therefore light which best embodies this condition at the Field, as it is light that conditions the ever-changing environment that surrounds and subtends De Maria’s work with the machine-wrought, precision-cut, and highly polished poles stuck upon its patch of earth. On occasion, a bolt of light forking between land and sky also snaps the Field into a different sort of work altogether—as a receptacle for energy, a giant stage for dramatic display, and, not least of all, a distant spectacle. In such instances, light also provides a direct mediation between the solidity of earth and immateriality of sky. But during the vast majority of the time, light filters through rather than strikes the Field. It brings together steel, bodies, and the topography of the high desert in a pulsation of visibilities that change with real-time changes in the atmosphere. Consequently, the only unity to be found at The Lightning Field must be embodied—whether in space or the body of the spectator—rather than perceived. This is to say that the Field exists as an environment, at once shaping its environs and being sustained by them. More precisely, I would argue that the steel poles of De Maria’s work create an artistic Environment that is mediated by the continual flows and changes of its natural environment. As we will examine in the section that follows, competing versions of how “environments” are formed and sustained began to appear with greater force in the late 1950s at precisely the moment that Kaprow coined the term “Environment” as a type of spatial and multi-sensory art. As we now look to the history of the artistic Environment, it is with an eye to situating De Maria’s experiments with spatial dynamics and performance within a larger field of debate about the constitution of
this important concept that took shape during the two decades of *The Lightning Field*’s long development.

**Environment/environment**

*What in the history of thought may be seen as a confusion or an overlapping is often the precise moment of the dramatic impulse, since it is because the meanings and experiences are uncertain and complex that the dramatic mode is more powerful, includes more, than could any narrative or exposition.*

—Raymond Williams

The preceding passage appears in Raymond Williams’s “Ideas of Nature,” an essay which follows the transformations of nature as a concept during the modern era of European thought. What he identifies as “moments of confusion” and “overlapping” here point to a specific problem for historians. This quotation comes from an instance in Williams’s argument where he considers the construction of nature in Elizabethan England, but instead of drawing direct statements from a treatise on the subject, he turns to Shakespeare’s dramatic prose. He claims that at moments in time when “meanings and experiences are uncertain and complex”—such as they were for the natural environment in the 1960s—drama and the arts provide the more “powerful” guide to the state of cultural understanding. I wish to consider this notion in three ways as an introductory platform for our investigation into the concept of artistic Environments.

The first concerns the subject of nature itself. As conceived in the early 1970s, Williams’s argument follows directly from the period under consideration in this dissertation in which nature and the natural environment came to the fore as

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critical subjects of dispute. His primary claim is straightforward: the concept of “nature” has been subject to a variety of interpretations within the modern period and, because of which, there is nothing “natural” or given about it, despite our habitual way of using the term. That is, there is nothing inherent about the nature of nature. By unearthing and articulating earlier positions that precede and oppose the sense we tend to harbor of the term as separate from social and industrial production, Williams makes clear that “the idea of nature contains, though often unnoticed, an extraordinary amount of human history.”

Second, Williams’s approach provides a productive model for a related consideration of “environment” as an idea on the move in the decades immediately following the Second World War. As an idea closely related to nature, “environment” presents a similar problem for interpretation that stems from a persistent assumption that an environment precedes the activities carried out within it. Adopting Williams’s methodological strategy of tracking different articulations of the concept, we will flesh out how the idea of an environment is itself a part of social production. And though I do not take up Williams’s Marxist tenets in undertaking such an investigation (his essay concludes, “If we alienate living processes, of which we are a part, we end, though unequally, by alienating ourselves.”), there is a fundamental insight here about materialism and language. Language, as a system materialized in words, is subject to the same social processes as other forms of material culture.

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32 Ibid., 146.
33 Ibid., 164.
This raises my third and final line of departure from Williams’s essay. Where in some instances in the modern genealogy of nature, the idea of a state of nature is clearly defined—for instance, Williams provides the examples of Locke’s “peace, goodwill, mutual assistance and cooperation” and Hobbes’s vision of life as “solitary, poor, nasty, brutish and short”—other moments are more densely packed and too conflicted for plain exposition. In these instances, an expository form of writing can fail as too linear to adequately capture the complexity of its era’s stratification of thought. In response, Williams turns to drama as a place that allows multivalent impulses to coexist. In a similar move, I will turn to the work of art as a guide to ideas of environment in the 1960s. In the contested space between material forms and their responses from critics, we encounter an important and all but ignored dynamic of environmental thinking that informs experiments in advanced sculpture throughout the decade.

Kaprow’s Environments are the place to pick up this history. In March 1958, the artist displayed the first of a series of works he coined “Environments” at the Hansa Gallery (fig. 1.7), an artist cooperative on East Twelfth Street in New York he had co-founded in 1952. In this first Environment, visitors were invited to sift through an exhibition space thick with strands of plastic and cloth hanging from the ceiling, guided only by occasional flashes of colored light. Amidst this general visual confusion, Kaprow also introduced noise as a key feature of his nascent genre, which in this first example was supplied conjointly by devices placed within the gallery and clatter made by visitors moving about the work. Beyond the cinema, Kaprow’s

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34 Ibid., 155.
incorporation of more than one sensory domain into the experience of art was an uncommon gesture in the late 1950s. But it was not without precedent.

Having taught art at Rutgers since 1953, Kaprow was well aware of the tradition of the gesamtkunstwerk from Richard Wagner to Kurt Schwitters, and, in fact, distributed a brochure titled “Notes on the Creation of a Total Art” as part of the 1958 Hansa show. Here he argues:

In the present exhibition we do not come to look at things. We simply enter, are surrounded, and become part of what surrounds us, passively or actively. . . . We have differently colored clothing; can move, feel, speak, and observe others variously; and will constantly change the “meaning” of the work by doing so.  

Thus, in its initial formulation, the Environment not only “surrounded” its visitor and supplied a plentitude of sensory stimulation, it was also an “active” construction, meaning that the visitor was a constituent part of adapting its state at any given moment.

Leading up to this Hansa show, Kaprow’s initial formulation of the Environment had developed through his novel interpretation of New York School painting. Following Jackson Pollock’s death in 1956, Kaprow wrote “The Legacy of Jackson Pollock,” which he published in 1958 in Art News, the hub of New York School criticism. Grounding his argument on a reading of space in Pollock’s drip paintings, Kaprow made a call to extend the reach of the internal space of Pollock’s pictures into the physical gallery: “In the present case [of Pollock’s mural-scale pictures into the physical gallery: “In the present case [of Pollock’s mural-scale

paintings] the ‘picture’ has moved so far out that the canvas is no longer a reference point. Hence, although up on the wall, these marks surround us.” Following this logic, Kaprow began to fill entire rooms in his own art with what he later recounted as “substances like electric lights and sound-making devices . . . so one could walk into the work.” It was specifically the problem of randomizing these sounds that first brought him to John Cage’s seminar at the New School of Social Research in New York. In 1958 Kaprow began to attend the seminars regularly with a number of colleagues from Rutgers and the New Brunswick area, including former students such as Robert Whitman and George Segal and also George Brecht, who was then employed as a chemist at Johnson and Johnson in New Brunswick.

Historical accounts of the exchange between the group that gathered around Rutgers and the New School do not tend to linger for long upon Kaprow’s Environments. Soon, as the artist began to add performance instructions to his spatial arrangements, first in actions carried out in Cage’s seminar and then in the influential 18 Happenings in 6 Parts in October 1959 at the Reuben Gallery, the artistic breakthrough into Environments gave onto Happenings. With the invention of the Happening as a unique artistic form—and with it the emergence of performance art as a recognizable field of advanced aesthetic practice—Environments tend to be relegated by histories of the period as a step en route to realizing Kaprow’s most-recognized art form rather than their own fully-formed and

39 Exceptions to this tendency include the chapter “Environments,” in Julie H. Reiss, From Margin to Center (Cambridge, MA: MIT Press, 2000); and the archivally-balanced view of Kaprow’s art put forward in the Getty Center’s catalog Allan Kaprow: Art as Life.
equally-significant entity.\textsuperscript{40} Despite the more widespread reception of the Happening, Kaprow continued to produce both Environments and Happenings as distinct works throughout the remainder of his career.\textsuperscript{41} And where the latter holds an indisputable place in the development of performance, it should not be lost that the former had a decisive impact on the conceptualization of space in the visual arts.

Looking at the etymological construction of the term “environment” itself, one finds that Kaprow’s application ushers in an important turn in its meaning. The noun “environment” derives originally from a verb, to environ, meaning to surround or circumscribe.\textsuperscript{42} In the Oxford English Dictionary, the first historical citations of the word as a noun refer to the state of having environed or defined the domain of an area by enclosure. Our more common, contemporary use of an environment as “the conditions under which any person or thing lives or is developed” follows from this earliest sense as the term began to account for the conditions of an enclosure rather than merely the perimeter that defines it. A final definition, deriving directly from Kaprow’s gallery shows beginning in 1958, defines the term as “a large structure designed to be experienced and enjoyed as a work of art with all (or most) of one’s senses while surrounded by it, rather than from outside.” This last sense of the term is particularly important for our concerns here, not simply for the fact that

\textsuperscript{40} The term Happening actually appears for the first time in the final paragraph of Kaprow’s essay on Pollock. For an excellent discussion of the “material, rhetorical, and discursive consistencies that sustain the category [of the Happening]” see Judith Rodenbeck, “Crash: Happenings (as) the Black Box of Experience, 1958-1966” (Ph.D. Dissertation, Columbia University, 2003); see also Joan Marter, “The Forgotten Legacy: Happenings, Pop Art, and Fluxus at Rutgers University,” in Off Limits, 10-11.

\textsuperscript{41} In the mid-1960s, Kaprow himself provided an overview of his wide range of practices in the volume Assemblage, Environments & Happenings (New York: Harry N. Abrams, 1966).

Kaprow and others from around Rutgers play a direct role, but because this
definition presents a turn of the screw in the genealogy of environments. Where the
term began as the act of defining a static boundary and over time incorporated a
sense of the conditions within such an enclosure, Kaprow’s addition once again
returns movement and dynamism from the word’s origins as a verb. The notion of
an environment that emerged in the 1950s is predicated on interlocking events to
which subjects directly contribute. In the second sense of the word—referring to
external, “environmental” conditions—the notion persists of an environment as
stable and independent of subjects within it. Such a space affects rather than being
effected. Only in Kaprow’s Environments do we return to its active origins as an
entity made and sustained in real time. As one of Kaprow’s critics perceptively
notes, “We ‘live’ an Environment or a Happening.”43

To credit Kaprow with single-handedly setting off such an etymological shift,
however, would be to endow far too much individual intention to what is a much
broader historical shift. Beyond Kaprow’s own individual practice, a more general
interest in the idea of environments had begun to appear in the fields of art and
architectural practice and criticism throughout the 1950s. In architecture and urban
planning, the beginning of the sixties witnessed an increasing concern for so-called
environmental issues, referring to the planning and control of natural and
sociological factors that exist beyond the structural form of buildings and urban
grids. In a short newspaper article by noted architectural historian and critic Ada
Louise Huxtable covering what she describes as the “unfortunately named White

House Conference on Natural Beauty” in 1965, she distinguishes between false approaches to environmental criticism “concerned with . . . beautification in the superficial sense” and “a proper approach to man’s entire environment.” But where Huxtable signals an all-or-nothing perspective on environmental concerns in architecture through this indirect phrase, others in art criticism were beginning to distinguish different categories of environmental practice.

During a three-year stretch beginning in 1961, artist and critic Brian O’Doherty wrote a series of provocative reviews on environmental aesthetics in the *New York Times*. O’Doherty employs the notion of an environment variously from a historically-charged field of reference (“[Kay Sage] surrounds a number of objects with the surrealist environment to create constructions that occupy the half-way stage between sculpture and painting”) to Kaprow’s sense of active relation (“Allan Kaprow [in *Words* of 1962] surrounds us with an environment of unrelated words, illuminated by intermittent lights, augmented by recordings of verbal and non-verbal poems the visitor can manipulate”). From both Huxtable and O’Doherty, we gain a sense that environmental concerns in the arts had begun to engage not only a more complete awareness of the human senses but also a broader consideration of how living subjects interact with their surroundings. They indicate that art and criticism had turned decisively to concerns beyond the individual subject and likewise beyond the putative isolation of the artistic object within its frame or

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pedestal. The situation might be summed up in a statement, or even
understatement, by O’Doherty in a short review from 1964: “Since art has turned
itself inside out—from self to the environment, from total abstraction to the
object—there have naturally been changes in the way artists function.”46

For artists and galleries in the early sixties, newfound attention to an
environmental aesthetic resulted in both vibrant experiments by some and faddish
potboilers by others. As early as 1961, Martha Jackson brought Environments to her
established uptown gallery by inviting Brecht, Jim Dine, Walter Gaudnick, Kaprow,
Claes Oldenburg, and Whitman to create works in situ for the exhibition
Environments, Situations, Spaces. Kaprow created what is probably his best-known
Environment, Yard, by filling the gallery’s sculpture garden with a pile of tires that
could be traversed, handled, and moved around by visitors.47 That same year, the
sculptor George Ferber completed a commission for an exhibition at the Whitney
Museum titled Sculpture as Environment that presented itself rather mundanely as a
sprawling, open metal lattice grown to the size of its gallery space. That it was big
and could be passed through by an ambulating viewer apparently made it
environmental. In a similar vein two years later, the Sidney Janis Gallery put on Four
Environments by Four New Realists featuring works by Dine, Oldenburg, Segal, and
James Rosenquist that was widely criticized in no small part because the works on
display hardly fit their billing as Environments at all.48 A problem had arisen in this

48 In From Margin to Center, Reiss notes that Sidney Janis’s son Carroll has spoken of a conflict over
naming the exhibition, he wanting to give it the more generic title of “Environmental Art” (41).
new sculptural mode that follows the criticism of environments in general: in its flexibility and expansiveness, an “environment” could be used to describe almost any situation. As critic Dore Ashton wryly commented about the Janis show, “[Four Environments] is only a convenient title, for it is impossible to create an environment in an art gallery, which already has an overwhelming environment of its own.”

In 1967, MoMA curator William Seitz would use the title Environment U. S. A.: 1957-1967 as a generic catchall for his broad selection of artists including Robert Indiana, Jasper Johns, Roy Lichtenstein, Oldenburg, Segal, Wayne Thiebaud, and Andy Warhol for the ninth installment of the São Paulo Biennial. Not unaware of the problem of specificity posed by the terminology in his choice of title, Seitz begins his catalog entry with the following explanation:

The idea of the “environment” is many-sided and multi-leveled. It is an all but inexhaustible concept that, even in its simplest connotations, can embrace the inorganic elements of rock, soil, water, air and climate; the botanical and biological environment of plants, animals and human beings; and the “physicosocial” environment of structures and other artifacts. On a less material stratum of meaning the social environment, and everything related to human activity, can be added. Finally, the concept can expand to include the “psychosocial” environment of behavior, customs and symbols. … More conspicuously than ever before, because of the accelerated, recurrent and often convulsive redirections of contemporary life, artists of each succeeding generation bear witness to new circumstances, and the premises and modes of their art pass through corresponding changes.

It is curious that Seitz would assert the inclusive function of environmental art as revealing aspects of the inorganic, biological, “physicosocial,” social, and

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“psychosocial” worlds he names, since his argument goes on to cite an essay by the techno-cultural theorist Marshall McLuhan titled “Art as Anti-Environment” that suggests quite the opposite. In this 1966 essay, as also in the more extensive “The Relation of Environment to Anti-Environment” of the following year, McLuhan argues that environments are extensions of man that proceed from the innovation of new technologies. “Each extension,” he argues, “in the very act of enlarging the scope of one physical power, serves by ‘closure’ to suppress a variety of human perceptions and actions.” Therefore, to McLuhan’s understanding, “environments as such are imperceptible.” Art functions as an “Anti-Environment,” he contends, because it provides content that heightens one’s awareness of otherwise imperceptible social conditions promoted by technological change.

Is The Lightning Field such an Anti-Environment? One response might begin by noting that the multiplicity of experience to be found at the Field corresponds well to the multiplicity to appear in the meaning of Environments following Kaprow's initial formulation of the late fifties. Though McLuhan maintains a reductivist position on the subjectivity of environmental production—suggesting, contra Kaprow, that an environment cannot be made let alone actively sustained by

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51 By connecting the perception of an environment to technological innovation, McLuhan’s also links this argument to his own widely popular account of technological change in Understanding Media: The Extensions of Man (1964) that argues each new technology enfolds previous formats as its content. McLuhan would argue, for instance, that while television remains invisible as an environment, it “[foists] an entirely new set of sensory modalities on the population” by presenting the format of cinema as its discernible content. Like much of McLuhan’s theory of media, we might find it difficult to accept that cinema becomes “a harmless consumer commodity” at the moment TV appears on the scene, but the value of McLuhan’s insights on the aesthetics of environments should not be dismissed as such. Like much of his popular criticism, McLuhan’s entry into the discussion of environments was timely and inclusive of larger currents such as multimedia that escaped other contemporary commentators. Marshall McLuhan, “The Relation of Environment to Anti-Environment,” in The Human Dialogue: Perspectives on Communication, eds. Floyd W. Matson and Ashley Montagu (New York: The Free Press, 1967), 39. McLuhan, Understanding Media: The Extensions of Man (New York: McGraw Hill, 1964).

a participatory community—his category of the Anti-Environment nonetheless brings into focus the crucial issue of disentangling art and its environment. “An environment,” he stipulates,

is naturally of low intensity or low definition, which is why it escapes observation. Anything that raises the environment to high intensity, whether it be a storm in nature or violent change resulting from a new technology, turns the environment into an object of attention. When an environment becomes an object of attention it assumes the character of an anti-environment or an art object.53

While McLuhan’s particular example of the electrical storm may present a convenient resonance with The Lightning Field, the inexorable drive in his thinking to separate binaries and delineate a historical progression of technologies does indeed depart from the multivalence of experience afforded by De Maria’s work. The invisibility of The Lightning Field lies not in its “low intensity” or “low definition,” but in its open distribution of artistic forms and environmental concepts. The Field’s fluidity with its site counters McLuhan’s Manichean figure/ground reversals of Environments and Anti-Environments. That being said, McLuhan’s categories do beg a further question: if not properly an Anti-Environment, to what extent is The Lightning Field, then, an Environment? To pursue this, we must return to De Maria’s production in the mid-1960s, when he first began to make sculpture to be walked in.

LAND

Following the closure of the cooperative gallery space at 9 Great Jones Street, De Maria’s next one-man exhibition took place in January 1965 at the newly formed Paula Johnson Gallery (later, Paula Cooper). The gallery was located in a townhouse

53 McLuhan, “The Relation of Environment to Anti-Environment,” 44.
on 68th Street in Manhattan that contained a long entrance hall leading into the main exhibition space. Within this hallway, De Maria installed a new series of plywood boxes that engulfed the entirety of the wall space (fig. 1.8). As one can see in a hazy installation photograph taken by the critic Lucy Lippard, these large works, which De Maria called *The Columns* and *The Arch*, frame and control a visitor’s movement and experience of the space. Passing through this hallway, mahogany veneer plywood literally becomes the gallery. Or, as De Maria later described it, *The Columns* and *The Arch* created “a sculptural situation.”

Since his last one-man exhibition in 1963, De Maria had continued to explore the spatial and performative implications of his earlier box works by extending the reach of his sculpture to the limits of its given gallery space. As a point of comparison, he had shown another new sculpture later in 1963 at the group exhibition *The Hard Center* at Thibaut Gallery (later, Fischbach Gallery) named *Sign A / Sign B* in which the first half of the work instructed visitors “Walk to Sign B” while the latter half stated “Walk to Sign A.” Where the performative aspect of the earlier box sculptures had limited the act of moving a ball or hooking a chain to the confines of an individual object, with *Sign A / Sign B* De Maria quite literally extended the performance of his sculpture into the complete frame of its architectural setting. But where the logic of *Sign A / Sign B* is straightforward, even dull by design, the artist brought its impulse to a more complex expression in 1965 by blending his boxes at the Johnson gallery seamlessly into the gallery walls

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54 Oral history interview with Walter De Maria, 1972 October 4, Archives of American Art, Smithsonian Institution.
themselves. Fittingly, De Maria also gave these works titles derived from structural elements of architecture, a point that was not lost on critics of the show. Curiously, both reviewers invoked the language of a temple to describe the transformation of the Johnson Gallery into a space in which individual works had seemingly fused into a more holistic, palpable structural presence.

In other words, in expanding his sculpture to a size where the work enclosed the viewer, where it became both an object to be viewed and one to be passed through, De Maria had created an Environment. But The Columns and The Arch were not the only works on display at the Johnson Gallery. In the rear gallery, the viewer encountered works of a more traditional scale (fig. 1.9). The Gold Frame and The Silver Frame were each metallic-painted four-by-six foot plywood boxes with a one-foot-square niche cut into the center. Upon his invitation to the exhibition by De Maria’s unofficial dealer and then director of the influential Green Gallery, Richard Bellamy, the collector Robert Scull took a particular interest in the two Frames. Following the exhibition, Scull commissioned De Maria to re-create the works in metal, a project which never ultimately materialized, but resulted instead and more importantly in the artist’s introduction to the metal shop and a new working

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56 As a point of comparison to the tunnel-quality of De Maria’s two sculptures leading into the Paula Johnson Gallery exhibition, see McFadden’s discussion of Robert Morris’s Passageway (1961), in “Toward Site,” 40-41.
58 As De Maria explains in his lengthy 1972 interview, Richard Bellamy, the influential director of the New York’s Green Gallery in the 1960s, served as an unofficial dealer and go-between during De Maria’s many short-lived commitments to gallery representation in the first decade of his professional career. See oral history interview with Walter De Maria, Archives of American Art; and De Maria’s photographic tribute to his early dealers in Grégoire Müller, The New Avant-Garde: Issues for the Art of the Seventies (New York: Praeger, 1972).
material for his sculpture. Many of these metal objects follow the same rules as the earlier plywood boxes—reductive forms inscribed with declarative instructions on the sculpture’s surface and the inclusion of interactive, movable pieces. After the Johnson show, De Maria transitioned permanently from working with plywood to steel, aluminum, and, in one sculpture for his new patron, silver.59

While the contacts De Maria made at the 1965 Johnson show proved important to his later choice of material production, it was here that he also introduced a series of *Invisible Drawings* that would shape his growing investment in artistic Environments. Dating to as early as 1963, these works each depict a single word or phrase executed in extremely light graphite on white paper or cardboard. Unlike the terse, instructional text that typifies De Maria’s sculpture, the drawings tend towards either single words or short, aphoristic statements such as "ELEVEN SPECIAL CARS,” “DRUG TALK,” or, even simply and self-reflexively, “WORD.” It is also in the medium of drawing that his work would begin to take up issues of the “natural” environment. At the Johnson Gallery, the *Invisible Drawings* had broached this subject with the work *WATER WATER WATER*, but only in the following year, at De Maria’s next one-man exhibition, held by yet another new dealer, would he introduce a suite of drawings that for the first time pressed upon the shared terminology of artistic and biotic environments.

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59 After De Maria gave up his attempt to directly copy *The Gold Frame* and *The Silver Frame* for Robert Scull in gold and silver, respectively, he created a work for Scull of similar composition, *Portrait of Dorian Gray*, also using silver. On the *Portrait of Dorian Gray* and De Maria’s relationship with Scull, see Susan Elizabeth Ryan, “Walter De Maria’s Silver Screen: Portraiture as Ownership,” *Source* 24:1 (Fall 2004), 50-56.
The most important contribution to De Maria’s December 1966 exhibition at Cordier and Ekstrom—his first at an established, uptown gallery in Manhattan—almost entirely escaped the two critics to review the show, who directed their attention instead to the artist’s new, gleaming metal sculpture. In fact, De Maria’s quiet, nearly blank suite of eight drawings entitled *The Large Landscape* has almost entirely escaped the literature on both the artist and the larger subject of environmental aesthetics, to the detriment of both. The eight works comprising the series are each executed on a large sheet of paper measuring one meter a side. In the center of each De Maria faintly inscribed a single word in graphite: SUN, SKY, CLOUD, MOUNTAIN, RIVER, TREE, FIELD, GRASS. Through these eight terms, *The Large Landscape* enacts an atomization of a natural scene into individual features, reading like a list of the requisite elements that transform uncodified “earth” into “landscape.” Although not displayed as such at Cordier and Ekstrom, these eight drawings were designed to be shown within the enclosed space of a modernist gallery cube, two drawings to a wall, completely surrounding a viewer within the *Landscape*. Yet unlike the large sculpture De Maria had exhibited the previous year at Johnson that enclosed the viewer within the environs of the gallery space, the drawings fashion an Environment conceived to the mind of the spectator and without clear boundary. They invoke an imagined landscape, but not one that operates on the level of

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60 See “Walter De Maria,” *Arts Magazine* 41:5 (December 1966-January 1967): 70; and “Walter De Maria [Cordier & Ekstrom], *Art News* 65:9 (January 1967): 11. The latter mentions *The Large Landscape* in passing: “Also shown were a group of drawings consisting of one faintly penciled word each—words like ‘tree,’ ‘mountain,’ etc.”

61 The intended shape and method of displaying *The Large Landscape* are confirmed in David Bourdon’s essay, “Walter De Maria: The Singular Experience,” 43. This early and important work of criticism was written in direct consultation with De Maria, who read and approved drafts before publication. See correspondence in David Bourdon Papers, Museum of Modern Art Archives, New York, Box 1, File 12.
visualization. Instead, *The Large Landscape*’s eight parts or categories prefigure the formation of picturing landscape in the first place.

Looking at the works, it is difficult to discern anything other than large white sheets of paper until one moves in close, allowing the letters to materialize before the eye. Here a square meter of paper commands a giant scale against the ultra light lines of lettering. Accordingly, backing away from the drawings, the lines disappear and one is left, ostensibly, with plain white paper. Material ground would seem to have become the work of art, except that the simple block words in this series are knowable in the way the grid of *The Lightning Field* is knowable, as given and complete prior to and after any encounter by the senses. This point of contact between De Maria’s later work of 1977 in New Mexico and his suite of eight drawings is especially important, because *The Large Landscape* exhibits a shift in the conception of the artistic Environment as a totality of external, sensory input to one conceived as a process of being situated by a system of input, which in this case is linguistic. There is no fixed scene or visible world generated by *The Large Landscape, both the experience of the material works themselves and the idea of land they generate are perpetually severed by cuts and fissures among the discrete categories of the landscape they name. There is no LAND per se, only SUN SKY CLOUD MOUNTAIN RIVER TREE FIELD GRASS.

Between his two exhibitions of 1965-66, De Maria had announced two possible directions for the continued importance of the artistic Environment: one maintaining its roots in Kaprow’s work at an external, multi-sensory enclosure and the other invoking the relationship between the natural environment and its
conceptualization in visual art and language. To return to Luhmann’s distinction of first-order and second-order observation, we could push De Maria’s dramatic split of Environments further still. Between the artist’s one-man exhibitions in 1965 and 1966, the crux of the artistic Environment had been framed between a material situation that one experiences from the inside and a conceptual framework through which spectators fashion an environment. In the first, the Environment exists to be physically found, examined, and deciphered—it is a direct encounter of a subject observing the objects of an environs. In the second, The Large Landscape operates upon the spectator’s own awareness of the categorical divisions of artistic Environments, the artifice of rendering the genre of landscape representation, and being situated within a landscape outdoors. This work is not simply information or text, but an enclosed situation of visibilities that ultimately couple into the structure of a landscape.

But De Maria was not alone in expanding the conception of artistic Environments. In Michael Kirby’s 1965 book Happenings, a compilation of descriptions, interviews, and analysis that remains a crucial source for the live performances of Kaprow, Red Grooms, Whitman, Dine, and Oldenburg, he introduces Happenings by way of the gesamtkunstwerk and a desire to create a total environment of art. Always an attentive critic of performance art, Kirby carefully stipulates that his notion of environment is not defined simply by surrounding an audience. “Actually,” he claims,

the environmental factor is one aspect of an attempt in all Happenings [here understood as a term applicable to all five artists in the book] to alter the audience-presentation relationship, as we have generally known it, and to use this relationship artistically. This manipulation of the physical
relationship between the spectator and the theatre elements that he perceives is broader than, and includes, environmental consideration.\footnote{Kirby, \textit{Happenings}, 25.}

Thus according to Kirby, art that is environmental is not distinguished as such merely by enclosing spectators within the spatial domain of the work. It is premised upon relation.

A few years later, Kirby's distinction would find resonance in an interview of Whitman, De Maria's former partner at the 9 Great Jones Gallery, conducted by Richard Kostelanetz for his 1968 volume \textit{The Theatre of Mixed Means: An Introduction to Happenings, Kinetic Environments, and Other Mixed-Means Performances}. As the segment of their conversation on the issue of "environment" in Whitman's art is of particular interest, I quote it at length:

\begin{quote}
Kostelanetz: Was your evolution as a painter, then, from drawing to collage to sculpture to environments?
Whitman: Well, a lot of the sculpture was sort of large, but that last term is really another one of those words.
K: Because it isn't a valid characterization of what it describes?
W: It connotes a lot of stuff, a lot of other kinds of stuff. I can't tell you how difficult it is to talk about those things I did. It was a long time ago, and they're all gone. Thinking back, I don't know what I'd make of them if I saw them now.
K: Still, why do you object to that word "environment"?
W: It connotes an awful lot more than sculpture. It has to do with where people live. I haven't heard of any people who live in their sculpture. "Environment" has to do with all kinds of sociological situations and laws and all that. A work can imply all those things; so that even a little work can be environmental, whatever that means.
K: I use it to describe a work that fills or surrounds a space with a multiplicity of communicating forces.
W: Sure, but you can do that with a little tiny drawing. If a work is a good work, it is environmental. The idea of environmental sculpture meant a giant work that was supposed to envelop you physically, but very little of it did anything more than that. It was just very big, and you could walk around in it. It didn't have much to do with what was going on in the world.
K: So you think a painting can become an environment, if it envelops your
\end{quote}
In Kostelanetz’s insistence on positioning Whitman’s early works as “environments,” he carries forward the notion that this term remains tied to spatial confines, even if filled with a “multiplicity of communicating forces.” In Whitman’s response, by invoking social, legal, and technological spheres, he suggests that environments in art are not so much the domain of placing a spectator spatially as situating this spectator within larger systems of exchange. Thus his example of a “tiny drawing” underlines that size in and of itself cannot be environmental. According to Whitman’s position, an environment is constituted and sustained only as a “world,” by which I understand him to mean that a work must not only act in relation to its spectator but also by internal coherence.

The historian has no record of De Maria’s own knowledge of Whitman’s position in the late 1960s. We do know, however, that De Maria had personal familiarity with the earlier formulation of such thinking in Whitman’s performances, such as Flower (fig. 1.10), which was not only presented at 9 Great Jones Street in March 1963 but featured De Maria among its group of performers. Whitman has spoken of Flower, as of all his live theater, as an image in formation. As carried out

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64 Whitman has spoken at length in interviews about the correlation of his performances and the image. For instance: “I conceive each piece as one image, and by the end of the piece the image is revealed through exposure of its different aspects. It is a non-verbal theater, using a vocabulary of space, rhythm, scale, and formal plastic elements that communicates the image without words. The work of doing the piece is the
by many of the participants at Judson Church, De Maria, and Whitman himself, this
near half-hour work involved a sequence of acts in which small groups of
performers interpreted and expanded upon tasks communicated by Whitman in a
written script. From Joseph Schlichter and Trisha Brown following the direction to
“Take each others’ clothes off” to Simone Forti and Trisha Brown fluidly
transforming their clothing through a system of snaps and layers of colored fabric,
*Flower* unfolded as a near transfixing display of color and movement.\(^{65}\) The walls of
9 Great Jones Street were brought into the performance by a ritualistic stapling of
newspaper and drawing of lines in colored spray paint, while patterns of light and
sound from projectors, clicking high heels, and jostling cans of paint blended into a
cacophonous and rhythmic soundscape. As in Kaprow’s early performances, the
audience of *Flower* was enveloped by a multiplicity of sensory information, but
Whitman’s work differs from his former teacher’s in that, throughout, the objects
and actions of *Flower* were stretched across one another in space and time.

As an “image,” *Flower* operated through a complex montage of surfaces with
open-ended duration, from fabric to newsprint to painted walls, slipping in and out
of visibility throughout the performance. This was neither a work set on a
proscenium stage nor did it actively engage the audience as direct participants, as
Kaprow would soon prescribe for his Happenings. As a continuous spectrum of
sensory information, *Flower* took shape between the active subjectivity of its
performers and the visual (and auditory) awareness of its audience. Unlike the

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\(^{65}\) Though a fleeting event now lost to the art historian, *Flower*’s 1963 performance was recorded by
Whitman as filmic “notes” for future performances.
conventional Environment, the performance did not enfold its entire surroundings within the work but nor did it maintain the protocols of separation among subject, object, and architectural space characteristic of the modernist art gallery. What it achieved, in fact, was to question the differentiation of an artistic Environment from one’s continuous lived environment.

Considering now Whitman’s response to Kostelanetz along with his performance at 9 Great Jones Street, his sense of environmentality works beyond the many dilutions and questionable licenses taken with Environments at mid-decade, but it does not quite grasp the position De Maria would soon lay out at Cordier and Ekstrom. Though Whitman’s work had pressed upon the experiential separation between that which is artful—or, performed as a work of art—and that which is “natural”—or, continuous and unbounded—*The Large Landscape* would soon dramatize the limited terms and categories through which such separations are made.

In respect to the role of language in the artistic Environment, it should be noted that Kaprow himself had employed a bundle of language in *Words* at New York’s Smolin Gallery in 1962. Like many of his Environments, this work contained noise generated from record players and lights interspersed throughout the gallery, but the remaining space was given exclusively to word-based activities. In one of the Smolin’s two galleries, five rolls of cloth with stenciled words dangled from the

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66 In the remainder of this chapter I pursue the role of language introduced in De Maria’s environmental works, whereas the direction of Whitman’s work into the 1960s engaged an increasingly sophisticated sense of technologically generated images. These range from the ghostly figure of a woman showering that he projected onto the curtain of an actual stall in *Shower* (c. 1964) or the interaction of live performers with projected figures in *Prune Flat* (1965). The Dia Art Foundation’s 2003 catalog *Robert Whitman: Playback* is presently the best source of literature on Whitman’s early career.
ceiling while detachable strips of paper extended from the walls, each allowing visitors to manipulate and arrange their own nonsense phrases. In the other gallery, participants were invited to add their own words using chalk and pencil on scraps of paper strewn throughout the space. For Kaprow and De Maria both, language could not be severed as a support for the aesthetic Environment. Kaprow’s words, whether in his 1962 Environment or in his many written scripts, always maintained a quality of material fact. The words in Words act much like the tires in Yard: complete entities capable of stacking or spreading any which way. They are ultimately oriented to occupying space. De Maria’s Invisible Drawings, in contrast, question the very link between grasping the visible, material object and the intellectual category it supports.

Criticism of the Cordier and Ekstrom show gets this relationship quite wrong. In one of the few prominent pieces of critical writing ever published on De Maria, Dennis Adrian boldly describes the artist in a 1967 issue of Artforum as, “a young American artist who works entirely with the duality of objects and their verbal formation, or, another way, with the vertiginous mystery that separates the word and the thing itself.”67 Where Adrian then strays, however, is in claiming that the duality of The Large Landscape operates between the pencil-written TREE and an imagined orchard upon the white page. The strong version of De Maria’s invisibility that I have identified throughout this chapter relies upon no such imaginative visualization to unify otherwise disparate modes of experiencing the artist’s work. Had there been one more or one less drawing in the suite of eight, we would still

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have a complete landscape, only the relative position of each element within the
system would shift. Add MOON and suddenly this landscape has a sense of time. Take
away SKY and the spatial position of SUN would be unmoored. Recalling the axiom I
offered above that De Maria’s work tests the material support for an idea to take
shape, *The Large Landscape* offers the minimal conditions necessary to constitute a
landscape environment. Or closer to the heart of the matter, De Maria’s drawings
employ the minimal means to turn an Environment into an environment, a
contained gallery space into an open-ended field of relation.

If I have been rather insistent upon the divide in *The Large Landscape*
between raw materiality and a linguistic system of landscape production, it is
because De Maria’s work throughout his career is so utterly consistent on this point.
What in the plywood sculpture breaks rather straightforwardly between active
performance and visual gestalt ramifies in the exhibitions of 1965-66 between
Environment and environment, blankness and completeness, space and word.
Anticipating the later function of *The Lightning Field’s* grid, the words in De Maria’s
art of the mid-1960s have a tendency to dissolve and transform one’s sense of being
situated within an environmental framework. But to better articulate this complex
back and forth in the relation of language and environment in De Maria’s practice,
we must turn, finally, to the artist’s last Environment of the 1960s.

**Words and Things**

Jump forward to September 28, 1968. De Maria has just opened his most notorious
gallery exhibition, commonly called “The Munich Earth Room” in reference to later
instantiations of this work in Darmstadt (1974) and New York (1977, 1980-present), but originally—and importantly—titled Pure Dirt / Pure Earth / Pure Land / No object on it / No object in it / No markings on it / No marking in it / Nothing growing on it / Nothing growing in it (figs. 1.11 and 1.12). Installed at Heiner Friedrich’s Munich gallery in September - October 1968, it consisted exclusively of dirt that filled the entire gallery space. As De Maria wrote to Sam Wagstaff:

The Dirt – WAS – 8 TONS. –
Spread Through All Three Rooms –
IT WAS AT A 2 FOOT (60 cm) DEPTH Throughout
A glass retaining WALL Kept it From The Hall.
3 – DOORWAY – Viewing points. –
Since the gallery was on the 3rd floor – it
Was an added sensation. –
NO elevator. –68

Given the use of an actual deposit of fresh earth and the date, 1968, it might initially seem as if this work should be included with De Maria’s more proper works of “land art” he had begun to make alongside Michael Heizer earlier that year. After all, the Land Show at Galerie Heiner Friedrich, as Pure Dirt was also called, appeared in photographs at the seminal Earth Works exhibition at Dwan Gallery in New York during the very same fall season of 1968.69 The two shows ran concurrently during the month of October. But appearances can be deceiving with the Land Show. Rather than the initiatory entry into land-based work it might appear to be, De Maria’s Munich exhibition acts more like a wedge that splits the interconnected histories of

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the indoor, artistic Environment and the art of outdoor, environmental systems at
their joint.

Returning also to our on-site, primary account of *The Lightning Field*, part of
what makes De Maria’s 1977 work such a challenging historical object is that it
sustains conflicting aspects of what I have identified as Environments and
environments. The grid of metal poles at the work’s site is indeed a sculpture
expanded to a size to be entered by its viewer, but due to the vaporous quality of
these poles when influenced by the atmospheric fluctuations of high desert terrain
and the ambulatory engagement of spectators, *The Lightning Field* neither
completely envelops its visitor nor melds into the surrounding environment. It is a
conduit for experiencing the openness of environments. But where these disparate
frameworks would come to productively co-exist in the 1977 *Field*, a decade earlier
the artistic investments in Environments would seemingly cede to those of
environmental systems almost entirely.

At the crux of this transition, the *Land Show*, we encounter a lump of real
earth, but not yet a natural environment. Or at least, through the exhibition’s title—
“pure” dirt—we would seem to be dealing exclusively with raw, material earth.
However, De Maria produced a small group of other works for Friedrich in 1968
that provide a telling comparison to his exhibition of dirt. In the months preceding
the September opening, De Maria had worked at a metal shop in The Netherlands
creating sculpture. And although there was not space to display these works in the
*Land Show* once the Friedrich’s gallery had been drowned in dirt, De Maria did
consider staging dual exhibitions in October and December, indicating the shared
concerns of the metal work with *Pure Dirt*. Although this second show never materialized, its body of work nonetheless sheds considerable light on the *Land Show* that did. One of these is a large, vertically oriented monochrome painted John-Deere yellow and adorned with a metal placard reading “THE COLOR MEN CHOOSE WHEN THEY ATTACK THE EARTH” (fig. 1.13). A horizontal version of this work was displayed at Dwan’s *Earth Works*. While again using language as means to directly reference the construction and, in this case, politics of the natural environment, De Maria’s painting also addresses the artifice of artistic Environments through a play of distance and proximity characteristic of his art throughout the 1960s. Due to the size of the monochrome, measuring seven feet in height by four feet in width, and the small plate of engraved text at its center, the viewer must come very close to read the work’s inscription. At such a point of near contact with the painting, the large field of yellow paint reaches out to nearly surround the visual field of its spectator. Though installed only upon a single gallery wall, this monochrome comes to encompass one’s entire field of vision, coloring this perceived space the precise yellow hue the artist disparages in painting’s inscription.

Another of De Maria’s contributions to Friedrich’s gallery that fall is a foot-long rectangular metal box sculpture engraved with a single word on each side, called *Dirt Box* (fig. 1.14). The long ends of the box read, on alternating sides, LAND EARTH LAND EARTH, while the two ends are each engraved with the word DIRT. *Dirt Box* thus employs the same triangulation of dirt, earth, and land as appears in the lengthy title of the *Land Show*. These terms might initially appear to generate a similar kind of Environment as had appeared two years earlier in *The Large*
Landscape—enacting a relational field of constituent, environmental elements—but in Munich, De Maria’s language game had changed. The three terms in play within his contributions to the Galerie Heiner Friedrich do not occupy different positions in their own discrete system of representation, but instead, replace one another in the same position. As one walks around the stainless steel Dirt Box or even turns it through one’s own hands, the substitutions of “dirt,” “earth,” and “land” re-write the position of one another.

Likewise, as the 1600 cubic feet of “level dirt” in the gallery is simultaneously “Pure Dirt / Pure Earth / Pure Land,” the varying connotations of these words attending to the same thing cancel one another, giving way to the latter part of the exhibition’s extended title that addresses negation, “No object on it / No object in it / No markings on it / No marking in it / Nothing growing on it / Nothing growing in it.”

Though each iteration shifts the sense in which we understand the contents of Friedrich’s gallery space, dirt as particle, land as surface, earth as volume, the ultimate arrangement of the Land Show blockades the viewer from any direct contact between the stuff of the earth and its immaterial, linguistic frameworks. Just as a glass blockade literally separates the visitor from entering the would-be gallery Environment, the serialization and negation of “dirt,” “land,” and “earth” disallow the kind of conceptual landscape De Maria had earlier generated with his eight-part drawing. The artist’s approach to language and Environments had reached a point of impasse: invoking words within the work of art to negate a system of meaning rather than complete one. The dirt in Munich is offered as a blunt, factual thing. It does not sustain life, nor does it sustain connotation. Dirt acts in the place of the
gestalt of the plywood boxes, the lettering of the *Invisible Drawings*, the grid of *The Lightning Field*: as an ideational whole. As De Maria admonished in the press release, “The dirt (or earth) is there not only to be seen but to be thought about!”

Like many of De Maria's short, clippy statements that border on the mundane, the preceding advice for experiencing *Pure Dirt* uncovers more about the artist's work than an initial read might reveal. However much De Maria had filled Friedrich's gallery with soil as an act of negation—and here we could push this “soiling” even to the scatological terms of a literal evacuation of or upon the seeming plentitude and totality of aesthetic Environments—something unexpected occurred upon the earth in Munich. In another of the artist's understatements, he wrote to Wagstaff after the close of the *Land Show* that “The SUN – through the WINDOWS – became very important.”

More than simply a curious effect of lighting in the gallery, the entry of sun into the gallery space disrupts the utter deadness of De Maria's Munich dirt. Light through the four gallery windows introduced an aleatory quality to the inert ground. No longer only a material thing standing in for an abstract idea, the light that flooded daily into the gallery space connected *Pure Dirt* to natural cycles of change existing beyond the boundary of the gallery walls. Environment turn environment.

The role of natural light in the *Land Show* also brings us back, finally, to light at *The Lightning Field*. Where, years later, light would dramatize the visibility and invisibility of the *Field's* multiple registers of form and experience, in Munich it

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70 Quoted in Bourdon, “Walter De Maria: The Singular Experience,” 72.
surprisingly disrupted the purity of *Pure Dirt*. No longer could this closed and internally controlled Environment be sustained by artistic design alone. De Maria had experimented with figure/ground reversals of environmental fields in both *The Large Landscape* and *THE COLOR MEN CHOOSE WHEN THEY ATTACK THE EARTH*, but the light striking upon leveled dirt in Friedrich’s gallery provided an unexpected reversal. *Pure Dirt* became a platform for ephemeral atmospheric conditions taking place outside of its controlled space. Akin to earlier Environments of the 1960s, the *Land Show* remained a total experience, but the instruments motivating this experience had changed. No longer sustained only by discrete and enclosed empirical cues, De Maria’s mass of earth in Munich had opened not only onto the outdoors but more importantly onto open systems. And in doing so, the *Land Show* announced the conclusion to a vital period of experimentation with the indoor, artistic Environment. After 1968, environmental art would be carried out nearly exclusively at outdoor, site-specific locations and/or in participation with the earth’s environmental systems. In this respect, as a late work of land art, *The Lightning Field* provides a unique retrospective on the early rise of environmental concerns in the language and practice of advanced art from the late 1950s until the about 1968. But to appreciate the remarkably manifold structure of *The Lightning Field* and its internalization of the artistic Environment, we must first consider De Maria’s engagement with ecosystems and, so, to the beginning of land art.
CHAPTER TWO:  
*The Crucible of Nature: On Ecosystems after Minimalism*

In *Danger*, a single-artist exhibition at New York’s Dwan Gallery in the spring of 1969, Walter De Maria prominently displayed only a single work in the main gallery, a stainless steel sculpture in five parts titled *Bed of Spikes* (fig. 2.1).¹ It was this modular grid of sharpened spikes that would provide the form of *The Lightning Field* nearly a decade later (fig. 2.2).² If this dissertation as a whole argues that De Maria’s latter work of 1977 distills and distributes some two decades of disparate artistic experimentation with ideas of environmentality, *Bed of Spikes* singularly contributes its format. In the chapter that follows, I examine the move initiated by several artists from such minimalist sculptural practices on gallery floors to an emerging field of land art supported equally by the new ideas of artistic ecosystems and the actual environments of earthworks executed in the open air of desert plateaus. In doing so, I will consider the integral role of minimalism and its supporting criticism as the platform or point of departure for the field of land art. Though the serial, geometrically-discrete, and often industrially-rendered qualities of this sculpture might seem far from the scrubby, ephemeral character of many of the earliest contributions of land art, we will see that minimalism provided a crucial point of entry for ecological ideas to take hold.

¹ As Grace Glueck notes in her review of *Danger*, De Maria also displayed “a group of less menacing [epigrams] in an adjoining room.” These “epigrams” as she calls them, were an extension of the artist’s series of Invisible Drawings, which he had exhibited since his second one-man exhibition at Paula Johnson Gallery in 1965. See discussion of these works in the chapter one. “New York Gallery Notes: Trends Down, Sales Up,” *Art in America* 57:2 (March/April 1969): 119.

Consequently, there will be two crucial tenets of my argument that have remained largely outside previous accounts of land art: first, that ideas of the earth in these land works maintain a close and complicated relation to ecological claims emerging in science and politics; second, that “land art” as a phenomenon across the arts is substantially more varied than its common reception as large works of sculpture in the desert. Many of the most important of these works, including *The Lightning Field*, employ a massive notion of scale, but this does not separate these earthworks from the range of other, more ephemeral experiments with natural systems in the late 1960s. To begin unpacking the contours of these relations, I turn first to the telling circumstances around the display and reception of De Maria’s *Bed of Spikes* as an indoor steel sculpture wrought large.

*Bed of Spikes* is a single work of sculpture comprising five flat platforms each measuring four by seven feet and upon which rise sharpened steel spikes uniformly eleven inches tall. The platforms themselves contain a varying number of spikes that increase in number and density according to near-arithmetic sequences along X- and Y-axes: the first containing one row of three spikes, then three rows of five, five rows of nine, seven rows of thirteen, until reaching the final spread containing nine rows of seventeen bars. Further, De Maria knowingly manufactured the individual pieces of his sculpture as sharp, even dangerous, spikes. Reflecting the threat posed by each bed (and heightening it psychologically), each visitor to *Danger* was required to sign an “Unconditional Release” form before gaining access to De Maria’s sculpture. This form included such officious declarations as: “I have been warned that the spikes exhibited contain sharp projections which I may not touch or approach and that guard rails and
other devices to separate me from the spikes have not been employed in order to provide
no distraction from the presentation of the works.”

Accordingly, it is from this very exhibition that one can trace critical objections to
“authoritarianism” that persist in De Maria’s reception. In his “New York Commentary”
of June 1969, Dore Ashton described the release form as “very elegantly printed but
nevertheless represent[ative of] a coercive attitude that I find highly repellent . . . ,”
adding, “In a country where we are always being asked to sign away our birthrights, it
does seem ironic that even in the arts we cannot circulate freely.” As prescient
foreshadowing for the later condition of *The Lightning Field* as an object criticized for its
stringent and expensive visiting policies but actually experienced in person by relatively
few, Ashton concluded with the concession, “I am bound to report . . . I did not see [the
exhibition].”

The real surprise of De Maria’s decision to show *Bed of Spikes* in spring 1969,
however, lies in its seeming divergence from the artist’s recent and budding interests in
land art. Since the preceding spring of 1968, he had been working almost exclusively
with the earth as an artistic ground and medium. In contrast, the prevailing modularity,
seriality, and industrial manufacture of his five-part metal sculpture would have struck
the contemporary eye as utterly minimalist. Though surprising that De Maria would

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3 Dwan Gallery, “Unconditional Release,” in Getty Research Institute, Special Collections and Visual
Resources, Jean Brown Papers, inv. no. 890164, box 11, folder 33. Note: visitors to *The Lightning Field*
must sign a similar release form waiving one’s right to photograph the work.
4 The most widely cited essay regarding De Maria’s close control of his work is John Beardsley, “Art and
Authoritarianism: Walter De Maria’s Lightning Field,” *October* 16 (Spring 1981): 35-38; but it is notable
that Beardsley treats De Maria’s work without this tone of the authoritarian in projects both preceding and
succeeding the essay in *October*. See Beardsley, *Probing the Earth: Contemporary Land Projects*
(Washington, DC: Smithsonian Institution Press, 1977); and Beardsley, *Earthworks and Beyond: Contemporary
Art in the Landscape* (New York: Abbeville Press, 1984). On aggression in De Maria’s
sculptural work, see also Anna C. Chave, “Minimalism and the Rhetoric of Power,” *Arts Magazine* 64:1
display a polished, stainless steel sculpture in the midst of land art’s ascension within New York’s art scene, less startling is the controversy Danger garnered through its release forms and hint of actual danger when viewed against De Maria’s own initial reception as a land artist. During the years 1968-69, as land art crystallized as a distinguishable artistic movement through a series of influential early exhibitions, De Maria’s contributions consistently positioned him as a disruptive figure within the emerging field.

For the watershed exhibition Earth Works held at Dwan Gallery in October 1968—the exhibition that announced the seriousness and scope of land art—De Maria exhibited the only painting. Amidst Robert Morris’s piles of dirt in Earthwork, Robert Smithson’s carefully arranged rubble in A Non-Site, Franklin, New Jersey, Dennis Oppenheim’s contour lines inscribed into a cocoa mat in Mt. Cotopaxi Transplant, photographs of Carl Andre’s Rock Pile, Michael Heizer’s large color light-box transparency of Dissipate #2, and Claes Oldenburg’s foot-tall plastic cube containing dirt and worms, De Maria displayed photographs of his Land Show at Galerie Heiner Friedrich and an unusually large monochrome canvas. Measuring over seven feet in height and twenty feet in length and painted a bright backhoe yellow, De Maria’s monochrome also included a small steel plaque in the center with words reading, “THE COLOR MEN CHOOSE WHEN THEY ATTACK THE EARTH.”

Despite its incongruity with the tenor of other works included in the exhibition, or perhaps because of it, the prominent collector and patron Robert Scull promptly bought the work and wrote to De Maria, “The

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Suzann Boettger reports that De Maria exhibited photographs of Mile-Long Drawing created in the Mohave Desert in spring 1968 and of the Land Show at Galerie Heiner Friedrich held during the same fall of 1968 at Earth Works. As noted in chapter one, Galerie Heiner Friedrich carried a smaller, vertical version of De Maria’s painting The Color Men Choose When They Attack the Earth. Boettger, Earthworks: Art and the Landscape of the Sixties (Berkeley, CA: University of California Press, 2002), 146.
yellow painting for me is a milestone in my own education and in my own expansion; . . .

[I] know how terribly important it is.”7 It was the only work to sell from Earth Works.8

Thus in spite of the central role of Earth Works in defining the contours of and participants in the budding field of land art, De Maria was cast as something of an institutional outsider from the very beginning. As early as 1967-68, it was he and Michael Heizer—and only later Robert Smithson—making trips to dried-out lakebeds outside Los Angeles and then Nevada to work with the land.9 In spring 1968, for instance, De Maria had created his seminal Mile-Long Drawing by laying down two mile-long chalk lines in the Mojave Desert (fig. 2.3), a work that stands simultaneously as a sketch for a never-completed project to make mile-long walls in the desert, the basis for a performance in the artist’s later film Two Lines Three Circles on the Desert (1969), and a sophisticated work of drawing in its own right.10 But it remained the exhibitions that defined the new land work for many critics. As Lawrence Alloway would remark four years after the fact, “In fall, 1968, a group exhibition at the Dwan Gallery was called ‘Earthworks’ and it was clear that a new tendency had been named.”11 That is, nearly as soon as a handful of mid-career artists began working directly with the earth in the production of their art, an

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7 Undated letter from Robert Scull to Walter De Maria. Scull also alludes to some controversy resulting from the purchase of this painting: “Everyone there [referring to the Dwan Gallery] freaked out that I bought it. Some collectors and one magazine writer said they didn’t believe it and I assured them that it was mine. Several artists were very tight about it and one of them got nasty.” Robert Scull Papers, Archives of American Art, Smithsonian Institution, Folder 5.

8 Noted by Boettger, Earthworks, 147.

9 In other recent accounts, notably Suzann Boettger’s Earthworks, the stimulus for early land art is credited to Robert Smithson’s unrealized proposals with Carl Andre, Sol LeWitt, and Robert Morris for aerial art at the new Dallas Fort Worth International Airport. Boettger also addresses projects which coalesced around 1967 including Claes Oldenburg’s Placid Civic Monument in Central Park, New York City (also called The Hole), sculptural works employing grass by Jan Dibbets and Richard Long in London, and objects later classified by Germano Celant as Arte Povera in Italy. See Boettger, “October 1967: A Corner of a Larger Field,” in Earthworks, 1-21.

10 De Maria’s 1969 film Two Lines Three Circles is discussed at length in chapter three.

exhibition arrived to effectively coin a title and distribute notable attributes to an artworld eager for a successor to minimalism in the ever-telescoping turnover of periodizing postwar art. Critic Howard Junker once joked in a letter to Smithson that the new work should be dubbed “Top Art” [short for Topographic Art] as the proper successor in the lineage of Pop Art and its offspring, Op.12

The following winter of 1969, De Maria was again invited to participate in a major land art show and again his contribution triggered minor controversy. For the widely-publicized Earth Art exhibition at Cornell University in 1969, each artist was allotted a single gallery in the University’s Andrew Dickson White Museum of Art, with some also creating additional works outdoors on or near campus grounds. The contributions included more indoor piles of earth from Morris, an outdoor pile of snow and frozen mud from David Medalla, more non-site rocks and mirrors from Smithson, a mound of growing grass from Hans Haacke, chainsaw cuts into nearby, frozen Lake Beebe by Oppenheim, tilled earth from Jan Dibbets, earth-sodded scaffolding from Neil Jenney, a kinetic sand mill from Günther Uecker, and a rectangular plot of stones arranged and photographed by Richard Long. In the De Maria’s gallery space, he raked a pile of dirt into a rectangle on the floor and inscribed the words “GOOD FUCK” into it using the backend of the rake. The work was temporally displayed in the exhibition, but soon a disagreement arose between the artist and museum director Thomas Leavitt

regarding the cordoning off of De Maria’s gallery from a group of school children. The confrontation propelled the artist to remove his work from the show. Afterwards, De Maria neither participated in the public symposium associated with the exhibition nor did his name and his work appear in any of the official publications organized by the guest curator Willoughby Sharp. Heizer’s work experienced a similar fate at Earth Art.¹³

Though contentious, De Maria’s dissident status which emerged from his collective experience with Earth Works and Earth Art befits an important tenet of his practice: his most important works of art are either difficult to see perceptually or difficult to access logistically. Where earlier this tendency had appeared in degrees of invisibility in the artist’s drawings and participatory sculpture, now it began to characterize the availability of the work itself. There is little wonder, then, that De Maria could be portrayed in critic Grace Glueck’s New York Times review of Dwan’s Danger, which opened a mere two months after Earth Art, as “a grim, post-dada gagster;” his exploits to date included being cut from an exhibition, filling a prominent German gallery with eight tons of dirt, and inscribing his works with inflammatory statements. Certainly De Maria’s work was at its most conflicted during the years 1968-69 and the fact that land art itself experienced a meteoric rise in prominence during this same period has only exacerbated the artist’s uneven reception. Contemporary art’s move into the land was featured in major articles that not only appeared in the usual arenas of Art in America, Arts Magazine, Art International, and Artforum, but also in more widely circulated periodicals including Newsweek, Life, The Saturday Evening Post, The New York Times

¹³ Heizer’s contribution to Earth Art was a large pit dug into the ground just outside the White Museum, and unlike De Maria, Heizer did participate in the symposium discussion sponsored by the exhibition. However, upon publication of the Earth Art catalog, neither Heizer’s work for the exhibition nor his comments at the symposium appeared in print. Earth Art, ed. Nita Jager (Ithaca, NY: Andrew Dickson White Museum of Art, 1970).
A feature on De Maria in *Time* magazine ordained him: “High Priest of Danger.”

These thematics—land, danger, sculpture, remoteness—constitute the core of this chapter. The subject is not exclusively De Maria’s work, but more properly a question that has followed land art from the beginning: namely, how to disentangle the use of earth from traditional categories of sculpture. De Maria’s own tendency to move back-and-forth between gallery spaces and remote landscapes, and between discrete metal sculpture and large ephemeral works on the land, corresponds to related moves carried out between outdoors and indoors by other pioneers of land art including Heizer, Smithson, and Oppenheim.

Likewise, the key point of departure for these same artists was minimalist sculpture. As a category formulated by critics, “minimalism” was consolidated only in the latter years of the sixties as other terms like “ABC art” and “literalism” were ironed out in the series of important group exhibitions and publications. Of these latter, De Maria had himself contributed to *Primary Structures* at New York’s Jewish Museum in 1966, exhibiting a metal version of *Cage*. And though earth work would define De

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17 De Maria initially had produced a wooden sculpture, *Statue of John Cage*, that he exhibited at 9 Great Jones Street in 1963, and about which he wrote to Cage on January 2, 1963 to inform the composer, “I think that it is only fair that I tell you that I have made a statue of you. . . . It is 7 feet one inches tall. I do hope that this does not offend you.” After the publication of *Fluxus Yearbook No. 1*, he returned to same tall, grid of bars in a metal version of 1965 whose title was pared down to simply *Cage*. *Cage’s* name also appears a letter from De Maria to the artist and activist Henry Flynt dated March 12, 1963. De Maria’s letter opens with the list “Jazz Cage ‘Folk Music’ Communism,” with each of the terms crossed out. Julian Myers notes in his dissertation that De Maria briefly participated in the band, Henry Flynt & The Insurrections, in 1966, recording *I Don’t Wanna*, and was perhaps the only one of these “Insurrections.”
Maria’s practice almost exclusively for the next decade, we must return to the lingering problem from his 1969 exhibition at Dwan: when presented with a prominent single-artist showcase at one of New York’s premier contemporary art galleries, the artist chose to feature a serial, stainless-steel sculpture.

If we look more closely at the lead-up to *Danger*, there is a telling displacement between the photographs circulated by Dwan to advertise the show and the objects displayed at the actual event. Prior to the April opening, Dwan had published ads in a number of leading art magazines which featured a photograph of De Maria lying prone at the end of his *Mile-Long Drawing* in California’s Mojave Desert (fig. 2.4). Taking this advertisement itself as an absentee work in the exhibition—a claim that is supported by De Maria’s extended interest in magazine work and the important function of photography in early land art, both discussed in the following chapter—we find the artist in this photograph positioning himself *as if* exercising the direct threat of *Bed of Spikes* on his prone body. Since his earliest box works of 1959-60, De Maria’s sculptural practice had consistently operated between performative objects and contemplative visual forms. That we should find a similar tendency in *Bed of Spikes* both connects this

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18 I focus here on magazine advertisements that feature De Maria within *Mile-Long Drawing*, but it should be noted that a second photo also ran as a promotion of *Danger*. This second ad also features *Mile-Long Drawing* and is identical to the first except that it does not show the artist within the frame, a fact that I take to strengthen the claim made here that *Danger* and its pendant magazines advertisements operate around issues of bodily absence and presence. Three identical photographs of the artist lying within *Mile-Long Drawing* appear in the April 1969 issues of *Artforum* 7:8, *Arts Magazine* 43:6, and *Studio International* 177:910. The only showing the lines without De Maria is to be found in *Art News* 67:12 (April 1969): 69, a publication, which published a scathing review of *Danger* in its subsequent May issue.
19 Boettger has noted the use of provocative photographic advertisement by the Dwan Gallery, citing Dwan’s elliptical images of tracks and scattered dirt for *Earth Works*, see *Earthworks*, 133-34.

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sculpture directly to the chalk drawings of the previous year in California and also to an idea which was gaining particular clarity for De Maria at this moment in 1969, that land art should be geographically isolated and experienced only in long durations of sustained attention and actual presence.

As a case in point, consider *Las Vegas Piece*, which De Maria created in the Tula Desert outside the city of Las Vegas immediately following his exhibition in New York (fig. 2.5). In order to experience this work, visitors not only had to travel to a remote location in Nevada, but also to walk the full length of *Las Vegas Piece*. The work was shaped by two mile-long cuts into the desert floor intersecting at a right angle with two bisecting cuts of a half-mile each forming an inner square, like a baseball diamond with an enlarged infield and no outfield boundary. All the cuts measured a consistent depth of eight inches into the desert floor, made by a single dozer’s blade.\(^{20}\) Anticipating the function of time that would appear later in *The Lightning Field*, *Las Vegas Piece* required a full day from its visitor, first to reach the work and then to wander its three miles of shallow desert paths.

\(^{20}\) There is some disagreement in the literature regarding the width of *Las Vegas Piece*. Franz Meyer lists the work at eight feet in *Walter De Maria* (Frankfurt: Museum für Moderne Kunst, 1991), while John Beardsley has it at six feet; in either case, the width was determined by the size of the bulldozer blade that fashioned the work, which is no longer extant. Today we are left instead with contemporary accounts, such as the exemplary description provided by Beardsley, which tellingly concludes with a comparison to *The Lightning Field*: “This is a piece that yields its charms slowly. While one eventually comes to learn its configuration, it is never entirely visible. Instead, it presents itself as a series of options, invitations to move along a horizontal plane in the four cardinal directions. De Maria’s lines are compelling: one feels that one’s progress along them is somehow involuntary. Yet with this comes a feeling of relief that there is a delineated path on which to progress, in a landscape where one might otherwise wander aimlessly. As one walks the piece, its monotony is at first soothing and finally invigorating as one realizes the completeness with which one has experienced both the work and its surrounding landscape. This creation of dimensional, directional space with an understated, almost immaterial means reappeared in De Maria’s later *Lightning Field*” (*Earthworks and Beyond*, 19).

It is also notable that *Las Vegas Piece* was permanent enough, compared to De Maria’s chalk works *Mile-Long Drawing* of 1968 and *Desert Cross* of 1969, to be visited and experienced by Helen Winkler and Heiner Friedrich, a trip which was integral to the formation of the Dia Art Foundation in the 1970s and its commission of *The Lightning Field*. Author in conversation with Helen Winkler Fosdick, March 5, 2009.
In light of *Las Vegas Piece*, what, then, do the *Mile-Long Drawing* ads suggest about the experience to be found at the Dwan Gallery? In one sense, De Maria’s magazine entry operates as a kind of user’s manual for the exhibition, rendering *Bed of Spikes* at once more menacing—in that it invites the participatory action of laying prone upon the perilous beds—and more feeble—in that the real presence of the artist has been evacuated from the gallery space. In her review of De Maria’s exhibition, Glueck quotes from the artist about the role of “danger” in his art:

> “Sure, there’s a certain amount of danger,” De Maria says. “But people can use their eyes to ascertain it. If there’s no danger, then the meaning of the piece isn’t there. Real danger must exist—commitment and judgment and respect and timeless meaning.”

Taken as a statement about his exhibition as a whole, De Maria presents the crux of *Danger* as turning on a split between real, lived experience and its deferment. In its apparatus of release forms and safety warnings, *Bed of Spikes* would seem indefinitely suspended in the latter, while the only “real” danger afforded by live action and lived experience had been conceptually cordoned off to desert flats mediated by once-removed photographs and twice-removed magazine pages. As the artist wrote to Scull in January 1969, “I am trying to understand . . . the relationship between Danger – Time – and Pleasure. . . . and where little Time and big Time (the long run) cross.”

To this distinction between fleeting time and sustained duration, the rejoinder from De Maria’s photographic advertisement of *Danger* would admonish: real engagement and experience has become untenable in the gallery, GO WEST. Or, as he wrote in a telegraph to Virginia

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Dwan: “I urge you to consider closing the gallery and to consider world wide land operations.”\(^{23}\)

From the circumstances surrounding De Maria’s *Bed of Spikes* and its display, we begin to realize the difficulties presented by the emergence of land art from the existing sculptural aesthetics of the sixties. That *Bed of Spikes* provided a nascent form for *The Lightning Field* is clear, but De Maria also uses this same sculpture to frame a rejection of the gallery cube and a related set of limitations to minimalist box sculpture. The argument in this chapter will consider the range of competing claims connecting such minimalist sculptural practices with the formation of the large works that have come to define the field of land art, which include not only *The Lightning Field*, but also Heizer’s *Double Negative* and Smithson’s *Spiral Jetty*. The uncertainties presented in the pairings of sculpture/earth, inside/outside, object/process that developed around the minimalist sculpture exhibited in *Danger* merely register one point within the intricacies and convolutions of an emergent field of land practice that had no representative voice.\(^{24}\) To account for the shaping of this field, we will examine not only the formative land art

\(^{23}\) De Maria’s telegram to Virginia Dwan dates to 1968, but was later framed and exhibited as a work in the exhibition *Language IV* at Dwan Gallery in 1970. Regarding his own decision to return to New York in spring 1969 to hold the type of gallery exhibition he was so vehemently protesting, De Maria wrote to Bourdon in an undated letter earlier in 1969 that, “I know that I would not return to N.Y. if I didn’t have the commitment to my show – in spring.” David Bourdon Papers, Museum of Modern Art Archives, New York, Box 1, File 12.

projects of 1968-69 but also concurrent shifts in scientific theory and public policy in which notions of land and earth were appreciably on the move. Therefore, to begin to grasp the vibrant and provocative splintering of minimalist sculpture into and through the land, we must first take stock of the compelling rise of new theories of the environment to appear in the 1960s, which included both a public environmental movement and a wide-reaching conceptualization of ecosystems. We now look to the rise of ecology.

**A Brief History of Ecology**

On April 3, 1963, the public intellectual and environmental advocate Rachel Carson appeared in an hour-long CBS television special addressing her controversial and indelibly influential book *Silent Spring* (fig. 2.6). Published the previous year, *Silent Spring* introduced the environmental dangers of pesticide-use to the American public at large. Furthermore, in general histories of American environmental politics, it is now all but a given fact that Carson’s book sparked the wave of widespread media and government attention to environmental protection in the 1960s known as the environmental movement. Less understood, however, is the distillation of a certain idea of the natural environment that underlies the more explicit topic of Carson’s text about pesticides and chemically-engineered farming. I look to *Silent Spring* not simply to add one more voice in the chorus that already heralds the influence of this publication, but to focus upon an early and specific formulation of ecological thought encountered by millions in the American public. In the short history of ecology in the section that follows, it is important to consider not only the genealogical turns in the most advanced

scientific theory of this discipline but equally the more general dissemination of these ideas in the practices of public policy and everyday activity.

The point of explosion for such a dissemination is Carson’s *Silent Spring*, which sold some half a million copies as a book, but as a television broadcast increased this audience an estimated twenty- to thirtyfold. The broadcast of the CBS Reports on *Silent Spring* offers an especially telling event from which to consider the pressing new views of the earth’s interconnected environment—for during the hour in which the program aired to its primetime audience, interviews with Carson and specialists from government and industry were periodically interrupted by “telecasting of the earth orbiting by astronaut L. Gordon Cooper,” as the network advertised it, aboard the space capsule *Faith 7*. A better montage could not have been planned to characterize America’s emerging ecological conscience.

The lead-up to *Silent Spring*’s broadcast was marked by considerable uproar. In the early 1960s, it was still possible for an hour-long television special to be allotted a full eight months of research and preparation and feature such prominent figures as Dr. Luther Terry, United States Surgeon General; Orville L. Freeman, Secretary of Agriculture; George Larrick, Commissioner of the Food and Drug Administration; Dr. Arnold Lehman, Chief Toxicologist for the Food and Drug Administration; and Dr. James Hartgering, staff member of President John Kennedy’s Science Committee and the Federal Council on Science and Technology. Even during the preparatory period for this CBS Reports, the network received substantial response from the approximately three-hundred-billion-dollar pesticide industry and individual farmers alike requesting CBS

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scrap the “controversial” broadcast. Producer Fred Friendly reported to the *New York Times* that he had received over a thousand letters in the weeks leading up to April 1963, more than any previous report, with most requesting that CBS cancel the program. In the days immediately prior to April 3, three major advertising sponsors pulled commercials from the program: Lehn & Fink Products Corp., producers of cosmetics, disinfectants, and sanitary maintenance supplies; Standard Brands, Inc., distributors of liquor and food products; and Ralston Purina Co., producers of livestock feed and food products. Yet for all the concern that the program would be skewed towards polemically magnifying Carson’s attack on the pesticide industry, CBS Reports framed its approach from the beginning as a balanced examination of pesticide pollution and most reviewers concurred that the program allowed a fair representation of arguments by each of Carson and pesticide industry representatives. Importantly, as framed by CBS Reports (and much of the contemporary media coverage), there existed a legitimate public question as to whether the chemical industry was ethically correct in its approach to the natural environment, and not simply trying to protect its massive profit margins around DDT and other pesticides.

The program itself proceeds as an absentee debate between Carson and a Dr. Robert White-Stevens, Assistant to the Director of Research, American Cyanamid Company. We encounter Carson seated comfortably in a domestic setting and White-Stevens in lab coat standing at times inside a laboratory (inter-cut with close-up shots of bubbling chemicals) and at others before a podium lecturing to a group of students. However, audiences’ perception of these figures within the hour-long special was not

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27 Rachel Carson Papers, Beinecke Library, Yale University, Box 74, Folder 1305, Box 75, Folder 1331.
29 See Rachel Carson Papers, Beinecke Library, Box 75, Folder 1336.
oblivious to attempts by the chemical industry to strong-arm media coverage of pesticides by appealing to any number of assumed biases. For all of White-Stevens authoritative demeanor (and polished English accent), his overblown claims rang hollow for most reviewers of the program. Consider, for instance, his quite remarkable opening statement:

The major claims of Miss Rachel Carson’s book, *Silent Spring*, are gross distortions of the actual facts, completely unsupported by scientific experimental evidence and general practical experience in the field. Her suggestion that pesticides are in fact biocides destroying all life is obviously absurd in the light of the fact that without selective biological activity, these compounds would be completely useless. The real threat, then, to the survival of man is not chemical but biological, in the shape of *hordes* of insects that can *denude* our forests, sweep over our crop lands, *ravage* our food supply, and leave in their wake a train of destitution and hunger, conveying to an undernourished population the major diseases and scourges of mankind [my emphasis]. If man were to faithfully follow the teachings of Miss Carson, we would return to the Dark Ages, and the insects and diseases and vermin would once again inherit the earth.30

In addition to White-Stevens dismissive attitude towards Carson’s arguments, his long-winded opening statement quite boldly associates agricultural insects with no less than barbarians, a Biblical plague of locusts, and the impending fall of modern, rational society. While CBS Reports allotted significant time for the position of the “science community” as funded by major chemical corporations and even allowed figures like White-Stevens to be presented in the formal manner of their choosing, the official presentation of such arguments correctly appeared to most viewers as merely officious. As a direct result, the very next day, April 4, Senator Abraham Ribicoff of Connecticut began assembling a congressional committee to investigate the health risks posed by pesticides, for which Carson would testify before the Senate Committees on Government Operations and Commerce just weeks later on June 4 and 6, respectively.31

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30 Transcript of CBS Reports on *Silent Spring*, Rachel Carson Papers, Beinecke Library, Box 119.
31 On Carson’s relation to national environmental policy, it notable also that a long-awaited report from a special committee arranged by President John F. Kennedy was released on May 14, 1963, just over a month
In addition to its direct impact on pesticide use in the United States, CBS Reports on *Silent Spring* is perhaps even more notable for its consideration of the fundamental idea underlying Carson’s book: that of the natural environment as an interconnected system. The following are concluding remarks from the broadcast, which I quote at length:

*Eric Sevareid* [host]: Finally, it would seem that the basic arguments between Miss Carson and her critics transcend the specific pesticide issue, for they involve a conflict of attitude towards man’s role in the environment and his attempts to control and manipulate nature for his own benefit. *White-Stevens*: The crux, the fulcrum over which the argument chiefly rests, is that Miss Carson maintains that the balance of nature is a major force in the survival of man; whereas the modern chemist, the modern biologist, the modern scientist, believes that man is steadily controlling nature, that he has already disrupted the balance of nature by his overburgeoning numbers, his cities, and his airports, and his roads, and the way of his life. . . . *Carson*: We still talk in terms of conquest. We still haven’t become mature enough to think of ourselves as only a very tiny part of a vast and incredible universe. Man’s attitude toward nature is today critically important, simply because we have now acquired a fateful power to alter and to destroy nature. But man is part of nature, and his war against nature is inevitably a war against himself.32

As this dialogue unfolds across cuts of natural scenery, White-Stevens in his laboratory, and Carson walking through her garden, the real stakes of *Silent Spring* are finally revealed. Like the more aleatory montage between CBS Reports and *Faith 7* in orbit, the juxtapositions in the *Silent Spring* broadcast lay bare that the coming fight over the natural environment would be staged upon a certain faith in abiding conceptions of science and questions of doubt raised by a new, bolder understanding of environmental interdependence.33

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32 Transcript of CBS Reports on *Silent Spring*, Rachel Carson Papers, Beinecke Library, Box 119.

33 Though the argument of *Silent Spring* presents a subtly digested and integrated view of interconnectedness among environmental systems, Carson’s own working notes are quite clear about the
The watchword for this shift in thinking about the natural world would be *ecology*. Though the term itself appears sparingly in Carson’s book, the development of ecological thought across the twentieth century, and most acutely in the years immediately following the Second World War, provided the intellectual fabric which Carson’s position, the social politics of the environmental movement, and the emergence of land art would collectively employ. On the face of things, it would seem to follow quite sensibly that highly public environmental concerns in the 1960s would impact a spectrum of cultural production, and in the case of advanced art, appear in the newfound engagement with land in the latter years of the decade by artists such as De Maria, Heizer, Smithson, and Oppenheim. But the relationship between land art and environmental theory creates much more challenging methodological questions for the historian. In nearly all cases, it is inadequate to claim this work was conceived in direct relation to the themes or contents of scientific theory or social policy. Rather, it dealt directly with the stuff of the earth. In previous art historical accounts, land art has been presented as either analogous to environmental politics or, in the inverse, as directly influenced by each new turn in state policy (turning aesthetics into mere illustration of

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importance of distinguishing a continuous, systemic position on the natural environment and what she describes as modern industry’s misplaced “dream of actual destruction and the substitution an artificial world.” Regarding this latter position, her notes also contain a telling transcription from W. C. Hueper, “Newer Developments in Occupational and Environmental Cancer,” *A.M.A. Arch. Int. Med.* 100 (1957): 487-503: “In sharp contrast to these gradually developing changes occurring in the natural environment and in man in the past are the rather acute and fundamental alterations which modern man has been making in his environment during the last century by the addition of numerous and in part new inanimate physical and chemical agents. Many of them possess distinct and powerful biological properties. A new and continuously changing artificial environment has thereby been created which has been superimposed upon the natural one” (my emphasis). Rachel Carson Papers, Beinecke Library, Box 50, Folder 899.

preemptive social changes). In following the explosion of ecological thinking through a major platform like *Silent Spring*, the present argument shifts such previous approaches. Due to the remarkably extensive reach of arguments by Carson and others in the environmental movement, land art should be understand as participating in a larger cultural field engaged in testing new ideas of the natural world being pioneered in ecological science. There is no baseline version of the environment from which activity in one field followed from another. Land art, like its adjoining fields of public policy and ecological science, sought to imagine the shape and constitution of an interconnected planet.

Despite the prevalence and near exhaustion of neologisms from the prefix “eco-” at the beginning of the twenty-first century, the concept of ecology itself has a more exacting development lasting a little over a century. In an age when classification and the creation of classificatory systems reigned supreme in the sciences, *oekology* was coined in the late nineteenth century by the German naturalist Ernst Haeckel by combining the Greek roots *oikos*, meaning household, and *logos*, knowledge. In its original form, *oekology* accounted for the relationship between organisms and their “home” or place of dwelling, but the notion of an *ecosystem* that we now commonly assign to such environments did not appear until well into the twentieth century. The

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35 The two most relevant book-length works to address the connection of land art and environmentalism in the 1960s to date are Ron Graziani’s *Robert Smithson and the American Landscape* (Cambridge: Cambridge University Press, 2004) and Suzan Boettger’s *Earthworks*. Where both bring important events to bear upon the formation of land art practices, the former is plagued by a methodological assumption that artistic production follows the top-down direction of governmental legislation and the latter a tendency to present earthworks and environmental debates as parallel in time and place but lacking direct lines of communication.

36 In this chapter I track the recent genealogy of “ecology” specifically, but it is worth noting that environmental history itself is an even more recent field, which was largely founded by Donald Worster’s breakthrough study *Nature’s Economy: The Roots of Ecology* (San Francisco: Sierra Club Books, 1977).
development of systems theory would define the fundamental shift in this genealogy of ecological thought.

While Haeckel’s term had originated as a means to describe the previously unnamed relationship between a species and its environs, the scope of ecology as a discipline remained vague even as its use gained popularity in the scientific communities of Western Europe and North America. One attempt at clarification appears in an essay of 1904 titled “The Cardinal Principles of Ecology” in which its author argues that among the “kaleidoscope” of uses ecology had garnered, its primary focus pertains to “adaptations of organisms to their environments.” In other words, this early sense of ecology maintained a notion inherited from a humanist intellectual tradition of the organism as a bounded individual that interacts with and influences other organisms; in this version of ecology, organisms might adapt to their environmental conditions but they are not bound to other living organisms by any overriding principle that might diminish their power of agency. A few years later, an essay of similar ambition titled “The Scope of Ecology” and published as the lead entry in the first issue of the journal *Ecology* presents the term as an umbrella concept for other more specific branches of the natural sciences (biology, zoology, etc.). In both essays, we find that early attempts to define the science of ecology remained fixated on delimiting its boundaries as a system of classification.

In this sense, early ecological study owed its greatest debt to the prominence of biology in the nineteenth century. This discipline must be remembered not only for the contributions of its towering figure, Charles Darwin, but also for the broader

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philosophical challenges it posed regarding a body/mind or matter/spirit split and how to
include the human animal within the study of natural science. Prior to a resurgence of
conceptual models of immanence in twentieth-century thought lead by such major figures
as Friedrich Nietzsche and Henri Bergson, nineteenth-century biology had laid the
groundwork for a world in which such theoretical explanation could exist. As a case in
point, we might look to an important early study on animal ecology by the American
Charles Adams which takes as its foundation the 1876 treatise *On the Study of Biology* by
the Englishman and fierce Darwinian apologist, Thomas Henry Huxley. Adams quotes
the following passage from Huxley:

> For whatever view we may entertain about the nature of man, one thing is
> perfectly certain, that he is a living creature. Hence, if our definition is to be
> interpreted strictly, we must include man and all his ways and works under the
> head of Biology; in which case, we should find that psychology, politics, and
> political economy would be absorbed into the province of Biology.²⁹

Working from this rubric of biology as a master discipline, Adams and others in the
burgeoning field of ecology would soon begin to extend their discipline as the *complete*
study of interactions among all living things. Adams writes, for instance, of a “human
ecology,” by which he means, “Fundamentally . . . the causes and laws of change in the
environment and in organisms, . . . their dynamic status, their relative optima, limiting
factors, and the orderly sequence or succession of their internal and external changes.”³⁰
Here biological interaction is extended to envelop social organization as itself an
ecological environment. Notably, however, Adams and others instrumental in expanding
the domain of ecology to such areas of “human affairs” as might be of interest to “the

sociologist, the physician, the sanitary expert, and the agriculturist,” did not envision the discipline to be a completely immanent leveling of sociological, medical, sanitary, and agricultural explanations to the same plane of relations.⁴¹ For this move, later ecologists would turn to the discourse of systems theory following the Second World War, and with it, the physics of energy fields.

The term “ecosystem” had been coined as early as 1935 but initially bore no significant difference from the more general notion of a biotic environment. In the 1930s, H. G. Wells and Julian Huxley’s ambitious volumes *The Work, Wealth and Happiness of Mankind* and *The Science of Life* (both 1931) had popularized the concept of food chains as the systems of distribution within ecosystems, a notion Wells and Huxley borrowed from Charles Elton’s *Animal Ecology* of 1927.⁴² Which is to say, up until the Second World War, the management and stability of ecosystems was still explained largely through the causal actions of individual organisms. The food chain model and with it, the idea of the organism itself, were substantially revised only by the introduction of energy flow into the balance of ecosystems. As energy became a vital term, with it followed a radical idea of ecosystems as interconnected concentrations and flows that move through organisms instead of emanating from them.

The entry of energy systems into ecological thought unfolded largely along two tracks laid out by the mathematical rigor of Norbert Wiener’s cybernetics and the

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The fundamental basis of cybernetics followed from the idea that human thought and computerized information systems operate according to the same rules, which Wiener had developed out of his wartime occupation of predicting the decisions of combat pilots. In his attempts to create a computational system that could analyze real-time data and ultimately predict the actions of a human agent, he came to the conclusion that “the physical functioning of the living organism and the operation of some of the newer communications machines are precisely parallel in their analogous attempts to control entropy through feedback.” That is, if entropically, the energy of all systems trends towards even dispersion—the most probable condition in the distribution of energy—the organized “information” of a communicative message trends against this order. It attempts, by “the negative of entropy,” to maintain the order of its current system by transferring non-probable information, or, ideas. As Wiener notes, “the more probable the message, the less information it gives. Clichés, for example, are less illuminating than great poems.”

The implications of Wiener’s cybernetics are staggering. Cybernetics not only proposes the parallel function of humans and “newer communications” machines, but by implication, the suggestion that one might substitute for the other. Furthermore, as

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46 Ibid., 21.
Wiener would consider the “feedback mechanisms” of willful human behavior as an attempt to negate entropy, cybernetic theory renders biotic life and technology as equally engaged in a desperate drive to maintain information as long as possible before the inevitable heat death of the universe.

Quite conversely, von Bertalanffy’s introduction of “systems” into biology was premised upon a fantasy of openness rather than the hopeless fits of combating entropy. Well before his widely-read General Systems Theory of 1968, he penned a series of important papers in the early fifties that put forward the claim that “From the physical point of view, the characteristic state of the living organism is that of an open system.”

Unlike closed systems, in which energy expenditure is limited by the initial conditions of the system, Bertalanffy’s theory of open systems stepped beyond the limit condition of entropy, to claim that equilibrium in a system can be reached in various ways and from a variety of initial conditions. Equifinality, as Bertalanffy named this concept, not only allows more possible forms of distribution within a given system but also necessarily leads to a view of the organism itself as more variable, open, and thus thoroughly interconnected to the entirety of its environment. His fundamental insight held that collective organization is better understood through distributions than individuals.

Thus the two versions of systems thinking to empower ideas of the ecosystem in the 1960s entered ecological discourse from two distinct positions: Wiener’s cybernetics from the top-down view of local communication events temporarily negating an inevitable end-game for the entire system, and von Bertalanffy’s general systems theory

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from the bottom-up perspective of bodies opening onto ecosystems. As the anthropologist and psychologist Gregory Bateson would characterize the problem in *Steps to an Ecology of Mind*: “Ecology has currently two faces to it: the face which is called bioenergetics—the economics of energy and materials within a coral reef, a redwood forest, or a city—and, second, an economics of information, of entropy, negentropy, etc. . . . that deals with the budgeting of pathways and of probability.” With his own interests in both the camps of environmental social policy and the neurosciences, Bateson is a fitting figure to address the seeming split that had taken shape between the ecology of organic systems and that of technological ones. Stemming from Carson’s own formulation of this problem, the apparent split was between a balance of energy intrinsic to its interconnected ecosystems and “information” calculated to control or impose order upon the natural world. In his own influential definition of “information” as “any difference which makes a difference in any later event,” Bateson’s own thinking would cut through this apparent split in the developing discourse of ecology. For in his formulation, information is specific to its system of generation, but not bound to present conditions. Information is that which “in-forms” and is legible within a system: ocean currents to the coral reef, rainfall to the redwood forest, or population migration to the city. Bateson’s distinction is one to which we will return later, as the first generation of artists to take up ecology had to work through the competing models of cybernetics and bioenergetics that had taken shape in the wake of the Second World War.

As this brief history has shown, by the mid-1960s there was not a single “ecology” that might serve as a baseline for discussions of the natural environment. The field of ecological theory received by critics and artists alike split not only into diverse social domains, but would continue to struggle with the perceived difference between biology and technology as the competing scaffolding of ecosystems. Accordingly, as we look now to the ecology of early land art, it is with an eye to working out how an aesthetic field premised strongly on the bodily encounter of the minimalist, sculptural object in the 1960s absorbed the model of ecosystems, divided as they were between the growing interests of environmental protectionism and the rise of computerized culture.

**Ecologic Art**

From May 17 to June 28, 1969, the John Gibson Projects for Commissions Gallery in New York held an exhibition provocatively entitled *Ecologic Art* (fig. 2.7). Before starting this Gallery, which, as its name suggests, displayed proposed projects rather than finished works, Gibson had worked as the director of the Dwan Gallery, and so it is with some suspicion that later critics have written off *Ecologic Art* as a derivative or trend-driven show following *Earth Works* of the previous year.\(^{52}\) Certainly many of the same artists were included in Gibson’s show, including Andre, Morris, Oldenburg, Oppenheim, and Smithson. The gallerist further expanded the initial group with European artists Christo, Dibbets, and Long (the latter two having shown in *Earth Art*) and added the Americans Peter Hutchinson and Will Insley, and notably did not include either Heizer or De Maria. Nonetheless, the real contribution of *Ecologic Art* lies less in the names it

\(^{52}\) See Michael Lailach, *Land Art*, trans. Sean Gallagher (Hong Kong and Los Angeles: Taschen, 2007). In a letter to Lucy Lippard dated May 28, 1969, Jan Dibbets even claims that “Gibson . . . stole the name for his new show from me.” Lucy Lippard Papers, Archives of American Art, Smithsonian Institution, Box 2.
compiled than the nuance it offers to understanding the burgeoning field of land art. As

*Earth Works* and *Earth Art* have most shaped the reception of land art to date, both shows present land art as almost exclusively a sculptural activity using the raw matter of the earth as its material.⁵³ Not so at *Ecologic Art*. Against the grain of the land art canon established at Dwan Gallery and Cornell University, *Ecologic Art* offers an alternate perspective on the artistic negotiation of ecological thought in the late sixties.

Concerning the title of the exhibition itself, I think critic Lucy Lippard gets the equivocal balance of ecological theory in land art quite right in her 1969 statement:

“Earthwork artists (or geomorphologists) are also more or less concerned with ecology.”⁵⁴ With all of the afterthought (they are “also”) and lack of commitment (“more or less”) imbued in this statement, Lippard’s assessment intimates an argument to be made decades later by the literary ecocritic Lawrence Buell regarding the power of ambiguity in environmental thought.⁵⁵ Sometimes a certain number of loose threads in a theoretical construct allow it to be productively borne out in concrete situations. This, I put forward, is the case with the “ecology” of land art. As our brief look at the history of this terms reveals, the notion of ecology inherited by the intellectual climate of the late sixties was at once expansive in scope and quite variable in the myriad intellectual perspectives it embraced, from nineteenth-century biology to economic materialism to postwar systems. Therefore, my treatment of the *ecology* implicit in *Ecologic Art* will stray significantly from more recent histories of land art where the term is taken almost

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⁵³ On the sculptural basis of early land art, see Willoughby Sharp, “Notes Toward an Understanding of Earth Art,” in *Earth Art*, n.p.


exclusively under the sign of environmental protection. Rather than inquiring whether certain key works in Gibson’s show address environmentalism as a political action, the more deep-seated question to pose of this exhibition asks how traditional artistic media—especially minimalist sculpture—could be reconceived as shaping a bold new ecological aesthetics.

In response to this question, we will look to the contributions of Hutchinson and then Oppenheim at Ecologic Art. Along one of the sidewalls at John Gibson Projects, Hutchinson displayed a two-foot-tall curious, constructed sculptural object entitled Storm King Mountain Project that combines a rock base, tapered Plexiglas beaker, and bread mold (fig. 2.8). Up until 1967, the artist had been engaged in a project of brightly colored relief sculpture. Like many of his colleagues through the middle years of the decade, Hutchinson had worked with optically-playful surface patterns; glossy, industrial paint; and simple, geometrical shapes to bound his sculptural objects. In the summer of 1968, however, he shifted quite abruptly to making what he termed “animate scale models” in test tubes and beakers using mosses, molds, algae, crystalline quartz, and insectivorous plants. Each of these self-contained, living environments would then be situated by the artist in a sculptural miniaturization of an outdoor site. He conceived of these small environments as models for larger creations in the land. Here describes a particular interest in working with icebergs and volcanoes as outdoor sites:

Thinking from my small test tubes to planet-size scale, I envisaged two pieces that would join two extremes of geography—the high and low latitudes, low and high temperatures. Also water (ice) and lack of water. This type of dichotomous

thinking became apparent in many models I started making which dealt with the organic/inorganic and conflict/cooperation, the very basis of life on a planet.\textsuperscript{57}

That is, Hutchinson planned to build giant glass structures in the shape of his laboratory objects, as in the project he envisioned for Storm King Mountain along the Hudson River in New York State.\textsuperscript{58} Unlike De Maria’s later scalar expansion of \textit{Bed of Spikes} from closed square bases into the open land of \textit{The Lightning Field}, Hutchinson hoped to maintain the glass enclosure of his terraria once introduced into the landscape. His full-scale works would maintain as little interaction with large, outdoor environments as did his scale-models with Gibson’s gallery space: systems independent of all but the moisture, temperature, and light of the place they inhabit. In Hutchinson’s proposed ecologic art, the rigidity of sculptural form would literally barricade the macroscopic ecosystem of a site and the microscopic one inside a glass terrarium. By comparison, the animate scale models call to mind the glass object placed upon a Tennessee hill in Wallace Stevens’s “Anecdote of the Jar,” except that Hutchinson’s sculpture pushes Stevens’s image to the point of dissolution: supplanting the “dominion” and “port” of Stevens’s jar with a foreign addition to the land.\textsuperscript{59}


\textsuperscript{58} As a notable connection within the development of land art, Hutchinson credits Smithson with the suggestion to use beakers in his models and Nancy Holt with the inclusion of molds within his environments. Ibid., 39.

\textsuperscript{59} Stevens’s “Anecdote of the Jar (1919)” reads:

\begin{verbatim}
I placed a jar in Tennessee,  
And round it was, upon a hill.  
It made the slovenly wilderness  
Surround that hill.

The wilderness rose up to it,  
And sprawled around, no longer wild.  
The jar was round upon the ground  
And tall and of a port in air.

It took dominion everywhere.
\end{verbatim}
Falling short of Gibson’s mission, however, Hutchinson’s models remained propositions. None were ever commissioned in actual landscapes.60 But the artist did move his practice outdoors when he and fellow artist Dennis Oppenheim were sponsored to create site-specific works off the island of Tobago in 1969.61 By that year, both Hutchinson and Oppenheim had arrived at distinct versions of an explicitly ecological art with roots in minimalism. For Hutchinson, his ties to minimalist sculpture were grounded not only in the art he produced but also in his equally accomplished criticism. In 1966, he published a piece in *Art in America* titled “Is There Life on Earth?” which evaluates the body of work that would eventually be grouped together by critics under the heading “minimalism,” but had not yet cohered as such.62 At the time of his review—preceding Michael Fried’s annealing “Art and Objecthood” and the appearance of Gregory Batcock’s influential compendium *Minimal Art: A Critical Anthology* [in which another Hutchinson essay, “Mannerism in the Abstract,” appears in reprint]—boxes, modules, and blocks had been exhibited by Donald Judd, Robert Morris, Carl Andre, Dan Flavin,

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60 Hutchinson had held a one-man exhibition titled “Landscapes” at Gibson’s gallery in the spring of 1969, the entire contents of which sold to the Menil Collection in Houston. Several artists associated with Gibson—including Oppenheim, Christo, Will Insley, and Hutchinson—were subsequently invited to create site-specific land art projects in Houston, none of which materialized. The only evidence currently available of the projects includes a drawing part of Smithson’s “continent” works of 1969, a collage board by Hutchinson showing a work to be created with the wood pulp of unprocessed paper, and a design for a pyramid of oil cans by Christo. A letter from John de Menil dated August 12, 1969 mentions these proposals and possible corporate sponsorships, but no details about their subsequent development appear here or elsewhere in the Menil Collection’s present archives.

61 In a joint project, Hutchinson traveled to the island of Tobago with Dennis Oppenheim in fall 1969. Hutchinson’s work consisted of a line of five local calabashes strung on a rope to a bed of coral such that they barely floated to the surface and transferred yellow flowers from the local landscape to the ocean floor, while Oppenheim transferred the pattern of U. S. Highway 20 to the surface of the water using purple dye and gasoline and then set the trail ablaze. Photographs of the projects were shown at the Museum of Modern Art in December 1969, and subsequently covered by *Time* magazine the following summer. “Back to Nature,” *Time* 95 (June 29, 1970): 62-64.

and Tony Smith for a number of years but the critical angle on the work still left much to be settled.63

It was the “minimalists” themselves, and especially Judd and Morris, who pioneered a trend of artists addressing their own work through written criticism. More balanced than the manifesto and more historically informed than the typical artist statement, these short essays have been fundamental in shaping the reception of sixties sculpture. It has been well rehearsed in the literature, for instance, how the appearance of Morris’s “Notes on Sculpture: Part I” in the February 1966 edition of Artforum directly responded to Judd’s “Specific Objects” published in the Arts Yearbook of 1965. Judd’s essay had described a new type of three-dimensional art objects he characterizes as “neither painting nor sculpture.”64 By rejecting these typologies of artistic mediums, Judd claims that such objects must be understood instead by one’s encounter with their surface, material, planarity, and so forth. Such objects are “specific,” Judd suggests, because of their claim upon a raw empirical nature.65 To this, Morris would retort that his and other geometrically-bounded objects of the mid-decade were characterized by the total perception of the object as a gestalt. To his position, it would not be the “specificity” of the individual qualities to be discovered in the object, but rather the unitary, indivisible projection of such regular polyhedrons within the mind that would distinguish the art received as minimalism. For Morris, “Simplicity of shape does not necessarily equate

with simplicity of experience. Unitary forms do not reduce relationships. They order them.”

Importantly, Judd and Morris both consider and reject the possibility that minimalist objects had become “environmental.” Judd, for one, accounts for environmentality as a function by which “specific objects” reject internal composition. “Most sculpture is made part by part, by addition, composed. . . . ” he claims, “There is little of any of this in the new three-dimensional work. So far the most obvious difference within this diverse work is between that which is something of an object, a single thing, and that which is open and extended, more or less environmental.” That is, to be “environmental,” or, indefinitely extended, appears as a limit condition for Judd’s sense of object-ness. It is not a “specific object” can occupy, just one that some work trends towards. Likewise, in Morris’s “Notes on Sculpture: Part II,” which appeared later in October of 1966 as a response to his own earlier essay, he would extend his argument from gestalt psychology to describe a more phenomenological connection in space of the viewing subject and object. Drawing upon the lack of internal division in the sculpture of the mid-decade, much like his colleague Judd, Morris would assert, “The better new work takes relationships out of the work and makes them a function of space, light, and the viewer’s field of vision.” And at one point, he even asks, “Why not put the work outside?” Unlike Judd, however, he would not allow environmental conditions to exist along a spectrum with object-ness. In response to his own question, Morris was not prepared to let the object go entirely from the structural framework established for the

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spectator by an indoor gallery space. Instead, he would position “The object [as] but one of the terms in the newer aesthetic.”

Therefore, although inflected differently from one another, Morris and Judd both employ the notion of object-ness as a kind of anchor that prevents the minimalist art object from slipping entirely into environmentality. Which is to say, as its discourse developed in large part out of these essays, minimalism remained strongly bound to the status of the object in space. Hal Foster is quite right to call this condition the “crux” of a modernist, vision-centered, medium-specific paradigm that reaches a climax in the minimalist object and then explodes. But as he argues this point in “The Crux of Minimalism,” Foster links the dissipation of modernist sculpture as directly preceding the so-called postmodern art of the 1980s. For the artists in Gibson’s Ecologic Art in 1969, however, the issue of dismantling the centrality of the sculptural object was still a pressing question.

Already in 1966, Hutchinson anticipates this dilemma in “Is There Life on Earth?” Rather than developing the perceptual interests of three-dimensional objects like his colleagues Morris or Judd, he focuses on the inhumanity or missing “life” in minimalist sculpture. “The new art does not apply for human sympathy but ignores it,” he argues; “There is nothing obviously human about them or the abstract geometry, topology, algebra and crystal symmetry on which they are constructed.” As a direct retort in his own art, we know that two years later Hutchinson would literally begin to fill lifeless minimalist vessels with living systems of organic material. Which is to say, his

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rejoinder to the question of “life on earth” was to supply self-sustaining, living worlds within the vessel of sculpture, if only at the level of the microcosm.

When he finally acquired adequate funding to complete a work on the lip of the Parícutin volcano in Mexico in 1970, Hutchinson realized that the ecologic aims of his practice would require discarding giant beakers and test tubes in order to integrate his activities more directly into the variable conditions of their environment. He had selected Parícutin because it was then one of the newest volcanoes in the world, having appeared in 1943 and erupted most recently in 1952, which meant there would be little to no living organisms present at the volcano’s lip. Instead of implanting a self-contained terrarium at the site, Hutchinson crumbled 500 loaves of Wonder Bread along the volcano’s fault lines and covered them with plastic. Upon his return to the site six days later, bread mold abounded. Thus in rejecting the role of structural enclosure in his work and turning from closed ecosystems to open ones, the artist was able to integrate his work more directly into its outdoor site. But while it did instill “life” into the production of art, Hutchinson’s Parícutin project nonetheless raises a fundamental problem for artists working with ideas of ecology in the late 1960s. Namely, once a work is placed directly in contact with the interrelationships of an open ecosystem, how can one still speak of and distinguish the work of art as such? What might maintain the categorical border formerly described by the edge of sculpture, lest the work continue indefinitely, as had worried Judd, or disappear into its surround, as had concerned Morris? These were, in fact, the very problems that propelled Oppenheim into environmental art.

Across from Hutchinson’s model of Storm King Mountain Project in Gibson’s gallery, Oppenheim displayed a photograph and map of a work he had completed
previous year, the *Nebraska Project* (fig. 2.9). Using the pattern from rainfall data plotted on a line graph, the artist transposed this design with a plow onto an actual field of earth in the state of Nebraska. Suiting his *Project’s* disjunctive ways to mark and communicate information, Oppenheim presented it within the gallery by combining low-angle photographs of churned earth and the aerial schematic of a map sectioning off central Nebraska. Like the work of his soon-to-be collaborator, Hutchinson, Oppenheim’s contribution to *Ecologic Art* operated through an unlikely juxtaposition: where Hutchinson’s *Storm King Mountain Project* sought to combine a small, simulated ecosystem within a large, natural one, Oppenheim’s *Nebraska Project* explored different notation systems—rainfall data, maps, photographs—through which we model and simplify ecosystems.

Oppenheim’s engagement with the ecology of art had begun in 1967 when he cut a simple but prodigious sculpture into a hillside in Oakland, California. This work, *Oakland Wedge*, of which we have no photographic or filmic documentation, was as it sounds, a wedge-shaped space cut away from the upward slope of a hill. But in its straightforward composition, this work directly interrogates the bounded edge that separates discrete sculptural objects from their surrounding environment. Commenting on the success of what he termed the “object-oriented art” of minimalism, Oppenheim would declare that through “the clarity and success of some of the past sculptors—Judd, Morris, and Andre—it became clear, or at least evident, that a point had been reached in a certain kind of work that couldn’t really be extended.”

Two years before the *Oakland Wedge*,  

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Morris’s work had also attempted to extend or complicate the boundedness of his own sculptural objects in the artist’s *Mirror Cubes* (fig. 2.10): four mirrored boxes arranged on the ground that reflect the image of their surroundings. Though acknowledging their environment and blurring their own position within it through a camouflage-effect, the *Mirror Cubes* nonetheless still act as the point of exchange or absorption for their visual environs. They center one’s perception. Oppenheim would act against such object-centrality by literally emptying out his *Oakland Wedge* as pure negative space.

Attempting to invert the centripetal force of the minimalist object, he claimed to have turned the *Wedge*’s “surrounding land into an active boundless peripheral.” While the artist performed only the action of cutting away a triangular volume, the work that resulted is at once a negative space bounded by its surrounding environment and the reconfiguration of this environment through an act of displacement.

Furthermore, the effects of *Oakland Wedge* soon registered well beyond its immediate surroundings. This work would continue to ripple through Oppenheim’s approach to environmental art as his own understanding of the negative cut shifted away from the impasse of “object-oriented art” to integrating ecological systems. That is, he began to conceptualize the work done in Oakland as initiating an ecological kind of reverberation. As he explained in a 1969 interview, when works of art “involve outdoor areas, they involve an ecological kind of framework which, when effected by the artist, can create numerous side effects which themselves can reiterate almost a constant, never-ending change. . . . So in that sense this new work has a very long span of existence.”

From this statement, I take Oppenheim to have formulated a new working problem for

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72 Dennis Oppenheim, *Dennis Oppenheim: Explorations* (Milan: Charta, 2001), 32.
73 Oppenheim interview with Novell in *Recording Conceptual Art*, 25.
ecologic art, which would read: *if one situates the work of art within open, ecological systems, how might it best inflect the operations of such systems?*

This question would push Oppenheim’s work well beyond the pursuit of inverting or transposing the object-centrality of minimalism, and likewise, his and Hutchinson’s early formulations on display at Gibson’s exhibition. As we now leave *Ecologic Art* to follow Oppenheim’s more direct engagement with ecosystems, we will continue to track the artist’s ongoing re-evaluations of *Oakland Wedge* as they developed within a discourse of more explicitly ecological aesthetics.

**(Eco)Systems Aesthetics**

In a landmark essay published in September 1968 entitled “Systems Esthetics,” the critic Jack Burnham influentially defined “A systems viewpoint,” for contemporary art, which, he argued, “is focused on the creation of stable, on-going relationships between organic and inorganic systems.” Taking up the problem in the history of ecology between open, organic models of ecosystems and cybernetic, technological ones, Burnham argued that artistic systems should act as the bridges or prosthetic joins between such artificial and natural environments. “The systems approach goes beyond a concern with staged environments and happenings,” he continued, “it deals in a revolutionary fashion with the larger problem of boundary concepts.” Yet for those contemporary readers engaged in debates around the medium of sculpture in the late 1960s, Burnham’s “boundary concepts” would have appeared both provocative and productively vague. For the

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emerging field of land art, such an aesthetic of ecosystems could make sense only if worked through the critical terms of the minimalist object.

The preceding year, 1968, Burnham had published a comprehensive volume entitled *Beyond Modern Sculpture* which rewrote the history of twentieth-century sculpture as a gradual shift from objects to systems. In Burnham’s words, such a transition was the product of “the industrial trend toward a systematized environment,” which in turn prompted the production of art to turn from a history of object-making to what Burnham would soon call the making of “unobjects.”75 In the case of Oppenheim’s own “unobjects” that spiral outwards from the *Oakland Wedge*, we can locate a distinct kinship between the artist’s aspiration for an art that would resound through the links of an interconnected chain and Burnham’s definition of a “Systems Esthetics.”76

Oppenheim’s first works to explicitly employ such concerns would also embody Burnham’s own ambivalence between ecology as a system of designing new, technological environments versus one of understanding existing, organic ones. During an eight-month period from 1967 into 1968, Oppenheim staked out his position through a series of *Sites*. Unlike Robert Smithson’s own discourse of Site/Non-Site that developed at this same time, Oppenheim’s *Sites* were not conceived as points of relation or dialectic between outdoor locations of artistic production and indoor locations of display.77

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76 Oppenheim was a close and early reader of Burnham’s criticism and noted his affinity for the critic’s thinking in interviews and written statements. See for instance, Alanna Heiss, “Another Point of Entry, An Interview with Dennis Oppenheim (1992),” in *Land and Environmental Art*, ed. Jeffrey Kastner (London: Phaidon, 1998), 224, 226; Oppenheim’s interview with Norvell in *Recording Conceptual Art*, 21-30; and the oral history interview with Dennis Oppenheim, 1995 July 12, Archives of American Art, Smithsonian Institution.

77 Smithson’s “nonsites” are collections of raw materials collected at a “site” outside the museum or gallery that might include rocks, dirt, sand, or gravel and which the artist then exhibited in the gallery space. He
Instead, he marked places like “dumps, borders of countries, deserts and waste lands” with stakes, maps, and textual descriptions in order to call attention to “places that had not been incorporated into a system [or,] . . . peripheries.” Although the artist used forms of information (cartographic, textual, physical) in place of actually cutting into the earth’s surface, the Sites, like Oakland Wedge, acted as points of inflection for their environment. Remarkably, and even paradoxically, the artist imagined these works to exist as both physical locations and interstices among interlocking social systems. Where it might seem absurd to say the Sites could exist outside a social ecology (and counter to the very notion of a social ecology itself), these works played the productive role of directing the artist’s attention to literal “in-between” zones.

Oppenheim’s ecological art to immediately follow took the impetus of the Sites a step further by attempting to operate literally within liminal areas. In 1968 he cut rings into the snow on either side of the American and Canadian border in Boundary Split; later that year drove a snowmobile for exactly an hour through the time zone between Fort Kent, Maine and Clair, New Brunswick in Time Line (fig. 2.11); and in 1969 planted a field of wheat in Finsterwolde, The Netherlands according to the pattern of roads approaching the site for the work Directed Seeding (fig. 2.12).

As Oppenheim’s art more directly addressed the working systems of time, geography, and agriculture, it is only fitting that Burnham’s next major piece of criticism, “Real Time Systems,” would single out the artist’s work. Writing on what was then an ongoing work in Finsterwolde, where, following Directed Seeding, Oppenheim next packaged the field’s grain harvest and sold it within an art gallery in a work he called

provides a chart defining the qualities on either side of the “Dialectic of Site and Nonsite” in a lengthy footnote to the essay “The Spiral Jetty (1972).” See Smithson, Collected Writings, 152-153.

78 Heiss “Another Point of Entry,” in Land and Environmental Art, 224.
*Cancelled Crop*, Burnham claims, “The significance of this project is that Oppenheim is using the untapped energy and information network of the day-to-day environment. Such situations produce abundant information with a minimum of reorganization.” And to drive home his claim that Oppenheim’s work had moved into “a broad use of interacting ecologies,” the critic concludes by quoting the following statement from the artist himself:

> In ecological terms what has transpired in recent art is a shift from the “primary” homesite to the alternative or “secondary” homesite. With the fall of the galleries, artists have sensed a similar sensation as do organisms when curtailed by disturbances of environmental conditions. This results in extension or abandonment of the homesite.⁷⁹

In other words, Oppenheim claimed to have now transposed the ecological systems of his art onto the exhibition and distribution networks of the art market. With the gallery system on the wane, he argued, the production and exhibition of art is forced to integrate entirely into a new “homesite” in the biotic world.

Once again, this transition hinges on minimalism as a point of departure. When Burnham first wrote about the promise of creating “unobjects” in “Systems Esthetics,” the term suggested an undoing of the sculptural object’s singularity. But in the shift from such early endeavors as *Oakland Wedge* to Oppenheim’s subsequent work which he integrated more directly into biotic and financial cycles of production and distribution, we encounter a return to and reconceptualization of the very notion of singularity. On this point, the French philosopher Félix Guattari offers a useful distinction. In his essay “The Three Ecologies,” Guattari considers the difference between the singularity of objects in a series against that of objects situated within ecosystems. As he notes,

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The members of a series are united in being turned towards an exterior object, in which they have a common interest, without having a project in common and without necessarily being aware of one another. The unity of the series is not active, rather, it is passive and contingent because it is prefabricated.\textsuperscript{80}

To take Guattari’s point as commentary on the one-thing-after-another logic of the industrially-manufactured minimalist object, such sculpture connects only passively and contingently to the other objects in its series. All the modules refer back to an original model rather than cohering dynamically with one another. Alternatively, it is only by ecological formation that the passivity of serialism can be reformulated as one of active or ongoing exchange. For Guattari, ecology is not an organizational system that breaks down along a reductive line of either organic or technological production, but instead activates the individual points within the ecosystem through what he calls “processes of singularization” that both register individual nodes and the interconnection of the overall system.\textsuperscript{81} As he claims, “Ecology must stop being associated with the image of a small nature-loving minority or with qualified specialists. Ecology in my sense questions the whole of subjectivity and capitalistic power formations.”\textsuperscript{82}

Guattari’s ecology reminds us that land art of the late 1960s was formulated not only in response to the singularity of the minimalist box but also to a perceived lack of internal relation between such bounded geometrical forms and their surrounding systems of information. For Oppenheim, his various approaches to negating bounded, geometric sculpture shifted from first attempting to reverse the positions of object/environment to eventually producing works that call attention to the arbitrary notational systems that bridge the diversity of biological ecosystems with the market of artistic display. That is to

\textsuperscript{81} Ibid.
\textsuperscript{82} Ibid., 52.
say, what began for Oppenheim as an affective project of magnifying outward from an initial cut or *Site* within an ecosystem became one of registering the gaps within the systems of information through which such ecosystems are understood. Following Burnham’s call to bridge biotic and technological systems, a work such as *Cancelled Crop* is premised on revealing the mechanisms of distribution and consumption that bind seemingly disparate worlds of art and agriculture.

Oppenheim’s work indeed turned to “information” as its primary medium, but not in the rudimentary sense of data records, maps, and visual documentation. It is useful to return now to Bateson’s notion of information as “any difference which makes a difference in any later event.” Instead of rendering “information” as a static or documentary message of an idea, Bateson’s sense of the term registers the manner in which environmental actions cohere to one another without claiming to rewrite an entire system, whether by a “singularization” in Guattari’s sense or its related “differentiation” in Bateson’s. Information is about the selective choosing of a fact, action, or notational method that reveals connections that would otherwise have remained unfixed in pure output. In this sense, Oppenheim’s seeding projects or even Hutchinson’s work at the Paricutín volcano need not purport to change the entire composition of large ecosystems in order to obtain ecological sophistication.

As additional commentary on Bateson’s concept of information and its ecology, we might look also to Niklas Luhmann’s *Art as a Social System*, a text introduced earlier in chapter one. Luhmann’s account of systems theory provides a useful response to a lingering question in the move from minimalist sculptural practices to ecological ones. As framed through the work of Oppenheim, we have followed the transition from the
artist’s own inversion of the sculptural object in *Oakland Wedge* to his speaking explicitly of art seeking a “secondary homesite” in environments outside the art gallery. Despite Oppenheim’s working relationship with Burnham and his own claims for the direct impetus of ecology in his practice, the place of scientific theory to explain this work is neither direct nor analytically sustainable. On this account, Luhmann offers a useful clarification on the issue of comparing disparate communication systems:

The theory of society itself requires two different approaches, assuming (1) that the system as a whole is operatively closed on the basis of communication, and (2) that the functional systems emerging within society conform to, and embody, the principle of operative closure and, therefore, *will exhibit comparable structures despite factual differences between them* (emphasis in original).

The key to this statement turns on what Luhmann means by systems sharing “comparable structures despite factual differences.” But to understand this, we must first clarify his sense of “operative closure” within such social systems. By operative closure, he refers to the manner in which the meaning or cohesion of a system—be it of art, law, science, etc.—maintains its rules of operation through the generation of new terms. By this theory, an individual social system must maintain its own internal terms of operation, otherwise the coherence of the system will be lost to external noise. Thus for Luhmann, systems are self-generating, or, autopoietic. This does not mean, however, that the generation of a social system is automatic. Drawing his position in part from Bateson’s “difference which makes a difference,” Luhmann explains, “A distinction discriminates; its mere occurrence creates a difference. To become relevant as form, the occurrence must be observed (retrospectively by the same system, simultaneously or later by another system); only then does the unity of the distinction become apparent as the blind spot that enables

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This means that any system is based on a need to generate new distinctions that extend its relations in ways that are meaningful and unique. On the one hand, this necessitates that any system will include its own “blind spot” or empty center, which is never fulfilled and is only apparent upon retrospection. In the case of modern art as a social system, this manifests as a desire for innovation. On the other hand, the various self-generating systems that comprise a social order might draw upon similar material, but this material is only meaningful within the internal order of the given system that observes it. One could speak of a structural similarity or even points of interchange between scientific ecosystems and artistic ecosystems that draw upon similar data and objects, but these must necessarily be incorporated and therefore knowable within incommensurable systems.

Therefore, Luhmann’s reading of “information” helps to clarify the precise stakes of ecosystem aesthetics in the art of Oppenheim and his contemporaries. The ecological basis of land art could only operate upon issues already internal to the artistic world of the 1960s. That is, artistic production could remain meaningful outside of the gallery system—in the land—only by folding ecological issues into terms that were already internally coherent. While Hutchinson sought to add life to the sculptural prism and Oppenheim to turn it inside out, the aesthetics of their resulting art could only make sense by working through terms set out by minimalist sculpture and criticism. Art could not simply move outside into the “environment.” As Luhmann argues, an “environment” in not coherent to thought on its own. It is, instead, a stable and unorganized series of conditions exterior to a communicative system: “In order to determine how the

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84 Ibid., 32.
autopoiesis of art is possible, one must observe the art system and treat everything else as environment.”\(^{85}\) Thus, advanced art integrated issues of ecological production by processing them through established norms of the bounded sculptural object. In moving physically into ecosystems outside of gallery walls, land art also had to communicatively bring such ecosystems into the world of art.

But as we know from prominent examples from De Maria, Heizer, and Smithson, many land artists continued to maintain strong ties to traditional techniques and forms of sculpture created with the raw materials of the earth. To delve into one particular term of this sculptural persistence within land art, the final sections of this chapter will follow the ecological absorption of one of minimalism’s most important concepts: sculptural scale. We take up this topic first through the ambitions of the environmental movement to affect change at the level of the whole earth, until, finally, returning to the scalar expansion of De Maria’s minimalist *Bed of Spikes* into *The Lightning Field*.

**The Scale of the Whole Earth**

It has now become a fixture of environmental history that the photograph known as “The Blue Marble” taken on December 7, 1972 by the crew of Apollo 17 represented the whole earth in a manner that could be understood as singular, unified, and therefore internally bound to its own large-scale ecosystems (fig. 2.13).\(^{86}\) To understand the impact of this seminal image, however, one must realize that prior to its reproduction across virtually every conceivable visual media, the singular earth depicted in this photograph was anticipated by vigorous discussions in the 1960s that sought to expand regionally-

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\(^{85}\) Ibid., 51.

\(^{86}\) On the recurrent thematic of the blue marble photograph in environmental discourse, see Greg Garrard’s chapter “Futures: The Earth,” in *Ecocriticism* (London: Routledge, 2004), 160-182.
specific environmental debates to the level of the entire earth. In 1966, Stewart Brand, the activist and later founder of the *Whole Earth Catalog*, very publicly accused NASA of withholding photographs of the earth. In response, he went on a national hitchhiking tour selling buttons that read, “Why Haven’t We Seen a Photograph of the Whole Earth Yet?” Brand sensed, correctly, that a picture of the entire earth as a contained form against a void-like ground of black space would powerfully effect the collective imaginary in recognizing the real stakes of environmental politics.

One important figure behind Brand’s investment in a holistic view of the earth was the public polymath R. Buckminster Fuller. Fuller had a complicated relationship to countercultural activity, at once popularizing the geodesic domes that would fill the hippie haven Drop City in Colorado and promoting the type of multi-sensory media environments in his World Game displayed at the Montreal Expo in 1967 that would inspire experimental environments from groups such as USCO and Ant Farm. Fuller’s calls to unite world architecture through “electrical fields and other utterly invisible environment controls,” equally suited the increasingly global awareness of the environmental movement. From the vantage of the early twenty-first century, however, all that might have seemed liberatory in these endorsements of communications technology and globalization in the 1960s now shows itself all too susceptible to cooptation by the very systems of power that distribute such technologies internationally.

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88 For an account of Fuller’s position within countercultural architecture and media events, see Felicity Scott, *Architecture or Techno-utopia: Politics after Modernism* (Cambridge, MA and London: MIT Press, 2007). I discuss Ant Farm in greater detail in chapter four.
But in 1969, Fuller’s integration of advanced technologies, environmental concerns, and the promise of globally-integrated systems proved widely influential in his short volume *Operating Manual for Spaceship Earth* (fig. 2.14).

At the root of Fuller’s catchy prose about the earth hurling through space as a spaceship with inhabitants onboard as astronauts lay a deeper concern to incite holistic thinking in his readers. His account made explicit all that had been left implied in the aleatory montage sequence of the CBS Reports on *Silent Spring* and *Faith 7* in orbit: that environmental pollution and sustainability are critical and shared problems, concerning every inhabitant of the “spaceship” and not only those who directly create toxic waste or whose locality has already been directly affected. In his infamously profuse and terminally optimistic language, Fuller describes,

> It is obvious that the real wealth of life aboard out planet is a forwardly-operative, metabolic, and intellectual regenerating system. Quite clearly we have vast amounts of income wealth as Sun radiation and Moon gravity to implement our forward success. Wherefore living only on our energy savings by burning up fossil fuels which took billions of years to impound from the Sun or living on our capital by burning up our Earth’s atoms is lethally ignorant and also utterly irresponsible to our coming generations and their forward days. Our children and their children are our future days. If we do not comprehend and realize our potential ability to support all life forever we are cosmicly bankrupt.

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Therefore, the forward march of history, in Fuller’s view, impels the cosmic citizen of 1969 to a comprehensive view of living as living on earth. “We must ask,” Fuller provokes, “How big can we think?”\(^{91}\)

The pendant question posed by Fuller puts forward a slightly different inflection, asking, “How do we think in terms of wholes?” His response, like others we have considered in this chapter, was to posit a new descriptive language to account for events in history and in the everyday as interrelated energy events distributed according to variables of size and frequency. In his pithy turn of phrase, “Around the Earth insects occur more often than do earthquakes.”\(^{92}\) The function of energy as the ur-currency for speaking about natural systems or, to use the term Fuller adopted from von Bertalanffy, a General Systems Theory, was commonplace in 1969. The key to Fuller’s particular account in the *Operating Manual for Spaceship Earth* lies in his push from merely recognizing the individual ecosystem to thinking and operating at the level of a worldwide system.

Nonetheless, Fuller’s citation of von Bertalanffy’s phrase is likely more attributable to the popularity of the latter’s 1968 publication of *General Systems Theory* than the former’s own support of truly open organizational systems. The root thinking in Fuller’s account finds more compatibility, in fact, in the legacy of cybernetics. Where in Wiener’s account, technological computation had reached a point of compatibility and even interchangeability with the human mind, Fuller pushed this idea of mirroring to the extreme position of claiming a sliding scale of isomorphic, rational structure throughout the earth’s ecosystems. Naming this structure “topological” in *Spaceship Earth*, he

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\(^{91}\) Ibid., 59.

\(^{92}\) Ibid., 40.
claims, “Topology is the science of fundamental pattern and structural relationships of event constellations.” That is, layers of rational activity form a topology through which one can imagine ecological theory and ecological art connecting infinitely upwards and downwards by equally rational steps, like so many cinematic frames in Ray and Charles Eames’s *Powers of Ten* (1977). Expanding upon this idea through another of his pet terms, “synergy,” Fuller continues, “There is a corollary of synergy which says that the known behavior of the whole and the known behavior of a minimum of known parts often makes possible the discovery of the values of the remaining parts. . . . Topology provides the synergetic means of ascertaining the values of any system of experiences.”

The micro is the macro, and everything in between.

But where Fuller’s version of the earth’s scale was utopian to the point of near hyperbole, the *Whole Earth Catalog* that Brand began to publish in fall 1968 through the Portola Foundation of Menlo Park, California grasped the issue through a more pragmatic “access to tools,” as the *Catalog* advertised on its cover (figs. 2.15 and 2.16). The *Whole Earth Catalog* provided information about a wide range of such tools, divided into the seven categories of “Understanding Whole Systems, Shelter and Land Use, Industry and Craft, Communications, Community, Nomadics, and Learning.” As Fred Turner has recently shown, the scope and function of *Whole Earth Catalog* provides a crucial link between, on the one hand, countercultural activists acting out against the military-industrial “machine” and returning to the land in hippie communes, and, on the other, the cold-war-era research labs in the 1940s and 1950s which contributed to the rise of systems thinking. As such, the *Catalog* brought together the motley assortment of “axes

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93 Fuller, *Operating Manual for Spaceship Earth*, 73.
and hoes to amplifiers, strobe lights, slide projectors, and LSD” one required to drop out, while supplying the same population with “the cybernetic musings of Norbert Wiener and the latest calculators from Hewlett-Packard.” As Turner acutely demonstrates, the Catalog was not merely a meeting place for those invested in the vast scope of ecology’s information networks, but it operated more precisely by creating a kind of “network forum” of users that would later characterize Brand’s organization of the Whole Earth ’Lectronic Link (WELL) in the 1980s which subsequently led to the foundation of Wired magazine. The Whole Earth Catalog created the interchange of counterculturalism’s independent spirit with the systems theory of postwar research labs, forging a powerful model of information networks and computing itself as “digital equivalent of the western landscape into which so many communards set forth in the late 1960s, the ‘electronic frontier.’”

In addition to its pragmatic exchange of earth-ware with software, the Whole Earth Catalog also provides an important interpretation of Fuller’s topological scale. As we can see on the cover of the first issue, Brand was indeed able to acquire an image of the whole earth—the partially obscured “Earthrise” video still taken by Apollo 8 in 1968. “Earthrise” reveals an utterly solitary planet. This small circle, bounding the entirety of life on earth within the desolate, empty space surrounding it, presents a clear message to the budding environmental movement: this is Fuller’s lonely spaceship and we its passengers. Looking inside, however, the Catalog’s opening spread of “Whole Earth Systems”—essentially the pages most clearly dedicated to Fuller himself—present a more conflicted montage. Amid the cybernetic imagery of Fuller’s Dymaxion World Map

94 Fred Turner, From Counterculture to Cyberculture, 4-5.
95 Ibid., 6.
and complicated charts of man’s “Closed Ecological System” designed to duplicate life systems within an astronaut’s space suit, there is an unusually frequent recurrence throughout this page of a mundane, spherical paperweight. As befits the homemade quality of the Catalog as a whole, this spherical object appears crudely within documentary photographs of several objects shot within the workspace of the Portola Institute. As it shows up, for instance, within a reproduction of NASA’s publication *Earth Photographs of Gemini III, IV, and V*, this item might seemingly have been practically necessary as a weight to hold open the book for photographic reproduction. However, as left visible also upon film canisters sitting before a printed still of the earth and casually alongside a poster of “Earthrise,” this object begins to register instead as a miniature abstraction of the earth’s spherical form. Within this opening spread, the earth is depicted variously as a cybernetic energy system, a series of both close-up and holistic photographic views, and, finally, a bounded object to be cradled in the palm of one’s hand. The visuality of “Whole Earth Systems” presented in the *Whole Earth Catalog* thus renders the earth not only by its complex of ecological systems, but also as physically scaled to the human body.

Similarly, the mandate to think big in the sculptural enterprises of early earthworks also forged relationships of scale in terms of the human body and the whole earth. As recent scholarship of minimalism and its immediate aftermath has shown, the issue of sculptural scale arose as an especially vital concern in the mid-1960s. Scale, it must be remembered, is a second-order relationship of size: the manner in which an entity of one size is able to relate to an entity of another. As Pamela M. Lee aptly notes, “Scale is, in sum, a matter of relative quantity and the dynamics that transpire between
elements within and without the art object. Quantitative difference, deployed both within the body of the work of art and its disposition in space, is that which enacts the experience of scale.  

Likewise, as attuned to the relative relationship of objects in space, minimalist sculpture was precisely bound to issues of scale. Morris’s “Notes on Sculpture: Part II,” for instance, with its emphasis on the interactive, phenomenological field between viewer and object, is a touchstone for such considerations. In the opening section, where he considers the relationship of sculptural size in the “continuum between the monument and the ornament,” Morris pays particular attention to the experience of objects as they reach the limits of the monumental. As he states,

The awareness of scale is a function of the comparison made between the constant, one’s body size, and the object. Space between the subject and the object is implied in such a comparison. . . . Things on a monumental scale, then, include more terms necessary for their apprehension than objects smaller than the body, the literal space in which they exist and the kinaesthetic demands placed upon the body.

Contrariwise, recent criticism has noted the near disappearance of somatic scale against the sheer size of many contemporary works of art. It is indeed one of the dominant trends towards the latter years of minimalism that sculptural works dramatically increased in size, to the point of dissolving the very connections through space and kinaesthetics that Morris, for one, would define as fundamental to these objects. In the now-canonical Scale as Content exhibition at the Concoran Gallery of Art in 1967, the contributions of Tony Smith’s Smoke, Ronald Bladen’s The X, and Barnett Newman’s

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97 Morris, “Notes on Sculpture: Part II,” 231.
Broken Obelisk had grown to gallery size and beyond. Directly addressing another of Morris’s concerns in the second part of his “Notes on Sculpture” that objects need the framework of their gallery setting to be properly comprehended in space, the three sculptors at Scale as Content expanded their objects to the point of near synthesis with the spaces of the museum. In a photograph of Bladen’s The X, for instance, one notes the manner in which his giant object actually frames the neoclassical sculpture beyond it, taking on the architectural function of the museum itself (fig. 2.17). As one reviewer even noted, the shape of The X had to be altered during its on-site construction to better fit the Concoran’s atrium.99 Yet instead of understanding the “sheer size” and “mere size” (phrases from Lucy Lippard’s review of the exhibition) of these works as anticipating the way forward for sculpture, I propose that these works represent only one side of the broken relationship between scale and size.100

The year 1967 also coincides with the beginnings of land art, and despite the persistent claim that the large sculptural land works of De Maria, Heizer, and Smithson neglect or simply disrupt the local ecologies of their sites, we will now turn to these works in the final section of this chapter as a unique intervention in the history of sculpture scale. The widespread dissemination of Fuller’s Operating Manual for Spaceship Earth and Brand’s Whole Earth Catalog had indeed submitted an appeal to raise ecological consciousness and activity to the level of the whole earth. Between the topological rationality of Fuller’s account and the assortment of individualist and collectivist motivations in Brand’s Catalog, the formative earthworks of land art address the scale of the earth through a transformation of minimalist somatic scale. Instead of

100 Quoted in ibid., 224.
positioning the work of art in relation to the size of its spectator, these earthworks act as an interface within ecologies that encompass both spectator and the surrounding landscape. In other words, I will argue that large size and remoteness are not the distinguishing features of *The Lightning Field*, *Double Negative*, and *Spiral Jetty*, but the means that connect these works through an expanded sense of ecological scale to the models, information systems, and photomechanical media on display at seemingly alternative exhibitions like Gibson’s *Ecologic Art*. If ecology is a matter of internal relation, or finding the coherent “steps” as Bateson would have it, we consider, finally, the scale of earthworks.

**The Lightning Field at Large**

Enter *The Lightning Field* as cipher of land art’s ecological scale. As noted above, the form of De Maria’s array of metal poles derives directly from a scalar expansion of the *Bed of Spikes* displayed in his *Danger* exhibition of 1969. As the earlier discussion of *Danger* addressed the split enacted in this show between the site of action outside the gallery in the “land” and the constraints implicated in the indoor, sculptural object, we can now see that this critique runs deeper still. *Danger* addressed not only an evacuation of the gallery as a self-sufficient system of display—in line with related critiques by Oppenheim’s *Sites* or Smithson’s Site/Non-Site distinction—but more importantly, the internal rift within De Maria’s minimalist sculpture displayed at Dwan cast doubt upon minimalism’s imputed phenomenology, its objects’ capacity to positively address and engage active, moving bodies in space. Just as critics such as Hutchinson had earlier questioned the lifelessness of the serialized, prismatic, and industrially-wrought
sculptural object, so the internal divide within *Danger* cast this line of critique further still. If the minimalist sculpture addressed itself as a body sharing the same intertwined space as its observer, *Bed of Spikes* revealed this contact as limited only to seeing and knowing. Actual, physical contact and movement could occur only outside the gallery, out in the land. But to this position arises the rejoinder: How, then, could such objects be transformed into the kind of outdoor, interactive sculpture that De Maria would create in *The Lightning Field*? To the point, *Bed of Spikes* could not simply be expanded in its own scale from steel beds to an earthen one. To be meaningfully recast into the scale of an outdoor environment, *Bed of Spikes* would have to displace the interwoven issues of bodies and scale within its minimalist “social system of art,” to invoke Luhmann’s concept once more. This move occurred neither smoothly in De Maria’s land practice nor without complicating the revision to sculptural scale taking place in the other pivotal earthworks, *Spiral Jetty* and *Double Negative*.

Significantly, all of De Maria’s earliest conceptions of land art remove human presence almost entirely from the experience of the work. As early as 1964, he had created a series of drawings for *Mile-Long Walls in the Desert*—the never-realized work for which *The Mile-Long Drawing*, the work featured in De Maria’s *Danger* advertisement, was also a preparatory drawing or in situ sketch—that present minor consideration of human interaction. This suite of drawings shows the walls in a series of extreme views (figs. 2.18 and 2.19): dramatic perspectival recession from one terminal end, steep vertical planes receding from a point forty feet from the exit, and aerial shots envisioned from a helicopter, from an airplane, and from a two-mile altitude above the earth’s surface. Only in two cases do we see a human form imagined within the work and
in each case this person is reduced to a mere dot. As such, De Maria’s early drawings of the Walls reveal a fascination with various orientations of line and plane relative to a viewing position. These, however, are not necessarily viewing positions that could be attained by a person simply walking around the Walls. If ever completed, the Walls certainly would have cultivated affect from their viewer to an extreme: essentially holding one in mile-long, claustrophobic captivity of a far greater degree of intensity than Bruce Nauman’s later Corridor (1969). But in his suite of drawings which imagine the various ways to present and record the Walls, this level of personal interaction is almost entirely elided. The spectator is either reduced to a mere speck or otherwise removed entirely from the work in favor of the fine perspectival calibration of the camera’s lens. These drawings in fact separate the affective experience of this work from its appearance within a mechanized or mathematical sliding scale of representation. In place of rendering scale as an external relation to somatic presence, the drawings construe the Walls from the position of a disembodied eye.

Significantly, this sliding scale would later appear in one of land art’s most iconic outdoor works, Smithson’s Spiral Jetty (fig. 2.20). Though it has become a popular site among travelers of artworld destinations and attractions of the American West, Spiral Jetty is an emphatically empty or neutral work of art to behold. The massive coil of rock stands as an impressive object in and of itself and the liquid in which it sits an alluring murky red. One might also pause upon the substantial salt encrustation that appeared on the Jetty’s rocks after they resurfaced from years of submersion under a high water line,

101 As Bourdon reiterates, the Walls, if completed, would have created a highly intimidating environment to enter: “The spectator will probably become uncomfortable as he approaches the middle, feeling hideously restricted even while walking under an open sky with visible exits at either end.” Bourdon, “Walter De Maria: The Singular Experience,” 72.
like white gems in a blood red sea. And yet, for all of the visual wonder and surprise it has provided visitors of the past four decades to Rozel Point in the Great Salt Lake, there remains little interpretive or structural contact between the Jetty and its viewer.\textsuperscript{102} This condition can be ascribed in part to Smithson’s unique position on scale. As he explains in his 1972 essay “The Spiral Jetty,”

The scale of the Spiral Jetty tends to fluctuate depending on where the viewer happens to be. Size determines an object, but scale determines art. A crack in the wall if viewed in terms of scale, not size, could be called the Grand Canyon. A room could be made to take on the immensity of the solar system. Scale depends on one’s capacity to be conscious of the actualities of perception. When one refuses to release scale from size, one is left with an object or language that \textit{appears} to be certain. For me scale operates by uncertainty. To be in the scale of the Spiral Jetty is to be out of it.\textsuperscript{103}

In this fascinating passage, Smithson at once announces and complicates the role of scale in his monumental work in the Great Salt Lake. He clarifies that \textit{Spiral Jetty}’s artistic scale involves the perception of relative size, but it is not the body that grounds this comparative relationship. Significantly, he provides no stable point or object to regulate the work’s relationality.\textsuperscript{104} Against the massiveness of his earthwork, Smithson places the onus of realizing scale on the viewer’s \textit{imagination}— “one’s capacity to be conscious” — and not upon the condition or structure of the work itself.

As Smithson goes on to explain, scale exists within the \textit{Spiral Jetty} because every level of the work extends isomorphically from the conditions he, as its \textit{author}, initially imagined at the site. As he describes first coming upon Rozel Point in “The Spiral Jetty”

essay, his own presence and glance initially trigger a series of conceptual displacements
that will eventually “spiral” out into his earthwork: the land begins to tangle his map into
“a net of dashes,” the lake is “stoney,” light “crushes,” and the technological advance of
time is turned on its prehistoric head as he glimpses signs of “Devonian industry” and
“the remains of a Silurian technology.” Within this flurry of transpositions, the artist lays
no claim to his later sculptural construction in the Lake generating this mad universe; the
claim is that the place was already a site at which “No ideas, no concepts, no systems, no
structures, no abstractions could hold themselves together.”

The subsequent jetty of rocks only reiterates these relations at a different size. Which is to say, the ability to be
“conscious” of scale at Spiral Jetty is internal to Smithson’s own conception of it. It
exists in his own fictional elaborations in “The Spiral Jetty” essay and Spiral Jetty film—
prior to and independent of any subsequent visitors to the site in Utah. This isomorphic
notion of scale might draw comparison to Fuller’s topology in Spaceship Earth, except
that Smithson is perfectly clear that his stratifications produce only further irrationality,
rather than the hyper-rational synergies of Fuller’s account. As Smithson notes, “After a
point, measurable steps . . . descend from logic to the ‘surd state.’”

Consequently, Smithson’s vision of Spiral Jetty’s universal scale extends well
beyond the limited series of perspectival views in De Maria’s drawings for his Mile-Long
Walls in the Desert. The interminable dislocatio
ns of Spiral Jetty not only figure a system
of scale independent of an observing body, but one independent of empirical sensation all
together. For De Maria’s part, his early investment in an anti-somatic scale would also

106 Ibid., 225-226. One might also recall here Eva Hesse’s use of a ladder in her sculpture Loakoon that
Smithson included in the famously idiosyncratic marginalia of his 1966 magazine piece “Quasi-Infinities
and the Waning of Space,” and, likewise, Hesse’s own interest in the “absurdity” of repetition. Republished
extend to more global dimensions towards the decade’s end. Beginning in the winter of 1967, he began planning an elaborate work titled *Three Continent Project* that would massively expand the borderless, groundless space of his earlier drawings of the *Walls*.

His plan was to fashion a mile-long bulldozer cut running North-South in the Sahara Desert, another East-West in India, and a mile square in the United States. After photographing each cut aerially, the artist would collage the final version of *Three Continent Project* as a superimposed photograph combining the lines cut into all three continents.107 From winter 1967 through January 1969, De Maria wrote on several occasions in letters to colleagues that his plans following the *Land Show* in Munich in fall 1968 included both *Three Continent Project* and to finally complete the actual concrete walls that he had sketched in his drawing series of 1964 and *The Mile-Long Drawing* earlier in 1968. And indeed, in January 1969, he executed the first of *Three Continent Project*’s desert cuts in the Sahara. Afterwards, however, Algerian police seized his film and other photographic documentation on suspicion of international espionage.108 Following this run-in with North African authorities, no visual record of the Sahara work has ever surfaced publicly. For our concerns here, the content of these lost photographs is less important than what transpired in De Maria’s art in their aftermath. The *Danger* exhibition at Dwan Gallery was his next major project after the January land work in the Sahara, and from that point on, De Maria would give up plans for both *Walls in the*...

107 De Maria has stated in an interview that he conceived *Three Continent Project* in 1967 and he begins to write of it as an impending project in letters dating from the fall of 1968. Oral history interview with Walter De Maria, 1972 October 4, Archives of American Art, Smithsonian Institution. The earliest reference I have found of *Three Continent Project* appears in a letter from De Maria to Samuel Wagstaff dated October 24, 1968 written in Germany immediately following De Maria’s *Land Show* at Galerie Heiner Friedrich. Wagstaff Papers, Archives of American Art, Smithsonian Institution, Reel 4795.

108 Explaining the confiscation of his photo media in Algiers, De Maria writes to Robert Scull on January 20, 1969: “Had you arrived on the Monday you would have spent the day in jail with Friedrich and myself, where all films were confiscated because suspicion had arisen that we were international oil spies.” Robert Scull Papers, Archives of American Art, Folder 5.
Desert and Three Continent Project. Framed another way, the anti-ecological land art he had shared to this point with Smithson would resolutely part ways.

Up to this moment of spring 1969, De Maria’s large land art proposals had been conceived primarily through the independent eye of an aerial perspective. The relationship between land and line in both the 1964 drawings of the Walls and the later Three Continent Project are generated free from the actual conditions of their given sites, what De Maria describes in a letter to Robert Scull as “immaterial – and international.”

For his first land works of 1968 and 1969—including The Mile-Long Drawing and Desert Cross (fig. 2.21)—De Maria had worked on the surface of dried-out lakebeds—flat, lifeless terrains used for drag races and Western B-movies because of their extreme, even flatness. These surfaces could be treated like a blown-up sheet of paper or canvas. They have minimal topographic or ecological variety and what biological life does exist is all but cancelled by the snap of an aerial photograph.

But after the close of Danger, upon De Maria’s arrival in Nevada in May 1969, he diverted course from previous plans to bulldoze the second leg of Three Continent Project. In its place, he created Las Vegas Piece—a work employing a similar language of mile-long, angular bulldozer cuts in a remote desert flat but with a decidedly different approach to spectatorship (fig. 2.5). As noted earlier, Las Vegas Piece requires a very direct engagement from its spectator, prompting one to walk the combined three miles of the work without a guiding map or comprehensive photographic image in mind. As those who saw and experienced this work attest (for it has now been absorbed back into the desert floor), Las Vegas Piece appeared only partially at any given moment and only

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through one’s movement within it.\textsuperscript{110} Lying but a few inches deep, the lines of \textit{Las Vegas Piece} blended into the desert scrub of their surroundings up until the point one directly entered into the work. In contrast to his preceding land works, De Maria did not allow \textit{Las Vegas Piece} to be photographed in its entirety from the air, as he would also stipulate eight years later for \textit{The Lightning Field}. His work on the outskirts of Las Vegas could be experienced only by living within its cut lines of earth for an extended duration. Consequently, De Maria had seized upon the implications set out by \textit{Bed of Spikes} and his untitled magazine piece for \textit{Danger}, and from mid-1969 onwards, active, bodily presence would become an integral feature of the artist’s land work. Moreover, the scale his land art had previously construed as aerial and asomatic—or, as internal to the design of the work—would now operate externally in terms of the human body.

In this regard, the shift in De Maria’s land art that occurred through the \textit{Danger} exhibition also links the works that came afterwards—including especially \textit{The Lightning Field}—to a body of land art construing an open ecological relationship between body and site. To date, Richard Serra’s \textit{Shift} (1971-72) stands as the prime example in the literature of such a work that integrates these terms through a relation of scale (fig. 2.22).\textsuperscript{111} For this work the artist inserted six massive slabs of concrete into a working cornfield in King City, Ontario such that each slab marks off the horizontal distance across which the land recedes a vertical grade of five feet. The outer limits of all six concrete pieces are bounded by the maximum distance that two people can maintain the sight of one another within the topography of the site. As Serra wrote of the work himself in 1973, “What I

\textsuperscript{110} See first-person accounts of \textit{Las Vegas Piece} in Alloway, “Site Inspection,” \textit{Artforum} 15:2 (October 1976): 52; Beardsley, \textit{Earthworks and Beyond}, 19.

\textsuperscript{111} See, for instance, Meyer’s discussion of Serra as a key transitional figure of minimalist bodily scale to the more contemporary aesthetics of gargantuan size, in “No More Scale,” 225-228.
wanted was a dialectic between one’s perception of the place in totality and one’s relation to the field as walked. The result is a way of measuring oneself against the indeterminacy of the land.”¹¹² Though neither a work made with earth, per se, nor invested only in the scalar relation of sculptural size to the size of its spectator, *Shift* is a sculpture expanded to the point where its size might mediate its viewer’s presence and the surrounding site.

One can apply a similar approach to Heizer’s iconic earthwork, *Double Negative* (1969). Using dynamite and heavy excavation, Heizer orchestrated the two massive cuts of *Double Negative* on the Morton Mesa outside Overton, Nevada, carving out two trapezoidal voids each measuring thirty feet in width, fifty feet in depth, and roughly one hundred feet in length. The paradoxes that attend this work have been well rehearsed: since the massive negative spaces mirror one another in a direct line across an intervening scallop in the mesa, a reversal or “double negation” is achieved within the large empty space to the effect that the perception of a “positive” form becomes apparent that stretches across the scallop. The two cuts become the end caps of a massive trapezoidal prism invisibly stuck into the earth.¹¹³

In *Passages in Modern Sculpture*, Rosalind Krauss further grasped the implications of Heizer’s 1969 work as an extension and commentary upon the condition of the prismatic, minimalist object, claiming that *Double Negative* dramatizes the phenomenological intertwining of subjective space implicit in the sculpture of the preceding decade:

The effect of *Double Negative* is to declare the eccentricity of the position we occupy relative to our physical and psychological centers. But it goes even further than that. Because we must look across the ravine to see the mirror image of the space we occupy, the expanse of the ravine itself must be incorporated into the enclosure formed by the sculpture. Heizer’s image therefore depicts the intervention of the outer world into the body’s internal being, taking up residence there and forming its motivations and its meanings.\(^{114}\)

Krauss’s reading of internal tension and play within Heizer’s giant cuts still strikes the contemporary visitor to the work as appropriate and right. It is a work, like Oppenheim’s earlier *Oakland Wedge*, that achieves myriad reversals in a seemingly simple act of emptying out a bounded space, even if this space today is significantly eroded from its original, smooth condition (fig. 2.23).\(^{115}\) That it is now more like a long, crumbled pocket of earth instead of a precise prism takes nothing from the early reactions of Krauss and others. What these notable accounts tend to miss, however, is a consideration of the actual place Heizer executed *Double Negative*. This work’s criticism surprisingly fails to pay close attention to the relations enacted by the work between spectator and the surrounding land. To a greater extent than the site-specific sculpture Serra would soon create in southern Ontario, *Double Negative* not only integrates its spectator into the scale of its immediate site, but due to the particularities of this site, into the massiveness of the landscape.

The location of Heizer’s work is crucial in this respect. As one stands adjacent to the cuts looking back over the Morton Mesa, its approximately three-mile surface area is just broad enough and flat enough to *look* infinitely expansive.\(^{116}\) Standing with one’s

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\(^{115}\) Alloway notes that Heizer had planned to line *Double Negative* in concrete to deter its interior erosion, “Site Inspection,” 51.

\(^{116}\) One can spot a later ode to Heizer’s choice of land forms for *Double Negative* in John Chamberlain’s desk-sized *Mesa* of 1981, which creates the specific scalloping cuts of a desert mesa in urethane foam. The work is in the collection of the Dia Art Foundation and appears in reproduction in Julie Sylvester, ed., *John
back to the work, it is not possible to see any evidence that a town or a local airport 
happens to lie a mere two miles ahead. The sightline of the land extends to a point that 
blends nearby desert scrub with that receding into the far distance. External somatic scale 
in this terrain is sheer alienation. The land is too infinitely massive and plain for the body 
to understand its place within either the flat expanse or the crest of mountain peaks 
visible in the remote distance. There are no parts to the horizontal plane of this expanse, 
nothing local by which to grasp a mediation of sizes into scale. Looking over the other 
shoulder, in the stretch of land beyond *Double Negative*, one locates a river valley 
dipping beneath a series of other large mesas. Rather than infinite, these other landforms 
are simply massive. This is all to say, standing on the Morton Mesa before *Double Negative*, one is alien to the land.

This want of scale abruptly changes as one climbs down into Heizer’s negative 
sculpture—carefully, as the slopes are now more an obstacle course of loose earth and 
rock than the smooth, manicured slopes captured by photographer Gianfranco Gorgoni 
soon after the work’s completion.¹¹⁷ Once within *Double Negative*, the height of its walls 
relative to the width and length of the floor are of a size just small enough for a single 
person to realize a somatic relationship to the space of the excavated cut. In turn, the two 
cuts themselves are just large enough to gain a perceptible relation to the size of the mesa 
scallop they bookend. Visitors to *Double Negative* tend to speak of its surrounding river 
valley and rock formations as more a picturesque supplement than integral feature of the

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¹¹⁷ Gorgoni’s photographs have become representative images of most large earthworks by Heizer, De Maria, and Smithson. Likewise, his iconic photographs of Serra’s *Shift* covered in a light layer of snow present a startling image to those who visit Serra’s work during the latter seasons of the year to find the work embedded in a full field of corn. See Gianfranco Gorgoni, *Beyond the Canvas: Artists of the Seventies and Eighties* (New York: Rizzoli, 1985). Gorgoni also supplied the photographs in Grégoire Müller, *The New Avant-Garde: Issues for the Art of the Seventies* (New York: Praeger, 1972).
work. But for the spectator within *Double Negative*, as these features of the adjacent land come into view, it is precisely one’s position within the pocketed space of Heizer’s earthwork that makes it possible to enter into the scale of the land. Unlike Serra’s *Shift*, which makes one aware of topography through a sculpture inserted within it, *Double Negative* integrates one’s physical person, the empty space of the work, and the predominate features of the land as discernible parts of the same, connected whole. *Double Negative* achieves a size relative to its location that allows for the very experience of somatic scale at the level of a desert environment itself.\(^{118}\) As Heizer would remark, “Sculpture becomes a full part of the macrocosm.”\(^{119}\)

Could we say the same of *The Lightning Field*? Certainly the spacing and height of De Maria’s four hundred stainless steel poles are attuned to the experience of bodies moving through the sculpture. As the visibility of these poles fluctuates with the relative position of the sun moving across the sky, one indeed encounters dramatically different experiences of being located within a seemingly infinite field of poles that dissolve towards one’s line of vision, while, towards evening or dawn, being contained within a discretely visible large grid. That is to say, scale changes in *The Lightning Field*. During noontime sun, one’s somatic relation is with the singular poles which seem to stand out as so many “‘individuals’ by virtue of the unique relations of length and position belonging to each one,” as Kenneth Baker has commented.\(^{120}\) At other times of the day, however, one’s bodily relation enters more closely into the “macrocosm” described by Heizer, as the fullness of the work coheres visually such that it begins to take relation with the

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\(^{118}\) Again, Alloway is eloquently on the mark in “Site Inspection,” where he writes, “*Double Negative*, cut into the edge of the mesa, is one of the few mediating forms between the top and the drop” (51).


extensive lines of fencing surrounding the Field’s property, and more acutely, the distant line of the Datil Mountains running alongside the site. The Lightning Field is indeed an interface, just not consistently the same at all times.

Accordingly, as The Lightning Field has been our guide through the uneven emergence of ecological concerns within the work of land art, it is only fitting that its own direct experience of scale not submit to only a single order. Though the Field arrives in De Maria’s practice after his crucial turn in the spring of 1969 from aerial land projects to embedded, walkable earthworks, it is still a work that originates from “blowing up” a minimalist sculpture. In this sense, The Lightning Field indeed partakes of a cultural turn towards an ecology of sliding scales. While not of the predictive parallelism of Wiener’s cybernetics or the narrative imagination of Smithson’s Spiral Jetty, De Maria’s Field has nonetheless presented us with a dilemma of translating one artistic order into another. As we have seen, the move from Bed of Spikes into The Lightning Field was mediated by a sustained incorporation of ecological information into the aesthetic condition of the minimalist object at mid-decade. As this information was itself highly contested within ecological discourse, it is instructive to note how De Maria’s Field might enact an open ecological relation between its viewer and its environment—in line with the strand of ecological aesthetics connecting von Bertalanffy’s open-system organism to the Whole Earth Catalog to Double Negative—while point to the markedly different strand of cybernetics and Spaceship Earth in its formal conception. As a remarkably manifold historical object, The Lightning Field is less instructive as a single proposition on the ecology of land art than as a cipher of its lively development. Instead of a singular statement about its environment, the Field has instead provided us a telling interface with
the revision of minimalist objects and criticism as a coherent social system of land art. And within this system, the competing claims of whether ecosystems can be reduced to calculable information or whether they depend on non-predictive local conditions are differences grasped in the material differences of *The Lightning Field* itself.
ARTFORUM MAGAZINE, APRIL 1980. In the centerfold of the most influential magazine of art criticism in the United States in the 1960s and 1970s, and the location of numerous works of conceptual print media, Walter De Maria formally introduces his recently completed Lightning Field as a lavish photographic spread (figs. 3.1-3.3). Six images appear in all, including the now-iconic photograph on the cover of a multi-pronged strike at the southeastern edge of the Field. Throughout these pages, De Maria’s work is captured in distinct moments of luminosity, between flashes of dramatic, forking lightning and the clarity of low raking light. To date this single magazine edition comprises nearly all the known, official photographic images for one of the twentieth-century’s seminal works of art. More to the point, the April 1980 Artforum edition has supplied the predominant and near exclusive visual information for a work located so remotely in the high desert plains of the American southwest that relatively few have been able to see The Lightning Field firsthand. As such, De Maria’s publication fits into a larger tendency within land art in general, of works distributed in photomechanical and televisual media to far broader audiences than the site-specific iterations of the same works might allow. We begin this chapter by looking in greater detail at this publication, which provides an introduction not only to the condition of land art in circulation, but also to a larger unwritten history of ecology and the media of conceptualism.

1 I would also remind the reader of The Lightning Field’s other visiting restrictions: (i) reservations must be made in advance through the Dia Art Foundation, (ii) each visit costs a significant fee, (iii) groups are limited to a maximum of six members, and (iv) visitors must stay on-site for a period of nearly twenty-four hours.
The Lightning Field photographs which De Maria would supply to Artforum were not created by the artist alone. For several months in the summer of 1978 and again in 1979, De Maria and the Dia Art Foundation hired the photographer John Cliett to live on-site and photograph the Field. Only a small fraction of the resulting photographs appear in Artforum. The vast majority have never been seen by the general public, as Cliett’s contract maintains that De Maria retain copyright. And though the images selected for publication in 1980 remarkably dramatize the Field, Cliett maintains that these pictures are a secondary selection left over from a primary group originally chosen for Life magazine, but published instead in the German publication Stern after De Maria pulled out of the Life deal. Cliett recalls that De Maria had also planned to place another of his flashier photographs on a billboard in New York’s Grand Central Station, but that proposal, too, failed to materialize. In all, The Lightning Field’s reception in print has been marked by a high degree of controlled circulation. All visitors to the site in New Mexico, for instance, must sign a waiver rescinding the right to take photographs. As a consequence of this policy and the tight scrutiny placed upon the publication of Cliett’s official photographs, the half-dozen works published in Artforum have assumed tremendous import as representative images of De Maria’s most notable work. Indeed, it is the version of the work in publication that has largely governed its reception. John Beardsley, in a 1981 polemic on De Maria’s and Dia’s stranglehold on the images and access to The Lightning Field, homes in on the publication:

2 As the original patron of The Lightning Field, the Dia Art Foundation continues to serve as its permanent caretaker.
3 Quite remarkably, the Stern publication of The Lightning Field has remained almost entirely absent from De Maria’s American reception. Unlike the work’s spread in Artforum, however, the German publication is not solely dedicated to the Field, and with the addition of an essay by a German critic, does not maintain the same position as an artist’s work within De Maria’s oeuvre. See Annegret Grosskopf, “Kunst mit Blitz und Donner,” Stern 31 (July 24, 1980): 24-42.
The number of photographs, the exclusive use of color, the number of editorial pages—De Maria was given the cover plus five pages at the centerfold—is unusual, to say the least, for *Artforum*’s artists’ pages. But particularly offensive was the use of blank gray pages separating De Maria’s photographs from the thereby implied dross of the remainder of the issue. Evidently caught between their desire to see the work published and the artist’s excessive demands, *Artforum*’s staff was complicit in the mystification of the *Lightning Field* and the exaggerated claims made for it.4

While the language here is strong to the point of severe, Beardsley aptly notes several atypical aspects of De Maria’s publication. Quoting from Amy Baker (now Sandback), who held the post of Associate Publisher at *Artforum* in 1980, he observes that *The Lightning Field* layout was deemed an “artist’s work” by the magazine, allowing De Maria to personally design the pages. As such, this publication holds particular significance as a vital facet of *The Lightning Field* and is therefore unlike other notable reproductions of it. For instance, eighteen months later, in Fall 1982, *Art Journal* ran a special issue on “Earthworks: Past and Present,” guest edited by Robert Hobbs, which featured a version of the same cover photograph; more recently—and in greater circulation—Robert Hughes selected a cropped image of a nighttime lightning strike at the *Field* for the cover of his *American Visions: The Epic History of Art in America* of 1999. In contrast to these and other highly visible photographs of the *Field* in magazines, frontispieces, and on book jackets, the April 1980 issue of *Artforum* alone fundamentally extends the work in the domain of photography.

In particular, the publication of *The Lightning Field* highlights an issue that has troubled the reception of land art for some forty years. Namely, what is the status of such a conceptual magazine piece in relation to De Maria’s site-specific earthwork in New Mexico? The old art historical trope of originality and photomechanical documentation

offers us little here. More than “copies” or even interpretive “views” of its site-specific counterpart, the photographic *Lightning Field* occupies a central place within the rigorous and original version of land art created in film, television, and print media.\(^5\) From better known examples such as Robert Smithson’s *Spiral Jetty* film to lesser known instances like the German filmmaker and gallerist Gerry Schum’s *Land Art* television broadcast—both of which I will discuss in greater detail below—the media ecology of land art presents a significant counterpoint in its reproducibility, circulation, and time-based formats to the characteristic remoteness and singularity of earthworks such as *Spiral Jetty* in northern Utah or *The Lightning Field* in western New Mexico.

Within this body of land art’s multimedia, the publication of *The Lightning Field* arrives late upon the historical scene. As with De Maria’s site-specific earthwork, the lateness of this magazine piece distills earlier developments in the artistic field and thus allows the historian to read these dynamics belatedly. Looking more closely at the particular selection of *The Lightning Field*’s six photographs, for instance, we might take note of the overwhelming presence of lightning in Clieett’s images. As Kenneth Baker and others have noted of the *Field*, the word “lightning” in the work’s title can be misleading.\(^6\) While the site does maintain a relatively high incidence of electrical activity—an estimated three direct strikes per thirty days during the high season of July and August—one is still far less likely to see an actual strike during a visit than

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otherwise.\footnote{The estimate is De Maria’s in his one-page essay of facts, statistics, and epigrams that accompanies the photographs in \textit{Artforum}. De Maria, “The Lightning Field,” \textit{Artforum} 18:8 (April 1980), 58.} The poles are grounded for electrical charge, but they are not standard, manufactured lightning rods.\footnote{The poles of \textit{The Lightning Field} are individually fabricated at a diameter of two inches, welded to a sharpened tip that describes an arc averaging six feet in diameter at a height of twenty feet, and polished prior to installation.} Thus, the primary experience of viewing \textit{The Lightning Field} the vast majority of the time is given to slow, subtle changes in the interaction of light and metal as one walks its slender poles. Natural light refracts the surrounding landscape in stainless steel as it also manipulates the appearance of the work’s color, solidity, and cohesive shape with the position and intensity of the sun as it gradually moves across its arc in the sky.

Yet, in Cliett’s commission to photograph the \textit{Field}, it would seem that capturing lightning was a constituent, motivating factor from the very beginning. He describes traveling with De Maria, for instance, to obtain a high-speed camera trigger designed by NASA for studying lightning at Florida’s Cape Canaveral launch site.\footnote{Jeffrey Kastner, “The God Effect: An Interview with John Cliett,” \textit{Cabinet} 3 (Summer 2001): 91.} This investment certainly paid dividends, as the photographic \textit{Lightning Field} depicted in \textit{Artforum} is decidedly electrical—four images of lightning to two without. As rendered in the magazine, this photographic \textit{Lightning Field} is both violent and immediate—existing through a disconnected series of powerful, fleeting eruptions of energy—and, as such, utterly dissimilar to the open and slowly measured experience that most visitors encounter in their day-long stay at the work’s high-desert site.

What, then, is one to make of the prevalence of lightning in these photographs? I would claim that its frequency in De Maria’s magazine work presents an inroad to a larger reading of energy exchange in the media of land art. That is, rather than cast a
singular distinction regarding the relative significance of lightning to *The Lightning Field*, we might instead distinguish modes within the work’s media in which energy exchange appears important to the photographic *Lightning Field* but far less so to its site-specific sculpture. Several years earlier, De Maria had shown an interest in the concept of energy in an open series of thin, stainless-steel bricks begun in 1966 that are each inscribed with the words “HIGH ENERGY BAR” (fig. 3.4). But while these exhibit their putative energy symbolically—the edges of each bar flex outward by a subtle entasis, as if a caged force were trying incessantly to escape its solid matter—the *Artforum* spread draws a more direct connection. In foregrounding a convergence of photography and lightning, this magazine piece conveys an equivalency in the transfer of light between object and celluloid and the transfer of ionic charge between sky and steel. In other words, it admits a structural similarity between lightning and photography—or, more precisely, photo-energy—suggesting that the proper province of *The Lightning Field*’s lightning is in photo-energetic media.

The following chapter will take up this claim of the material equivalence of lightning and photography in De Maria’s 1980 magazine work as a model of exegesis for the ecology of media art in the 1960s and 1970s. Casting its net beyond the media of land art exclusively, the present argument will consider this work within a larger framework of energy and ecology that motivated a broad range of conceptually-inflected art in photography, film, and magazines. To ground our approach to this material, I begin by examining two further examples of De Maria’s magazine art, works that do not initially disclose their connections with the energy eruptions of the photographic *Lightning Field* until one looks at the larger media networks they inhabit. These examples will in turn
lead to a consideration of multimedia and photoconceptual art of the late 1960s, and a
connection currently missing in the literature about this art: that of energy systems and
the photographic index. This reading will allow us to draw connections between the
media of land art, including examples by De Maria and Smithson, and contributions by
diverse contemporaries including Robert Barry and Giovanni Anselmo. As with the
larger role of ecology itself in this dissertation, I seek to return specificity and historical
grounding to terms that have largely become unmoored in art historical discourse. By
extending the discussion of ecological thinking in the previous chapter to energy and
energy systems as powerful models for conceiving photo-based media, this argument will
avoid staking yet another universal ontology for the photographic image. It will instead
burrow into the particularities of ecosystems and photomechanical production at the very
moment conceptualism was in formation in the late sixties.10 This will not be an argument
so much about what a body of art works are, but how they came to be thought about and
framed within the dissemination of an influential discourse on ecological energy. But
first, we continue with Walter De Maria’s work for magazines.

Artforum Magazine, June 1973. De Maria takes out a double-page advertisement, its
subject unclear at first blush (fig. 3.5). Perhaps he is advertising himself, perhaps it is the
West. A single black-and-white photograph fills the space, flush through the gutter: a

10 Douglas R. Nickel has most pointedly addressed this need to dispense with general claims for the
medium of photography in favor of those that are more specific and historically-bound, writing, “A
genealogy of photographic exceptionalism could be traced, most noticeably in the writings of John
Szarkowski, and it also finds a curious parallel manifestation in the many discussions of photographic
ontology and indexicality by such writers as Andre Bazin, Roland Barthes, Hubert Damisch, Stanley
Cavell, and a host of others. Little attention has been paid to how the imperative to define photography’s
‘essence’—formally, semiotically, or phenomenologically—brackets out discussions of epistemology, that
is, how such essences have been (and continue to be) constructed socially, discursively, as de facto
apologia for certain preferred stylistic approaches or other ideological agendas.” “History of Photography:
long chain of box-to-box train cars couple along the bottom edge of a mountain range, above which runs an equally repetitious chain of the words “WALTER DE MARIA.” While the dividing edge of the train opens onto a flat expanse of desert extending beyond the panoramic frame of its photograph, this string of letters seems to float in an undefined, inchoate space, neither strictly on the page nor within the image. Unlike the equally horizontal and repetitious string of boxcars below, De Maria’s text is detached from the landscape, locking neither into the visual logic of the land nor into the didactic logic of a photographic caption. These letters are clearly printed for this photograph, but they are not of the photograph, and as such, struggle to communicate as descriptive language. A similar use of lettering had in fact appeared from the artist the year prior, when he submitted only his name for publication on the cover of Arts Magazine with an attending quotation, placed inside, within the table of contents, “Conceptual art need not be dependent on words or language.” In related fashion, the letters of the artist’s name that proliferate across the top of his June 1973 Artforum piece neither provide a simple attribution to the work below nor advertise a work of art on display elsewhere, as might be suggested by this work’s placement amidst other gallery ads in the magazine. Instead, these are partial words: part of the work before us, part signal back to the work’s maker, and, unconventionally, part caption that reenacts the logic of the image it describes.

One might better navigate these interdependent textual functions by taking into consideration the fact that the photographic content of De Maria’s magazine spread derives from a serialized release of three hundred prints by the artist through Billy Klüver’s Experiments in Art and Technology (E. A. T.). It is a print which drifts into

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other media forms, being first excerpted as a still from De Maria’s film *Hard Core* shot at Black Rock, Nevada in 1969, which itself premiered on television as part of the “Dilexi Series” of experimental broadcasts sponsored by the Bay Area public network KQED.12 These other forums take us well beyond the single 1973 spread before us, much like its own prevailing visual motifs of horizontality and partiality. As viewed within the larger sphere of De Maria’s artistic production and means of distribution from Black Rock to KQED to E. A. T. to *Artforum*, the splintering effected within the artist’s 1973 spread appears not only of language and reference, but also of the media formats through which this magazine piece is supported.

Similarly, we encounter a related infusion of media currents in a conceptual magazine work featuring twelve photographs of De Maria’s New York loft apartment he published in the spring 1972 edition of *Avalanche* (figs. 3.6-3.11). The images appear one-per-page, bordered by a generous margin of pale gray. No title or other text introduces the images and no captions appear alongside the individual entries. Only a discrete line listing the artist’s name on the final page provides any indication of how to connect these photographs to the world beyond the magazine. They are plain, straight

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12 De Maria’s film *Hard Core* was commissioned by the Dilexi Foundation, newly created by Jim Newman as he transitioned from operating his Dilexi Gallery in San Francisco to commissioning ephemeral works of art through the Foundation. *Hard Core* premiered in October 1969 on the Bay Area public television station KQED as part of a summer series of television films which also included contributions from Arlo Acton, Julian Beck, Kenneth Dewey, Robert Frank, Ann Halperin, Philip Makanna, Robert Nelson, Yvonne Rainer, Terry Riley, Edwin Schlossberg, Andy Warhol, William Wiley, and Frank Zappa. *Hard Core* was shot in late July at Black Rock in the Mohave Desert and is organized around a series of complete, rotating pans of the camera. During the roughly twenty-eight minutes of the film, the camera rotates seven times and after each circle cuts briefly to two actors dressed as cowboys (one of whom is played by Michael Heizer), a wild-west shootout cum structural film. *Hard Core* concludes with an extended shot of a young woman, of which De Maria explains to Noma Copley in a letter dated August 22, 1969: “Nixon is up to something in Asia but we can not know exactly what it is. The last scene in the HARD CORE movie is an eleven year old chinese girl looking staright at the camera . . . audience . . . this after the shoot out scene” (ellipses in original). Getty Research Institute, Special Collections and Visual Resources, William and Noma Copley foundation and collection records , 1954-1980, inv. no. 880403, box 4, folder 6.
shots, but not systematically so in the manner of contemporaries like Bernd and Hilla Becher. While the inexorable force of listing dominates the series, one does not gain a comprehensive sense of the apartment space or its contents from looking at the twelve photographs, such as a grain-elevator or gas-holder photograph by the Bechers would provide. Rather, the logic of De Maria’s series is driven by the particular selection of items from his domestic space the artist has chosen to display.

ONE: six stretched canvases facing a wall. TWO: a flat-file cabinet for storing drawings and prints. THREE: six buckets, three hanging, three on the wood floor, all read “FIRE.” FOUR: a print of South Asian art tacked to the wall. FIVE: a fire roaring inside its fireplace, a model ship atop the mantel, a small stone statue on the floor nearby. SIX: a bed, its frame a rectangular box of unfinished wood. SEVEN: two chairs and a small circular table, above them the ghostly trace of a rectangular picture in faded paint. EIGHT: a physical map of Nevada tacked to the wall, with notes in thick black marker from the Hard Core shoot at Black Rock. NINE: a side table upon which sits an amplifier, record player, and speaker; a mirror with an illegible photo stuck in its lower left corner hangs on the wall above. TEN: a television set on the floor broadcasting a game show. ELEVEN: a safe in the corner of a room, its door cracked open but its interior hidden from the camera’s eye. TWELVE: a single drum standing on the floor; nothing else in the frame. In this stark world, one begins to follow such details as the cracking of walls; the horizontal and vertical registers of wood trim and window mullions; planar intersections of walls, floors, and ceilings; and meandering traces of electrical wiring that collectively add the visual drama of pattern and contingency to photographs that are otherwise taciturn to the point of
obstinacy. Similar to the would-be advertisement De Maria would soon place in *Artforum* the following year, what saves this suite of photographs from utter obscurity is the near-systematic appearance of other media supports.

In the interstices of these plain photographs of seemingly self-contained objects there emerges a quite unanticipated multimedia environment of painting, drawing, text, sculpture, desert sites, film, and television. Individually, these photographs point elsewhere: canvases facing away from the spectator, drawers closed, speakers seen but not heard, a television screen paused by photographic imprint, a map signaling to the West. But taken together, the group suggests a connectedness of each photographic image to these other supports. In line with the emphasis on lightning in De Maria’s later magazine piece on *The Lightning Field* and the references to interrelated works by the artist in his 1973 *Artforum* spread, the *Avalanche* photographs neither represent their ostensible subjects discretely nor remain properly photographic in the circuits of media they evoke. I will argue, in fact, that all three magazine works enact a particular sense of a media ecosystem—between the conjunction of energy and photography in *The Lightning Field* and the interrelation of multiple formats in De Maria’s magazine works for *Artforum* in 1973 and *Avalanche* in 1972, a more structural model emerges that synthesizes these propositions within one and the same network. Against the general or metaphorical sense in which such multimedia networks have been described by some critics as “ecological” or as constituting “ecosystems,” De Maria’s conceptual magazine works grasp at a particularly fervent moment in the history of ecology in which the currency of energy was being employed as a lingua franca of ecological exchange. As

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13 See, for instance, Matthew Fuller, *Media Ecologies: Materialist Energies in Art and Technoculture* (Cambridge, MA and London: MIT Press, 2005); or the 1990 exhibition *Energieen/Energies* curated by
we will examine in the section that follows, De Maria’s magazine works arise out precisely this moment in which the terms of energy, ecology, and multimedia were being scrutinized and celebrated by artists and environmental scientists alike. Indeed, the 1960s gave rise to the mixture and fusion of technological formats that we now refer to as intermedia, but as we will see, there was a strongly planetary impulse that attended such claims from the beginning.

Energetic Environments

_The whole marvelous panorama of life that spreads over the surface of our globe is . . . transformed sunlight._
—_Ernst Haeckel (1899)_

Marshall McLuhan’s publication of _Understanding Media_ in 1964 provides an fitting introduction to the problems of intermedia in the art of the 1960s, as it at once served as a foundational account that many artists read and referenced as, likewise, signaled the utopian fervor through which media networks and energy systems would be adopted later in the decade. McLuhan makes the humanist-inspired claim that technologies are extensions of the senses, rendering the moment of technological innovation as but the latest improvement in an ever-advancing capability of bodies and minds to interconnect. When he ventures to describe the interaction of such media among themselves in a chapter provocatively titled “Hybrid Energy,” what emerges is a curious account of “ratios”:

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Wim Beeren (Amsterdam: Stedelijk Museum, 1990). That one of De Maria’s late, serial rod sculptures titled _Apollo’s Ecstasy_ (1990) was included in the exhibition is a perfect example of such metaphorical claims to aesthetic “energy.”

What I am saying is that media as extensions of our senses institute new ratios, not only among our private senses, but among themselves, when they interact among themselves. Radio changed the form of the news story as much as it altered the film image in the talkies. TV caused drastic changes in radio programming, and in the form of the thing or documentary novel. . . .

The hybrid or the meeting of two media is a moment of truth and revelation from which new form is born. For the parallel between two media holds us on the frontiers between forms that snap us out of the Narcissus-narcosis. The moment of the meeting of media is a moment of freedom and release from the ordinary trance and numbness imposed by them on our senses.  

McLuhan’s position here is a bit finessed. Invoking the teleological idea for which he has been much criticized that each new media form absorbs the communicatory and social functions of its predecessor—“newspaper killed the theater, just as TV hit the movies and night clubs very hard,” etc.—he nonetheless pushes beyond this leveling claim when it comes to the crossing of such “old” media forms with the new. While not asserting a relationship of technological obsolescence to the market that so intrigued Walter Benjamin, McLuhan is interested precisely in the “moment of freedom and release” when media forms combine. That is, his account is not one of liberation from the grip of commodity value on media forms, but a kind of personal, sensuous euphoria. This is what he means by “hybrid energy” when he writes, “The electric light ended the regime of night and day, of indoors and out-doors. But it is when the light encounters already existing patterns of human organization that the hybrid energy is released.”  

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16 Ibid., 52.
18 McLuhan, Understanding Media, 52.
while the latest technological innovation for McLuhan is bound to the human sensorium, this chain can be broken or interrupted by hybridized ratios of sensation when outmoded or unconventional media forms interrupt the grip of the new. And while McLuhan’s account remains largely bound to a diachronic vision of media interspersed with moments of eruption, his notion of energy as liberation or release would prove both prescient and influential in synchronic models of media ecologies to develop later in the decade.

Energy itself is the capacity to do work, but to grasp how this concept was employed in ecological theories and artistic practices of the late 1960s, it is not “energy” itself that one must track but the appearance of “energetics.” As suggested in the statement above from Ernst Haeckel, the nineteenth-century scientist who coined the term ecology, the discipline he founded had been concerned from its very origins with energy consumption and distribution. It was not until the infusion of twentieth-century physics, and particularly the role of computer technologies and systems theory after the Second World War, however, that energy emerged as the dominant explanatory concept of the ecosystem and with it, a more wide-reaching notion that was variously called ecological energetics or bioenergetics.\(^\text{19}\)

Looking, for instance, in the discipline’s foundational postwar textbook, Eugene Odum’s *Fundamentals of Ecology*, the widely influential first edition of which was published in 1953, the author establishes ecology as a branch of biology concerned with group interactions of organisms and, likewise, the ecosystem as primarily a

“biogeochemical cycle.”20 By the publication of the third edition in 1971, however, one notes two decisive changes in Odum’s framing of these terms: first, he incorporates social activity within the scope of ecology; and second, he alters the fundamental basis of ecosystems from cycles that synthesize biological, geological, and chemical components to a system that distributes energy through them. In this later iteration, he now describes the ecosystem as a “flow of energy [leading] to clearly defined trophic structure, biotic diversity, and material cycles.”21

Odum’s brother and colleague, Howard, would push the newfound predominance of ecological energetics further still in his text Environment, Power, and Society of 1971. Here he contends, “When systems are considered in energy terms, some of the bewildering complexity of our world disappears. . . . Energy diagramming helps us consider the great problems of power, pollution, population, food, and war free from our fetters of indoctrination.”22 That is, in extending ecology as a “world system” and its energetics as the basis of economics, politics, religion, and nature alike, Howard Odum fully articulates the implications of a postwar notion of the “ecosystem” as a universal organizing principle operating by parallel and predictive structures. With energy as its common currency, social, biotic, and technic systems could now be inseparably linked, and, not without problematic consequences, assumed to operate along common, balanced, and retraceable

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patterns. In line with the disappearance of the market and its influence from Benjamin’s account of media to McLuhan’s, Howard Odum’s affirmation of energy as a universal currency binding social and biological transactions had the effect of all but eliding the material bases through which such energy forms take shape in the world. To wit, he would proclaim in *Environment, Power, and Society*: “The eccentric behavior of the birds, bats, and blooms is really the outer manifestation of preprogrammed computer units that control the timing of the whole ecological system.”

Indeed, the utopian universalism of the Odums’ ecological energetics describes well an unexpected license to appear in postwar media environments. We have noted already the easy confluence of technological innovation and historical progress in McLuhan’s theory, which would culminate in what he would describe as a “global village” or “electronic tribes” of techno-communards, irrespective of actual local conditions or socio-political stratifications. Likewise, in other influential accounts of media ecologies, a similar assumption would be made wherein claims for the interconnection of social and biological production in energeticist theories like those of the Odums would “liberate” the artist or theorist from actual events of ecological disruption or social injustice. Thus, in being claimed as the raw basis of all work, energy was counter intuitively sublimated to a realm of pure exchange.

One account to make this point plainly was Gene Youngblood’s influential compilation of short, critical, and descriptive essays, *Expanded Cinema* (1970). Published, appropriately, with an introduction by R. Buckminster Fuller and his poem

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23 Ibid., 95.
“Inexorable Evolution and Human Ecology,” *Expanded Cinema* offers its reader bold and wide-reaching connections among a swath of contemporary works from science fiction film and structural cinema, to computer mandalas and live theater, kinetic sculpture and hallucinogenic drugs, television networks and electronic music. In this pioneering capacity, Youngblood’s text has long held a central place in the early reception of video, new media, and intermedia, all of which, importantly, he described as an extension of ecological energetics.\(^{24}\) As he writes, “The phenomenon of man, or of biological life on earth taken as a process, . . . feed[s] energy back into one another and thus [is] self-enriching, regenerative. Thus energy is wealth, and wealth according to Buckminster Fuller is ‘the number of forward days a given system is sustainable.’”\(^{25}\) Via energy as vehicle of exchange, Youngblood would likewise associate regeneration at a biological level to the organization of information in systems of electronic and computational technology. For subjective experience, this plane of exchange was imagined to expand mental awareness into the “system,” as it were, with media extensions acting like an expanded nervous system. Though today we tend to receive such visions by way of tie-dyed-generalizations, there existed a strong intersection in the aesthetics of this moment among notions of ecology and open-ended models of consciousness suggested by experiments with LSD or populist versions of religious meditation practices. As Youngblood would connect this outlook to new media technologies:

> “Consciousness expansion” has reached a velocity of evolutionary acceleration at which several transformations occur within the life-span of a single generation. Because of mankind’s inevitable symbiosis with the mind-manifesting

\(^{24}\) There is not adequate space in the present chapter to discuss Youngblood’s numerous extended discussions on topics related to aesthetics, energy, and ecology. I would direct the reader to such key chapters as “The Intermedia Network as Nature”, “Art, Entertainment, Entropy.,” and “The Artist as Ecologist,” in *Expanded Cinema* (New York: E. P. Dutton, 1970), 54-56, 59-65, 346-351.

\(^{25}\) Ibid., 63.
hallucinogens of the ecology on the one hand, and his organic partnership with machines on the other, an increasing number of the inhabitants on this planet live virtually in another world. The messages [of Expanded Cinema] are of that world.26

In this statement, Youngblood not only stakes out a new role for advanced technology in the production of art, but also claims it is both synonymous and interconnected with a separate world inhabited by its users. By Youngblood’s account, this world is, paradoxically, both immanent and independent. As he states quite plainly:

“‘environment’ for contemporary man is the intermedia network.”27

The term “intermedia,” of course, was itself relatively new to the discourse of expanded cinema in 1970. It had been coined four years earlier by the artist Dick Higgins in his short “Statement on Intermedia” (1966), where he provocatively, if abstractly, offered the definition and admonishment: “The intermedial approach [emphasizes] the dialectic between the media. A composer is a dead man unless he composes for all the media and for his world.” What Higgins might have meant by a “dialectic” of media that also addresses the whole “world” is suggested earlier in his “Statement,” where he predicates intermedia also upon “immediacy,” “psychedelic means, tastes, and insights,” and having reached “the point where the media have broken down in their traditional forms.”28 In all, the “dialectic” he describes seems hardly to be a dialectic at all, let alone materialist in nature. Rather than a dynamic synthesis of opposing media formats, Higgins’s term instead points to a space of melded sensations, of receiving a message so directly and completely that one is no longer able to identify its distinct sources or

26 Ibid., 47.
27 Ibid., 54.
individual mediums. His version of intermedia aspires to seemingly erase the experience of mediation itself, of filtering a message through the particular qualities and restraints of an apparatus, and as such, is a fitting model for the kind of multi-sensory visual and audio projection staged by groups such as USCO in the late 1960s.

As described by Youngblood in his chapter of Expanded Cinema entitled, “The Artist as Ecologist,” USCO (short for “The Company of Us”) was an artist collective who “pioneered in the development of multimedia performances and kinesthetic events throughout the United States, Canada, and Europe.”\textsuperscript{29} In projects such as We Are All One (fig. 3.12) at the Riverside Museum in Manhattan’s Upper West Side or The World nightclub on Long Island, USCO created what they describe as a “literal and symbolic voyage . . . in a multi-channel media-mix, combining films, slides, oscilloscope, stroboscope, sounds in a programmed experience.”\textsuperscript{30} More specifically, their version of a total environment created an all-encompassing unity or oneness among several key liberatory ideals of this moment: technological media, ecological interconnection, and hallucinatory drugs.\textsuperscript{31} One of USCO’s founding members, Gerd Stern, describes how the group came to its practice through an early introduction to McLuhan:

> For instance, I started out in poetry. Michael [Callahan] came out in electronics. In about ’60 F. T. Richards gave me McLuhan’s Report to the National Association of Educational Broadcasters, which he had gotten from John Cage, which was the basis of McLuhan’s book Understanding Media. . . . The idea that you had to look at media in terms of their effect rather than their content took me

\textsuperscript{29} Youngblood, Expanded Cinema, 347.
\textsuperscript{30} USCO, “We are All One,” Film Culture 43 (Winter 1966): 9.
\textsuperscript{31} As USCO-member Steve Der Key (né Durkee) explained in an interview with Richard Kostelanetz: “I took an awful lot of LSD, but I don’t take it any more and I don’t smoke pot. I don’t have a need for them now. Those things took me a certain step, and I’ve assimilated that electro-chemical information they gave to me, once I understood these things in terms of my own chemical and electrical network, as it were. . . . When you take LSD, all these synapses start firing simultaneously, all over the place; and where you once heard a baby cry before, now you hear five hundred different things.” Kostelanetz, The Theatre of Mixed Means: An Introduction to Happenings, Kinetic Environments, and Other Mixed-Means Performances (New York: Dial, 1968), 259.
on an immense jump which wound up with poetry, with lights, and sound and film.\footnote{USCO: Interview with Gerd Stern,} As had already been anticipated in Higgins earlier “Statement,” USCO’s intermedia environments, like those of Andy Warhol’s contemporary Exploding Plastic Inevitable, sought to merge individual experience with a totality of surrounding sensations on screens and from speakers.\footnote{On the EPI and media culture of the 1960s, see David Joselit, “Yippie Pop: Abbie Hoffman, Andy Warhol, and Sixties Media Politics,” and Branden W. Joseph, “‘My Mind Split Open’: Andy Warhol’s Exploding Plastic Inevitable,” both in \textit{Grey Room} 8 (Summer 2002): 62-79, 80-107.} By 1970, intermedia environments and acid-induced trips would both be equated as actual glimpses upon “The World,” as it were, understood by the counterculture as caged, if not hidden, by entrenched strictures of social convention. Or, in Stern’s words, “How to get out of this world!”\footnote{“USCO: Interview with Gerd Stern,” 3.} Accordingly, one problem to arise out of this equation, as intimated earlier, is that mounting ecological problems in pollution, population growth, and resource extraction tend to be elided in expanded cinema environments by USCO and others. It is as if the \textit{total} sensation of these spaces became \textit{totalizing}—seemingly fusing the individual with one’s surrounding environment to the effect of blocking all else. Stern again on \textit{We Are All One}: “We’re trying to create a situation here in the Riverside Museum in which people could come and instead of using their analytical functions, simply go out. It seems to me that’s what’s happening. You look on these couches and people are flaked out for an hour or two at a time.”\footnote{Ibid.} Tuning in by tuning out.

The other problematic to emerge out of this constellation of new technologies and ecological energetics pertains to media itself. Namely, to what extent can one realize a concrete sense of \textit{mediation} if the role of intermedia is cast by Higgins as an “immediacy,
with a minimum of distractions” or by Youngblood as an expanded world of continuous
projection (in fact, hardly a “cinema” at all)? One needs an anchor in such a relentless
sphere, where meaningful information and pure noise cannot be separated in complete
saturation—whether as “sensory overload” or the hallucinations of an acid trip, as one
reviewer would comment of USCO’s We Are All One.\textsuperscript{36} One would need, as Gregory
Bateson suggests in \textit{Steps to an Ecology of Mind}, a means to differentiate input \textit{as}
information, rather than merely noise or static or pure environment. There are many
possible distinctions to be found in any given object, but only the ones selected as
important enter into the discrimination of an idea. One such structure for processing and
parsing ecological media spheres is the physical body, which opens onto a corpus of
artistic work for which there is inadequate space to address in the present chapter.

Another, lies in camera-based media themselves. And it would be this moment of the
1960s and 1970s that a notion of indexicality entered the discourse of photography and
cinema, a concept predicated precisely on the grounding, material thereness of the
chemical processes of such media. Therefore, I turn now to examine—or rather, re-
examine—the index as a historically prescient response to a world of thermodynamics,
and, to date, also a concept limited by its remarkably ubiquitous and uniform reception
within postwar art history.

\textsuperscript{36} This quote is attributed to \textit{Life} and reads in full: “The USCO group, in particular, shifts effortlessly from
multi-channel audio hookups to woven rugs, from ‘proving out’ Marshall McLuhan’s theories on media to
projecting Hindu philosophies. Their art is concerned both with turning in on ‘devine (sic) geometry’ and
showing people ‘in a concentrated way what’s going on around them all the time’ ...USCO also puts on a
road show, called WE ARE ALL ONE, that has been performed all over the country...The show has some
inspired moments when all the audio-visual equipment combines to create a sensory overload that makes
some viewers feel they are having LSD-type hallucinations...” (ellipses in original). USCO, “We are All
One,” 9.
Index Redux

The widespread version of indexicality taken up across art history and criticism in the last three decades stems from a particular historiography of photography that has existed since the Daguerreotype. Due to the light-sensitive nature of Daguerre’s original silver plates, they had to be held close to their beholder, often encased in evocative, tactile materials such as stamped leather and plush velvet. These photoplates became more than simple images of a living subject and took on the quality of metonymic remainders of a body once present and a moment now past. In her excellent introduction to Scenes in a Library, a study of photographic books in the middle decades of the nineteenth century, Carol Armstrong argues that Roland Barthes’s Camera Lucida (1980) signaled a return in critical writing on photography to such nineteenth-century concerns of the photograph’s power to entrance and affect its viewer. In doing so, Armstrong distinguishes two lines of development in the reception and production of the photograph: mass-produced images and personal prints. It is in this latter category that we can place the majority of photographs in the world, including snapshots and personal portraits, but also the

39 These two tracks of photography’s critical reception also follow Joel Snyder’s discussion of the distinctive modes of photography to develop simultaneously through the Daguerreotype direct printing process in France and William Henry Fox Talbot’s indirect printing process in England, in “Nineteenth-Century Photography of Sculpture and the Rhetoric of Substitution,” in Sculpture and Photography: Envisioning the Third Dimension.
pervasive view of the photograph’s indexicality adopted from the semiotics of the nineteenth-century American philosopher Charles Sanders Peirce.\textsuperscript{40}

As a term for visual criticism deriving from the middle position of Peirce’s tripartite semiotic configuration of icon/index/symbol, the indexical sign had appeared in André Bazin’s essay “The Ontology of the Photographic Image” from the 1967 English edition \textit{What Is Cinema}? and also in Annette Michelson’s catalog essay on Robert Morris’s 1969 exhibition at the Corcoran Gallery of Art, but the most influential account by far has been Rosalind Krauss’s two-part essay “Notes on the Index” first published in 1977.\textsuperscript{41} Here Krauss describes the index as photography’s “literal manifestation of presence.” And stating further, “the connective tissue binding the objects contained by the photograph is that of the world itself, rather than that of a cultural system.”\textsuperscript{42}

It is my contention that another version of photographic indexicality to emerge from the nineteenth century also thickened in the camera-based practices of the late 1960s. That is, in counterpoise to the particular version of the photographic index cast by Krauss for the field of art criticism in the 1970s, there is an alternate reading of Peirce’s influential concept that provides a valuable means to navigate the ecology of intermedia networks that had arisen at this precise historical moment.

From the model of energy and interstice in De Maria’s magazine pieces to the all-


encompassing sensory output of an USCO performance, there is an important
reading of the index with roots in the early history of energy dynamics that offers a
timely rejoinder to the stark options in camera-based criticism of literal presence vs.
media spectacle.

Before jumping too deeply in Peirce’s semiotics, however, it will be useful to
briefly note the version of the index which has been absorbed by recent art history.
In “Notes on the Index: Seventies Art in America, Part 2,” Krauss’s point of reference
on Peirce is a volume of the philosopher’s selected writings published in 1955, during a
period when American pragmatism was in the midst of widespread reexamination and
resurgence.43 In the chapter that specifically addresses semiotics—“Logic as Semiotic:
The Theory of Signs”—editor Justus Buchler assembled a broad selection of textual
excerpts drawn from nearly a dozen different places in Peirce’s collected writings. What
the reader encounters is closer to a variegated entry in a critical dictionary than a coherent
and sustained argument. A chapter composed of compact statements written at different
moments in Peirce’s theorization of signs, this text provides definitions of semiotic terms
largely disconnected from the philosopher’s larger system of thought. The passage
Krauss quotes addresses photography directly:

“Photographs”, Peirce says, “especially instantaneous photographs, are very
instructive, because we know that they are in certain respects exactly like the
objects they represent. But this resemblance is due to the photographs having
been produced under such circumstances that they were physically forced to
correspond point by point to nature. In that aspect, then, they belong to the second
class of signs [indices], those by physical connection.”44

43 The first part of Krauss’s extended essay sets for itself the task of accounting for a seemingly unrelated
group of art practices to emerge in the 1970s by tracking a notion of the index derived from Roman
Jakobson’s idea of the semiotic “shifter.” Only in the second part of her essay does she connect indexicality
The Originality of the Avant-Garde and Other Modernist Myths.
The key to this passage lies in its final two words. For subsequent critics of photography, the “physical connection” described here has been taken as an affective imprint which encloses the photograph within a closed circuit between its viewing subject and the past event which transpired before the camera’s open shutter. It renders the photograph as a ruin or as a trace of a past moment that can never be recovered. Accordingly, when Barthes’s immensely influential Camera Lucida appeared a short time after “Notes on the Index,” it seemed to confirm the reading of photographic indexicality throughout Krauss’s argument. Marking out photography’s “very essence,” Barthes would affirm, “in Photography I can never deny that the thing has been there. What I intentionalize in a photograph . . . is neither Art nor Communication, it is Reference, which is the founding order of Photography.”

In response, allow me to clarify that I do not take issue with the relevance of this preceding statement or even Krauss’s argument as such. Her two-part essay was a timely entry that has armed critics with a remarkably prodigious conceptual tool; yet, as James Elkins has recently demonstrated, Peirce’s theory of signs fluctuated considerably throughout the philosopher’s work, ranging from the account of the tripartite sign as icon/index/symbol repeatedly employed by art historians to far more overwhelming systems of signs in the dozens, hundreds, and even thousands. My claim is not that Krauss got indexicality wrong—the use of the term is so varied in Peirce’s writing that

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45 Eduardo Cadava has written some of the more remarkable essays along this line of argument, which include Cadava, “‘Lapsus Imaginis’: The Image in Ruins,” October 96 (Spring 2001): 35-60; and Cadava and Paola Cortés-Rocca, “Notes on Love and Photography,” October 116 (Spring 2006): 3-34. In the former, Cadava also enfolds Walter Benjamin’s notion of the “historic index” to the discussion of photographic images.


one is likely to get it right in different and even conflicting ways than otherwise—but that the near universal reception of the limited view presented in “Notes on the Index” has carried forth a version of contemporary photography from the 1960s and 1970s that is too narrowly-conceived for the historical breadth of the work itself.

To repeat, my aim here is not to revise yet another “ontology” for the medium of photography, but instead to isolate the individual terms of photo-based work that operated within the horizon of an ecologically conceived world. That is, given the epistemological claims of Peirce’s sign theory, to think more concretely about the “conceptualism” of photoconceptualism.

For Peirce, a sign was not merely a signifier or stand-in for its referent but referred both to its object and an “interpretant” of that object in the mind. In turn, his semiotics are not grounded in systems of representation, per se, but in the philosopher’s lifelong engagement with logic. To his view, signification is the process by which we take hold of ideas about things in the world, prompted by the empirical encounter and sustained by an intellectual community. Despite statements from Peirce such as “The index asserts nothing; it only says ‘There!’ . . . and there it stops,” when viewed within the larger rubric of logic that he laid out for his semiotics, it becomes inadequate to describe the indexical sign as merely a

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48 In 1897, Peirce would clarify this relationship as follows: “A sign, or representamen, is something which stands to something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the interpretant of the first sign. The sign stands for something, its object. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the ground of the representamen.” “Division of Signs (c. 1897),” in Collected Papers of Charles Sanders Peirce, Volume II, Elements of Logic, eds. Charles Hartshorne and Paul Weiss (Cambridge, MA: The Belknap Press of Harvard University Press, 1932), 2.228. Note: the discussion that follows will employ a more specific sense of the “interpretant” as an early version of Peirce’s “symbol,” as the scope of this term shifted throughout the philosopher’s career.
Peirce first articulated his theory of semiotics in a paper titled “On a New List of Categories” (1868). To clarify how this cohesive argument differs from the snippets about indexicality that litter much art historical adaptations of Peirce, we might compare the opening section of this 1868 manuscript with one of his late and oft-cited essays entitled “What Is a Sign?” The former stakes its argument on the very act of finding meaningful phenomena within the chaotic diversity of our total perception: “This paper is based upon the theory . . . that the function of conceptions is to reduce the manifold of sensuous impressions to unity, and that the validity of a conception consists in the impossibility of reducing the content of consciousness to unity without the introduction of it.” By the time Peirce pens the latter essay, however, which was published as the second chapter in his 1894 How to Reason: A Critick of Arguments, his argument already presupposes that all thoughts necessarily exist as signs. That is, the earlier interest in the process of transforming perception into knowable thoughts had not disappeared from his philosophy, but would now appear as one of its assumptions. He thus begins the 1894 essay by asking: “What Is a Sign? This is a most necessary question, since all reasoning

50 “On a New List of Categories” first appeared in Proceedings of the American Academy of Arts and Sciences 7 (1868): 287-98, following a lecture presented to the Academy on May 14 of the preceding year.
is an interpretation of signs of some kind.”\textsuperscript{52} I stress the comparison of these opening lines because in them we see that in 1868 Peirce still sensed a need to justify in addition to define the novel proposition that ideas exist through signs. Some three decades later—during the period in which the field of art history most often finds its Peirceanisms—he could proceed mainly by definition.

For Peirce, signs are our means of interfacing with the chaos of the world, and the semiotics initially laid out in “On a New List of Categories” claims the triadic system of signs as necessary for the mind to move from the utter disorder of sensory data to the coherence of an idea. That is, from the beginning, his semiotics is a theory of conceptual mediation. Or, in Peirce’s distinctively nineteenth-century academic prose: “Every comparison requires, besides the related thing, the ground, and the correlate, also \textit{a mediating representation which represents the relate to be a representation of the same correlate which this mediating representation itself represents}. Such a mediating representation may be termed an \textit{interpretant}” (emphasis in original).\textsuperscript{53}

From this thicket of words, the key notion to extract is that a sign (which for Peirce always exists in threes: ground, correlate, and interpretant, later called icon, index, symbol) is part of a movement towards an interpretation. At the core of Peirce’s essay is the claim that “substance and being are the beginning and end of all conception,” where substance refers to the structure of theoretical explanation and being to raw sensation. And since this raw sensory data is incompatible with the world of theory, and explanatory thoughts equally incompatible with one’s purely physical engagement with matter—“Substance is inapplicable to a predicate, and being is equally so to a subject”—there


must be a system of thought to mediate between the two extremes of experience.\footnote{Ibid., 1.548.} In a brilliant stroke, Peirce introduces the following schema:

What is / Being.

Quale— that which refers to a ground.
Relate— that which refers to ground and correlate.
Representamen— that which refers to ground, correlate, and interpretant.

It / Substance.

In the center we encounter the “relate,” or what Peirce later in the same essay would term the index. The importance of this schema shows us that indexicality exists not only as a means of pointing at something or establishing “a correspondence in fact,” but also as a moment in the formation of an idea, from the most simple observation of a quality (such as, “this is red”) to its coherence as a qualitative type (redness, for instance).\footnote{Ibid., 1.558.}

Admittedly, this theory is presented in highly schematic fashion, but when we fold this broad base upon which Peirce would build his semiotics into his later example of the photograph-as-index, what emerges is a strikingly different view of photography’s indexicality—not only a physical connection to objects in time but the vibrant point of crossing between raw matter and pure concept.

Two important consequences follow. First, indices are a kind of media. As Pamela M. Lee has recently noted of the condition of an artistic medium or media, “In its etymological roots as a ‘middle condition,’ the word medium foregrounds a liminal stance at its heart. The term underscores process or mediation, is a vehicle of
communication rather than a fact of communication itself.” Accordingly, as a timely concept to re-emerge in the criticism of camera-based media in the 1960s and 1970s, indexicality provides precisely such a middle condition through which to register and embody the totalizing flow of energy through an ecosystem. In its photographic form, such an image is fixed in time only in the sense that it temporarily holds in suspension an ongoing process of distribution. Against the collapse of media and ecology into a wash of expanded consciousness, as one might encounter in a work such as USCO’s *We Are All One*, of bodies caught in a sensory trance, the index provides an explanatory concept for thinking through the “real connections” that might register experience in a system otherwise given to pure flow. What emerges through an indexical reading of intermedia environments is a sense that media embodiment is itself integral to ecological thought and survival.

Second and as a corollary, Peirce’s middle sign also provides a model to think more concretely about what I described earlier as an ecological network of media forms in De Maria’s magazine works of the early 1970s. As a strikingly different proposition about how to connect multiple technological formats within a single, extended work of art, De Maria’s examples suggest that the various media within his projects are in fact distinct but interrelated means to rematerialize energy. Not a media-specificity in the sense each format maintains a historically given set of characteristics, but rather, the ecology of De Maria’s conceptual magazine works suggests an alternate kind of specificity that arises through materialization. Where photography registers the passing of light in a specific place and time, the magazine

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its social distribution, television the flow of a signal across open-ended points of continuous projection, and so forth, the relay network of these formats suggests that the ecology of De Maria’s conceptual art lies in its materialization of energy systems rather than their manipulation or control.

Accordingly, before leaving Peirce, it is important to note the link in his philosophy to nineteenth-century thinking about environments and the natural world. Like many of his generation, he was significantly affected by work of Charles Darwin and the role of the aleatory in the reproduction of life. In a remarkable passage from the essay “Design and Chance” (1883-1884), Peirce connects the newfound role of chance in evolutionary biology to the Second Law of Thermodynamics, or, the long-run decrease in the work capacity of energy known as entropy:

You have all heard of the dissipation of energy. It is found that in all transformations of energy a part is converted into heat and heat is always tending to equalize in temperature. The consequence is that the energy of the universe is tending by virtue of its necessary laws toward a death of the universe in which there shall be no force but heat and the temperature everywhere the same. This is a truly astounding result, and the most materialistic the most anti-teleological conceivable.

We may say that we know enough of the forces at work in the universe to know that there is none that can counteract this tendency away from every definite end but death.

But although no force can counteract this tendency, chance may and will have the opposite influence. Force is in the long run dissipative; chance is in the long run concentrative. The dissipation of energy by the regular laws of nature is by those very laws accompanied by circumstances more and more favorable to its reconcentration by chance. There must therefore be a point at which the two tendencies are balanced and that is no doubt the actual condition of the whole universe at the present time.

57 It is more than incidental that Peirce would earn his living wage for some thirty years working for the United States Coast and Geodetic Survey, specializing in photometrics and gravimetrics.

As this formulation of chance suggests, Peirce would align the work-store of energy in the universe and the operation of his semiotics as parallel and even interrelated concentrative processes.\textsuperscript{59} Like the act of chance upon stores of potential energy, explanatory concepts will dissipate in force when confined to circulation only through the symbolic order (or the realm of “Substance” in the 1868 schema). To retain their force, ideas need to reach down into the crude matter of the world to unearth the unexpected. Otherwise one is left simply deducing the minor consequences of established principles, filling in the footnotes.\textsuperscript{60} As wedged within this process, the index, and here I am thinking about the photograph in particular, bristles with the conceptual possibilities motivated by such a materialization process. For all of the extensive historicization of photographs as ruins and bygone moments to emerge from the 1960s and 1970s, camera-based media were burgeoning across numerous artistic practices at that moment, witnessing a

\textsuperscript{59} Peirce’s statement also anticipates a fascinating proposition to emerge during the next century that models of ecology are essentially models of mind. Gregory Bateson, for one, offers a strikingly parallel interpretation of Darwin in a 1969 lecture:

\begin{quote}
In accordance with the general climate of thinking in mid-nineteenth-century England, Darwin proposed a theory of natural selection and evolution in which the unit of survival was either the family line or the species or the subspecies or something of the sort. But today it is quite obvious that this is not the unit of survival in the real biological world. The unit of survival is organism plus environment. We are learning by bitter experience that the organism which destroys its environment destroys itself.

If, now, we correct the Darwinian unit of survival to include the environment and the interaction between organism and environment, a very strange and surprising identity emerges: the unit of evolutionary survival turns out to be identical with the unit of mind.

Formerly we thought of a hierarchy of taxa—individual, family line, subspecies, species, etc.—as units of survival. We now see a different hierarchy of units—gene-in-organism, organism-in-environment, ecosystem, etc. Ecology, in the widest sense, turns out to be the study of the interaction and survival of ideas and programs (i.e., differences, complexes of differences, etc.) in circuits.
\end{quote}


\textsuperscript{60} Peirce would, in fact, name the specific logical operation of “abduction” to describe this process. Loosely speaking, abduction is the operation of formulating a hypothetical idea from factual data. Unlike induction and deduction, which operate with known ideas, abduction “makes its start from the facts, without, at the outset, having any particular theory in view, though it is motivated by the feeling that a theory is needed to explain the surprising facts.” Peirce, “Abduction (1901),” in \textit{Collected Papers of Charles Sanders Peirce, Volume VII, Science and Philosophy}, ed. Arthur W. Burks, 7.218.
transition from photography and filmmaking as the province of specialist practitioners to that of artists who employed these media in a variety of conceptual practices. Taking our cue from Peirce’s claim regarding the dissipation of energy and concentration of ideas, we look now to the emergence of this photoconceptualism.

“Situations of Energy”

Quite unforeseen to the concerns of the nineteenth-century philosopher, Peirce’s formulation of entropy and chance would in fact come to define the central divide within the field of energy aesthetics to take shape in the 1960s. To date, this field has been received almost exclusively through Robert Smithson’s well-articulated position on entropy within in his practice. But as we look first to Smithson’s notion of energy and next to examples in the work of colleagues such as Giovanni Anselmo and Robert Barry, it will become clear that Smithson’s entropy—photographic or otherwise—was far from normative.

We pick up Smithson’s position with his film *Fossil Quarry with Four Mirror Displacements*, his contribution to *Land Art*, a half-hour exhibition of films aired on Berlin’s SFB television station on April 15, 1969 as part of Gerry Schum and Ursula Wever’s experimental *Fernsehgalerie Gerry Schum* (figs. 3.13 and 3.14). The exhibition *Land Art*—which, is the first instance of this term to be used in place of “earthworks” or “earth art”—brought together a number of the most important players in this burgeoning field, including Richard Long, Barry Flanagan, Dennis Oppenheim, Marinus Boezem, Dibbets, Michael Heizer, Smithson, and De Maria. In Smithson’s film we see a square

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61 Gerry Schum and Ursula Wevers founded the Fernsehgalerie Gerry Schum in 1968. Schum was a recent film school graduate and had completed a few documentary films about art and artists, and Wevers an
footprint of one-foot mirrors standing vertically upon the ground and held in place by rocks piled around their interior and exterior. The camera takes in this construction at close-up and medium close-up, remaining still during a succession of cuts along the cardinal directions of north, east, south, west.

The creation of *Fossil Quarry* stemmed directly from the artist’s participation in Cornell’s influential *Earth Art* exhibition earlier in the winter of 1969. Smithson had photographed mirrors in and around the “site” of the Cayuga Rock Salt Mine in upstate New York, extracting rocks to be placed as “nonsites” in the gallery he had been designated at Cornell (fig. 3.15). In the film we see these salt-mine rocks at a more intermediary stage, as a construction erected directly at the Cayuga site. It follows, then, that the “displacements” named in the film’s title refer at once to those depicted spatially in the reflections of the four standing mirrors, an implied displacement of unearthing rocks from an unseen, underground mine, and a virtual displacement enacted by the aspiring art historian and critic. The following spring of 1969, *Land Art* became the first project realized by the gallery, and November of the following year, 1970, it broadcast a second exhibition titled *Identifications* that included twenty projects, which in general were shorter in length than those of *Land Art* and less focused on a single theme. These television exhibitions relied on funding from individual stations—the first sponsored by SFB in Berlin and the second by SWF in Baden-Baden—but despite the relatively high number of viewers Schum and Wevers garnered, an estimated 100,000, for instance, for *Land Art*, they were unable to sustain contracts with either station. From 1971 to 1973 the two translated the previous TV concept into the *videogalerie schum* (now registering their collective surname, as the two had married in July 1969), but this project of selling commissioned videotapes also proved financially unviable. In 1972 Wevers left to open her own gallery in Cologne, and in March 1973 Schum tragically died from an overdose on sleeping pills. See *Ready to Shoot: Fernsehgalerie Gerry Schum, Videogalerie Schum*, eds. Ulrike Groos, Barbara Hess, and Wevers (Cologne: Snoeck and Kunsthalle Düsseldorf, 2004).

62 Having already shot the European contributions to *Land Art* prior to February 1969, Schum traveled to Cornell University for the opening of *Earth Art* to meet with American artists and arrange to shoot films. From De Maria’s letters, it seems the two had met earlier while the artist was in Europe the previous fall (Munich for the *Pure Dirt* exhibition in September-October and London in November-December). From two letters written by De Maria to Robert Scull dated December 11 and December 30 of 1968, respectively, we can discern that De Maria had initially agreed to let Schum and his crew join the trip to the Sahara to film the first segment of *The Three Continent Project*, but changed his mind before departing London for Algiers. Presumably Schum met up with De Maria again in Ithaca to re-negotiate. Robert Scull Papers, Archives of American Art, Smithsonian Institution, Folder 5.

63 On Smithson’s site/non-site distinction, see note 77 of chapter two. Notably Smithson would clarify himself that “signs, photographs, and maps . . . belong to both sides of the [site and non-site] dialectic at once,” in “The Spiral Jetty (1972),” *Collected Writings*, 152-153.
film’s editing structure. Various forms of displacement would indeed come increasingly to characterize Smithson’s work in his imaginative, critical essays of the late 1960s, such as the conflation of mirrors and travel featured in “Incidents of Mirror-Travel in the Yucatan” of 1969. In genealogical terms, *Fossil Quarry* would prove to be a crucial film for Smithson’s seminal period of 1969-70 in that it connects the artist’s existing interests in what he called site/non-site dialectics with both processes of displacement and the elements (rocks, salt crystals, and cardinal direction) that would structure his *Spiral Jetty* and *Spiral Jetty* film of the following year.⁶⁴ Following Smithson’s projects around Cornell in early 1969, nearly all of his subsequent major works would incorporate multiple media formats, including photography, film, constructed objects, and text.

Furthermore, the importance of *Fossil Quarry* is also registered in how the film conceives of the camera’s role in energy depletion. As Stephen Melville has astutely noted, the low-lying mirror box in *Fossil Quarry* is yet another version of Smithson’s Sandbox Monument described in his travelogue essay “A Tour of the Monuments of Passaic, New Jersey” of 1967 (fig. 3.16). Following his earlier “Entropy and the New Monuments” of 1966, in which he introduces his interest in entropy as an “ultimate future [in which] the whole universe will burn out and be transformed into all-encompassing sameness,” the travelogue on the “Monuments of Passaic” features the artist’s most vivid image of entropy at work. The relevant section reads:

> The last monument was a sand box or a model desert. Under the dead light of the Passaic afternoon the desert became a map of infinite disintegration and forgetfulness. This monument of minute particles blazed under a bleakly glowing sun, and suggested the sullen dissolution of entire continents, the drying up of oceans—no longer were there green forests and high mountains—all that existed

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were millions of grains of sand, a vast deposit of bones and stones pulverized into dust. Every grain of sand was a dead metaphor that equaled timelessness, and to decipher such metaphors would take one through the false mirror of eternity. This sand box somehow doubled as an open grave—a grave that children cheerfully play in. . . .

I should now like to prove the irreversibility of eternity by using a *jejune* experiment for proving entropy. Picture in your mind’s eye the sand box divided in half with black sand on one side and white sand on the other. We take a child and have him run hundreds of times clockwise in the box until the sand gets mixed and begins to turn grey; after that we have him run anti-clockwise, but the result will not be a restoration of the original division but a greater degree of grayness and an increase of entropy. 65

The unique mixture of language and logic here fit Smithson’s purpose well: the mundane playground sandbox in the first paragraph is described in a manner that already shows the effects of galactic heat-death (the sun faded, form falling into dust, and so forth) before he conducts the actual thought experiment meant to demonstrate entropy in the paragraph that follows. Indeed, Smithson has absorbed the sense of scalar expansion and collapse attending the Second Law of Thermodynamics. For unlike the First Law of Thermodynamics, which states energy cannot be created or destroyed and that was inferred from general observation, the Second Law was formulated through a concrete set of experiments with engines. In heating fuel to do work in a steam engine, some potential energy is always lost, no matter how efficient the engine. This insight, which the German physicist Rudolf Clausius noted as early as 1850, resulted in the principle that any system which recycles energy, whether the ecosystem of a pond or the combustion of a car, is never completely efficient. Thus, the broad notion of entropy that so interested Smithson involves a bold leap in attributing the behavior of machines to that of the universe as a whole. In a like manner, Smithson easily turns this Law’s initial substitution of scale into

a wild assembly of scalar cuts: sandbox into “desert” and the monument of “minute particles” a “dissolution of entire continents.”

The simple and evocative image of a sandbox and the bleak tones of black, white, and gray have no doubt contributed to the attractiveness of this passage for critics looking to summarize Smithsonian entropy (and more problematically, the importance of thermodynamics at large in postwar art). But this most famous of his Passaic monuments tends to level the operation of entropy in Smithson’s art to a model of material dispersion, as one finds, for instance, in his various rundownst of asphalt and glue or his Partially Buried Woodshed (1970).

If we continue reading the beyond the passage on the “Sandbox Monument” in the Passaic travelogue, however, the artist extends his entropic imagery to the media of photography and film:

Of course, if we filmed such an experiment we could prove the reversibility of eternity by showing the film backwards, but then sooner or later the film itself would crumble or get lost and enter the state of irreversibility. Somehow this suggests that the cinema offers an illusive or temporary escape from physical dissolution. The false immortality of the film gives the viewer an illusion of control over eternity—but the “superstars” are fading.66

With this final, puzzling—even, fragmentary—sentence, Smithson’s essay itself staggers to an abrupt conclusion, leaving its reader with the dangling thought: if the temporary reversibility of entropy in cinematic projection is subject to the same material exhaustion as the sandbox itself, why bother noting the distinction at all? I take the supplementary nature of this statement as telling. Simply put, a great deal of Smithson’s work breaks down into replications or analogues of an originary idea or displaced object. His final addendum on the entropy of cinema, therefore, not only repeats an idea already replicated

66 Ibid.
in each of the two preceding paragraphs, but also indicates to the reader that this notion extends across all of the artist’s media. Smithson’s decay of matter would not be limited to rundowns and piles of dirt alone.

Consequently, Smithson’s conception of photography should be read as internally divided into its own analogues of ‘photo-’ and ‘-graph.’ Of the former, he writes earlier in the Passaic travelogue of his arrival to town: “Noon-day sunshine cinema-ized the site, turning the bridge and the river into an over-exposed picture. Photographing it with my Instamatic 400 was like photographing a photograph.”67 We have here the suggestion of infinite regress between picturing and being pictured that critic Craig Owens found so appealing in the artist’s relation to photography and language.68 But it is crucial in Smithson’s account that light instigates this reversal: the photo-quality provided by the sun. In this conceptual construct, photo-energy has already been displaced, or captured, as a photo-graph. If, for Haeckel, “The whole marvelous panorama of life that spreads over the surface of our globe is . . . transformed sunlight,” Smithson’s account would suggest that “transformed sunlight,” whether in a photograph or elsewhere, is but the first step of inevitable decay, not only of energy forms but equally of the information they carry. As the artist would later comment, “I’m interested in collaborating with entropy. Some day I would like to compile all the different entropies. All the classifications would lose their grids.”69

At Cornell, Smithson would take up the other side of the equation by emphasizing the -graphic quality of printing chemically on paper. In an all-but-forgotten work from

67 Ibid., 70.
69 Smithson, “. . . The Earth, Subject to Cataclysms, is a Cruel Master: Interview with Grégoire Müller,” in The Collected Writings, 256.
the *Earth Art* exhibition, Smithson scattered photographs taken during the excavation process at Cayuga directly into a pile of debris on the gallery floor that had been taken from the mining site (fig. 3.17). Instead of imbedding the mirrors that appear in the *Fossil Quarry* film for the Fernsehgalerie, and, more famously, throughout the remainder of his Cornell gallery, here Smithson returns the chemical imprint of his photographs back to the very raw material depicted in the prints. Just as he describes the photo-energy emitted by the sun fashioning the land itself as a photograph, the untitled pile in *Earth Art* confirms that chemically imprinted paper is subject to the same fate of decay and erosion Smithson prophesied for the entropic reversibility of the cinema. These photographs are rendered as all but rubble. As would later characterize the multiple media of *Spiral Jetty* in film, rocks, photographs, and text, Smithson’s *Fossil Quarry* film and collective work around the Cayuga mine already register these four media formats as structural analogs, all entropically bound for one and the same heat exhaustion.

Counter to Smithson’s all-encompassing sense of entropy in his work, we can pick up an alternative strain of energy dynamics that would take its cue from Peirce’s claim about chance as a concentrative rather than dissipative force in creation. The Italian artist Giovanni Anselmo, for instance, would describe his versions of *Torsion* sculpture begun in 1968 as embodying an “action of energy” that, “counteracts a situation of entropy.” As he explains of these works in which the artist twisted fabric and leather to hold massive bars of iron at the point of near recoil, “Once installed, [the *Torsions*] are

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70 All available photographs of Smithson’s gallery at Cornell are shot from the direction of the entranceway, looking into the gallery. The work I discuss above was located behind a covered fireplace, which would have obscured its appearance in all such photographs. See also, Smithson’s initial proposal to use photographs instead of mirrors in his Cornell non-sites, depicted in the drawings *Snapshots of Fine Rock Salt* (1968) and *Proposal for White Museum, Cornell, Based on Myers Salt Mine* (1968), in Robert Smithson, (Los Angeles: Museum of Contemporary Art, 2004), 168-69.
not inert, since the energy that is accumulated and contained in [them] has a real action and exercises a ‘real’ thrust against the walls. This situation is the opposite of entropy, and, to maintain itself over time, it must be constantly reactivated or ‘stirred up.”\textsuperscript{71} That is, rather than submit one’s art to seemingly inevitable forces of gradual decline, Anselmo would claim his \textit{Torsion} works and related “situations of energy,” as he began to describe his sculpture beginning in the mid-1960s, as fleeting moments of resistance to energy decline.\textsuperscript{72} In Peirce’s sense, the capture of twisted cloth and iron at the moment these come together as a \textit{Torsion} sculpture provide an indexical sign caught between the artist’s creative act and the pervasive, otherwise invisible energy forces held in suspension for the duration of the sculpture. That is, as a creative act, it is an act of chance. Furthermore, what Anselmo discovered in experiments with storing tensile strength would soon find a voice in art criticism through a small book by the gestalt psychologist and film theorist Rudolf Arnheim.

In 1971 Arnheim published \textit{Entropy and Art: An Essay on Disorder and Order} (fig. 3.18), in which he distinguishes between two competing models of disorder and energy expenditure in the visual arts. On the one hand, he argues, “order” might refer to the legibility of patterns within a field of information (the order of a figure on a ground), while on the other, it might refer to the random distribution of particles within a field (the order of Smithson’s sandbox). In general, entropic behavior discharges pre-existing hubs of organized energy, but this process assumes a different relation to orderliness depending on whether one is speaking of the energy-stores of information or of matter.

As an implicit response to Smithson, Arnheim’s position suggests that the shaping of

\textsuperscript{71} Anselmo and Viliani, “In Conversation,” in \textit{Giovanni Anselmo}, 214.

earth or its distribution through media networks rearranges matter in an aleatory manner. By this reading, Smithson’s *Fossil Quarry* film and his *Mirror Displacement* non-site at Cornell do not propel or acknowledge entropic sameness so much as they upset an existing distribution of particle matter and in doing so add potential energy to their sites and media forms. From Arnheim, “What entropy theory measures is not the nature of organization but only its overall product, namely, the degree of dissipation of energy it entails, the amount of ‘tension’ available for work in the system.”73 Therefore, although Arnheim does not address contemporary works of land art, his claims could be adapted to the circulation of these works in various media as multiple strategies of adding charge. Akin to Peirce’s sense of arbitrariness as the stimulus to generating explanations from raw matter, Arnheim’s implicit reprisal to Smithson provides a more generative role for the energy systems of photoconceptualism. Indeed, as Jonathan Benthall would summarily state in his essay “The Relevance of Ecology” reprinted in Gregory Battock’s conceptual art compendium *Idea Art*: “art, like life, is a manifestation of resistance to entropy.”74

This conflicted relationship concerning the materiality of energy systems would appear, importantly, in Anselmo’s turn to energetics in his art. The artist relates this turn through his own analysis of a photograph taken of himself on the Mediterranean island of Stromboli (fig. 3.19). As in Roberto Rossellini’s famed film of 1950, the landscape of Stromboli would take on an unusually active role in this photograph, snapped while the

The artist was on a tourist visit to the island in 1965 and later given the lengthy title *My Shadow Projected to Infinity from the Top of Stromboli During Sunrise on 16 August 1965*. The composition is quite striking: a black mass of volcano nearly bisects the frame along a top-left to bottom-right diagonal, allowing smoking lava to billow upward from the bottom edge, splitting the body of the artist between Manichean grounds of black and white, bounded and unbounded space, solid and vaporous matter. For Anselmo, later inspecting this photograph, what is shown of the artist on Stromboli is less important than what is not. What most captured his attention is the fact that his shadow eluded capture by the camera. As he explains,

> The work, in effect, is not visible . . . the speed of light, the sun, my shadow, which at the speed of light, is projected into space, disappearing from view, is a totality of energy and movement that the photograph does not and cannot manage to capture. That photograph is only a ‘souvenir,’ a postcard. The work is what happened up there, at that moment.\(^{75}\)

Thus it was precisely in the act of making this photograph that Anselmo became aware of the artistic work taking place, but the photographic imprint with which we are left cannot show or represent the event transpiring. Anselmo himself would take this insight about photographic representation as a prompt to shift his artistic practice from its earlier investment in drawing and painting to harnessing the energetics of matter more directly in a burgeoning sculptural practice.\(^{76}\) That is, although this photograph effect...
rejection of its own medium from his practice, the larger implication of *My Shadow Projected to Infinity* would provide an important realization that photography is not a second-order system of energy. As an index, in the revised sense of this term, this photograph cannot capture dissipation because it is imbedded within the field of light exchange. While not itself a second-order interpretation of this field, the photographic imprint stills processes which would otherwise be lost to inspection. Its unexpected distillation of light events allowed for Anselmo’s surprising insight about energy transformation, rather than showing that transformation as such.

Four years later in a series of rather unremarkable sites around the city of Los Angeles—an empty, concrete swimming pool, desert scrub, sandy beach, local foothills—American artist Robert Barry released a number of measured volumes of five pure gases (Helium, Neon, Argon, Krypton, Xenon) into the atmosphere (fig. 3.20). Barry’s *Inert Gas Series* was part of an exhibition organized by the influential conceptual gallerist Seth Siegelaub for which there was no central gallery space, only an address given on the exhibition announcement for a post office box on Sunset Boulevard, an answering machine with a message describing Barry’s project, and a series of photographs released after the fact. Spectators thereby had no access to the events themselves, and those interested in the exhibition were left only with rather mundane images as reference. Except, much as in Anselmo’s 1965 work on Stromboli, Barry’s photographs of inert gas do not capture the appearance of any actual gas being released into the atmosphere. In one example, we see a beaker sitting on churned-up sand, a wave breaking in the background, but none of the actual Argon motivating both the event and

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photograph. As the gas dissolves into the atmosphere, it eludes capture on celluloid, allowing only the light from more solid objects to register chemically.

The *Inert Gas Series* photographs have been understood by critics of conceptualism both as a prime example of what Lucy Lippard and John Chandler influentially identified in 1968 as the “dematerialization” of objects into ideas or conceptual processes, and as a case of what Alexander Alberro (via Siegelaub) has characterized as “secondary information” provided by the context and distribution of information about an event rather than its direct empirical experience. Barry’s series—and its photographs—have never been seriously considered, however, within the context of artist’s enduring interest in the effects of energy transformation on particles. In 1967 and ’68 his projects had moved rapidly through a number of experiments that sought to dissolve the distinction between a work of art and its environment: spacing several small monochrome paintings upon a single wall, embedding drawings into the isometric lines of gridded paper, or, likewise, running nylon cord between two university buildings. Conventionally, these works have been understood as minimizing the perceptible presence of the work of art and therefore increasing the degree to which it must be known conceptually, by the “secondary information” of social, museological, or linguistic frameworks.

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See Lucy R. Lippard and John Chandler, “The Dematerialization of Art,” *Art International* 12:2 (February 1968): 31-36. On Siegelaub’s distinction between primary and secondary information, see Alexander Alberro, *Conceptual Art and the Politics of Publicity* (Cambridge, MA and London: MIT Press, 2003), esp. 55-57. Alberro also discusses Barry’s conceptualism at length, and while he notes the fine distinction that “Barry’s work . . . [rejected] the simple materiality of minimal art in favor of a materiality existing concretely beyond the reach of human perception,” for Alberro the role of Barry’s energetics and photography ultimately fold back into Siegelaub’s interests in the world of advertising. “[Barry’s] resulting artistic operations were contingent and shifted according to context. Furthermore, the highly imperceptible nature of Barry’s conceptualist work increased the importance of the art’s mode of presentation, or, as Siegelaub would phrase it, its secondary information. The latter now became a necessary framing device for the essence of the piece,” (117).
Yet, if we attend to the direction of Barry’s work in the years immediately following these experiments, the work he made in addition to the *Inert Gas Series* includes a cache of projects using different versions of pulsation, including ultrasonic sound, carrier waves, microwaves, radiation, and electromagnetic fields. Rather than their imperceptibility as such, Barry explained the stakes of his new work in telling statement of 1969 in *Arts Magazine*:

I’m not only questioning the limits of our perception, but the actual nature of perception. These forms certainly do exist, they are controlled and have their own characteristic. They are made of various kinds of energy which exist outside the narrow arbitrary limits of our own senses. I use various devices to produce the energy, detect it, measure it, and define its form.  

That he would also continue to photograph these events is telling. Like the release of Argon in his photograph from the *Inert Gas Series* later the same year, Barry’s photos of 88 mc Carrier Wave (FM) and 1600 kc Carrier Wave (AM) (fig. 3.21) equally show nothing to their viewer except a seemingly empty gallery space. We cannot empirically detect the clashing of carrier-wave frequencies throughout this room, because only light waves register upon photographic celluloid. This point is made all the more explicit in Germano Celant’s first English publication, *Art Povera* of 1969, which reproduced most of Barry’s earlier statement from *Arts Magazine* along with four photographs of the artist’s studio apparently showing 88 mc. Carrier Wave (FM), 1600 kc. Carrier Wave (AM), 0,5 Microcurie Radiation Installation, and 4,5 cm. Microwave Installation, respectively, but which look in actuality all but identical (fig. 3.22). The continued claim made by photography with regard to these manipulations of wave patterns and gas dispersions cannot be that the photograph “documents” the work (because the event

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78 Arthur Rose, “Four Interviews,” *Arts Magazine* 43:4 (February 1969), 22. Note: Arthur Rose was a pseudonym of Joseph Kosuth, and the “Four Interviews” were also pseudo-interviews and are best regarded as artist statements by the four contributors Barry, Douglas Huebler, Kosuth, and Lawrence Weiner.
eludes the camera), nor that it replicates a dematerialized situation. Barry’s concerns in the late sixties lay entirely with materiality—works of art that enter into and manipulate the continuous energy concentrations and transformation of their surroundings.

But the dematerialization argument also carried a strong social component. In the turn from object-making to “an ultra-conceptual art that emphasizes the thinking process almost exclusively”—as Lippard and Chandler would originally define this tendency—there was an implication that the minimal material gestures of dematerialized art would circumvent commodification.\(^79\) As Lippard would later clarify,

> It seemed in 1969 . . . that no one, not even a public greedy for novelty, would actually pay money, or much of it, for a Xerox sheet referring to an event past or never directly perceived, a group of photographs documenting an ephemeral situation or condition, a project for work never to be completed, words spoken but not recorded; it seemed that these artists would therefore be forcibly freed from the tyranny of a commodity status and market-orientation.\(^80\)

Within such a framework, the “dematerialized” object had been imagined as escaping the circulation and valuation of material objects as commodities. Likewise, to consider Barry’s work, for instance, as energetically materialized generates a similar utopian fantasy through different circuitry. It would seek to position his wave works as existing within an alternate exchange system in energy units and concentrations, rather than monetary currency. That is, it would seem to manifest the same problem that had attended energy aesthetics and new media since their articulation by McLuhan.

Our interest in Barry’s practice, however, has not focused wholly on the energy forces of the gases and waves that constituted his performative gestures and installations, but on the fact that he continued to photograph these situations. From Anselmo’s telling

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anecdote about the immanence of the photographic apparatus to the light conditions of
Stromboli in *My Shadow Projected to Infinity*, we can infer that one attraction to camera-
based media in Barry’s various works is the structural similarity of photo-energy to his
various uses of carrier waves, radiation, and microwaves. Rather than a document of
Barry’s artistic creation or output, per se, these photographs imprint the fluctuation of
light waves in his gallery and studio spaces as a material equivalent to the artist’s actual,
imperceptible works in these same spaces. As epistemological devices, these photographs
are indices in the most rigorous sense of the term.

Furthermore, the material status of Barry’s photographs also complicates the
claim that the energetics in his and contemporary artistic practices of the late 1960s
sought to create an ephemeral and independent market of exchange. Indeed, as indices of
energy flow, these objects expand the nature of the index to describe not only the
intersection of raw matter and its discrimination into an idea, but also the crossing point
between the unclassified flow of solar energy to the earth’s surface and the reconstitution
of this energy as solid, commodifiable forms. In an alternative revision to Haeckel’s
earlier statement, “transformed sunlight” is not conceived as giving onto a “marvelous
panorama of life” so much as providing a minimum, limit condition of rendering energy
as commodifiable, transferring it to a system of monetary exchange. Much in the manner
that Alberro has discussed the conflicted relationship of Siegelaub’s exhibitions of
“secondary information” as at once attempting to liberate art from the grip of the market
and employing the very advertising techniques that drove postwar consumerism, Barry’s
engagement with energy is caught between the two systems of energy and commodity
exchange that intersect in his photographs.
In other words, if the limit conditions in the field of postwar energy aesthetics are framed on one end by the vision of all-over immersion in the multimedia shows of USCO (totality as synchronic unity) and on the other by the model of analogic entropy in the art of Robert Smithson (totality as temporal disintegration), between these extremes lies a host of positions that seek to grasp and affect the interactions of energy and its constituent ecosystems. This is where we have considered the role of photo-media in the practices of Barry and also Anselmo, but, with this spectrum in mind, it is also the place to revisit to the photographic media of *The Lightning Field*.

**An Energy Field?**

Returning to De Maria’s 1980 *Artforum* publication, I would now revise my earlier suggestion that energy exchange is the proper province of the photographic *Lightning Field*. Bearing in mind the more pervasive role of energy aesthetics examined in this chapter, we can see now that ideas about energy are more constituent to this work as a whole. Instead of dividing De Maria’s work between a site-specific version that slowly reveals itself to visitors walking the grounds and an “energetic” version that couples its photographic media with the electrical exchange of lightning strikes—*The Lightning Field* is better understood as two structurally related systems of distributing photo-energy. The photographic one is indeed given to quick flashes of light and distributed for immediate access and legibility. The other, on-site in New Mexico, befits the compositional array of the work itself. It is not given to fast, concentrated lightning, but the even and modulated distribution of reflected sunlight that one can only fully comprehend by walking through its grid of four hundred poles. In other words, both
media formats of *The Lightning Field* operate according to modes of distributing photo-energy. And while the work’s publication has come to exhibit notable authority in the *Field*’s reception, these photographs are not as materially disconnected from the site in New Mexico as they might initially appear. Both aspects of the work are coupled versions of “transformed sunlight.”

Furthermore, this revised reading of *The Lightning Field*’s energy forms suggests that one re-consider also the connection noted by Beardsley between the censorship exercised in *The Lightning Field*’s visitation policies and the degree of control which De Maria applied to the layout of its publication. In one sense, the work’s strict guidelines suit the respective modes of engaging with the *Field* internalized within its site versus that of its magazine publication. Dia and De Maria’s policies for visiting the *Field*’s site foreground personal contact and duration—excising any additional forms of mediation in photography, video, or film and *gently* forcing one to experience a full day’s trajectory of direct and reflected light upon the work. Equally, through the appearance of De Maria and Cliett’s photographs in a highly controlled magazine spread—rather than an art gallery or more extended sample published in a book—one’s engagement with the photographic *Lightning Field* is necessary short-lived and given only to the snippet of emphatically electrical images selected for the spread. Both forms of censorship highlight their respective facets of the *Field*.

The role of censorship surrounding *The Lightning Field* in general might also prompt one to reflect upon its relationship to the energy aesthetics of the two decades across which De Maria’s work casts its shadow. In a recent essay, Miwon Kwon has suggested that the grand earthworks, including *The Lightning Field*, be reconceived as
instances of “massive expenditure or destructive consumption” in Georges Bataille’s sense of these terms in *The Accursed Share*.\(^81\) By this analysis, the giant caches of money, materials, and labor spent upon the earthworks of De Maria, Heizer, or Smithson empty out accumulations of excess energy in a general economy (which, as Kwon reminds the reader, “[encompass] all forces—natural, social, economic, political, religious, etc.”) that inevitably lead to other, more catastrophic ways of clearing this energy in natural disasters and war.\(^82\) In light of the sweeping claims of ecological energetics, Kwon’s argument provides a productive approach to grasping how the applications of energy in artistic practices could seem to bypass the mounting international energy crisis from postwar industrial and military buildup, while in fact actually working directly to ease its excessive accretion via massive output across various media. In this respect, *The Lightning Field* would function less as a censor of energy politics than its filter or conduit.

And yet, to bear in mind the other aspect of De Maria’s magazine works—their coordination of media as an ecosystem—Bataillean expenditure has the effect of leveling out energy flow through a system. In a manner strikingly similar to Robert Smithson’s notion of entropy, in fact, there is little that allows a constructive or productive model of an ecosystem to take shape when its output is regarded as expenditure alone. This is one way to read the title of Denis Hollier’s *Against Architecture* written on Bataille.\(^83\) In other words, a general economy does not provide for the structure of a general systems

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\(^{82}\) Kwon, “The Art of Expenditure,” 68.

ecology. We are left, instead, with a highly contentious field of energetics in the art of the 1960s and 1970s. In many cases, the very idea of energy flow had served as a literal medium through which to constitute the form of sculpture by Anselmo, installation spaces by Barry, or the intermedia events of an emerging “expanded cinema.” And though I have positioned Peirce’s semiotic index as one heuristic to approach the implications of these “forms” or “imprints” of energy—as a literal medium through which to grasp that which would otherwise be imperceptible—what emerges from these works is hardly a consistent account of this multifaceted field. From the conceptualism of magazine art to intermedia, dematerialization, and land art in circulation, while we may not encounter a singular notion among these terms, it should be clear that each was invested in negotiating an emerging postwar aesthetics of energy that must now be recognized as deeply embedded within this period’s history of art.

This chapter closes, therefore, with a final work by De Maria—his own contribution to the Fernsehgalerie broadcast of Land Art—a film entitled Two Lines Three Circles on the Desert (fig. 3.23). The film itself runs just under five minutes and unfolds precisely as the title suggests. The lines were known to critics of land art already: in spring 1968 De Maria had drawn two mile-long chalk lines on the cracked earth of the Mohave desert for a work called The Mile-Long Drawing. In March 1969, he returned to the Mohave to replicate this drawing, this time as mise-en-scène. The circles refer to three slow, continuous wraps of the camera. At the beginning of the film the artist stands arms akimbo at the near end of the two lines. Moments later, as he begins to walk down the virtual tunnel before him, the camera starts to turn. As the rotation continues, the viewer is treated only to the undulating line of faraway mountains passing through the
frame, a motif that would reappear in soon afterwards in De Maria’s film *Hard Core* in summer 1969 and later still in the play of line and edge within *The Lightning Field*.

When the lines of De Maria’s drawing enter the frame once more, we see that the artist has progressed far into the work, now a tiny feature in an expanse of desert. With the final pass of the camera, the chalk drawing appears once more but the artist is now absent, leaving only the two orthogonal lines as a literal vanishing point.

As a film, which, like *Hard Core*, was created for broadcast television, *Two Lines Three Circles* internalizes a sense of its own presence among a network of media. I have mentioned already that the two chalk lines through which De Maria walks are a recreation of his earlier *Mile-Long Drawing* of 1968, but the net of works sustaining *Two Lines Three Circles* is far more extensive. This drawing is itself an in-situ sketch for another of De Maria’s projects, *The Mile-Long Walls in the Desert*, an unrealized earthwork that was to consist of two twelve-foot high, one-mile long concrete walls to be located on a desert floor and walked by visitors. Likewise, De Maria’s own presence in *Two Lines Three Circles* also recalls a 1968 photograph in which he is featured lying prone within the original *Mile-Long Drawing*. As a key example of land art in circulation, this photograph not only communicated the artist’s drawing to audiences unable to visit this ephemeral work but it was also the artist’s first conceptual magazine piece, which circulated as an advertisement for his exhibition *Danger* at the Dwan Gallery in New York. Opening the same month as the *Land Art* broadcast in spring 1969, *Danger* was De Maria’s last gallery exhibition for nearly a decade and prominently featured the minimalist sculpture *Bed of Spikes*, whose sharpened steel grids would later be reinterpreted by the artist on an outdoor site as *The Lightning Field* (fig. 3.24),
connecting the energy circulation of *Two Lines Three Circles* and *The Mile-Long Drawing* well into the *Field*’s own ecological historiography. This is the say that in the years 1968-69, De Maria conceived his various works in the Mohave through the kind of multiplicity of interconnected media that would later appear in his magazine works for *Avalanche* in 1972 and *Artforum* in 1973: photograph-for-sculpture, drawing-for-earthwork, film-for-television.

*Two Lines Three Circles* is itself as distributed an entity as the television box on which it aired in 1968. As fitted with an antenna and connected by a black cord to an electrical outlet, the domestic television set—like the very one featured in De Maria’s suite of photographs in *Avalanche*—makes known its position as a relay center of pulsing light, aerial broadcast, and the power grid. “As a source of images from elsewhere, a technology that interacts with ethereal, unlocatable physics of the electromagnetic spectrum,” notes media scholar Anna McCarthy, “TV does not exist solely on the immediate social scale of the place where it is viewed.”

Similar to this object for which it was created, *Two Lines Three Circles* is also an energy form of open-ended points of continuous projection. It is a work which can be understood through it own simple equation of lines and circles, but draws its greatest force when positioned within the web of artistic formats that provide it life, from the desolate desert flats of the Mohave to Berlin living rooms, and via the distribution of Schum’s broadcast on videotape, soon a host of the most important conceptual art exhibitions of the period. Thus the “hybrid

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85 The exhibitions that exhibited *Land Art* following its initial broadcast include the London installation of *When Attitudes Become Form* at the ICA Cinema in late summer 1969, Kynaston McShine’s *Information* at the Museum of Modern Art in summer 1970, *Sonsbeek ’71* in the Netherlands, and Lucy Lippard’s two exhibitions *557,087* in Seattle in fall 1969 and *955,000* in Vancouver the following spring.
energies,” to borrow McLuhan’s term, of Two Lines Three Circles makes clear that De Maria’s and other land artists’ environmental works did not “circulate” centrifugally outward from a primary site through their circulation in print and televisual media, but as networked energy forms from the beginning, were “in circulation” as a mode of being. Land works such as The Lightning Field, The Mile-Long Drawing, or Spiral Jetty were never truly remote in the sense of a spatial remove, only so in the uneven manner that each work conceived of its connection to circuits of social and biological production.
CHAPTER FOUR:
Land Art in the 1970s?

As we follow the tangled temporal logic of Walter De Maria’s *The Lightning Field*, this chapter brings us finally to the 1970s and the construction of the work’s site itself. We will examine De Maria’s involvement with several large-scale land projects in the mid-1970s that coincide with the ultimate completion of *The Lightning Field* on October 31, 1977 on a remote plain outside Quemado, New Mexico, which is to say, we have finally arrived at the present. Or better, after considering the *Field* against environmentally motivated art throughout the 1960s, we have arrived at a moment when the work’s consciousness finally coincides with its own moment in time. Perhaps paradoxically, this moment also bears witness to the eclipse of land art as a practice forged in the late 1960s and all but spent a decade later. In the body of this chapter, I will address several artists who carried forward the investigation of earth and ecology in their work the 1970s, which were fraught with a string of crises over energy, pollutants, and the environmental role of the state.

In all, we will need to come to terms with the apparent changing of the guards in environmental art. The terms of land art as it has been examined thus far, of gallery/site dynamics, scale, and energetics, had all but dissipated by the year of *The Lightning Field*’s completion. Robert Smithson died tragically in a helicopter crash on July 20, 1973 while at work on *Amarillo Ramp* on the Marsh Ranch in West Texas. The year before, Michael Heizer had acquired land in Garden Valley, Nevada and largely absconded for the ensuing decades to work on his *City* complex, which even today has
not been seen by the general public.\(^1\) In 1970, Dennis Oppenheim’s work took a rapid
turn from engaging land in its production to employing his own body instead. And then
there is *The Lightning Field*—at once timely and perpetually late. Like De Maria’s larger
practice itself, the work is central to the history of postwar art in the United States largely
*because* of its peripheral status and not in spite of it. As its artist would famously declare,
“Isolation is the essence of land art.”\(^2\)

Yet, as I have argued throughout the preceding chapters, neither land art nor *The
Lightning Field* was ever truly isolated. In one sense, the latter might be taken as a coda
to what I will call the first phase or wave of land art practice, but there are no clean
breaks. The 1970s is the decade in which earth-based and environmental issues realize a
new level of public life, and because of which, it is inadequate to claim to that land art
disappeared. Artistic engagement with the ideas and politics of the natural environmental
continued, just not with the same degree of cohesion that characterized the earlier phase
of land art. This is the era in which “ecology” as both a system of ideas and the banner
term of the environmental movement was absorbed into state and corporate institutional
practices. In turn, it will be the work of this chapter to understand the final realization of
*The Lightning Field* in 1977 within this emergent field that negotiated more explicitly
public demands of a new ecological and, ultimately, global awareness of environmental
issues. We will do so by examining the diverse land art to take shape in the 1970s,
beginning with the artist couple Helen Mayer Harrison and Newton Harrison, and
followed by the implicit ecological critique introduced by the pavilions of Dan Graham,

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the sprawling architecture and multi-media environments of Ant Farm, and concluding with De Maria’s own land projects in the 1970s.

While *The Lightning Field* would come into being in the midst of this transitional period of land art, one must also account for the manner in which De Maria’s final earthworks turn away from the open systems that had provided land art’s impetus in the late 1960s. The version of *The Lightning Field* that closes this chapter is a complex object that embodies the variety of ecological art to appear throughout this dissertation’s preceding chapters, while, in its own final formulation, reduces the diversity of the earth’s ecosystems to an internally-closed vision of shapes and numbers.

But to introduce the terms of land art’s public claims in the 1970s, we begin with an uncanny reemergence that occurred in the latter part of the decade. Just when *The Lightning Field* was being unveiled, a flash of exhibitions and art works briefly appeared that seemed to announce a return to the earliest endeavors of De Maria and his colleagues Smithson, Heizer, and Oppenheim. That is, before its final disappearance, the earthwork experienced something of an artworld supernova.

**Earthworks, Revisited**

The most notable of the returns to first-wave land art in the late 1970s includes a permanent restaging of De Maria’s *Land Show* from the former Galerie Heiner Friedrich in Munich and a reconceptualization of Virginia Dwan and Robert Smithson’s *Earth Works* exhibition, both of which originally opened in fall 1968. Of the two exhibitions, the first is a return in its purest sense. Having relocated from Munich to New York in 1972, Friedrich showed *The New York Earth Room* (fig. 4.1) at his new space on Wooster
Street in SoHo using the same sort of loamy soil as its predecessor. The SoHo space was larger than Friedrich’s original Munich gallery—3,600 square feet compared to 755 square feet—but the original muteness of De Maria’s dirt prevailed. Large clumps of rich earth lay in a perfectly flat and vigorously tilled plane rising to a uniform height of twenty-two inches in the New York iteration, providing the spectator a single vantage point from the gallery’s entranceway. Since 1980, this work has been permanently open to the public.

Nonetheless, the return enacted by *The New York Earth Room* in 1977 shows clear points of divergence of its 1968 predecessor. Most immediately, the creation of earth rooms in 1974 in Darmstadt and again in New York expanded the original scope of the 1968 work to enfold the shape and size of architectural gallery spaces as an important variable. As Friedrich’s New York press release reads, “The structure of *The New York Earth Room* was prescribed by the existing architecture of the gallery.” Given its historical timing, the gallery evacuation staged by the one hundred forty tons of earth, peat, and bark of *The New York Earth Room* would have appeared more thoroughly entrenched in the critique of institutions that had grown out of conceptual art. In addition, where De Maria’s Munich work, originally titled *Pure Dirt / Pure Earth / Pure Land*, had resonated strongly with the artist’s use of textual inscription in his sculpture and gallery Environments of the 1960s, the restaging of this work loses the connotational

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3 Between the earth rooms in Munich and New York, an intermediate Large Earth Room was created at the Hessisches Landesmuseum in Darmstadt, Germany in 1974 using gravel and a lighter tone of dirt.

4 The soil of *The New York Earth Room* is regularly watered and churned with a rake to maintain its consistent, moist, lumpy surface quality.


play of renaming the gallery through the interchangeability of “dirt” as loose, particulate matter, “earth” as a singular whole, and “land” as its continuous, planar surface. In 1977, Friedrich even renamed De Maria’s original work in press releases as *Gallery Earth Room, Munich*. In 1968, *Pure Dirt* had announced an eruption of the gallery Environment and the bold move into working outdoors with natural systems. By 1977, *The New York Earth Room* happily moved back indoors, a now quiet meditation upon the capture, installation, and preservation of something which had earlier been deemed too unruly to be fully captured in language—a hunk of wilderness—situated within a mid-rise building in the heart of Manhattan. *The New York Earth Room* simplified the role of earth itself in the installation, a point to which we will return at the end of this chapter concerning De Maria’s land art practice in general.

The second return of the late 1970s is not as literal as the first. The exhibition *Earthworks: Land Reclamation as Sculpture* opened at the Seattle Art Museum in two parts in 1979. In the first segment, a committee composed of curator Charles Cowles, critic Elizabeth Baker, and artist Iain Baxter acting on behalf of the King County Arts Commission and Department of Public Works commissioned Robert Morris to create a land work at Johnson Pit #30, a retired gravel mine located south of Seattle-Tacoma International Airport. For the project, which he called *Untitled Earthwork* (fig. 4.2), Morris leveled the contours of the former mine in a “series of descending concentric slopes and benches. . . . cleared of trees and planted in rye grass.” The second segment of the exhibition added six additional artists—Baxter, Richard Fleishner, Lawrence Hanson, Mary Miss, Oppenheim, and Beverly Pepper—to create proposals for six more

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sites in the County for future commissions. Alongside these activities organized by the Museum, the city of Kent also commissioned Herbert Bayer to create an earthwork for a twenty-acre park area suffering from erosion.

While not an explicit restaging like *The New York Earth Room*, Seattle’s *Earthworks* embodies of number of unexpected reconsiderations of first-wave land art. In addition to the inclusion of Bayer, who some historians claim to have created the first work of postwar land art at Colorado’s Aspen Institute in 1955, the format of the 1979 exhibition is also reminiscent of John Gibson’s gallery exhibition, *Ecologic Art*, in summer 1969 which presented “Projects for Commission” rather than completed works. But the future envisioned in 1968 by entries to *Ecologic Art* like Peter Hutchinson’s proposal to erect fantastical glass terrariums on icebergs and volcanoes could not differ more from 1979 proposals like that of Richard Fleishner. In his submission to Seattle’s *Earthworks*, Fleishner entered a design to mine the King County Lakeside Sand and Gravel site for profit, cut a step trapezoid into the earth to accommodate an amphitheatre, and then, finally, complete the area with a “living and/or office space complex.”

Earth as ecological utopia turn ecological gentrification. This brings us to the phrase “earthworks” itself. Smithson and Dwan’s *Earth Works* and Smithson’s own popularization of the term to describe an emergent aesthetic practice had been premised upon a direct engagement between earth and the work of art. These were *earth works* because their makers were producing art through intensive processes of labor at outdoor sites, a literal “working of the earth.” Roughly a decade later, the return to this term in Seattle takes on an entirely different inflection. Indeed

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9 Untitled entry by Richard Fleishner, *Earthworks*, 42.
Morris, Bayer, and the other commissioned artists conceived of working with earth, but the difference lies in the municipal quality of the King County commissions. Seattle’s *Earthworks* seems to lay the stress on the second term more than the first—*earth-works* as an intransitive verb—as in, *Making the Earth Work in King County!*

Admittedly, any comparison between *Earth Works* at Dwan and *Earthworks* in Seattle ultimately will be uneven. The Dwan show was formative in the direction of artistic practices and critical interests for an entire generation, whereas the Seattle show would hardly exercise the same influence on the criticism of its time or in the subsequent reception of land art. The greater importance of this latter exhibition lies in the insight it offers on the relationship between the natural environmental and advanced artistic production in the late 1970s. For Morris’s part, his work featured prominently in both exhibitions. In 1968 he installed a mess of dirt, grease, brick, steel, copper, aluminum, brass, zinc, and felt on the floor of Dwan in a sculpture entitled simply *Earthwork* (fig. 4.3). Through its title, which operates between a name for a particular sculpture and category for a general type of art, Morris’s 1968 pile implicitly characterizes “earthworks” themselves as a kind of disassembled industrial architecture (further echoed in the mounds of dirt, anthracite, and asbestos he contributed to *Earth Art* at Cornell the following year). His Dwan *Earthwork* also linked the emergence of land art itself to the version of postminimalism as chaotic “anti-form” Morris was then advocating in a string of influential essays including the eponymous “Anti-Form” (1968) and “Notes on Sculpture, Part IV: Beyond Objects” (1969).10

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Morris’s *Untitled Earthwork* of 1979 engages quite different problematics. It is no longer indoors, disassembled, raw, but an outdoor endeavor that structures its site with layered tiers and surface vegetation. It is, in this respect, “pro-form.” The initial state of Johnson Pit #30 Morris would have encountered at the time of his commission was indeed already a kind of anti-form earthwork according to the artist’s sensibilities of the late 1960s. By deciding to regulate this site by carving the earth and landscaping it, Morris shifts the emphasis of “earthwork” from the formal condition of sculpture to an exchange among the artistic, industrial, and biotic levels of production at a site. By inviting its visitor to walk down into a former mining crater, *Untitled Earthwork* elicits a meditation upon the interaction of geological and technological layering upon the earth’s surface, which at the time of its making stood in comparison to the cultivation of farm land surrounding the pit but today does so in light of the massive suburban sprawl that has subsequently taken over (fig. 4.4). Descending into its tiers of earth, standing below ground level, one’s sense of the atmosphere dies down and the view of neighboring housing developments disappears below the upper ridge of the former gravel pit. Just as Olmstead’s Central Park in New York is designed to whisk ambling city-dwellers away from the metropolis to a bucolic country stroll, so *Untitled Earthwork* achieves the inverse by offering a pocket of natural terrain that frames and problematizes its surrounding built environment. If Central Park is an escapist illusion, *Untitled Earthwork* announces the misprision of the earth as an infinite source of natural resources and building sites. By not covering over the hole signifying the gravel once taken from its site, the work juxtaposes this absence against the mass expenditure all around it, whether of the industrialization of agriculture or, more recently, mass suburbia.
Between Morris’s two earthworks, a significant shift had also transpired in the notion of land art’s remoteness. Many of the first earthworks of the late sixties were created in direct tension with gallery centers such as New York, Los Angeles, and London. Although Morris’s own contributions to *Earth Works* in 1968 or *Earth Art* in 1969 were indoor objects, the signal earthworks of this period by De Maria, Heizer, Smithson, and Oppenheim were executed far away from any nearby art centers, or, in most cases, any organized townships at all. By the end of the following decade, a significant return to the city had taken place. On the one hand, several land projects, such as Agnes Denes’s *Wheatfield* (fig. 4.5), for which the artist seeded and harvested Battery Park on the southern tip of Manhattan in 1982, were created directly in urban centers. On the other, the discourse on the natural environment in the 1970s had also moved from a specialized discussion among activists and experts to one absorbed pervasively into the official operations and practices of the state. In the environmental aesthetics to emerge through this shifting terrain, the provocation and isolation that characterized much of the formative land art of the 1960s were tempered by forces of integration and cooperation needed to realize environmental action in the public domain. This was true for the trajectory of Smithson’s art no less than Morris’s.

Following the completion of the *Spiral Jetty* site in Utah’s Great Salt Lake in 1970, Smithson shifted his practice during the final years of his life to fusing earthwork projects with land reclamation. In summer 1971, he completed two large projects, *Spiral Hill* and *The Broken Circle* (fig. 4.6), within a former quarry site in Emmen, Holland as part of the Sonsbeek art festival. Soon afterwards, in the essay “Frederick Law Olmstead and the Dialectical Landscape” he would support this turn to reclamation by defining a
“dialectic” in the work of Olmstead characterized by massively reshaping large tracts of land as a corrective to the “blight” of destructive human activities. Smithson, for instance, would frame Olmstead’s Central Park as a direct response to the deforestation of central Manhattan by its early settlers. Through this essay, the last major piece Smithson published, he would not only claim Olmstead as “America’s first ‘earthwork artist,’” but also use the latter’s connection with land renewal to retrospectively incorporate *Spiral Jetty* as a work that reclaimed a “dead sea.”

In a surprising turn of events from the wild land proposals for underground cinemas and iceberg monuments Smithson had made throughout his career, he began to advertise his services to mining companies as an earthwork “consultant.” In one sense, this move solved a practical problem he had encountered after the close of Dwan Gallery in 1971 and the loss of financial patronage from Virginia Dwan it entailed. Colleagues such as De Maria would soon turn to the patronage of the Dia Art Foundation, privately founded by Friedrich, Philippa de Menil, and Helen Winkler in 1974 to construct and care for large-scale, permanent art works. But for Smithson’s part, he had hoped to secure the steep costs required to build his sites and produce their photo-media from environmentally pitched corporate clean-up projects. In one proposal designated for Egypt Valley, located in southeastern Ohio on a former strip mine owned by Hanna Coal, Smithson framed the problem as follows:

> Our ecological awareness indicates that industrial production can no longer remain blind to the visual landscape. The artist, ecologist, and industrialist must develop in *relation* to each other, rather than continue to work and to produce in isolation. The visual values of the landscape have been traditionally the domain of those concerned with the arts. Yet, art, ecology, and industry as they exist today are for the most part abstracted from the physical realities of specific landscapes.

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or sites. How we view the world has been in the past conditioned by painting and writing. Today, movies, photography, and television condition our perceptions and social behavior. The ecologist tends to see the landscape in terms of the past, while most industrialists don’t see anything at all. The artist must come out of the isolation of galleries and museums and provide a concrete consciousness for the present as it really exists, and not simply present abstractions or utopias.12

The same year as this about-turn in Smithson’s conception of earthworks, we might read the artist’s essay “The Spiral Jetty (1972)” as staking precisely the type of “abstractions and utopias” that the final line of his proposal for Hanna Coal disparages. The difference between these positions, in fact, shows just how rapidly the public culture of environmentalism was on the move between the planning and construction of *Spiral Jetty* in 1969-70 and the writing of this proposal in 1972. Smithson could no longer find the immense resources required to cut into and move earth on the basis of artistic sculpture alone, and he had recently received severe public backlash for a proposal to fill Thetis Island outside Vancouver with shards of broken glass. His response to these events was fully in keeping with the artists assembled in Seattle a few years later for *Earthworks: Land Reclamation as Sculpture*. The creation of earthworks had to become compatible with the demands of a growing environmental consciousness or else they would not be made at all.13

Getting back to Seattle, I’ll leave off the discussion of *Earthworks* in 1979 with Robert Morris at the microphone. The date is July 31 and we find the artist begrudgingly addressing an audience at the Seattle Art Museum. He opens: “It has always seemed to me that when an artist is asked to speak about his work, that one of two assumptions is

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13 John Beardsley’s *Earthworks and Beyond* is the only major compendium on the subject to address this instrumental turn by land art in the 1970s. See especially the chapters, “Beyond Earthworks: The Public Landscape” and “Beyond Earthworks: The New Urban Landscape.” *Earthworks and Beyond: Contemporary Art in the Landscape* (New York: Abbeville Press, 1984).
being made: one, that because he has made something, he has anything to say about it, or two, if he does, he would want to. Questionable, assumptions, in my opinion."¹⁴ Hearty greeting or not, Morris knew the stakes of this keynote speech as well as anyone. Perhaps more than any other artist of his generation, he maintained an incomparable savvy throughout his career for the vacillating interests of the art public, as likewise, his own criticism helped to define minimalism in the mid-1960s and, equally, its dissipation into postminimalism.¹⁵ Standing at the lectern in Seattle, he was well aware of his task to justify or at least explain the move in land art from working in remote deserts and dried-out lakebeds to reclaiming mines, from city to country and back again.

Morris’s chosen tack was to address the recent history of earthworks through the issue of publicness. He frames the argument as follows:

For about a decade now, there have been works produced which are found neither in galleries nor museums, nor in association with architecture. This is the type of public art I want to address here. Such work is invariably manifested outside and is generally of a large scale. Other than those two characteristics, it has been fairly varied. Some has focused on the earth itself, some veers toward architecture, some involves both construction and rearranging of the landscape. Such work has been termed earthworks and siteworks. Much of it has been impermanent—in some cases, set up only for the sake of documentation. Such work exists then as a photograph and reverts back to being housed in a gallery, or in the media. It would not be accurate to designate privately funded early works of Smithson or Heizer or De Maria in remote parts of the desert as public art. The only public access to such works is photographic.

However, since the early ’70s, a number of large scale works, both permanent and impermanent, situated outside, have been accessible to the public, and to a greater or lesser extent, have been made possible by public funds. So to some extent, large outside projects, earthworks or otherwise, have moved from the private domain (that is, private in the sense of private funding and physical remoteness) to that of the public.¹⁶

¹⁵ See Morris, “Notes on Sculpture: Parts I-IV” and “Anti-Form,” in Continuous Project Altered Daily.
What does Morris mean by publicness? To be sure, part of his distinction between private and public is quite plain. The funds that supported Heizer’s and De Maria’s early land art came largely from the private sources—mainly, if indirectly, from the collector Robert Scull, as Morris states explicitly later in his lecture.17 (“The fact that the first large-scale works were privately funded, some by Mr. Scull himself, indentured the artist, perhaps more than any gallery sale.”) Such secluded locales likewise prohibit all but a relatively select few from visiting earthworks, depending on limitations to access provided by the artist, travel expenses, and time required to visit a site. Morris implies that working near metropolitan areas and with the financial support of the government sector cuts through the fantasy of remoteness as an escape mechanism from the financial shackles of the commercial gallery system. He might well have had in mind his own work for the city of Grand Rapids, Michigan in 1973-74 or even his early collaboration with Smithson for in-situ works at the Dallas Fort-Worth International Airport published in the latter’s essay “Towards the Development of an Air Terminal Site” in 1967.18 All told, Morris is at pains to distance the type of civic work being done in Seattle in 1979 from the earlier moment of land art in the late 1960s (“nothing seems deader than large-scale outside object sculpture”), but what he maintains, even insists upon, as the publicness of reclaimed earthworks opens up the more challenging question of how to understand this type of art.

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17 Robert Scull met De Maria in 1965 at the latter’s single-artist exhibition at Cordier and Ekstrom in New York. Scull subsequently purchased and commissioned a significant amount of De Maria’s art, but, as the artist maintains in a 1972 interview, the collector never commissioned any land work. Oral history interview with Walter De Maria, 1972 October 4, Archives of American Art, Smithsonian Institution.

18 See Robert Morris: Grand Rapids Project (Grand Rapids, MI: Grand Rapids Art Museum, 1975). Suzaan Boettger has discussed the “aerial art” proposals of Morris, Carl Andre, Sol, LeWitt, and Smithson for the Dallas-Fort Worth International Airport in her chapter “The Stimulus of Aerial Art,” in Earthworks. See also, Smithson, “Toward the Development of an Air Terminal Site,” Artforum 5:10 (June 1967): 36-40; Morris’s proposal for this project involved as sculptural ring of earth which would be visible to airborne planes, a plaster model of which was published in Smithson’s essay.
within the more openly “public” sphere of environmental debate and policy-making in the 1970s.

Morris’s keynote address also arrived at an important moment in the historicization of the land art he addresses. Rosalind Krauss’s essay “Sculpture in the Expanded Field,” originally published in spring 1979, has proved the most influential account in land art’s reception as a public phenomenon.\(^\text{19}\) Attempting to parse the ways in which outdoor works of the 1970s by such artists as Mary Miss, Alice Aycock, and Morris himself bend distinctions among the traditional functions of sculpture, architecture, and landscape, Krauss provides a structuralist grid or Klein group to map new relationships between the work of art and its site-specificity. In addition to the proper term “sculpture,” she adds “marked sites,” “site-construction,” and “axiomatic structures” as categories that might encompass works including De Maria’s desert chalk drawings, Smithson’s earthworks, and Bruce Nauman’s corridors, respectively. Coming off a series of critical essays from earlier in the decade, which include, notably, “Sense and Sensibility: Reflections on Post ’60s Sculpture” and “Rauschenberg and the Materialized Image,” Krauss had been engaged for a number of years with questions regarding the publicness of object-making in the aftermath of minimalism. By way of a Wittgensteinian reading, she had argued that recent painting and sculpture had experienced a newfound emphasis on “the external, the public, or a space that is in no way a signifier of the a priori, or the privacy of intention.”\(^\text{20}\) That is, “publicness” for Krauss in these essays is a mode of external address by the work of art as a signifier, and

\(^{19}\) Rosalind Krauss, “Sculpture in the Expanded Field,” \textit{October} 8 (Spring 1979): 30-44.
it is an argument she carries into “Sculpture in the Expanded Field.” By positioning the various engagements of artistic construction and land sites as a structuralist semiotics, Krauss’s influential account severed the biotic and social connection between environmental art and the ecological realities of its actual locations in the world.

The remainder of this chapter will seek to account for such an “expanded” field of environmental art to take shape in the 1970s, just not on the terms received from Krauss’s essay. Indeed, Morris’s claims for a newfound publicness of earthworks is telling, but given the media networks and sense of ecological scale that had attended land art from the beginning, it is simply inadequate to claim that “private” concerns had suddenly become “public,” or, via Krauss’s reading, the coherence of modernist artistic media had remained legible through the ecological reworking of minimalism that gave rise to land art in the first place. Rather, as we look now to the changes which took place within the discourse of ecology itself during the crucial period from *Earth Works* at Dwan Gallery to *Earthworks* in Seattle, it will become apparent that this field began to present a much more variable sense of the planet to land artists. That is, to address the title question of this chapter: land art did not disappear in the 1970s but rather began moving in a number of directions that do not hold together with the same cogency as they had in 1968.

Implicitly, these changes are registered in the sense of localism in the Seattle exhibition, and likewise announce a shift in land art’s approach to the globe in general. Earlier earthworks such as Heizer’s *Double Negative*, Oppenheim’s *Oakland Wedge*, and Smithson’s *Spiral Jetty* had approached the notion of ecological scale as a matter of interacting with the planet in a holistic manner—creating site-specific objects which might address the “whole earth” as an interconnected unity. Cue: *Powers of Ten.*
Whereas, in Smithson’s own move into strip-mine reclamation and Morris’s civic projects throughout the following decade, a more sophisticated and realistic model of the earth’s global ecology began to emerge. No longer a single “spaceship” of interlocking levels, but now a more complicated object or system wherein local changes to a decimated piece of earth or polluted bodies of water might be understood to affect global trends but not directly and not in a discretely calculable fashion. Morris’s Untitled Earthwork is symptomatic of a new balance to be struck in the creation of land art, between local necessity and global ambition, as likewise, spectatorial engagement and ethical responsibility. As we follow the changing ecological discourse upon which these negotiations would transpire, it will be with a careful eye to the emerging globalization of land art.

The Public Life of Ecosystems

Among historians, it is common to pinpoint 1970 as a watershed year in the development of the American environmental movement. On April 22, the first Earth Day was celebrated across the United States, with tens of millions gathering in the call to curb the emission of pollutants and exhaustion of the earth’s natural resources (fig. 4.7). But it would be a mistake to place undue significance on this day alone. Historian Samuel P. Hays is closer to the mark when he writes that, “Earth Day was as much a result as a cause.” And while Hays’s larger thesis is of note here—that environmental history should be read as an integration of applied science to political activity, rather than a polarized debate between corporate interests and “the people”—it would be more

accurate to describe the first Earth Day less as a result than as a signal. Precisely what it signaled was the beginning of an intense period of fluctuation between the insights of ecological theories formalized during the 1960s and official state policies on the natural environment in America.22

Without getting too embroiled in the complicated history of twentieth-century environmental politics in the United States, it is useful to isolate the years 1964-72 as a crucial transition period for integrating a new understanding of ecology into national policy. Prior to the sixties, “environmental” protection was most often synonymous with the separation of the natural from the non-natural, examples of which range from Theodore Roosevelt’s establishment of National Parks in the first part of the century to the later attempt by the United States Predatory Animal and Rodent Control Service to completely eradicate selected populations of predatory animals.23 The 1964 Wilderness Act, for instance, is a vestige of this attitude. Contrasting “wilderness” from “those areas where man and his own works dominate the landscape,” this Act set “aside” such large areas for “solitude or a primitive and unconfined type of recreation, . . . [as well as] ecological, geological, or other features of scientific, educational, scenic, or historical value.”24 Contrariwise, in the aftermath of the national attention elicited by Rachel Carson’s Silent Spring beginning in 1962 and such events as the 1969 blowout of a Union Oil platform six miles off the coast of Santa Barbara, California, America’s legislative focus on the environment shifted dramatically to one of regulating the complete network

of the nation’s populated areas. That is, environmental policy would no longer address only those areas seemingly untouched by “man and his works.” Between the wide readerships of Paul Ehrlich’s *The Population Bomb* (1968) and Barry Commoner’s *The Closing Circle: Nature, Man, and Technology* (1971), much of this debate began to be formulated around the question of how to balance massive population growth and density on the one hand with the production and control of waste on the other.25

The opening paragraph of the 1969 National Environmental Policy Act shows a significant shift in emphasis from earlier environmental policies of the twentieth century:

> The Congress, recognizing the profound impact of man’s activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government . . . to create and maintain conditions under which man and nature can exist in productive harmony.26

Such a statement reveals greater awareness of an intertwined biological and industrial ecology from the earlier 1964 Wilderness Act, but nonetheless retains a sense that there is a *natural world* which must be protected and maintained. Quite unsurprisingly, there exists some amount of lag time between the introduction of explanatory models in technical fields such as ecology and the appearance of such ideas in legislative policy, but the period of the 1970s reveals a remarkable telescoping of this effect. For now sooner had the language of “productive harmony” between “man and nature” reached legislative

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ink from the rapidly disseminated ecology of the 1960s, then advanced ecology itself experienced a considerable paradigm shift.

In the ecology to emerge from the high moment of systems and energetics in the late 1960s, there is a consistent turn towards reframing and even rejecting the concept of “nature” in discussions of ecological systems. From Bruno Latour: “Let me put it bluntly: political ecology has nothing to do with nature.”^27 To fill the place previously held by a concept of nature, literary critic Ursula Heise has offered the term “eco-cosmopolitanism” to describe the move “toward what some environmental writers and philosophers have called the ‘more-than-human world’ — the realm of nonhuman networks of influence and exchange.”^28 But at the same time, critics like Heise are also quick to point to the fallout of energetic ecology of the 1960s. By that time, “nature” as a bucolic wilderness had already been supplanted by a conception of the planet as an interlocking network of energy systems. In this regard, dominant views of ecology in the late sixties had taken bold steps towards a more integrated view of how various levels of production in the biosphere interact at a global level, but, as a result, over-stepped their bounds. Whether of R. Buckminster Fuller’s “spaceship earth” or Eugene Odum’s steady-state ecology, this discourse still maintained the old notion of nature as an ideal, balanced state, only displaced onto the balance of a closed, recursive system. The upshot of ecological integration in the environmental discourse of the late sixties was a tendency to improperly cross biochemically-based conceptual language with that of technological

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and social spheres, as if all could be reduced and interchanged through the common currency of energy.

As various scientists in the 1970s began to test the prevailing allegories of ecosystem dynamics from the preceding decade, the data that came back did less to confirm a cybernetic model of interconnection in nature than throw it in disarray. What emerged instead was a view that natural environments were not predictably stable over time (unlike computer simulations) and that the volatility of biological events tends to disturb ecosystems in addition to those of long-term industrial behavior. This “new ecology of chaos,” as Donald Worster would later call it, posed a major problem to the idea of natural balance and calculability in ecosystems being propagated by an increasingly influential environmental movement. In short, concrete governmental action was being aimed at an outmoded ecological world.

Reflecting upon the discoveries of his own research on animal and plant populations during this period, Daniel Botkin has written:

Until the past few years, the predominant theories of ecology either presumed or had as a necessary consequence a very strict concept of a highly structured, ordered, and regulated, steady-state ecological system. Scientists know now that this view is wrong at local and regional levels. . . . Change now appears to be intrinsic and natural at many scales of time and space in the biosphere. Such a revised version of ecology—and especially its attendant ethics—shifts the focus of environmental activism from restoring “nature’s balance” on its own terms to instead

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seeking to understand how to stabilize ecological disruptions over the long term through controlled inputs and outputs. The classic case is global warming. Only when a majority of scientists and lawmakers could acknowledge that heightened levels of carbon in the atmosphere could fundamentally alter the “balance” or normal functioning state of the earth’s biosphere could global warming be acknowledged as a very real and lasting condition.

Accordingly, the artistic practices that negotiated this emerging field of ecology in the 1970s likewise splintered into their own chaotic array, a more ecological “expanded field,” as it were. In the midst of pressing ethical demands for direct environmental action and a field of ecological science that was rapidly on the move, new works of land art filtered unevenly throughout the emerging apparatus of institutional and intellectual frameworks. Therefore, we now turn to marking out some of the major positions within such a re-shaping of the field, beginning with an artist couple who has provided a clear voice of departure from first-wave land art ever since their first collaborative exhibition.

**Beyond Biomes: The Harrisons**

From May to August 1971, Helen Meyer Harrison and Newton Harrison exhibited four brine shrimp ponds (fig. 4.8) at Maurice Tuchman’s notoriously expensive and widely criticized *Art and Technology* exhibition at the Los Angeles County Museum of Art (LACMA).\(^3\) It has since become the single work that many identify as the point of

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\(^3\) As Tuchman details in *A Report on the Art & Technology Program of the Los Angeles County Museum of Art 1967-1971* (Los Angeles and New York: the Museum and Viking Press, 1971), the four-year Art and Technology program was an extensive and expensive undertaking of collaborations between artists and corporate sponsors, with few projects that were actually realized.
transition from “land art” to “ecological art.” Throughout, this dissertation has argued against such bald distinctions, which, from the 1970s onwards, have tended to draw a line in the sand between artistic projects that disturb or disregard their ecological setting and those that directly participate in curative environmental action. Against criticism of the disruptive presence of *The Lightning Field*’s steel poles upon its high desert environment or the large carbon footprints of *Double Negative* and *Spiral Jetty*, works by the Harrisons and many artists after them have claimed a distinction, in Newton Harrison’s words, between “[using] earth as material” and “[dealing] with ecology in the full sense of the term.”

But, as we will see, such distinctions become much more difficult to sustain when this work is viewed within the wider currents of ecological thought and its attending social policies.

The Harrisons’ *Notations of the Ecosystem of the Western Salt Works with the Inclusion of Brine Shrimp* at LACMA was conceived, in fact, as a direct response to Smithson’s recently completed *Spiral Jetty*. As the tale goes, Newton Harrison met Smithson at the Spring Street Bar in New York and conversed about the tendency of the water around the Jetty to periodically turn a reddish hue, an effect of carotene produced by algae *Dunaliella* in direct relation to the salinity of the water they inhabit. Harrison proposed to introduce brine shrimp at *Spiral Jetty*, which feed upon the algae, and could

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be harvested at the site. To which, apparently, Smithson balked. If Harrison could not produce such a work in the Jetty, then he would do so in Los Angeles.

Newton Harrison had originally been commissioned by LACMA’s Art and Technology program to create a light-emitting object, *The Encapsulated Aurora* (fig. 4.9), for Osaka’s Expo 70, which was then exhibited again in Los Angeles the following year. Produced in consultation with Southern California’s Jet Propulsion Laboratory, this work consisted of Plexiglas tubes filled with various atmospheric gases that produce haunting, suspended clouds through an ionization process known as glow discharge. But in the time which elapsed between the initial commission for *The Encapsulated Aurora*, with its ties to the so-called Light and Space works of Harrison’s contemporaries in Southern California including James Terrell and Larry Bell, and the LACMA exhibition itself, Newton Harrison began collaborating with his partner Helen. And as a result of their artistic dialogue, which continues to the present day, the two produced a second work for the exhibition that, as the now-collective “Harrisons” point out, cost LACMA less than two percent of Newton’s original commission. *Shrimp Farm: Survival Piece* #2, as this second work is also called, similarly used light (sunlight) to produce color effects. The *Shrimp Farm*’s four ten-foot by twenty-foot containers were each filled to a depth of eight inches with water that increased in salinity from one pond to the next. Given these “[simple] discrete ecosystems,” of brine shrimp, algae Dunaliella, and salt water, each pond achieved step degrees of redness, modulated by the amount of stress.

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35 See the account of Newton Harrison’s color-emitting tubes in Tuchman, *Art and Technology*, 118-26.
36 The Harrisons presently report the cost differential at $800 versus $50,000 for *Shrimp Farm* and *Encapsulated Aura*, respectively. See [http://www.theharrisonstudio.net/brine_shrimp.html](http://www.theharrisonstudio.net/brine_shrimp.html).
placed upon each population of algae by its salinity level. At the conclusion of the *Art and Technology* exhibition, the Harrisons harvested the shrimp and salt as a model of resource production and management.

*Shrimp Farm* was in fact the second in a series of six *Survival* works the Harrisons would continue to make through the year 1974. In addition to shrimp, other examples in the series include farming ecosystems for fish, trees, potatoes, salad greens, and worms.37 These pared-down living environments—perhaps none more structurally and visually elegant than the shrimp, salt, and algae at LACMA—prompt one to think carefully about the apparent emergence of a fully-formed ecological art, or, as one historian has called it, “ecology as a ready-made practice.”38 “Ecology,” of course, was hardly a monolithic theory and practice in the early 1970s. For Jack Burnham, whose own criticism had followed a similar transition to Newton Harrison’s art, from an engagement with technological systems to that of biotic ones, the Harrisons *Survival* ecosystems could be parsed according to a distinction between climax and cultivated communities. From Burnham: “Climax communities are natural ecological areas which have achieved their greatest possible complexity and orderliness. This is defined by maximum biomass production, long and sophisticated food-chains, and inhabitance by stable hierarchies of organisms.” In contrast, “Cultivated communities protect favored species and tend to deplete those less useful. . . . The stability of cultivated communities depends upon maintenance by the dominant species, and it is usually a people’s lack of


38 Adcock, “Conversational Drift,” 35.
concern with long-term environmental depletion which transforms a fertile area into one of lower production.”39 The implication of Burnham’s statement follows that if human-domineering activity has destabilized the diversity of global ecosystems as a whole, then it falls upon the same human activity to cultivate new ecological communities as counterbalance.

To this line of thinking, we might narrow the claim for the Harrisons’ “ecological art” to describe their earliest Survival works as “biome art.” By creating the biological conditions of highly specific and localized living conditions, the Survival works highlight the interrelations among organisms and climate conditions required to sustain life in simplified, enclosed environments. As the transformation in ecological discourse from a steady-state, energeticist model to more chaotic, localized ones would suggest, however, Burnham’s notion of the “cultivated” ecosystem was a myth that relied precisely on the type of temporal and material constraints maintained in each Survival piece. One might note, for instance, that these environments were only maintained for the duration of the exhibition of which they are a part. Or also, that as a matter of practicality and design, the Harrisons controlled the parameters of their biomes to limit the complexity of the living interactions within.

As Botkin neatly describes in Discordant Harmonies, one of the problems encountered by the social reception of ecology in the 1970s was precisely how to best translate recent environmental theory into effective and sustainable long-term practice for particular biomes.40 This is a notably different problem than the one Rachel Carson encountered during the 1960s in her battle over pesticide use. Whereas the uproar over

the reception of Carson’s *Silent Spring* boiled down to a fundamental question of whether environmental responsibility was necessarily separate from and contradictory to industrial production, a decade later, the public at large generally agreed that issues of pollution and resource management were vitally important. The debate, therefore, shifted to address the best means and methods to promote environmental responsibility. But in line with the example of the Harrisons’ *Survival* series, one might recall two pervading assumptions that continued to trouble ecological policy-making: (i) the idea that changes occur within ecosystems at predictable rates, and (ii) the notion that “natural” ecosystems will reach their own optimal or “climax” conditions when left unassisted in their natural development. Thus, the initial response of the *Survival* works sought to use controlled laboratory conditions as an experimental ground that could both analyze ecological development and, in the process, leave “nature” to its own devices by cultivating biological resources indoors.

We need only look to a popular article published in *Science* magazine in 1969 by Eugene Odum, widely considered the father of modern ecological theory, to confirm many of these tenets. Here Odum defines “Ecological succession” as, “an orderly process of community development that is reasonably directional and, therefore, predictable. . . . It culminates in a stabilized ecosystem in which maximum biomass (or high information content) and symbiotic function between organisms are maintained per unit of available energy flow.”41 Odum is a particularly apt figure to consider alongside the work of the Harrisons, as his own field of specialty was estuarial marshes, a biome the artist couple would soon take up in their multi-faceted *Lagoon Cycle* project. And like both Newton

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Harrison and Burnham, Odum’s version of steady-state ecosystems grew out of a debt to cybernetic and general systems theories developed first in his study of nuclear radiation in aquatic environments and later applied to the ecosystem as the basic unit of all life. Odum’s notion of ecology maintains a residing isomorphism between techno-computational systems and biological ones. If human agents are able to predict the behavior of biological communities, then it follows that designs for communities of shrimp, algae, potatoes, and so forth could be extended indefinitely in time or space. Thus, this model of the steady-state ecosystem casts environmental crisis as yet another episode in the long aftermath of Enlightenment rational planning and simulation: build enough Survival environments and one can reconstruct the mainframe of a damaged earth.

Another response to emerge in the early 1970s, however, offered an alternate approach to the question of how to conceptualize and implement responsible ecological living. In an influential article published in 1973, the Norwegian philosopher Arne Naess framed the issue in terms of a distinction between shallow ecology and deep ecology:

The shallow ecology movement is concerned with fighting pollution and resource depletion. Its central objective is the health and affluence of people in the developed countries.

The deep ecology movement has deeper concerns, which touch upon principles of diversity, complexity, autonomy, decentralization, symbiosis, egalitarianism, and classlessness.

In this initial formulation, Naess renders deep ecology not only as a call to promote the diversity and sustainability of biological ecosystems, but to extend a claim of universal egalitarianism for any level of living interaction—from Walden Pond to the General

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42 Eugene Odum and his brother Howard received multiple grants from the United States Atomic Energy Commission to study the long-term effects of nuclear radiation in the Eniwetok Atoll of the South Pacific.

Motors production line. In a historical moment when questions of the natural environment turned increasingly practical in nature, Naess’s deep ecology movement offered a categorically different approach to thinking about the earth rather than a set of solutions to maintain the status quo in America’s post-Depression-Era industrial boom. In the fervent support that has since developed for deep ecology, the most provocative claims of its advocates all center precisely upon the eradication of any present-day boundary—whether industrial, military, or national—that obstructs the application of social laws and ethical norms to all living communities. In 1973, Naess referred to such radical egalitarianism as deep ecology’s “value axiom,” under the heading of which later deep ecologists would assert positions ranging from earth-based religions to bioregionalism, or the call to redefine political borders according to the “natural” boundaries of biological communities.44

Thus in the push for increased environmental regulation in the early 1970s, deep ecology should be understood as a counteraction: formulated against “shallow ecology” but also made possible by the prevalence of this “shallow” horizon of legislative environmentalism. Indeed, in the United States there was legislation: in 1970, the Clean Air Act; in 1972, the Federal Water Pollution Control Act and Coastal Zone Management Act; in 1973, the Endangered Species Act; and in 1976, a triple slate including the Toxic Substances Control Act, Federal Land Policy and Management Act, and Resource

Conservation and Recovery Act. In this flurry of federal activity, one can appreciate the call by deep ecologists to “cultivate an ecological consciousness” rather than officiate it.\textsuperscript{45} Likewise, it is in this vein that we might also consider the reassessment that took place within the Harrisons own practice as they attempted to orient their work beyond the limited biomes of the first \textit{Survival} works.

This shift was realized through the extensive \textit{Lagoon Cycle} that occupied the artist couple from 1972 to 1984. The project began as yet another \textit{Survival} piece—using a crab species native to Sri Lanka and an indoor, simulated estuary—and only gradually transformed into a much larger and more ambitious meditation on the scale and integration of ecosystems (fig. 4.10). As described by Burnham at the close of his collection of essays, \textit{Great Western Salt Works}, the Harrisons’ project to cultivate the \textit{Scylla serrata}, or mud crab, in a closed laboratory environment had similar goals to other \textit{Survival} works following LACMA’s \textit{Art and Technology}: to produce an edible food source in closed, replicable conditions and to study the behavior of the resulting ecosystem. What Burnham could not anticipate in the early 1970s, however, is that the Harrisons’ new work would not be limited to a predetermined period of time. The \textit{Scylla serrata} ecosystem was not commissioned for an exhibition; rather, the Harrisons set up the environment in their Southern California studio using timed lights, limited temperature fluctuation, and controlled salinity in the aquatic environment to mimic the conditions of a tropical, estuarial lagoon. It was only by sustaining this population for an extended period of time that the artists made their most startling discovery to date.

Late in 1972, during the same period when monsoon season would have arrived in the mud crab’s native Sri Lanka, the Harrisons noticed an unexpected change in the crabs’ behavior. By simulating the monsoon conditions of decreased salinity and increased available food, the artists triggered mating behavior among the crabs, the first known instance for this species in an artificial environment. Through this simple discovery that the crabs required periodic changes in the steady-state of their ecosystem to survive in the long run, the artists were forced to reconsider the type of enclosed, artificial ecosystems they had simulated to date.

In response, the Harrisons moved up and out of the laboratory. But importantly, they did not simply expand the lagoon experiment to a larger outdoor format; instead, the artists reconceived their entire mode of working by introducing narrative voices, performance, and collage as communicative strategies to operate alongside the making of ecosystems (fig. 4.11). The project was reconceived as *The Lagoon Cycle*: three hundred fifty feet of large panels incorporating text, maps, and cut photo-collage tracking the artists’ decade-long engagements with an estuarial lagoon for mud crabs as told through an oblique dialogue between two characters, a Lagoonmaker and a Witness. The first three panels examine the move from indoor tanks to an outdoor, artificial ecosystem; the fourth describes moving the crabs to a series of ponds cultivated in California’s Salton Sea; the fifth and sixth introduce and then reflect upon a bold proposal to regulate salinity, herbicide, and pesticide levels in the Salton Sea by connecting it to the Gulf of California and the Pacific Ocean; and the seventh provides a meditation upon the Pacific Ring of Fire that connects Sri Lanka to the American West Coast. When presenting *The Lagoon Cycle*, Newton Harrison performs the role of Lagoonmaker and Helen Meyer
Harrison that of Witness. While not free of its own problems and contradictions about mythologizing nature and its primal origins, the major step in *The Lagoon Cycle* is to acknowledge and accept contradictions, doubts, and an openness to revision in the life of ecosystems themselves.⁴⁶

We might look to an extended passage from the opening of *The Second Lagoon* as a key formulation of this new approach; the Witness speaks first (in italics) and the Lagoonmaker responds:

<table>
<thead>
<tr>
<th>But</th>
</tr>
</thead>
<tbody>
<tr>
<td>the tank is not a lagoon</td>
</tr>
<tr>
<td>nor is it a tidal pond</td>
</tr>
<tr>
<td>nor does the mixing of fresh and salt waters make it an estuary</td>
</tr>
<tr>
<td>Filters are not the cleansing of tides</td>
</tr>
<tr>
<td>water from a hose is not a monsoon</td>
</tr>
<tr>
<td>lights and heaters are not the sun</td>
</tr>
<tr>
<td>and crabs in a tank do not make a life web</td>
</tr>
</tbody>
</table>

But

the tank is part of an experiment
and the experiment is a metaphor for a lagoon
if the metaphor works
the experiment will succeed
and the crabs will flourish
after all
this metaphor is only a representation
based on observing a crab in a lagoon
and listening to stories

*If*

the experiment isolates parts of a real lagoon
and places them in a tank
then the metaphor also refers to alienation
to violation
to breaking the integrity of a real system

As the Witness’s reference to the “integrity of a real system” suggests, one of the problems encountered in the Harrisons’ transition from discrete *Survival* works to the

⁴⁶ See Raskin, “Jetties and Lagoons.”
extended *Lagoon Cycle* turns upon the specific manner ecosystems are understood as systems.

Niklas Luhmann has addressed this as a problem of *Ecological Communication.* As he explains, many theories of ecology maintain a flawed assumption that an ecosystem constitutes its own environment. To exist as an intelligible system, capable of social communication, Luhmann argues that such a system must produce its own boundaries through self-repeatable, internal structures. That is, “system boundaries have to be drawn so that the world acquires the possibility of observing itself. Otherwise there would be pure facticity alone.” In other words, there would be only environment and no discernible ecosystem as such. A system can only orient itself toward those conditions it accepts internally: everything else is left outside. This means that the level of complexity by which a system adapts to its environment may change over time, a process Luhmann calls resonance, but an ecosystem cannot collapse the distinction between system and environment altogether.

Concerning the trajectory of the Harrisons’ practice in the 1970s, Luhmann’s argument helps to clarify that the move from the *Survival* works into *The Lagoon Cycle* should be understood less as a transition into more complicated ecosystems than as a series of tactics that critique the very possibility of creating discrete biomes. Like *The Lagoon Cycle* itself, Luhmann’s *Ecological Communication* makes clear that the idea of a scientific ecosystem is a self-sustaining intellectual construct distinct from an actual environment. As the Witness forcefully remarks in *The Second Lagoon,* the creation of artificial boundaries for simulated, scientific ecosystems is necessarily a violent and

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48 Ibid., 18.
alienating process. Much like the polarization of *deep ecology’s* environmental
consciousness and so-called *shallow ecology’s* social policies, the Harrisons’ work shows
that the fiction of simulated ecosystems can do more to separate the immanent problems
of social and biological production than elucidate or solve them.

Thus, the Harrisons’ ultimate position in *The Lagoon Cycle* can be read as one
axis of a land-art practice that is both ethically committed to placing artistic production in
the service of ecological care and increasingly sensitive to the local and even chaotic
contingencies of particular species and biomes. Just as the seven *Cycles* as a whole
position the Harrisons’ work as bursting the laboratory bubble of the late-sixties model of
earth-as-terrarium, the seventh and final of these lagoons points towards a revised version
of land art’s engagement with the planet as a whole. Although still focused on the
estuarial environment of the mud crab, this dialogue between Lagoonmaker and Witness
ventures into the circle of fault lines and volcanic activity that link the Australian
continent to East Asia and the Americas across the vast Pacific Ocean. This indeed is a
global image, but one that aims at presenting a multi-layered framework with which to
link distant environments. Accordingly, the dialogue between Lagoonmaker and Witness
turns to the issue of envisioning ecologies at different scales:

And in less than a second
I can visualize any section of the Ring of Fire
the Kuril Trench for instance
with the Pacific plate subducting
uplifting the Kuril Islands thereby

And in less than a second I can shrink the Pacific
by orders of magnitude and make its size
no more than that of an estuarial lagoon

And in less than a second I can imagine
A corresponding simplification
of biocultural complexities

That would require reorienting consciousness
Around a different data base

One might respond that the emerging globalization of land art through the Harrisons’
work is precisely that of reorienting ecological consciousness around different and
differentiated bases of data. Unlike an ecology of sliding scales presented by someone
like Buckminster Fuller, the Harrisons’ is a scale of overlapping frames, interconnected
but not subject to the same rules of exchange. Theirs is global scale rendered as a
patchwork of localities, rather than either term defining itself entirely through the other.
In *The Lagoon Cycle*, however, the “biocultural complexities” named by the
Lagoonmaker are nonetheless still played out largely through the stuff of nature. We see
ponds, crabs, plains, seas, and oceans, but never the industrial sources of their pollutants
or urban consumers of their products. As such, the Harrisons account for an important
arm of land art’s transformation in the 1970s, but not the field’s more direct response to
the new public face of the environmentalism in the private sector. For this, we look now
to Dan Graham’s encounter with office architecture.

**Embedded Environments**

In the second edition of environmental historian Roderick Nash’s widely read *The
American Environment*, published in 1976, he introduces a helpful diagram for
considering the ecological debate at mid-decade (fig. 4.12).49 Since the close of the
1960s, environmental theory and policy had merged several strands of critique, which

(Reading, MA: Addison-Wesley, 1976), 226. Note: Nash is also the author of the influential *Wilderness
Nash terms: utilitarian, ecological, and aesthetic. Describing this convergence, he writes: “The explosion of American concern for conservation was rooted in shifting attitudes and values and, in view of its intensity and evangelical character, might be termed a gospel of ecology” (emphasis in original). The notion of a “gospel of ecology” is precisely what interests us here. For no sooner had a united front begun to form on issues of biotic sustainability than this “gospel” was tested by a turbulent series of crises, the most dramatic of which being the international oil crisis set off in October 1973.

The United States experienced a number of decisive economic events in the early 1970s, from Nixon’s decision to remove the dollar from the gold standard to the extended stock crash spanning 1973-74, but none hit closer to the lives of individual Americans than the oil embargo leveraged on the United States and Western Europe by the Organization of Arab Petroleum Exporting Countries from October 17, 1973 to March 17, 1974. With the fourfold increase in crude oil prices during this period and forced limits to gasoline and oil consumption enacted by the state, the oil crisis literally brought home the environmental movement’s message that current industrial practices could not last indefinitely.

It is a recurring theme of environmental history that disaster events galvanize new policies as much as test existing ones. Following the highly public campaigns for environmentalism spurred by the Santa Barbara oil spill and the first Earth Day, the oil crisis ultimately did less to secure long-term commitments to alternative energy sources and American energy independence than allow industrial consumption to continue unabated once the embargo had been lifted. Nash refers to this reaction in his diagram as

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50 Nash, American Environment, 227.
“backlash,” but the reaction was neither as direct nor as singular as this term implies. Instead, we might understand the field of environmentalism at mid-decade as a kind of brackish backwash, the swirling waters of different input sources swirling in a single pool. Deep ecologists could strip ecological politics down to basic biological tenets while at the same time the discourse on energy could be turned to the most mundane, instrumental terms of supplying fuel and maintaining the capital investments of the status quo. Nash’s “gospel of ecology” had splintered, but in its wake, the plurality of environmentalisms to emerge could no longer disentangle the utilitarian, ecological, and aesthetic strands of ecological discourse. If, in late-sixties ecology, the utopian vision of the earth appeared as an enclosed spaceship or terrarium, what appeared in its wake were partialities or amalgams of an entangled discourse.

One area in which we encounter such a mixture of environmental concepts appears in the arena of corporate architecture. As American artist Dan Graham would address in both criticism and his own practice, the office building of the 1970s had adopted two related strains of the preceding decade’s ecological thinking. The first strategy appears in the use of two-way mirror glass on exterior curtain walls. This material creates an uneven transparency with its surrounding environment—those on the inside can survey the exterior, while those on outside see only a mirror reflection of their own exterior surroundings. Considering that many of these buildings were sited within suburban, landscaped office parks, the exterior of such buildings renders this green park space as a reflection on the architectural façade itself. Which is to say, this mode of architecture had become a screen for ecology-turned-image.
The second strategy of the corporate office building was to adopt the artificial terrarium environment of sixties ecology into the enclosed space of the interior lobby. As Graham’s own photograph of Haines Lundberg Waehler’s ChemCourt atrium in New York City shows (fig. 4.13), these spaces had borrowed the very plant life and glass siding of the horticulturist’s hothouse. Where enclosed biotic environments had previously held the futuristic and even utopian promise of new life on earth in proposals of artists such as Hutchinson or scientific experiments such as NASA’s simulated environments published in the Whole Earth Catalog, the adoption of lush, green spaces inside the corporate office building signaled instead that the terrarium had also been calcified as a type of image. These were not internally dynamic, self-sustaining ecosystems, but had taken on merely the look of such environments. As such, the terrarium-atria was put to use simultaneously as lavish decoration and as a public relations move to metonymically link a building’s corporate tenants with concerns for the earth’s ecological future.

As Graham would frame this phenomenon in his later essay, “Garden as Theater as Museum”:

The self-contained, high-tech, sunlight-and-solar-reflector-heated atria sparked a revival of interest in the nineteenth-century winter garden and defined the look of the mid-1970s corporate lobby. But in a larger sense, they can be considered political allegories. . . . The oil shortage and ecological crisis of the mid-seventies undermined the public’s faith in the corporate ideology of “better living through chemistry” and scientific progress. The corporate public-private garden merges the sixties space-technology “machine” of Stanley Kubrick’s 2001: A Space Odyssey with the ecological-utopian dream of earth as a garden, particularly a suburban patio garden. Corporations were then able to deny the historical crisis of the environment, to ignore the ecological movement, and to dismiss environmentalists’ radical critique of energy-wasting high technology.51

Picking up the threads of this “political allegory” in his own practice, Graham’s aesthetic response to the new office architecture would appear in a series of sculpture pavilions he began in 1978. That year, he designed *Pavilion/Sculpture for Argonne* and sited the work in the green park space surrounding the Argonne National Laboratory southwest of Chicago (fig. 4.14). The lab itself, operated conjointly by the United States Department of Energy and the University of Chicago, was a direct descendent of the University of Chicago’s involvement in the Manhattan Project during the Second World War, but by the mid-1970s had converted from nuclear weapons research to that of domestic nuclear power. A platform of partially connected walls made of two-way mirror glass and transparent glass, *Pavilion/Sculpture* can be traversed as an architectural structure or observed by spectators as a bounded, sculptural form. As part architecture, part sculpture, Graham’s *Pavilion/Sculpture* at Argonne does not refashion the interior or exterior space of corporate office buildings so much as it blends and destabilizes their metonymic strategies. Picking up the divide between the use of two-way mirror glass on the exterior of office buildings and the enclosed winter garden on the interior, *Pavilion/Sculpture* alternates between an interior space from which to look upon its surrounding green space and an exterior façade that reflects it. As a work in the tradition of ornamental pavilion architecture, this structure is at once apart of the domesticated space of the public park and a critical framing device through which to view it.52 Graham had spent most of the

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52 Graham has written: “*Pavilion/Sculpture for Argonne* is literally reflective of its environment. Reflections on its mirror and glass and the shadows from the framework are subject to continual variation from overhead sun and passing clouds. At the same time, the form is also architectonic, with inside and outside space, and open to use.” Graham, *Two-Way Mirror Power: Selected Writings by Dan Graham on His Art*, ed. Alexander Alberro (Cambridge, MA and London: MIT Press, 1999), 163.
decade constructing video systems and gallery environments that engage various modes of delay, feedback, and mirroring among groups of people. At Argonne, he would turn this interest to an architectural system of suspending nature between spectator and object. As a stand-in for the office building itself—and located adjacent to the Argonne laboratory, on its front lawn—Pavilion/Sculpture opens the fissures of interiority/exteriority, transparency/reflectivity, and ecosystem/image such buildings implicitly smooth over.

To be more precise, what I have termed metonymic in Graham’s work is actually an extension of the larger role of miniaturization in the interface between art and postwar ecology. In the years bridging the 1960s and 1970s—during the heyday of Nash’s gospel—miniaturized environments were widely created and conceived as capsules of ecological simulation. By way of comparison to Graham’s Pavilion/Sculpture at Argonne, we might look to the work of the Japanese artist Tetsumi Kudo, whose sculpture produced in Paris during these years succinctly marks the transition at hand. His Cultivation by Radioactivity in the Electronic Circuit of 1970 renders an artificial field of gelatinous, rotting eyeballs; a sticky, prone penis; an incubating “cocoon” wired into the ground; and branch-like circuitry all as a self-sufficient ecosystem (fig. 4.15). Drawing upon the importance of energy fields at this moment as the predominant means of imagining ecological interconnection, this work subverts the traditional position of vision in the experience of landscape to portray a world in which the visual and reproductive faculties of the human body have been dispersed into a continuous field of plant life, electrical currents, and radioactive stimulation. Although far from the idealized ecology

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53 See, for example, Graham’s account of this body of work in “Video/Television/Architecture,” in ibid., 38-83.
of Odum’s “predictive” and “directional” ecosystems of energy flow, Kudo re-deployed
the same terms in the direction of post-nuclear fallout. Coming out of Japan in the
immediate aftermath of the Hiroshima and Nagasaki, Kudo does not render an inert world
within his biodome, but instead one in which the energetics of ecology have reconfigured
and leveled the relationships between life forms.

Just two years later, however, Kudo would reconceive his environmental
sculpture through the series *Pollution—Cultivation—New Ecology* (1972). In one
example (fig. 4.16), we see the artist still working with the materials of electrical wiring
and fuses, artificial plant life, and decaying human parts. But unlike his earlier rendering
of these objects, this iteration of *Pollution—Cultivation—New Ecology* is a thoroughly
deformed hybridity of its constituent parts, wherein a psychedelically colored human
phallus could be the reproductive organ of a grassy plant, and flower petals plug into and
excrete out of electrical circuits. What was a terrain of dispersed organs in *Cultivation by
Radioactivity* now becomes a molten meshing of human flesh, circuitry, and mollusks, all
melted and melded together by neon-tinged goo. In *Pollution—Cultivation—New
Ecology*, the living and non-living are thus suspended in an unresolved exchange, with
the entire structure precariously rigged with a valve as if it were a bomb waiting to
explode. Or, as Kudo would declare in a manifesto written for his new work: “I now
prophesy the growth of the new ecology in the swamp of ‘polluted nature’ and
‘decomposing humanity.’”54 What, then, is Kudo’s “new ecology”? Certainly his earlier
sculpture had acknowledged both a “polluted nature” and “decomposing humanity,” but
the new work, importantly, no longer envisioned environments as complete wholes.

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54 Tetsumi Kudo, “Pollution—Cultivation—New Ecology (1971),” in *Tetsumi Kudo: Garden of
Pollution—Cultivation—New Ecology is a vignette rather than an internally complete capsule. It is a fragment, and through the uneven and singular amalgams formed among its parts, this work denies the “New Ecology” as a universal system of relation.

Kudo’s “small-scale model of our new ecology,” as he would call his structures of the early 1970s, also resonate with Graham’s mention above of Kubrick’s 2001: A Space Odyssey (1968) and the late-sixties culture of psychedelia. Exemplified by the acid-saturated color and dizzying aspect shifts in the extended stargate sequence in the final section of the film (fig. 4.17), 2001 was embraced by the counterculture as not only a space-age fantasy but also an overtly psychedelic “trip” through space. Similarly, Graham’s Pavilion/Sculpture distills the acid-inflected experience of this multi-color space warp through the distortions that appear in two-way mirror glass when viewed at close range or oblique angles. After his structure for Argonne in 1978, he would increasingly twist and curve the glass of his pavilions to heighten the neon-colored distortions produced by these two-way reflections. Felicity Scott has recently argued that psychedelia was “experienced at multiple registers” of design culture in the 1960s: “the loss of distinction between media, the loss of demarcations between self and environment, the amorphous visual and psychological character of the psychedelic trip, and the melting of the self into a communal, religious, and mystical domain.”

As Graham’s and Kudo’s each carried forward these effects of psychedelia through the materials of corporate architecture and dystopian vision of “polluted nature and decomposing humanity,” respectively, it is clear that ecology had also lost the libratory promise it had held for the counterculture.

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Graham’s pavilions, in particular, give the lie to the smooth incorporation of environmental critique into the architectural face of American capital. In doing so, they impel us to return once more to Nash’s problem of “backlash” at mid-decade. If, as we have seen, these pavilions point to the unevenness through which a “gospel” of scientific, aesthetic, and industrial aspects of ecological discourse splintered and scattered into corporate and governmental arenas, I would introduce a more fitting description of these crossing currents of discourse as the interaction of ecological subsystems, in Luhmann’s sense of the term. Proceeding from Luhmann’s distinction between system and environment discussed above, it follows that social systems of science, art, industry, and politics must exist distinctly from one another, distinguishing their own terms to remain coherent as internally differentiated social systems. Yet if changes occur in the social environment surrounding these systems, they too might reach out to enfold “other social domains as their (socially internal) environment.”56 That is, when, in the late 1960s and early 1970s, public and governmental pressure arose to regulate the American corporation’s consumption of energy and production of waste, the social system of capital was forced to absorb the science of ecology as one of its own subsystems.

In turn, a related reorientation transpired in the social system of the visual arts. In Nash’s account of “aesthetics,” he cites John Muir, the Wilderness Society, and the Wilderness Act as precedents. Each of these, however, addressed the natural environment as a type of visual abstraction. As a model of aesthetics, this is a nature rendered as visual screen for the pleasures of pastoralism, which had been cultivated for centuries in the West through the construction of gardens and in the painterly genre of the landscape. For

visual art of the late 1960s, works of art like Kudo’s *Cultivation by Radioactivity in the Electronic Circuit* make clear that the first wave of land art would reject “landscape” as a visual exterior or environment and instead absorb its properties as a subsystem of artistic production. A full decade later, Graham’s work shows that land art had now internalized both the science of ecology and, more complexly, its life within additional subsystems of politics and late capitalism. The aesthetics of ecology could no longer be conceived inside the encapsulated terrarium dome. All told, in the second wave of environmental art, a discrete practice of “land art” did not transition into a new, coherent, and ethically-responsible “ecologic art,” but rather the ecological issues that had subtended these works all along were more substantially embedded within the corporate and legislative production of built environments.

**On the Road**

To clarify this transition, we might look to a related impulse in the work of the artistic collective Ant Farm. Founded in the 1968 by Doug Michels and Chip Lord and joined at various times by Curtis Schreier, Hudson Marquez, Andy Shapiro, Doug Hurrr, and a host of others, Ant Farm operated as a sometime disruptive and always generative force in the environment during the years 1968-78.\(^{57}\) Or, as Jim Burns’s described the roaming collective in *Arthropods: New Design Futures*, “Mobile, self-transporting, nomadic turned-on information/media/inflatable truckin’-down-the-highway freaks of the seventies.”\(^{58}\) Trained predominately in the field of architecture—Michels at Yale School of Architecture and Lord at Tulane University’s School of Architecture—the Ants

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ultimately designed a relatively small number of site-specific architectural projects, which include the Antioch Art Building in Yellow Springs, Ohio (1970-71) and the phallic-spaceship dubbed House of the Century on Mojo Lake, Texas (1971-73).\footnote{See Scott’s chapter “Shouting Apocalypse” in Architecture or Techno-Utopia; also, Scott’s indispensable compilation of archival documents, Living Archive 7: Ant Farm: Allegorical Time Warp: The Media Fallout of July 21, 1969 (New York: Actar, 2008).} Their architectural works most attuned to the expanding intercommunication of ecological subsystems in the early 1970s were built to take on the road. I refer to Ant Farm’s various inflatable environments the collective began to blow up around the country from 1969 onwards.

In conjunction with a handful of other environmentally adventurous architecture groups in the early seventies, the Ants employed inexpensive plastics and widely available exhaust fans to create inflatable spaces for living and performance.\footnote{See Arthropods for examples by Haus-Rucker Co, Edward Suzuki, Coop. Himmelblau, not to mention Eventstructures Research Group’s provocative inflatable cinema.} Notably including the 100’ x 100’ Pillow installed at the free Rolling Stones concert at Altamont Speedway in December 1969 and an inflatable production facility for the Whole Earth Catalog Supplement in the Saline Desert, California in 1970, they built inflatables across America, spreading out from their home base in northern California (figs. 4.18 and 4.19).\footnote{As Chip Lord commented of the 100 x 100’ Pillow in a recent interview, “We went to Altamont, the free 1969 concert by the Rolling Stones, and that was really like putting up the tent at the circus. The hundred-by-hundred ended its life in service at Altamont. It was like the medical center—the bad trips pavilion.” Constance Lewallen, “Interview with Ant Farm,” in Ant Farm, 48.} As nomadic, shape-shifting environments, these inflatable structures invited the kind of sprawling “underground” activities invoked by the collective’s name. In 1970, Ant Farm published an Inflatocookbook (republished in 1973, slightly pared-down from the first edition) so that, in the spirit of The Whole Earth Catalog and Steve Baer’s Dome Cookbook (both originally of 1968), individual users located anywhere might obtain the
tools to create inflatable living spaces. As they poignantly proclaim in the 

_Inflatocookbook:_

> In case you hadn’t figured out a reason or excuse, why to build inflatables becomes obvious as soon as you get people inside. The freedom and instability of an environment where the walls are constantly becoming the ceilings and the ceiling the floor and the door is rolling around the ceiling somewhere releases a lot of energy that is usually confined by the xyz planes of the normal box-room.\(^{62}\)

On April 21, 1972, the day immediately preceding Earth Day, the Ants could be found at Sproul Plaza at the University of California, Berkeley with a forty-by-forty foot inflatable called _Clean Air Pod (CAP 1500)_ for a three-day Environmental Teach-in (fig. 4.20). After sounding an alarm to announce an air failure at the Plaza, performers in gas masks and white lab coats invited students and professors to seek refuge from lethal pollutants inside the _CAP 1500_. Those who chose not to enter were tagged with yellow markers and informed that they would be “monitored by a Human Resources Satellite which is tracking your final movements.”\(^{63}\) This is to say that Ant Farm’s inflatable architecture was not exclusively directed at the kind of liberatory “trip” suggested by descriptions in the _Inflatocookbook_ of “rolling around the ceiling” and “[releasing] a lot of energy.”

As allegory of the earth’s atmosphere, the inflatables created a miniaturized enclosure, at once imagining a “clean slate” in which to begin a new nomadic community sheltered from airborne pollutants and calling attention to its impossibility. As _CAP 1500_ makes clear, Ant Farm’s inflatable architecture had internalized the creation of new environments as both a politically egalitarian activity, open to anyone with three dollars

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\(^{62}\) Ant Farm, _Inflatocookbook, Second Edition_ (San Francisco: Ant Farm, 1973), unpaginated.

\(^{63}\) “Faculty Urges U.C. Control of Air Labs,” _Oakland Tribune_ (22 April 1972), A1, reproduced in _Inflatocookbook_.

for an *Inflatocookbook*, and an educational project, self-aware of ecology as tantamount to a system of risk.\(^{64}\)

Thus, as fully imbedded in the institutional culture of public ecology, Ant Farm’s inflatables are especially significant as portable structures. In 1970, while the Ants were compiling materials for the first *Inflatocookbook*, they were simultaneously working on an open-ended educational project called *Truckstop Network*. Though the project never materialized into a concrete final form, *Truckstop Network* evolved as a series of proposals to create a mobile system of educational trips through the American highway system, designating certain truckstops as “high energy Xchange” points, in lieu of classrooms, and interchanging specialized vehicles categorized as “video bus, books bus, lightshow bus, alphabet bus, enviro bus,” in place of traditional subjects of study.\(^{65}\) More than simply an educational curriculum, however, the *Truckstop Network* was envisioned as an alternative system of economic exchange—using “energy credits” as currency—and generating communities through computer, video, radio, and telephone links.\(^{66}\) Under the slogan, “Life/art + eco/tech = learning,” the *Truckstop Network* announced Ant Farm’s incursion into the state of ecological discourse as, “Furthering super consciousness of clean ecological living + opening man/machine patterns to eco-consciousness [or,] . . . how to live an eco-reality [while] ’truckin down the line.’”\(^{67}\)

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\(^{64}\) On the ecology of risk, see Heise, “Narrative in the World Risk Society,” in *Sense of Place, Sense of Planet*.

\(^{65}\) Ant Farm, *Living Archive 7*, 171, 170.


\(^{67}\) Ant Farm, *Living Archive 7*, 168.
The *Truckstop Network*’s notion of “eco-reality” brings us back, ultimately, to the condition of ecological art throughout the 1970s. Ant Farm’s inflatables, like their *Truckstop Network* or Energy Credits, should not be understood as distinct and separate competition against structural architecture, the American education system, and the US Dollar. Theirs was no zero sum game. Instead these projects reveal the extent to which artistic production had internalized the flow of information among other social spheres.

When, in 1974, Ant Farm set ten Cadillacs ranging in model year from 1949 to 1964 into the ground, headlights down along Route 66 in Amarillo, Texas (fig. 4.21), the *Cadillac Ranch* did not merely register as a “roadside attraction.” It showcased the planned obsolescence of the Cadillac’s famed tailfin along the very highway Route celebrated for its open access to America made famous by cross-country travelers like Jack Kerouac. Ant Farm created a work that at once participates in a celebration of American highway culture as it also announces its profligate consumerism through the outlandish act of burying cars. That the *Cadillac Ranch* happens to have become the most widely-known earthwork of its era—I recall seeing it for the first time as a pastel-colored mural on the wall of a nationally franchised rib restaurant—has obscured the deep-seated critique at the heart of this work.

*Cadillac Ranch* is thoroughly inscribed into the condition of land art in its era. It was commissioned by the ranch-owner and art patron Stanley Marsh and sited on the same piece of land as Smithson’s final work, *Amarillo Ramp* (fig. 4.22). And when the Seattle Art Museum’s *Earthworks: Land Reclamation as Sculpture*, the exhibition that sponsored Morris’s *Untitled Earthwork*, toured nationally in 1981, the Amarillo Art Center (now Amarillo Museum of Art) appropriately incorporated *Cadillac Ranch* into its
local installation of the exhibition. *Cadillac Ranch* does not purport to directly alter energy consumption or automobile construction—or refashion them anew in self-sufficient ecosystems—but instead acknowledges that their risks to environmental stability have been fully subsumed within the concerns of sculpture. Where Morris’s *Untitled Earthwork* or Smithson’s mining proposals sought to insert the work of art directly into scarred spaces of ecological disruption, Ant Farm’s various environmental projects show these disruptions to already resonate through the production of land art. As Luhmann would describe the adoption of such subsystems: “every formation of a subsystem is nothing more than a *new expression for the unity of the whole system.*” As such, Ant Farm’s encounter with ecology throughout the 1970s was decidedly riven between the emancipatory threads of late-sixties energeticist utopias and the adaptation of these concerns to legislative policy and the public relations of corporatized capital.

That Art Farm, like Graham and even the Harrisons, engaged in a type of environmental architecture—of designing structures for living conscientiously in the interrelated ecosystems of biospheres and mediascapes alike—distinguishes also the educational impulse of their collective work. The investigatory work instigated in different ways by the Harrisons, Graham, and Ant Farm would also set the terms of environmental art for the generation of land art to continue into the 1980s. Which is to say, this body of work helps to chart the way forwards, but it does not, however, fully account for the transition away from the earliest land art of the 1960s, with its investments in minimalist sculpture and the geometry of earth. For this, we must return a final time to *The Lightning Field*, which appears now as both an unlikely counterpart to

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the Cadillac Ranch, as another earthwork of buried steel, and the final object in the first-wave of large-scale sculptural land art.

**Earth (as) Sculpture**

The selection and construction of *The Lightning Field*’s site near Quemado, New Mexico was a lengthy process that cannot be separated from De Maria’s simultaneous work on *The Vertical Earth Kilometer* in Kassel, Germany. Both were completed in the fall of 1977 and both made possible by the support of the newly formed Dia Art Foundation. Dia’s original charge was to commission and maintain permanent works of art, as it currently does for important site-specific projects including Smithson’s *Spiral Jetty* (though not originally a Dia project), The Dan Flavin Institute, and De Maria’s *The Lightning Field, The Vertical Earth Kilometer, The New York Earth Room*, and *The Broken Kilometer*. This is to say that in a decade marked by the larger field of land art’s negotiation of state involvement in environmentalism and a general instrumentalization of ecological ethics, De Maria had to turn to the other sources to support the expensive undertaking of his large land works. Between the abrupt closure of the Dwan Gallery in 1971 and the formation of Dia in 1974, he was left without stable financing. Instead of turning his services to the private sector, as in Smithson’s late bid as an artist-consultant for the mining industry, De Maria instead sought support from the state, prompting a series of protracted events that would finally culminate in the completion of both *The Vertical Earth Kilometer* and *The Lightning Field*. We will examine these events leading up to the completion of De Maria’s 1977 works in Kassel and Quemado, as late, even
belated, earthworks that bring closure to both the first wave of land art in the United States and its ecological turn of mind.

In August 1971, De Maria found himself back in Munich, but unlike his first visit to the city three years earlier to install *Pure Dirt* at Galerie Heiner Friedrich, he was not completing a controversial environmental work but attempting to get one approved by committee. With the local support of Friedrich, the artist submitted a proposal for a large-scale earthwork to the Olympic planning committee for the upcoming summer games in 1972 (fig. 4.23). Having originally budgeted eight million Marks for the creation of art works in and around the Olympic village, the planning committee initially assembled a group of international artists to complete an ambitious program, including the Americans Andy Warhol and De Maria. But grand plans soon gave way to a nationalist debate about allocations for an event sponsored and funded by a German tax base. In a letter to Samuel Wagstaff dated September 16, 1971, De Maria conveys that his proposed “EarthSculpture” had already been rejected in a vote of architects in early September on account of its substantial construction costs (an estimated 400,000 dollars, or about a fifth of the total originally budgeted for art). Yet by mid-September, De Maria had found a new contractor and the artist dug back into a campaign of several months to win support for his project. After features in local media outlets and “all the eye to eye show downs with everyone concerned” on the planning committee, De Maria’s proposal was ultimately defeated again in a vote cast in mid-November. In the end, the Olympic

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committee decided to sponsor projects exclusively from German artists.\textsuperscript{72} Warhol’s proposed Sunkist mural for the natatorium, for instance, was replaced by a Gerhard Richter projection.\textsuperscript{73} For De Maria’s part, despite garnering considerable support from not only Friedrich but also the German media, key sponsors from European and American museums, and local Munich architects, his project could not survive the bureaucracy of the committee process. His \textit{Olympic Earth Sculpture}, however, did not die on the committee floor. A brief magazine article of June 1972 reports that De Maria had returned to the United States, and could be found “surveying new sites in Nevada where his project might be realized.”\textsuperscript{74}

As we can see from De Maria’s original design, his project would have been defanged considerably had he successfully realized its completion in any of the remote areas of Nevada where he and Heizer had recently created other land art. The lower image shows a hill sixty meters in height erected from the rubble of homes destroyed by Allied bombing in World War II. For his \textit{Olympic Earth Sculpture}, located above, De Maria planned to drill an empty shaft three meters in diameter that would extend through the tallest portion of the mound and continue the same distance into the earth below. This “Negative Sculpture” as one newspaper called it would extend a total of one hundred twenty meters into the earth, to be capped at the top by a large, circular bronze plate measuring eight meters across and thirty centimeters in height. In direct reaction to Heizer’s \textit{Double Negative} completed two years earlier in Overton, Nevada, \textit{Olympic Earth Sculpture} keenly presses upon distinctions being drawn in the early seventies.

\textsuperscript{72} See De Maria letter to Count Giuseppe Panza dated January 25, 1972. Getty Research Institute, Special Collections and Visual Resources, Giuseppe Panza Papers, inv. no. 940004, box 106, folder 7.
\textsuperscript{73} Eduard Beaucamp, \textit{Frankfurter Allgemeine Zeitung} (9 November 1971): A22.
\textsuperscript{74} “In View,” \textit{Art and Artists} 7:3 (June 1972), 8.
between natural and non-natural notions of earth. Where the two negative cuts of Heizer’s work exactly mirror one another across a horizontal chasm scalloped in the sidewall of Overton’s Morton Mesa, De Maria’s negative incision in Munich would have established an unbalanced unity. In terms of its geometrical form alone, De Maria’s *Olympic Earth Sculpture* would have boldly sunk a singular cylindrical form into its site, much like the large trapezoidal prism outlined in Heizer’s own negative sculpture. However, where Heizer’s work engages its surrounding environment through a series of scalar relations activated by the bodily presence of its spectator inside one of the two massive cuts, the *Olympic Earth Sculpture* was to be located on a site literally shaped by the trauma of the Second World War in Germany. This was a site charged with massive destruction and its aftermath. Rather than a scalar or environmental engagement with such a location, the clean, geometrical form De Maria proposed to carve into this pile of rubble would have marked its site as a quiet, buried monument. In the place of a massive plinth reaching into the sky, this would be a buried, negative column digging back into the earth, as if seeking to reverse the forward marking of time stratified upon the earth’s surface.⁷⁵

In this sense, *Olympic Earth Sculpture* is also a work about experiencing ecological time. The two shades of gray in De Maria’s section rendering show a simultaneously additive and divisive logic to the simple equation of sixty meters through

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⁷⁵ As a negative monument to be sited in the rubble of World War II bombing, De Maria’s *Olympic Earth Sculpture* anticipates the rise of what scholar James E. Young characterizes as German “countermonuments” to appear predominately in the 1980s. Young’s phrase is borrowed from Jochen Gerz and Esther Shalev-Gerz’s discussion of their *Monument against Fascism* first unveiled in 1986 in Hamburg, a column systematically lowered into the ground that invited its viewer to inscribe graffiti upon the work until its disappearance. Especially resonant with De Maria’s proposal is also Horst Hoheisel’s “negative-form monument” designed in 1987, for which a decimated early-twentieth century neo-gothic fountain was buried twelve meters into the ground upon its former site in Kassel. Young, “The Countermonument: Memory against Itself in Germany,” in *The Texture of Memory: Holocaust Memorials and Meaning* (New Haven, CT: Yale University Press, 1993): 27-48.
debris plus sixty meters through “earth.” A spectator of the work, standing in the center of its heavy plate of bronze, registering the plummeting void directly underfoot, may very well have been struck by the staggering implications of living in what chemist Paul Crutzen has recently coined the Anthropocene. As the most recent epoch of terrestrial history, the Anthropocene is characterized by human rearrangement of the earth’s surface and large-scale infusion of carbon into the atmosphere. Unlike the Pleistocene (ranging from approximately 1.8 million to 12,000 years ago) and its subsequent Holocene, which were marked by repeated long-term glaciation and eventual melting, the Anthropocene describes an exceptionally rapid change of the earth’s biosphere instigated by the adoption of steam power at the beginning of the Industrial Revolution. Though the term itself would not appear in ecological discourse for nearly three decades after De Maria’s proposed Olympic Earth Sculpture, this work was cued precisely to a stunning experience of standing atop sixty feet of earth formed in a generation and sixty feet formed over hundreds of millions of years.

But Olympic Earth Sculpture never materialized to register this disjunction of the earth’s industrial surface with its geological one. As a more lasting result, following the rejection of this proposal by Munich’s planning committee, De Maria’s land work as a whole retreated from any direct engagement with the politics of ecology. In summer of the following year, he went once more to the desert outside Las Vegas, this time with two large projects in mind. The first would require a remote mountain into which to dig the

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77 Ironically, in 1966, during the period of his entry into environmental art, De Maria had earlier made a drawing that was purchased by his first substantial private patron, Robert Scull, that reads: “YOU HAVE BEEN CHOSEN BY AN ANONYMOUS COMMITTEE.” Robert Scull Papers, Archives of American Art, Smithsonian Institution.
Earth Sculpture and the second, a flat plain to construct a field of electrically conductive metal poles. It is to this nascent lightning field that we now turn our attention.

Just as I have argued throughout this dissertation that the conceptual framework and historical embeddedness of The Lightning Field developed over the course of two decades, so the actual planning and construction of the work was itself an intensive five-year process lasting from 1972 to 1977. In the interim, De Maria created a “Test Field” in Arizona in 1974 to gage the perceptual and practical behavior of embedding his earlier sculpture Bed of Spikes into the ground and expanding it to a size one could walk through. Using a couple dozen poles, give or take, each measuring an average two feet shorter than those in the final work (18’ rather than 20’) and spaced twenty feet closer together (200’ rather than 220’), the test field provided a rough sketch for the final work but suggested little of its engineering precision and enterprise. In this early version, the poles were merely stuck into the ground, whereas at the final site, engineer Robert Fosdick would employ a multi-step process of calibration to secure an exact and permanent location, height, and vertical alignment for each pole of The Lightning Field to a precision of one-tenth of a foot in a mile.

On July 5, 1972, De Maria wrote to Wagstaff from Las Vegas: “My search for the mountain continues,” as evidence the artist indeed planned to execute a vertical column sculpture in Nevada. It is in this same letter that De Maria also begins to write about lightning: “I’m most interested in Lightning NOW, – and will make the Lightning Field.” Samuel J. Wagstaff Papers, Archives of American Art, Smithsonian Institution, Reel 4795.

Locating a proper site for The Lightning Field was yet another involved process. After scouing terrain in the larger southwest, De Maria selected a region in New Mexico for its remoteness and high frequency of lightning. He and Dia then placed an advertisement in a real estate publication for ranchers in Catron County that led them an L-shaped plot measuring five square miles in total area wedged at the intersection of large, surrounding ranches. On January 3, 1977, a survey was commissioned of the site, and on June 3, work began with Robert Fosdick, Helen Winkler, Terry Winters, and a crew of local high school students installing the poles. De Maria’s original design had called for a field of poles measuring one mile on each side—carrying forward the role of the standard mile in his earlier Las Vegas Piece (1969) and plans for Walls in the Desert (c. 1963)—but such a configuration would have squeezed the edge of the Field against the fencing of its site. As a solution, the configuration of the work was adjusted from twenty-five by twenty-five poles to a shortened north/south row of sixteen poles. Drawings for the original configuration
Indeed, the issue of measure assumes a disproportionately important place in De Maria’s practice from the mid-1970s onward. Mathematical sequencing had appeared in his art as early as the metal sculpture 4/6/8 of 1966 (fig. 4.24), and it was present again in the permutations of spikes he designed for each of the five-foot square platforms in *Bed of Spikes* of 1969. But in each of these earlier works, the additive logic and rules of sequencing generating sculptural form remained visible to the naked eye. One can see plainly, for instance, that each arrangement of metal rods in 4/6/8 is based on the complete set of combining four-, six-, and eight-sided polygons in sets of three. At *The Lightning Field*, however, one cannot perceive that the Field’s standard spacing of two hundred twenty feet produces a conjunction of metric and standard measuring systems, one mile long by one kilometer across, from unassisted observation alone. This is also true of another sculptural series De Maria completed in 1976-77, *The Equal Area Series* (fig. 4.25), in which each of the work’s twenty-five pairs of stainless-steel circles and squares are equal in area, to a minute degree of difference from each of the other pairs. These differences remain completely imperceptible to a viewer of the work. In both *The Lightning Field* and *The Equal Area Series*, calibration and measurement have been subsumed invisibly within the work of sculpture.

De Maria’s late turn to invisible systems of measure corresponds well to *The Lightning Field*’s pendant work, *The Vertical Earth Kilometer* (fig. 4.26), which similarly

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80 I am thinking here of De Maria’s large, arithmetically-complex rod sculptures he produced throughout the 1980s and 1990s, including *A Computer Which Will Solve Every Problem in the World/3-12 Polygon* (1984); *13, 14, 15 Sided Open Polygons* (1984); *13, 14, 15 Meter Rows* (1985); *Large Rod Series: Circle/Rectangle 11* (1986); and *The 5-7-9 Series* (1992).

81 Due to an uneven conversion factor, *The Lightning Field*’s precise measure on its north/south side is 1.0067544 kilometers.
employs the basic measuring unit of a single kilometer. By 1976, De Maria had not yet located a mountain in Nevada in which to cut his *Earth Sculpture*, but when invited to participate in Documenta VI in February of that year, he proposed a revised version for Kassel. Yet instead of drilling an empty column as he had initially designed for the earlier Olympic sculpture, the artist now proposed to insert a kilometer-long solid brass rod into Kassel’s Friedrichsplatz.82

When Documenta VI opened on June 24, however, all that was visible of the show’s most publicized and controversial work was a thirty-meter, fenced-in drilling tower and 167 brass rods each six meters long arranged on the lawn. Two years later, De Maria’s *The Broken Kilometer* would open for permanent display in lower Manhattan and employ this very strategy of dividing a single kilometer into 500 serialized segments arranged horizontally on the ground (fig. 4.27). In Kassel, viewers had to wait seven weeks after the opening of Documenta for the veil to be lifted on the elusive activities of the cordoned-off construction zone. When finally revealed, all that appeared of the summer’s intensive geological activity was a two-meter square sandstone plate, a single brass circle flush at its center (fig. 4.28).83 This is to say, *The Vertical Earth Kilometer* is quite literally invisible to its spectators. Months of heavy construction and negotiation

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82 As with De Maria’s original sculpture proposed in Munich five years earlier, *Vertical Earth Kilometer* did not meet with easy approval from city officials. But this time around, there were several major differences: (i) the work was large, costly, and would certainly be controversial, but it did not so directly address the traumatized landscape of postwar Germany; (ii) De Maria’s proposal would be shepherded by a single person, Manfred Schneckenburger, who, as director of the sixth Documenta, carried the weight of the city’s most important international cultural event; (iii) and finally, earlier in 1971, Heiner Friedrich was forced to negotiate with the Munich Olympic Committee to finance De Maria’s work, while in 1977 he could do so personally through the newly-formed Dia Art Foundation. On the planning and construction of *The Vertical Earth Kilometer* alongside Joseph Beuys’s *7000 Oaks*, see George Baker and Christian Philipp Müller, “A Balancing Act,” *October* 82 (Fall 1997): 95-118.

83 After the completion of *The Vertical Earth Kilometer*, Dia attempted to negotiate the “gift” of the Kilometer to the city of Kassel with attending restrictions regarding maintenance, photographic reproduction, and building restrictions similar to those of *The Lightning Field*, but local officials, ultimately, claimed that a sculpture permanently embedded in six geological layers beneath city limits already belonged to Kassel. See Baker and Müller, “A Balancing Act,” 105-6.
over drilling rights with the city of Kassel appeared in the end only through a simple circle enclosed in sandstone. In line with the emphasis on measure and geometrical form in both *The Lightning Field* and *The Broken Kilometer*, De Maria’s sunken brass kilometer in Kassel cannot be experienced as an earth sculpture, only imagined as one.

Thus it is with the companion works of *The Lightning Field* and *The Vertical Earth Kilometer* that the first generation of land art comes to a close. This is not to claim that these projects share no investment in the earth as a vehicle for the production of art. Instead, in De Maria’s increasingly fascination with internal systems of measurement in the 1970s, the dynamics of ecological openness and energetics upon which land art was founded were displaced. The earth serves as a ground or support for *The Vertical Earth Kilometer* only by internal projection. Despite the intense interaction with land and site that went into its making, the final work is apprehended only by envisioning in one’s mind the sculptural composition of a line inserted into the outer edge of a giant sphere. If one could actually see the earth in transparency, this sculpture would barely register across its approximate diameter of 12,756 kilometers. But standing on the ground in Kassel, De Maria’s work extends into the ground beyond one’s cognitive abilities to imagine such minute fractions and percentages, as if rendering an *Equal Area Series* at the level of the whole planet. In a decade of land art characterized by the integration of built ecosystems into a range of social concerns—from the Harrisons’ lagoon-making to Ant Farm’s inflatables to De Maria’s own *Olympic Earth Sculpture*—the resulting *Kilometer* in Kassel rendered the planet instead as an abstract, discretely bounded sphere: a world reduced to circles, lines, and spheres.
In this respect, De Maria’s late land works register a temporal push and pull upon the condition of land art in the 1970s. As we began this chapter with a series of returns and revisionist impulses, so too De Maria’s work at the decade’s close harkened back to a tendency that had characterized his land art prior to 1969. In works such as Desert Cross and especially the never-realized Three Continent Project, in which he proposed to cut simple, geometrical shapes into the earth’s surface on three continents and superimpose the resulting lines into a single photo-collage, De Maria’s land art had treated the planet primarily as a large drawing surface. The Three Continent Project, in particular, operates upon a highly abstracted sense of the local environments of its individual segments, offering quite literally to collapse their differences in a final and singular photographic image. Likewise, when De Maria proposed to move his rejected Munich Earth Sculpture into a mountain in Nevada, only to ultimately decide upon a patch of earth back in Kassel, he returned once again to this earlier sense of the earth as a design surface, or, in this case, sphere.

In one sense, the final shift in De Maria’s land practice befits an increasingly global turn in environmental thinking. Likewise, the extended development of Vertical Kilometer, like the earlier Three Continent Project, could be described as deterritorializing the individual sites of its production. Ecological localities are flattened to an any-place-whatsoever. As such, these works counteract the dominant trends of environmental movements of the 1970s, or, as Heise has observed: “the environmentalist call for a reconnection with the local can be understood as one form of ‘reterritorialization,’ an attempt to realign culture with place.”

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84 Heise, Sense of Place and Sense of Planet, 53.
has appeared as a critical concept in recent discourses of globalization, anthropology, and social geography, the displacement of populations and local customs the term describes is most often associated with forces of circulating capital and communication systems. This position is articulated, for instance, in Arjun Appadurai’s *Modernity at Large*, where he writes, “It is in the fertile ground of deterritorialization, in which money, commodities, and persons are involved in ceaselessly chasing each other around the world, that the mediascapes and ideoscapes of the modern world find their fractured and fragmented counterparts.”  

In contrast, De Maria’s works exhibit little engagement with any such modes of circulation. That is, however much *Three Continent Project* and *The Vertical Earth Kilometer* incline to transcend national borders, the manner in which they do so is of a different order than the modes of production described by Appadurai and others. De Maria’s works indeed anticipate an increasingly global turn in the continued life of land art, but it would not be one in which they could also participate.  

Theirs is a static globalization—earth frozen as pure design.  

*The Lightning Field* offers no such reductivism, but nor is it unaffected by its maker’s increasing internality from the late 1970s onwards. Where *The Vertical Earth Kilometer* largely follows a reductivist history of stripping away the political and

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87 On the continued relationship between contemporary environmental art and globalization, see Karen M. Rapp, “‘Not the romantic West’: Site-specific art, globalization, and contemporary landscapes” (Ph.D. dissertation, Stanford University, 2009).
environmental purchase of its earlier Munich forebear, *The Lightning Field* remains a work rich in its own extended conceptualization. Rather than internal as such, it internalizes De Maria’s turn to mathematical calculation and permutation within its own ecological historicism. Despite this work’s decided remoteness and even De Maria’s claim in his eponymous essay that “Isolation is the essence of Land Art,” we have registered how *The Lightning Field* and land art itself were born of an ecological turn of thought throughout the 1960s and 1970s. Far from a singular notion of the constitution and connections of such ecosystems, the Field embodies the sheer diversity of ecologies riven among the energeticism of land art’s distribution through print media, the earth-bound scale of steel poles providing interface between the bodily presence of spectators and the sheer magnitude of the landscape, and even, as noted above, the shift in ecological consciousness from a utopian world-as-biodome to the exigencies of implementing laws and policies to address the earth’s resources and life-systems. Earlier we considered an alternate mode of the Field’s invisibility, not of a singular kind hidden within systems of measure, but found in the experience of light pulsing through its array of poles, suspending the work from solidifying into a definitive, spatial form. Its more powerful invisibility lies in the inability to grasp these modes simultaneously. As anticipated in the highly orchestrated gallery Environments of the 1960s, multi-sensory works to the entered and experienced from the inside, *The Lightning Field* is itself a sculpture to be walked through. But its complexity arises from the disruption of localized, environmental conditions upon the givenness of this sculptural form.

*The Lightning Field* occupies a unique position as a late coda to the first wave of land art. Which is to say, the precise calibration of the Field’s grid and sharp verticality
exists symbiotically with its occasional disruption by explosive electrical fireworks and
more frequent modulation by atmospheric light and perambulating spectators. Though its
very structure allows the multiplicities of land art’s various ecological ambitions, the last
of these, as appear instructively in the conjoined histories of The Lightning Field and The
Vertical Earth Kilometer, could not productively maintain, uninterrupted, the trajectory
of ecological aesthetics after 1960. If land art began as an exploration of the earth’s life-
sustaining systems through the platform of the minimalist sculpture—of opening the
discrete boundaries of artistic objects through the earth’s open systems—De Maria’s final
turn in the 1970s retrospectively projected these qualities back onto the earth and
sculpture alike as mensurable, geometric forms. No longer a network, but again an object.
Land art would thrive beyond the 1970s, but The Lightning Field both embodies the
scope and announces the end of its first era.
CONCLUSION

“The Lightning Field is a permanent work.” So begins Walter De Maria’s page of “Some Facts, Notes, Data, Information, Statistics and Statements” in the artist’s only written or spoken commentary about his greatest work of art and the subject of this dissertation.¹ In many ways it is a fitting statement, suiting equally the ambitions of a generation of land art that formed around a view of the earth’s ecological balance as a timeless truth and, more particularly, the Field as the inaugural and flagship work of the Dia Art Foundation as an organization created to fund and maintain long-term installations. But in the time that has passed since the completion of the Field’s site in October 1977 in its publication in Artforum magazine in April 1980, a host of new concerns have arisen regarding how exactly to interpret the permanence of De Maria’s and other large, land-based works.

Such earthworks have been subject to a number of environmental changes. In one notable case, Michael Heizer’s Double Negative has experienced significant erosion, taken on an alarming amount of rubbish, and even provided its visitors an occasional campsite. A similar fate has befallen Robert Smithson’s Spiral Jetty as plans for extracting potassium sulfate from solar evaporation ponds and drilling for oil near the Jetty’s location on Rozel Point in Utah’s Great Salt Lake have persisted since the work’s own resurfacing within the past decade from years underneath the Lake’s water line. But as a host of recent critics have been quick to point out in conservation discussions regarding Spiral Jetty, Smithson himself was highly invested in a particular sense of structural entropy in his works of art and—more broadly—all else throughout his mature

career. This position would have it that internal erosion of a Smithson earthwork might be acceptable on the basis of the artist’s own terms, just not an “erosion” of its surrounding environment. To complicate the matter further, part of Smithson’s initial draw to Rozel Point was precisely due to the remains of a previous jetty from a twentieth-century oil venture at the site. Heizer made a similar decision, if more implicitly, in his selection, or rather, non-selection, of material for Double Negative. In cutting away dirt and rock from its site, rather than adding any new material, Double Negative was primed from the beginning as temporary in its legibility as a work of art. In all, these circumstances position Spiral Jetty and Double Negative as related, but somewhat distinct, cases from The Lightning Field, which is made of a stainless steel configuration quite “unnatural” to its site.

As has characterized De Maria’s 1977 work throughout this dissertation, The Lightning Field’s history can hardly be disentangled from fellow works by Smithson and Heizer, but the Field’s own later completion date, supervision through a private foundation, and material constitution present quite unique circumstances to the work’s longevity and conservation as “permanent.” Robert Fosdick, Helen Winkler, Terry Winters, and the crew that installed The Lightning Field outside Quemado, New Mexico did not simply remove existing material from the site or add similar elements to what had existed already. Its four hundred polished, stainless-steel poles constitute a unique contribution to the state of the surrounding ranch land. This is not uninhabited or “natural” terrain by any measure—the sheer quantity of metal-ribbed cattle guards that

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one rattles over en route from Quemado to the *Field* is indication enough that this land has been cultivated for ranching. And yet, in their visibly lustrous materiality, precision-manufacture, and calibration as a precise grid, De Maria’s poles do not merely announce their difference from that which surrounds them, but assert a kind of timelessness. *The Lightning Field* is a metal work of art with no patina, meaning that the work cannot communicate its own age or even capacity to do so. As a case in point, Dia has changed out a number of these poles over the years, due to charring or wear-and-tear, thereby maintaining the work’s pristine appearance as constituent to its mode of being.

But more recently, *The Lightning Field* has encountered issues of its own sustainability from outside its boundaries as well. The original L-shaped plot of land purchased by Dia in the 1970s was at the time surrounded on all sides by sizeable, privatively owned ranch land. In the past few years, however, this land was put up for sale, prompting Dia to kick off a fundraising campaign to secure a deal for some 6,000 acres of terrain to create a three-mi radius around De Maria’s work. In securing this funding and land, Dia has ensured that while cattle guards and fence lines would constitute an aspect of the *Field*’s environment, drawing important parallels between its own gridded composition and the historical carving of the west into farms and ranchlands, there would no Hotel Lightning Field next door nor kunsthalle across the road. After all, De Maria did conclude his 1980 account of the *Field* mentioned above with the oft-quoted aphorism, “Isolation is the essence of Land Art.”

In a like manner, Dia’s recent move to conserve land around *The Lightning Field* has made significant strides to secure a particular version of this isolation. Securing a

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circumference around that work that is essentially empty suggests that *The Lightning Field*’s permanence does not arise simply from its marking a particular place or installing a durable material form. Rather, its permanence would seem to be predicated upon a resistance to structural change over time. The form of this twentieth-century work may well chime with a nineteenth-century notion of westward expansion, but its survival in the twenty-first century and beyond will not stand to communicate with any of its larger region’s rabid commercialization and population boom. When De Maria and Dia selected the site of the *Field* in the mid-1970s, the dominant signifier of southwestern plains might still have been an imaginary of frontier land. But over three decades later, this region has assumed a new importance to national demographics and politics as a overwhelming suburban and migrant-labor populations marked out the Sun Belt, from Los Angeles to Atlanta, as a massive region of post-industrial growth. Within such an environment, *The Lightning Field* staunchly resists its own ruination to times past or present.

Moreover, Dia’s land acquisition also poses a fundamental question about the time-based quality of environmental works of art: namely, does conservation of an earthwork involve preserving the original conditions of its environment, as one might conserve the original hues of a painting or surface quality of a sculpture? The implicit answer from the Foundation would seem to be in the affirmative, as it now also cares for *Spiral Jetty* and was equally involved in successfully holding off the new mineralogical proposals near Rozel Point. Dia’s position, however, does not sit easily with very notions of ecology and environmentality that motivated the move outside indoor gallery spaces in the 1960s in the first place and has that sustained the examination of *The Lightning Field* throughout this dissertation. For the radical turns in ecology during this period were
rooted precisely in rejecting notions of nature as a neutral entity or one separate from social growth. Or, as the title of this dissertation has asserted, more than a mere setting or ground for otherwise central actions or figures.

Let me be clear, however, that mine is not a kind of latter-day expansionist call for westward sprawl or commercialization of *The Lightning Field* as more of tourist destination than it already is. Far from it. I wish here to register instead a notable divide or disjunction within a work of art that absorbed so much in the decades of its extended and far-reaching development and now has seemingly stopped the clock. *The Lightning Field*’s multifaceted temporality, as we have considered at length, from gallery Environments born of the late 1950s to mid-1960s minimalism to the ecology of multimedia formats from the late 1960s onwards, is a far cry from the work’s subsequent insularity. This can be read in the relationship of Walter De Maria to the artworld, in his complete withdrawal from any contact with critics or historians since the early 1970s. As also, it can be read in the move of his sculptural practice into dimensions of exacting measurement and internally recursive patterns from this same period to the present. In the case of *The Lightning Field* itself, the lasting treatment and conservational strategies of Dia and De Maria would suggest that the diverse ecological ideas about the earth that contributed to this work’s formation throughout the 1960s and 1970s have been rendered as a kind of geographical and temporal bubble around otherwise continuous changes to its material, biotic, and cultural environments.

As I have argued throughout this study, *The Lightning Field* is a work of myriad historical impulses. We might recall, for instance, the variety of durational experiences offered to the spectator of this single work of art. The *Field* can be approached from the
perspective of a weekend, the time taken to travel to and reside at the site. It can be viewed from the perspective of the half-decade or so that went into planning, funding, and ultimately building its site in New Mexico. It might also be conceived as a distillation, or better, an open network, of tendencies that had appeared in De Maria’s sculpture, drawing, and film throughout the first two decades of his career. Furthermore, we have also viewed *The Lightning Field* as an interpretative model not only for the absorption of ecological ideas of the environmental movement but also of historical time as itself ecological in its symbiotic system of entwining multiple events in time and space. In other words, *The Lightning Field* has demonstrated how a single work of art prompts consideration of the strata of temporalities in its interpretational registers. Not one thing, but quite literally a field.

But as this final concluding note on the Field’s conservation attests, De Maria’s most famous work of art has also been his thorniest to visitors and critics alike. *The Lightning Field* has elicited a number of strong opinions in its relatively brief history, from near adulation to stern rebuke. It has been the work of this dissertation to locate these responses within a matrix of environmental debates and art historical frameworks that came to constitute many of the most important cultural and aesthetic tendencies of the latter half of the twentieth century. It is thus in keeping with the elaborate history of the *Field* that its continued life in the world introduce yet new concerns and problems. By necessity, this work must age, but it will be a question for this new century whether it will do so in relation to the continually adapting ecologies of its many environments or withdraw into a sense of its given “permanence” as a type of cocoon. The lesson to be learned from the development of *The Lightning Field* itself is that a thing must be alive
and enlivened to endure. Throughout this study, the *Field* has provided a lens through which to focus the sheer vitality and diversity of land art and ecological thinking in the years 1960 to 1980—its continued viability as such will be a question posing more to art conservation than the matter of keeping four hundred poles straight and polished.
BIBLIOGRAPHY

Archives Consulted

Archives of American Art, Washington, D.C.
Beinecke Library, Yale University
Dia Center for the Arts Archives, New York,
Getty Research Institute, Los Angeles
Los Angeles County Museum of Art Archives, Los Angeles
Menil Collection, Houston
Museum of Modern Art Archives, New York
New York Dwan Gallery Archives, Center for Curatorial Studies, Bard College, Annandale-on- Hudson, New York
Pacific Film Archive, Berkeley

Printed Sources


Cadava, Eduardo. “‘Lapsus Imaginis’: The Image in Ruins.” *October* 96 (Spring 2001): 35-60.


“In View.” *Art and Artists* 7:3 (June 1972), 8.


Ryan, Susan Elizabeth. “Walter De Maria’s Silver Screen: Portraiture as Ownership.” *Source* 24:1 (Fall 2004), 50-56.


USCO. “We are All One.” *Film Culture* 43 (Winter 1966): 9.


