

Monumentality as Method: Archaeology and Land Art in the Cold War

IN FEBRUARY 2012, A 340-TON boulder made an eleven-day journey from its source in a Riverside quarry to the Los Angeles County Museum of Art (LACMA). The huge stone had been hand selected by land artist Michael Heizer for use in his work *Levitated Mass*. A massive rerealization of a piece first conceived in the late 1960s and completed on a smaller scale in 1982, the work would suspend the boulder atop a concrete trench in LACMA's "backyard," inviting reflections on not only the work's monumentality but also its relation to the Los Angeles urban context against which it was placed. Power lines and traffic signals had to be temporarily disassembled to make room for the almost 300-foot rig as it delivered its massive cargo. Streets were lined with spectators, news crews, and public utility employees all along its more than 100-mile route. The sheer size of Heizer's intervention and the infrastructural interruptions it required led to a degree of public attention rare for other works of art. *Levitated Mass*, now completed and in place, has become famous and can be found in newspaper articles and blog entries, YouTube videos, and endless photos where subjects hold the massive rock in the palms of their hands through tricks of perspective.¹

Two years earlier, Heizer's work was also evident in another monumental event at LACMA. The exhibition *Olmec: Colossal Masterworks of Ancient Mexico* brought ceramics, carved jades, and monumental statuary from archaeological sites in southern Mexico to Los Angeles. Two colossal basalt heads included in the exhibition had been set on angular, patinaed steel supports designed by Heizer (fig. 1). The supports continued a dialogue between the ancient works of the Olmec and the contemporary art world

ABSTRACT This article examines the work of a father and son—archaeologist Robert Heizer and land artist Michael Heizer. While one is known as a methodological and technological innovator in Cold War archaeological practice, the other is a prominent figure in an art movement highly critical of modern forms of knowledge and experience. Looking past this apparent disjuncture, this article examines the unexpected continuities in both men's methods, as evidenced in Robert Heizer's study of the Olmec site of La Venta and Michael Heizer's creation of massive earthworks inspired by ancient societies. REPRESENTATIONS 130. Spring 2015 © The Regents of the University of California. ISSN 0734-6018, electronic ISSN 1533-855X, pages 119–151. All rights reserved. Direct requests for permission to photocopy or reproduce article content to the University of California Press at <http://www.ucpressjournals.com/reprintinfo.asp>. DOI: 10.1525/rep.2015.130.5.119.



FIGURE 1. Installation photograph from the exhibition *Olmec: Colossal Masterworks of Ancient Mexico* at the Los Angeles County Museum of Art (October 2, 2010–January 9, 2011). Photo © Museum Associates/LACMA, by Yosi Pozeilov. Licensed by Art Resource, New York.

that began as soon as the Olmec were rediscovered in the early twentieth century. Heizer had been asked to build these supports as part of a larger effort to promote synergies across the museum's modern and ancient offerings, but more importantly as a means of acknowledging a peculiar coincidence of lineage. His father, Robert Heizer, was an archaeologist who investigated the Olmec site of La Venta for two decades.²

This article examines the significance of the paternal relation between Robert and Michael Heizer, a relation made experientially palpable by these two monumental events at LACMA and echoed in a shared suite of concerns in ancient American cultures, monumental transport and construction, archaeological method, and the power of technology as a scientific and artistic tool. Rather than reflecting on artistic appropriations of the ancient Mesoamerican past as subject matter or visual language, I am interested here in tracking shared methods and epistemological concerns across 1960s art and archaeology.³ In considering the very close connections between the projects of these two men, I reflect on the 1960s as a moment characterized by both resurgent scientific positivism in archaeology enabled by the adoption of Cold War technology and an emergent critique of the grounds of modern knowledge in the art world, opposed beliefs that throw into relief the dogmas and fears of the 1960s and echo generational rebellions and ruptures that were widespread at the time.

However, I argue that there are in fact important continuities between the seemingly opposed scientism of Cold War archaeology and the critical positions of land artists, continuities made clearer through an attention to the centrality of monumentality as a particular manifestation of the modern in the methods of both father and son. Drawing on Stefan Helmreich's examination of scientific "context creation," I use the term *modern monumentality* to refer to a method of context creation characterized by fascination and hubris, a desire to know, build, and experience at a totalizing scale.⁴ Analyzing the use of technology in the work of both men, I argue that modern monumentality—as both a disposition characteristic of the modern and a suite of technomaterial practices evidenced in archaeological fieldwork and the creation of earthworks—yields tautological results, obscuring the uneven realities of the ancient past and the margins of the "modern" world while reinforcing a belief in totality through the technological that lay at the heart of Cold War modernity. Through such closed circuits of context creation, the ancient American past is made to serve as an object of study and as a foil to the "modern," supporting projects that aspire to totality of knowledge and experience through the effacement of the complexities of ancient sites and the contemporary social worlds that surround them.

I begin by tracing the elaboration of a particular form of modern monumentality, examining Robert Heizer's development of a new mode of technoscientific archaeological practice and its application in the study of one of the primary features of the Olmec site of La Venta (Tabasco, Mexico) in the late 1960s. Through collaborations with Cold War "Big Science" and through the adoption of cutting-edge technological applications, Heizer developed innovative methods for documenting archaeological sites, methods that allowed for the gathering of vast quantities of data from these sites while simultaneously avoiding the increasingly fraught postcolonial contexts that surrounded them. I then read the work of Michael Heizer through this practice and the countercultural reactions prompted by similar deployments of Cold War technoscience at the time. While an understanding of Cold War technoscientific practice is vital to understanding the collaborations and innovations of Robert Heizer's archaeology, countercultural communalism constitutes an important frame for the analysis of land art's movement "back to the land." However, while Michael Heizer's work is motivated by many of the rebellious attitudes widely articulated by sons toward the work and world of their fathers at the time, his art is achieved through repeated methodological borrowings from his father's archaeological practice. Though Heizer's earthworks seek to recreate ancient relations to site and space, his methods are characterized by decidedly modern scientific collaborations and intensive technological interventions. While the

discourse of land art positioned the movement as a radical rupture from modern modes of art and knowledge making, the methods through which Heizer's earthworks are realized resonate less with ancient monumental construction than with contemporary attempts at totality and timelessness. This recontextualization of land art offers an alternative frame to narratives that locate the movement within a self-referential evolution of American art and instead situates land art at the center of a Cold War nexus of technoscientific development and political and generational conflict.

I argue that an appreciation of the continuities between the methods of Robert and Michael Heizer, a recognition of generation as a relation of kinship as much as succession, requires us to think beyond the progressive narratives that have characterized traditional accounts of archaeological and artistic practice in the late midcentury as well as the binary oppositions that make up our understanding of the cultures of the Cold War. Fathers and sons, art and science, positivism and critique are not mutually exclusive positions in this account but instead constitute co-implicated facets of modern modes of action and thought. I conclude by considering how Olmec monumentality differs from this modern monumentality and how it offers a reminder of the social contexts that must necessarily support monumental projects. Monumentality is not simply the effect produced by the experience of the monumental, but rather a function of collaborative and historically specific practices of social and material transformation.

Archaeology and Cold War Technoscience

In the late 1930s, a series of excavations conducted by Matthew Stirling of the Bureau of American Ethnology in the swampy lowlands of southeastern Mexico revealed an ancient American culture new to archaeological and popular audiences. The Olmec, as archaeologists dubbed them, were shown to be the oldest documented "civilization" in Mesoamerica and were soon being called Mexico's *cultura madre*, or "mother culture."⁵ Stirling's archaeological adventures furnished sites, artifacts, and regional imaginaries that made the emergent Olmec one of the most pressing topics in mid-twentieth-century archaeology in both Mexico and the United States. Following Stirling's pioneering work of "discovery," his projects at San Lorenzo, Cerro de las Mesas, La Venta, and other important sites in the Olmec "heartland" were inherited by a new set of archaeologists—people with backgrounds very different from those of Stirling and his fellow intellectual adventurers. Less concerned with broad regional surveys, romantic travel narratives, or the mystique of ancient cultures, these archaeologists sought

to establish systematic knowledge of specific archaeological sites through increasingly formalized and scientific archaeological practice, using a new set of methods and technologies to do so.

One such archaeologist was Robert Heizer, a professor at the University of California, Berkeley, who would investigate the La Venta site in the modern Mexican state of Tabasco from the mid-fifties through the early seventies. A career archaeologist, Heizer was raised in Nevada and trained in archaeology at UC Berkeley under the tutelage of Alfred Kroeber. Having long been fascinated by the archaeology of the American West, Heizer would pursue this interest in his graduate career while also receiving training as an ethnologist and writing a dissertation on aboriginal whaling. While the breadth of Heizer's academic training was similar to the culturally, temporally, and spatially dispersed interests of many early-twentieth-century anthropologists, Heizer's career coincided with a period of consolidation and professionalization within American archaeology. Unlike Stirling and his companions, whose work was conducted under the auspices of museums and scientific societies and regularly presented to a wide-ranging American reading public, Heizer's career reflected the increasing centrality of university departments and other intellectual institutions to the discipline's practices. His career offers a case study in the professionalization of American archaeology, revealing how the development of new archaeological techniques and positivist theories was closely connected to Cold War science, technology, and institutional development.

Following his appointment to the faculty at UC Berkeley in 1946, Heizer founded the University of California Archaeological Survey. Originally constituted as a center for the planning, execution, and dissemination of archaeological research on California and Nevada, the center would come to be known as the Archaeological Research Facility (ARF), and would support and publish work by archaeologists and others on sites around the world. The ARF, through the organization of excavations, the training of students, the hosting of professors concerned with methodological consolidation and experimentation, and the rapid dissemination of academic work, reflected a new and highly productive synergy between archaeological theory and practice.⁶

Over the course of his career, Heizer gained a reputation as a methodological innovator. As one of his archaeological assistants remembers, "Heizer's work on method generally was characterized by sensitivity to technological innovations and their applicability to archaeological problems. . . . Repeatedly, Heizer would come into the office with a new idea he had for dating, ecological interpretation, or whatever; it would not be many days later that someone would be working on the idea with sufficient technological and financial support to carry it out. Usually within a year it would be published."⁷ Heizer,

his collaborators, and his students were indeed prolific. During his time as head of the ARF, they would publish hundreds of articles ranging from field reports by first-year graduate students to remarkably innovative recommendations for archaeological analysis developed in conversation with geologists, physiologists, and corporate research and development scientists in the pages of the *Contributions of the University of California Archaeological Research Facility*. Published articles on projects in the Olmec region include “Sources of Rocks Used in Olmec Monuments”; “Technology and Geologic Sources of Obsidian From Cerro de las Mesas, Veracruz, Mexico, with Observations on Olmec Trade”; “Analysis of American Obsidians by X-Ray Fluorescence and Neutron Activation Analysis”; and “Magnetometer Survey of the La Venta Pyramid.”

Heizer’s ARF was a space characterized by collaboration, and these collaborative ties usually served to connect actors in archaeology and the “hard” sciences in the interest of appropriating cutting-edge technological applications to archaeological ends. As much is reflected in Heizer’s correspondence, fieldwork collaborations, and co-authored publications. Heizer corresponded with representatives of DuPont, NASA’s Jet Propulsion Laboratory, Petróleos Mexicanos (PEMEX), Shell, and many other institutions across the academic and industrial sciences. Writing with these men (for Heizer’s correspondents were almost always men), he envisioned new technological applications and methods that would offer both “absolute” data about the past and a new means of articulating a coherent program for archaeological research. As Fred Stross, one of Heizer’s scientific collaborators and a former employee of Shell Development argues in an issue of *Contributions* on the application of the physical sciences to archaeology, “The development of analytical instruments with vastly increased sensitivity, precision, and sample throughput, and of a strikingly powerful computer technology has become a great aid in establishing and testing elements of the fabric of history and, perhaps more significantly, of prehistory.”⁸ Stross’s commentary goes on to list mass spectrometry, X-ray fluorescence, neutron activation analysis, atomic spectroscopy, and a number of other Cold War technoscientific developments as promising new tools for archaeological analysis.

The communities constituted through these transdisciplinary exchanges are reminiscent of the scientific “trading zones” studied by Peter Galison. As he argues, new kinds of technoscientific challenges that emerged during World War II and in the postwar period—such as the development of radar—brought about unprecedented collaborations between scientists, engineers, and state and private actors from apparently incommensurable domains of knowledge and action. Through sustained processes of interaction and translation, these trading zones yielded new styles of work, new technological applications, and local languages to support transdisciplinary communication.⁹

These collaborations and their techno-utopian framing are emblematic of belief in the intellectual promise of technological innovation and were institutionalized in what Galison elsewhere terms “Big Science.” As he notes, scientific practice was dramatically transformed at late midcentury through the construction of enormous scientific laboratories and infrastructures across the United States, the increasingly blurry distinction between the practices of science and technological development, and the preponderance of collaborations between scientists and the Cold War military industrial complex.¹⁰ As he shows, the development of Big Science left many ambivalent; it offered unprecedented technological and financial resources for scientific research but also led to a loss of personal control over research agendas and made some scientists feel complicit with the dangerous, inhuman possibilities created by Cold War technological development. This fear of the reach and scale of Big Science would be echoed in broader social concerns, including contemporary countercultural movements and, as I argue later, in the claims of Michael Heizer and other land artists.

Bruce Trigger notes a similarly qualified fascination with science among Cold War archaeologists drawn from an “increasingly powerful and nationally oriented middle class” from “the central and western parts of the United States.” He argues that their experience of postwar America and their middle-class standing led these new archaeologists to “value what was technologically useful at the same time that they remained suspicious of pure science because of what they saw as its elitist tendencies.” This led them to experiment with a multitude of technological applications while tempering this experimentation with “a contempt for what was not practical.”¹¹

Heizer’s methodological innovation foreshadowed immanent changes to American archaeological practice brought about by these middle-class, practically minded archaeologists, changes that are most commonly discussed in relation to “processual” or “New” Archaeology. First articulated in the late 1950s, this theoretical movement would come to dominate the discipline in the 1960s and 1970s. As Alison Wiley describes, the New Archaeologists’ “central goal was to establish general laws of cultural process capable of explaining large-scale, long-term cultural dynamics.” These concerns often led to interdisciplinary collaborations similar to those of Heizer’s ARF. As she explains, the New Archaeologists were “committed to reframing claims about specific cultural events and forms of life . . . as explanatory hypotheses backed by more narrowly specified laws, some of them developed by archaeologists but many derived from other fields and concerned with non-cultural dimensions of human life.”¹² This archaeology of hypotheses and laws rejected a previous cultural-historical model that in the eyes of New Archaeologists merely chronicled historical events and cultural artifacts. Rather than attempting to explain specific cultures through minute attention

to history, intercultural diffusion, or individual practice, New Archaeologists drew upon the neo-evolutionisms and technological and environmental determinisms of Leslie White, Julian Steward, and others in an attempt to arrive at cultural and behavioral dynamics that undergirded societies across time and space. To do so, New Archaeologists turned to new methods and technologies like the computer as means of enhancing the observational powers of archaeology and facilitating the development of more “scientific” analyses. For the New Archaeologists, even more explicitly than for Heizer, collaborations with the hard sciences served as a form of “legitimacy exchange,” to use a term developed by Geoff Bowker in his analysis of cybernetic scientific collaborations, promoting an increased theoretical and institutional relevance for archaeology in the Cold War scientific context by leveraging the expertise of the “hard” and “universal” sciences to argue for the wide applicability of archaeological findings.¹³

Yet, as Trigger and others have argued, the revolutionary rhetoric of early statements of the New Archaeology often belied preexisting tendencies within the discipline toward quantification, technologization, and rationalization.¹⁴ Heizer’s work is a prime example. Some of Heizer’s recommendations for archaeological best practices would later be criticized by key proponents of the New Archaeology; one major figure labeled his recommendations “cookbook directives” for archaeological data gathering.¹⁵ However, Heizer’s efforts to formalize systematic institutional and methodological practices in American archaeology, and to facilitate meaningful collaborations between the cultural and “hard” sciences, foreshadow much of what was “new” about the New Archaeology. Heizer’s methodological experimentation and technoscientific collaborations illustrate how the New Archaeology might be more productively viewed as an elaboration of preexisting practices within the discipline and an expression of broader tendencies toward rationalization and interdisciplinarity in the postwar intellectual context.

In the section that follows, I show how this archaeological fascination with Cold War technoscience and the theoretical preoccupations it spawned led to new ways of studying archaeological sites. Through a discussion of Robert Heizer’s investigation of the pyramid at La Venta, I show how this emergent form of archaeological context creation demonstrated a modern belief in totality through technological documentation and an accompanying desire to eschew the uncomfortable political realities at the margins of Cold War Latin America.

The Alienated Archaeologist

Before Robert Heizer could begin to test new methods and technological applications at La Venta, he had first to face the very palpable

transformation of the Olmec region since archaeology had first arrived there. In a short account of their 1955 field season published in *National Geographic* magazine, Heizer and his archaeological collaborator Philip Drucker reflect on the changes that had occurred in this remote corner of southern Mexico since Stirling's early surveys in the 1940s:

When we approached La Venta itself, we found not the sleepy encampment of a few Indian families but a boom town of several hundred workers. Modern technology is closing in on La Venta. In 1955 the oil agency *Petróleos Mexicanos* had brought in a well near the island, opening a major field. Now we watched a road link to the national highway system being pushed right across the swamps. Bulldozers and trucks roared through woods where deer and ocelot once wandered at will. Juke boxes assaulted the air with tunes popular a year or two before in Mexico City.¹⁶

This wonder and worry at the sights and sounds of a modernizing Villa La Venta extended to a fear for the preservation of the archaeological site itself. Heizer would often complain about the impacts of oil and urban development in his talks and publications. At a 1967 conference, for instance, he lamented that “the Mexican government has not succeeded in protecting the La Venta archaeological zone,” citing inadequate financial resources and the development of PEMEX in the region as primary concerns. He also complained about the encroachment of the local population on the site, noting,

There are a number of dwellings and business establishments within the archaeological zone, new roads are being built, and the urban (if it can be so-called) encroachment on the site has already reached serious proportions. . . . By the end of another decade, if the encroachment by squatters progresses at the same rate as it has in the last ten years, it will be quite impossible for further archaeology to be carried out at the site.¹⁷

Heizer's pessimistic accounts blame a late, mismanaged modern development for the destruction of the archaeological zone.

These comments are indicative of a changing Mexico and a new relationship between Mexico and the United States, both of which had important consequences for American intellectual activity. Whereas Stirling and his predecessors cast themselves as explorers of an unknown wilderness, Heizer's La Venta had been transformed through the vernacular architectures of local residents and through the massive extractive infrastructures of PEMEX, constructions that reflected the region's growing connection to an increasingly centralized and powerful Mexican state and its associated development policies. More broadly, the Pan-American glow that surrounded American adventures in Mexico in the 1930s and 40s had faded, and Mexico was no longer America's friendly neighbor to the south. While the postwar and early Cold War periods had seen continued collaboration between

Mexican and American administrations and intellectuals in the interest of political cooperation and development, the 1960s saw relations between the United States and Mexico palpably strained. Central to this conflict was the resurgence of the left in Cold War Latin America, most notably with the success of the Cuban Revolution in 1959 and Mexico's recognition of the Castro regime. This was paired with increasingly vocal rejections of American influence and interventionism in Mexico and elsewhere in Latin America, reflecting a growing desire to assert Mexican governmental and intellectual independence.¹⁸

These trends in global politics played out in a more quotidian sense for Heizer, most notably during his return to La Venta in 1967 and 1968. The archaeologists found their rights to excavate continually challenged, as local officials questioned the authenticity of their documentation from Mexico's Instituto Nacional de Antropología e Historia and sought to impede the archaeologists' work through harassment and threats of violence and arrest. These challenges, not uncommon for American intellectuals working in the face of decreased access and growing political pressure at the time, reflected the now alienated position of the archaeologist to his site in the midst of contentious issues of ownership and heritage in an increasingly complicated postcolonial age.

An article on the 1968 excavations from a local newspaper offers another perspective on the local politics into which Heizer had entered. The newspaper's front-page headlines read "Gringos in Action!" and "Shameless Looting of Archaeological Jewels: The People Oppose the Removal of Idols" and are accompanied by a photo of Heizer's colleague John Graham gesturing angrily while holding a bottle of beer. The accompanying full-page article and photographs offer a sympathetic reading of the actions of local residents and the municipal government to put an end to decades of the easy removal of ancient materials by looters, the government, and American scientists. The article calls on residents to protest continued excavation and looting, noting that Olmec finds, whether looted or properly excavated, were inevitably taken away to Villahermosa, Mexico City, or the United States, undermining local attempts to promote tourism through the establishment of a local museum.¹⁹ While archaeologists would defend their scientific mode of investigation in the face of such unflattering comparison, for the residents of Villa la Venta, the implications of looting and archaeology were not very different, and the scientific promise of archaeological investigation offered little to a population seeking heritage revenues and political autonomy.

In the context of these tensions at La Venta and in Cold War Latin America more broadly, the methods and technologies of Cold War science became even more appealing. Promising the rapid collection and analysis of vast amounts of data, they could also facilitate a new kind of fieldwork and

allow archaeologists to avoid protracted dealings with the contemporary realities surrounding ancient sites. The embrace of new technologies and methods as a means of ensuring “objective” data gathering and avoiding local and national politics in Cold War Mexico can be seen in the development of technological applications for the study of one of La Venta’s most prominent features.

The Translation of La Venta

In May 1969, Frank Morrison of the UC Berkeley Department of Materials Science and Engineering; Jack Mego, an electronics technician; and C. W. Clelow, one of Heizer’s graduate students, returned to La Venta.²⁰ The men were there for an eighteen-day field trip to execute a complex plan devised by Heizer and his colleagues to conduct a magnetometer survey in search of buried monuments and structures.

The object of their investigation was the earthen pyramid, known as Complex C, that stands at the center of the La Venta site (fig. 2). The pyramid had for years been covered by a thick layer of vegetation and had received little attention during previous excavations, which were more concerned with recovering colossal statuary and determining the ceramic sequences of the site. The clearing of this vegetation and uncovering of the pyramid over the course of Heizer’s 1967 excavations had led to a slew of articles on the “New World’s Oldest Pyramid,” a “‘gelatin-mold’ pyramid” (or



FIGURE 2. Aerial view of the La Venta pyramid. Courtesy of the Archaeological Research Facility (ARF), University of California, Berkeley.

a “conoidal frustum” in the archaeologists’ terms) whose round, undulating volume was both formally and temporally distinct from Mesoamerica’s most famous structures, and whose eroded earthen architecture resonated with the forms and fixations of the emergent land art movement.²¹

Heizer had returned to thoroughly document the pyramid at the beginning of 1968. This was accomplished through the use of two ubiquitous archaeological techniques, geophysical survey and aerial photography, as part of an effort to develop an accurate site map for La Venta.²² In his notes and field reports, Heizer exhaustively describes the means by which his crew surveyed the pyramid. Using a plane table and a brass triangulation point established by PEMEX on the pyramid’s summit, Heizer’s crew set in stakes down the pyramid’s slopes to collect and verify detailed measurements of the structure.²³ This already difficult task was made harder by strong *norte* winds, but also by Heizer’s continued conflicts with the local population of Villa La Venta. As Heizer and his colleagues note in their report on the season in *Contributions*,

Our mapping was unduly complicated by the additional uncooperative attitude of some of the local people. Strips of bright orange cloth used to make our baseline reference stakes disappeared nightly and appeared the next day as hatbands worn by sightseers. Reference stakes were uprooted with monotonous regularity, and contour stakes were daily pulled out and pitched into the deep grass at the base of the pyramid. In retrospect, it seems that we cut and drove as many stakes as were used to survey the Central Pacific Railroad.²⁴

Much easier was the second of Heizer’s approaches to surveying the pyramid. Toward the end of the six-week excavation in January and February of 1968, Heizer and his crew spent part of a day on a PEMEX helicopter photographing the site from above. For Heizer, the helicopter was the answer to the perceptual, material, and political challenges of working on the ground at the site, resolving many of the frustrations and uncertainties that remained after weeks of excavation and surveying on the ground.²⁵ In addition to clarifying the shape of the rectangular earthen platform that supported the pyramid, the view from the sky also revealed the nature of a number of other topographical features in the area, substantially extending the boundaries of the area considered to be of archaeological interest.²⁶

The 1969 magnetometer survey was the next step in this attempt to study the La Venta pyramid. While Heizer was unable to accompany the field crew that conducted the magnetometer survey at La Venta three months after his aerial survey, the project was the product of extensive planning at Berkeley. While preparations for earlier excavations at La Venta had involved securing visas and permissions, acquiring supplies, and

planning travel, the magnetometer survey was premised upon processes of modeling and the configuration of electronic systems new to archaeology.

Prior to their return to La Venta, the scientists had to develop a computer model to predict how buried monuments might manifest in their magnetic readings as well as a circuit of scientific instruments capable of sensing these predicted variations in the pyramid's magnetic field.²⁷ To assemble this technological circuit, they turned to the latest products of Hewlett-Packard and one of the first major Silicon Valley tech companies and developer of many Cold War military technologies, Varian Associates. The instrumental circuit used to complete the survey in May of 1969 actually comprised two magnetometers, each with their own coupler, connected to a Hewlett-Packard counter, a power supply, and a gasoline generator (fig. 3). With one magnetometer serving as a baseline reading of the "regular" magnetic field of the pyramid, the other magnetometer and its 600-foot cord were dragged up and down the pyramid in search of variations and anomalies. The data from these two readings, fed through the couplers to yield an oscillating ratio on the Hewlett-Packard monitor, offered a means of charting a fluctuating energetic field otherwise invisible to the scientists.²⁸



FIGURE 3. The experimental circuit of the La Venta magnetometer survey. Courtesy of the ARF, University of California, Berkeley.

The magnetometers, and their ability to sense the invisible, promised the technological eradication of the site's materiality, or at least its thorough and easy conversion into data without the time, expense, labor, and discomfort of extensive excavation. As Drucker, incredulous at the magnetometer's

sensory capabilities, asked in a letter to Heizer, “Can they really peek into the pyramid with that thing? When they sensitize it enough so that one can trace out structures without putting a shovel in the ground, I will believe that archaeology is here to stay.”²⁹

Much of this excitement had to do with commonly discussed scientific processes of abstraction, which promise the easy translation and movement of information gleaned from scientific objects.³⁰ But another part of the impulse to develop this suite of dematerializing methods would seem to have something to do with the practicalities of fieldwork and the contemporary conditions surrounding the site itself. Considering the site’s sure doom in the face of modern development, methods that could quickly document and digitize aspects of the site seemed vital. This possibility became only more attractive as Mexico was thrown into political conflicts alarming to American academics and travelers in the late 1960s. In addition to Heizer’s constant frustration with the local population and their claims to the La Venta site, 1968 saw Mexico and the world racked by a series of youth uprisings that underlined severe discontent with the current political order. In Mexico City, this unrest ended with the Tlatelolco Massacre on the eve of the 1968 Olympics. The massacre was the culmination of months of antagonism between the student movement and the administration of Gustavo Díaz Ordaz, and left hundreds dead at the hands of government forces. These political events were so troubling that Heizer suspended work at La Venta, citing youth unrest in Mexico City, the challenges to scientific practice at La Venta, as well as concurrent protests against Cold War politics and technoscientific practice in the United States.³¹

The magnetometer and similar technological applications—though born out of military industrial technologies of coercion and control—in fact facilitated a kind of archaeological retreat from Mexico, allowing for the rapid and noninvasive collection of large amounts of data that could be stored and analyzed from more comfortable contexts. Following the 1969 survey, the readings gleaned from the magnetometers were taken back to Berkeley, where they were analyzed and translated into a number of forms, including a color-coded topographic map of the pyramid and a digital database.³² In the field report on the survey published in *Contributions*, the color-coded map and digital drawings are complemented by contour drawings, an example of the field method for marking individual readings, and graphs that compare the outputs of various computer models. The authors debate the merits of these various visualizations as aids to interpretation. For instance, they note that “the color shading is likely to place undesirable emphasis on minor features” and that certain colors drew the eye in deceptive or unhelpful ways, whereas the digital visualizations were made less useful due to

imperfect assumptions in the research design process and the expense of computer time to perform exhaustive corrections.³³

In addition to the challenge of working with new technologies and analyzing and visualizing new kinds of data, interpretation was further complicated by the specificities and variations of the site itself. In spite of the results of earlier soil sampling, the scientists discovered that the soil and clay of the pyramid were susceptible to magnetic currents, a fact that cast a kind of magnetic cloud over the pyramid, making it difficult to sense more intense variations that might be caused by buried monuments or structures. Additionally, the scientists' work continued to be complicated by ongoing contemporary life at La Venta—"concrete blocks with imbedded iron bolts" placed atop the pyramid and "roofing metal, and probably a host of other iron objects" from the "encroaching houses" meant that anomalies had to be parsed temporally as well as by their relative intensity.³⁴ And these are only some of the in situ challenges that preceded later reflection on the part of the scientists on the "practical limit of complexity in interpretational models" they were able to apply to this data in Berkeley.³⁵

Yet despite these visual, material, and conceptual ambiguities, the scientists did identify an object of interest over the course of their analysis. This conversation centered on an anomaly located near the top of the pyramid. Through a series of "trial and error fitting procedures" using computer models of basalt slabs of various sizes, the scientists hypothesized that there was a walled structure set on a basalt slab beginning one to two meters below the pyramid's surface.

While recent excavations have found nothing where Heizer and his collaborators suspected a buried structure, more important for my purposes here is the fact that Heizer and his collaborators continued to promote the two-sensor difference magnetometer as an important tool for archaeological research. In the issue of *Contributions* on the application of the physical sciences to archaeology, Morrison cited the survey to argue that "high-sensitivity instruments can be used with spectacular success" in archaeological research.³⁶ The magnetometer, along with other technologies of the atomic age, would facilitate the collection of reliable knowledge from archaeological sites around the world.

Heizer's technoscientific methods facilitated a retreat from the complicated materiality of the La Venta site, as well as from the politically fraught and distressingly anachronistic terrain of Cold War Latin America. While the subject of much critique in recent archaeology, this disconnection from the site was framed as a modern triumph; technological methods and evolving theory would allow for the accumulation and synthesis of stable, actionable information from ancient sites—a form of modern monumentality that dovetails with the techno-utopian logics at work in Cold War Big Science more broadly.

In what follows I trace another recruitment of the documentary and transformative powers of technology and the interdisciplinary, collaborative workflows of the Cold War in an unlikely context—the land art movement of late midcentury. Tracing the adoption of methods from Robert Heizer’s technoscientific archaeology in his son’s artistic practice, I argue for a reassessment of land art’s origins and claims, in particular of the movement’s relation to broader practices of technoscience, counterculture, and generational rupture in the Cold War. As I show, attention to the technologies and collaborations that allow for the creation of monumental earthworks reveals critical continuities between this artistic movement and the Cold War epistemological context it claimed to escape.

Back to the Land

In the late 1960s a series of popular publications introduced readers to a new movement in the art world. Illustrated with dizzying aerial photography from remote locations of the United States, these stories documented the massive works of the new “land artists.” One of the first of these stories centered on a series of trenches and holes carved out of the Nevada desert. Documented through yawning aerial photographs in the pages of *Life* magazine, *Nine Nevada Depressions* was one of Michael Heizer’s first major works and typified the fascinations with scale, landscape, minimalist forms, and the American West that would come to characterize his work and American land art more generally. The work consisted of nine sculptural interventions over a 520-mile swath of the Black Rock Desert, including pieces comprising meandering trenches, wooden planks and troughs set into the earth, and a simple “backfill” made up of the mound created through the movement of one ton of earth. *Nine Nevada Depressions*’ remote location and physical enormity articulated new conceptual, spatial, and logistical parameters for art. As one critic noted, the far-flung locations and massive scale of works like *Nine Nevada Depressions* would require a “*National Geographic* for aesthetes” to present works that violated many of the institutional and commercial conventions of the art world in denying easy viewing, exchange, display, or reproduction.³⁷ Heizer’s early experiments in the deserts of the West would inspire a number of other American artists, who would go on to create similar minimalist structures at massive scale in remote landscapes.³⁸

The fascination with these substantial structures in popular media belied the serious impact that these constructions had on thinking and practice in the 1960s art world. Common art historical accounts of land art’s beginnings locate the movement’s origins in the minimalist movement that preceded it, while minimalism itself is frequently discussed as a reaction to the

abstract expressionism of midcentury America. Through deceptively simple structures in geometric forms, minimalist artists like Donald Judd, Robert Morris, and Sol LeWitt had challenged reigning beliefs in the autonomy of the art object and artistic “progress” and instead instituted a kind of “contextual thinking” that insisted upon the importance of the object’s location at the nexus of materials, time, space, institutions, and the viewer’s own phenomenological experience.³⁹ The blunt “simplicity” of minimalist artworks was seen as a means of calling the viewer’s attention to her own perception and to the changing contexts in which art was perceived, displayed, and consumed. As Pamela Lee argues, with minimalism this “staging of the object as a temporal unfolding violates a reading of the work of art as static, as ontologically secure, and as either genre or medium specific,” all of which were assumptions central to modernist conceptions of practice and progress in the arts.⁴⁰

These critical impulses were internalized by the nascent land art movement. Moving beyond minimalism’s experiential reconfiguration of art’s usual institutional contexts, land art attempted to leave these spaces entirely, exploring deserts, mountains, and other landscapes in order to insist upon the importance of the site as both context for and product of artistic interventions. As Miwon Kwon notes, through this move to the landscape, “the uncontaminated and pure idealist space of dominant modernisms was radically displaced by the materiality of the natural landscape.”⁴¹

The varieties of experimental practice these impulses inspired are reflected in the works included in the 1968 exhibition *Earth Works* at the Dwan Gallery in New York (figs. 4 and 5). The show was organized by Virginia Dwan, a gallerist and early supporter of American land artists including Heizer, and Robert Smithson, perhaps the most widely recognized of this group today. The exhibition marked an early moment in the constitution of land art as a category of contemporary art. While the show was hosted within a commercial gallery in an urban setting, the works included all shared common interests in the earth as object and material and variously incorporated or referenced spaces far outside the gallery. As Virginia Dwan has recently recounted,

Claes Oldenburg made a work consisting of a Plexiglass box filled with earth and earthworms, and [Robert] Morris installed a mound of dirt, oil, and wire on the gallery floor. De Maria made a twenty-foot painting that referenced the earth and the machinery used in it. Dennis Oppenheim, Stephen J. Kaltenbach, and Oldenburg developed proposals or built models for larger works to be realized on land, while others used photographic documentation to illustrate works they had already executed.⁴²

Michael Heizer was one of this last group. His contribution to the show offered dramatic documentation of *Dissipate 2*, one of his *Nine Nevada*

Depressions. A six-foot tall enlarged aerial photograph of the scatter of trenches in the dried lake bed was stretched across a light box and hung in Dwan's gallery. The piece constituted, for Dwan, "a good attempt at conveying the grand scale of this work," offering an indexical path to the desert materials that could not be encompassed by the gallery setting and anticipating the critical role of photographic documentation in disseminating land art to wider publics.⁴³

FIGURE 4. *Earth Works* exhibition announcement, 1968. Dwan Gallery Publications and Ephemera, Getty Research Institute, Los Angeles (2012.M.37). © Dwan Gallery.

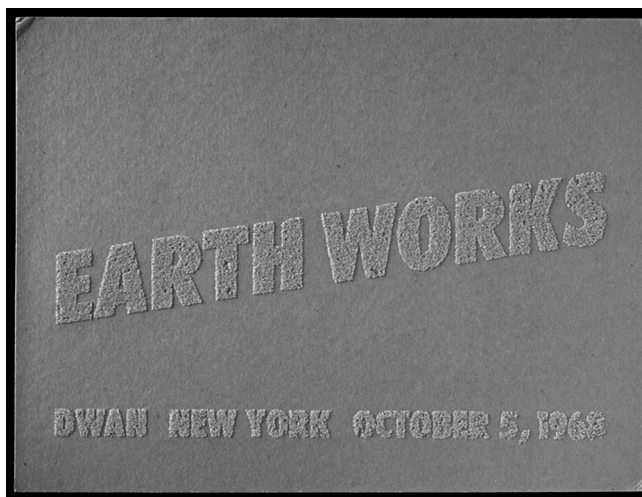


FIGURE 5. Installation view of *Earth Works* at the Dwan Gallery, featuring Robert Morris's *Earthwork* aka *Untitled (Dirt)* in the foreground. Dwan Gallery Records, Archives of American Art, Smithsonian Institution, Washington, DC. © 2014 Robert Morris/Artists Rights Society (ARS), New York.



For Heizer and the other land artists, the earth and materials like stone, soil, sand, and clay constituted not only evocative grounds for the elaboration of objects but also natural and metaphysical forces that evaded the controlled grasp of the modern imagination. As Smithson writes in an evocative reflection on the earth, history, and artistic practice:

The strata of the Earth is a jumbled museum. Embedded in the sediment is a text that contains limits and boundaries which evade the rational order and social structures which confine art. In order to read the rocks we must become conscious of geologic time, and of the layers of prehistoric material that is entombed in the Earth's crust. When one scans the ruined sites of pre-history one sees a heap of wrecked maps that upset our present art historical limits.⁴⁴

As Smithson's enigmatic prose suggests, for him and artists like Heizer, the turn to the earth as material, site, and subject of art spoke to longue-durée histories and geological eternities that upended confident, modernist relations to art and materials, amounting to a critique of the art world of their time but more importantly of wider modern discourses of progress, rationality, and technological control. While this fascination with the longue-durée processes latent in such materials has often been characterized as geological or archaeological, land artists engaged these materials to argue for the fundamental limitation of human knowledge, a perspective powerfully at odds with the claims of Cold War science outlined earlier.

Michael Heizer is commonly credited with developing the union of minimalism, an awareness of the American frontier, and an investment in primary materials that is so characteristic of American land art. Born in 1944, Heizer's childhood was full of travel—years spent living in Mexico City and Paris, summers on Lake Tahoe, and visits to his father's archaeological excavations in California and Nevada, exposures that would greatly facilitate his later artistic experiments in the Western deserts and his engagement with ancient American cultures. Heizer would also accompany his father and Howell Williams, a geologist and one of Robert's most frequent scientific collaborators, to Peru when he was nineteen. After spending two years at the San Francisco Art Institute in the early sixties, he moved to New York, where his professional career began with the elaboration of a series of large minimalist geometric paintings.

Heizer's eventual rejection of the New York art world signaled the beginning of a variety of experiments on the Western frontier and the elaboration of his unique brand of land art, beginning with works like *Nine Nevada Depressions* (1968), his *Primitive Dye Paintings* (1969), and *Double Negative* (1969–70), and continuing through the present with the ongoing construction of *City* (1972–)—a mammoth earth and concrete compound in the Nevada desert. Common to all of these works are interests in the earth as

object and material and the reconfiguration of “empty” landscapes by creating monumental forms, whether such forms are constructed of concrete, dug as trenches, constituted of displaced matter, or marked on the earth with scattered dye or traces of the artist’s own movement.

While Heizer’s return to the West could be explained by annoyance with gallery scenes and the cost of making art in New York, his rejection of the East Coast art world was accompanied by a desire to move away from its reigning art historical paradigms, which he associated with a compromised modernism and American art’s enduring subjection to European aesthetics. However, while rejecting European aesthetics and art history, Heizer was not eager to embrace American modernity in its place. In addition to concerns with the Eurocentrism of American art, early land artists—in creating isolated, “noncommercial” art—sought to avoid what they saw as the widespread corruption of art through its increasing implication in the economies, politics, and epistemic cultures of the Cold War.⁴⁵ Smithson was quite explicit about these concerns. In a complaint about contemporary Western art he compares the practice of the artist’s studio to that of the Cold War scientist’s laboratory, stating that “like the refined ‘paints’ of the studio, the refined ‘metals’ of the laboratory exist within an ‘ideal system.’”⁴⁶ For Smithson, this artificial isolation of both the painter in his studio and the modern materials of the scientific laboratory denied the real dynamics of a chaotic world in favor of ideologically constituted sureties. The land artists then equated the political and epistemological crisis of the Cold War with Big Science and the very sort of knowledge afforded by the kinds of technological applications pioneered by scientists like Robert Heizer.

His son’s turn to creating monumental constructions in the empty landscapes of the West, though speaking to a sense of the eternal, was thoroughly dependent upon the political and epistemological crises of the 1960s. These concerns were not only professional but also personal. Late sixties fixations with crisis and apocalypse suffuse Heizer’s biography. From naming his cat Atomic to his choice of work sites in the shadow of military and nuclear facilities, Heizer plays with the Nevada desert as a site for simultaneously escaping from and commenting upon the “ethos of the bomb” manufactured by Cold War technoscience and consuming society at large; his work foreshadows the postnuclear landscape at the “end of civilization.”⁴⁷

Of course there were many young people who shared the land artists’ concerns with Cold War politics and the dangerous confidence in scientific knowledge at the time. As much was reflected in the 1969 publication of Theodore Roszak’s *The Making of a Counter Culture: Reflections on the Technocratic Society and Its Youthful Opposition*, a historian’s reflection on the youthful unrest then unfolding across the United States and the world. In the book, Roszak coins the term “counter culture” to gather a wide array of

youthful projects explicitly framed as reactions to the dominant social order—including Zen, hippie, beatnik, mystical, psychedelic, and New Leftist movements under a general rubric of youth discontent and critique. Roszak framed the counterculture as a reaction to what he labeled Cold War “technocracy,” which he defined as a “social form in which an industrial society reaches the peak of its organizational integration. It is the ideal men usually have in mind when they speak of modernizing, updating, rationalizing, planning.”⁴⁸ The technocracy, in addition to masking the hegemonic power of twentieth-century military-industrial capitalism, also had a deadening effect on human experience through bureaucratic and technological attempts to manage all aspects of human life.

For Roszak and many contemporary commentators, the conflict between the technocracy and its countercultural alternatives was a generational one. The repressed functionary and father was a primary foil for the countercultural child who sought to rekindle the “human” through experimental lifestyles. A central antagonism within the societal struggle between technocratic parents and countercultural youth centered around a conflict between scientific and “human” forms of knowledge and experience. Roszak believed that “to root out those distortive assumptions [of the technocracy], nothing less is required than the subversion of the scientific world view, with its entrenched commitment to an egocentric and cerebral mode of consciousness.”⁴⁹ The goal of students and other countercultural youth, then, was to variously invade or reject the institutions of the technocracy in the interest of fashioning alternatives to their parents’ ways of life. This was seen not merely as a lifestyle of personal preference but as vital to disrupting the inevitable, apocalyptic ends of the technocratic world.

Heizer’s work in the Nevada desert speaks directly to these concerns. The Western frontier serves simultaneously as an “empty” space far distant from contemporary political crisis and endowed with a sense of the eternal, but also as a landscape transformed by Cold War military development and thus as a prime site for the critique of the present. As Heizer has noted, the Nevada desert, simultaneously timeless and “high-tech,” has served as a location for contemplating both civilization’s beginnings and its foreseeable conclusion.⁵⁰

While the land artists’ retreat to the remote West was a unique gesture in the context of the late midcentury art world, Heizer and his peers were hardly alone in embracing these evocative “exteriors” to Cold War America. As Fred Turner has noted, the late sixties witnessed “the largest wave of communalization in American history,” as tens of thousands of countercultural communes were founded in remote corners of the United States.⁵¹ These communalists, like Heizer, escaped to the country’s “empty” landscapes to simultaneously break free of and comment upon the Cold War

present. Communalists drew upon both the architectures and symbols of the ancient past in efforts to escape dominant modern lifestyles and to develop strategies for “the rebuilding of a possible post-nuclear world,” efforts that resonate with Heizer’s engagement with the ancient cultures studied by his father.⁵² As with Heizer’s work, many of the communes treated Cold War politics tangentially, their efforts amounting to a critique of technocratic society at the level of consciousness and lifestyle as opposed to explicit politics. Accounting for many of the youth Roszak included in his formulation of the “counter culture,” these communalists were also escaping the technocratic worlds of their parents. While Heizer’s work drew important thematic inspiration from his father’s archaeological practice, the epistemological positioning of land art placed the movement at explicit odds with the knowledge claims of Cold War archaeology and similar technoscientific practices. To fully understand Michael Heizer’s desert monuments, we must then account for the very live possibilities of remote spaces as sites for youthful rebellion and experimentation at late midcentury and the concurrent critique of technoscientific knowledge elaborated by countercultural movements at the time. While the connections between land art and the broader politics of youthful and communal rebellion can only be sketched here, they offer a critical context for understanding the relations between the works of Michael and Robert Heizer, and for a thoroughly historicized understanding of land art’s movement “back to the land” more broadly.⁵³

Monuments for the End of the World

Resonant with these contemporary movements back to the land and widespread fears of Cold War apocalypse, Heizer’s works in the remote West sought to fill the vacuum created by the impending end of civilization with a transhistorical, Pan-American aesthetic, one that acknowledged the fragility of humanity through an engagement with the timelessly monumental. In one of the few extensive interviews Heizer has given, he reflects that his

sensibility was based on a feeling that we were coming close to the end of the world. The idea of living in the postnuclear age informed everything, the clock was ticking—Vietnam had threatened everybody and it was time to get to the point. I was determined to be a contributor to the development of American art, to not simply continue European art. . . . I was intentionally trying to develop an American art, and the only sources I felt were allowable were American; South American, Mesoamerican, or North American. That might mean Eskimos or Peruvians. I wanted to finish off the European impulse.⁵⁴

To generate a Pan-American response to the crisis of the sixties worlds of art and politics, Heizer turned to the works of what he calls “megalithic societies”—societies that elaborated massive, unified structures with authentic materials—for inspiration, a borrowing made easier by Heizer’s thorough exposure to ancient American art through his upbringing in Nevada and California and his father’s archaeological work.⁵⁵ While many artists have engaged the ancient American past, Heizer’s experience with these materials was sustained and his resources for their documentation and interpretation comparatively rich. He would frequently draw on his father’s experience as a critical archive in his attempts to synthesize a new American art. A 1984 catalog of Heizer’s work, for instance, includes almost as many images of ancient materials as of his own art, offering evocative collages of decontextualized ruins that include illustrations from the 1955 La Venta field report as well as many of his father’s photographs, including an aerial view of the La Venta pyramid from the PEMEX helicopter.⁵⁶

This turn to Pan-American monumentality is particularly explicit in Heizer’s largest, ongoing work, *City*.⁵⁷ Fenced off in remote Garden Valley, Nevada, Heizer envisions *City* as a series of interlocking “complexes”—mammoth earthen and concrete constructions inspired by the Mesoamerican past “arranged in a twenty-eight-acre, rectangular complex reminiscent of Aztec, Olmec, or Mayan temples built around a common ceremonial plaza.”⁵⁸ He describes *City* as an intensely managed experiential program; by denying the visitor the ability to effectively establish scalar relationships between the site and its surround through the placement of various complexes, he attempts to create an experience of absolute “size” as opposed to “scale,” relations to space and materials that he associates respectively with the “megalithic” and the modern.⁵⁹ Heizer uses these massive, concrete constructions as a means of constituting a total environment that exceeds common modes of experience and knowledge, where modern techniques of measurement, scale-making, and visual mastery are overwhelmed. *City* then eschews overt political critique in the interest of a more far-reaching phenomenological and ontological one, creating an alternative to the modern through the creation of a total monumental environment of the sort associated with “megalithic” societies.

However, to look at photographs and read descriptions of the making of works like *City* or *Levitated Mass*, one is struck less by the experience of size and the megalithic than by the massive infrastructural operations and technologies required to create the monumental (fig. 6). The location for the *City* was discovered by an airline pilot hired to survey enormous swathes of the Western states in search of a suitable location.⁶⁰ Photographs from Heizer’s construction sites are populated with heavy machinery including bulldozers, cranes, and dump trucks. Accounts of the elaboration of earthworks note the

importance of mapping, geological surveys, and other forms of scientific knowledge and scaled visualization. The corporation Heizer founded to manage the logistics of his constructions regularly collaborates with engineers, lawyers, contractors, geologists, and other experts.⁶¹ From this perspective, this work can be seen to be indebted to Robert Heizer's archaeology more for this collaborative, technoscientific practice than for any evocative image of the ancient American world, constituting its own kind of Cold War "trading zone" through the intensive connections it forges between a wide array of experts and knowledges. The resonance of this distributed artistic practice with wider scientific tendencies toward collaboration and technologization offers a broader context for our understanding of art's "deskilling" at late midcentury.⁶²



FIGURE 6. The transportation of the boulder for Heizer's *Levitated Mass* through the streets of Los Angeles. Courtesy of Elizabeth Daniels.

The technoscientific impulse at work in Heizer's methods was also identified by curator and early land art proponent, Sam Wagstaff. In a reflection on Michael Heizer's use of photography, Wagstaff praises Heizer's ability to use "the camera as a component part of his apparatus, in addition to and combined with his 'use' of drawing and painting, to chronicle fact rather than for interpretation."⁶³ Wagstaff's praise for Heizer's mastery of the documentary powers of photography, more often seen as a mundane

barrier to the creation of photographic “art,” lauds the artist’s embrace of the technology as a tool of artistic surveying and planning. This impulse is reflected in Heizer’s photographic studies for proposed projects and documentation of completed works, many of which constitute composite collages that implicitly endorse the power of additive photographic perspective to comprehensively document a given site. Used thus, the camera becomes one of a number of modern technologies for the documentation and transformation of the earth. Heizer, Wagstaff argues, finds “the camera useful as he finds dynamite or dump trucks useful.” The photo that documents “fact” can serve as the foundation for other action: “He may ‘use’ the photo to draw on or around, to demonstrate the what, how, where, how big of a projected idea—a piece of photographic verity surrounded by Sargentese pencil gesture, digits, grids, words, compass directions.”⁶⁴ The photograph then becomes one of numerous technologies of truth and control, which, once properly networked with one another through the artist’s command, offer a total vision of a given site and constitute the grounds for a calculated intervention. Through a language of command and mastery, Wagstaff alludes to the masculinity and hubris that undergird such a desire for total documentation, as well as its powerful resonance with contemporary processes of domination through technological practice. This practice reflects modern monumentality’s totalizing, technoscientific constitution of the site, and bears significant affinity to Robert Heizer’s multimodal documentation of La Venta through surveying, aerial photography, and magnetic sensing.

Wagstaff notes as much, attributing Michael Heizer’s ability to master the camera as a tool of objective documentation to Robert Heizer’s tutelage: “Having been his father’s camera boy on expeditions and digs as a youth, he soon learned to accept the no-nonsense documentary dispassion of this machine. He also learned to break through the barrier of the amateur’s snapshot and command the machine’s clarity and precision.” Wagstaff has no doubt that this use of the camera is for exclusively “objective” purposes, noting, “I knew Dr. Heizer and can imagine that uplift and charm were the last things he was looking for to louse up his learned reports.”⁶⁵

This use of the camera and the larger technological practice to which it contributed resonate with a wider reconceptualization of the earth in the 1960s. As James Nisbet has argued in an analysis of the ecological implications of early land art, “Earth was conceptualized during the late 1960s not only through a backward-looking turn to ‘the land’ in the form of experimental communes, but also through mechanically informed modes of experiencing the earth’s wholeness.”⁶⁶ The 1960s, Nisbet argues, witnessed the invention of the whole earth as an object to be depicted and controlled, through ecological discourses but also through satellite photography and other technologies

that claimed to capture the planet in its entirety. Land art's "understanding of earth as a material object," enabled in part by these technologies, was also connected to more technocratic attempts to "conceptualize [and control] life on the total planet earth."⁶⁷ While works like *City* would seek to disrupt modern understandings of site, space, and scale, their creation proceeds through these very concepts and their associated technologies.

In interviews, Heizer claims that this engagement with modern technologies is meant to upend them through their playful misapplication. His frequent use of concrete to construct pieces like *City*, for instance, subverts a modern technology to "ancient" ends, using a material closely associated with the construction of modern spaces and publics to restage scenes of megalithic monumentality. Admitting that technology "multiplies the potential" of art by affording increased size and accelerated production, Heizer's recommendation is then "to use technology and its devices in ways dissimilar to the industrial techniques for which they were intended."⁶⁸

However, while Heizer's stated relation to technology might be one of playfulness and skepticism, his attitude toward the monumental constructions that its multiplicative potential enables are very serious. Heizer revels in the enormity of his constructions, describing the dramatic size and weight of the art he is creating through precise accounts of the logistics of his operations and measurements of trenches and boulders.⁶⁹

In a reminiscence of watching the artist at work, Heizer's patron Robert Scull notes that "it was really a masculine kind of work"—the blasting away of mountains while "stripped to the waist," the use of heavy industrial machinery to transport giant boulders, the rugged ways of life that the desert demanded, and the massively scaled constructions and excavations that such technology and hubris allowed.⁷⁰ Heizer does not simply engage ancient American monumentality but seems to aspire to monumentality himself. The artist has stated as much, noting, "I thought I was eternal. I still do," an attitude that extends to his conception of the profound durability of many of his works.⁷¹ The implications of these tons of art become even more serious when considered in light of the atomic age. The desire to create eternal, total environments and the recruitment of Cold War technology to do so reveals this monumentality as a function of modern aspiration more than any ancient "megalithic" past, especially when considered in the context of broader efforts to develop massive scientific and military infrastructures and to house them in structures capable of surviving a possible nuclear apocalypse.⁷²

While Michael Heizer's debt to his father's archaeological practice, and land art's academically inspired archaism more broadly, have been characterized as thematic and formal appropriations, attention to the place of technoscientific practice in the works of Robert and Michael Heizer reveals

this debt to be more critically *methodological*. Land art appropriates not only archaeology's subject matter but also its fundamentally modern means of documenting and transforming sites.

Turner has noted a similarly surprising continuity between technoscientific practice and late midcentury "back to the land" movements more broadly, arguing that even as they claimed to reject the Cold War world, counterculturalists "embraced the collaborative social practices, the celebration of technology, and the cybernetic rhetoric of mainstream military-industrial-academic research." These critical continuities underline the impossibility for this youthful movement to "achieve a complete break with the society it aimed to change," the society of their technocratic forebears.⁷³ Instead of overcoming the technocracy their parents had created, these children redeployed its methods and technological tools in new settings, efforts that were unexpectedly productive but did not provide the radical exteriors to the Cold War world that counterculturalists initially envisioned.

Read in this light, the continuities between the methods of the Heizers give us purchase on the broader epistemological, political, and generational conditions of late midcentury. This episode of methodological kinship can help us consider how the binary oppositions through which the Cold War is so often narrated—repression and protest, control and liberation, technocracy and its countercultural critique, fathers and sons—are co-implicated and coproductive rather than successively enchained. Behind Cold War narratives of political, conceptual, and generational succession, we must also contend with the underexamined kinships that link and enable the poles of modernity. As Bruno Latour has argued, to succumb to a logic of revolutions or dualisms is to succumb to modernity and its modes of thought.⁷⁴ This literal instance of kinship, for example, historicizes and undermines land art's claim to a radical rupture with Cold War politics and science as much as it provincializes the positivist claims of technoscientific archaeology. Land art, read through Cold War technoscience and countercultures, is not a revolution so much as a creative redeployment of distinctly modern methods of context creation.

Monumentality's Historicity

The disjuncture between ancient and modern monumentality is made clearer when one compares a work like *City* to the constructions at La Venta studied by Robert Heizer. As Robert Heizer and other archaeologists of the Olmec have agreed, constructions like the La Venta pyramid were the products of one of the first civic programs in Mesoamerica. The structures of La Venta were (re)built over hundreds of years through the repeated

importation and arrangement of clay and stone by coordinated, hierarchical labor. If Olmec monuments would be timeless, it would only be through repeated processes of construction and the ceremonial making and marking of time. Unlike the creation of vacant monuments through a private, artistic corporation and the rapid powers of twentieth-century technology, Olmec monumentality mimicked and made centers of the social and symbolic world, premised upon a developing suite of Mesoamerican cosmological beliefs closely associated with the emergence of political hierarchy.⁷⁵ As these archaeological investigations demonstrate, monumentality is not an escape from the social into timelessness, but a means of making that intensifies social relations, an effect achieved as much through repeated collective practice as through its more apparent monumental results.

Seen in this light, the works of both Robert and Michael Heizer can be viewed as particularly acute manifestations of the technological resources and personal/political anxieties of the Cold War moment. Robert Heizer's appropriation of the technological applications and collaborative work flows of Cold War Big Science is echoed in his son's adoption of these same methods in the construction of his earthworks. An attention to land art's methodological debt to Cold War archaeological practice underlines the emergence of a uniquely modern form of monumentality across a variety of domains of knowledge and action at late midcentury. Rather than reconstituting Olmec modes of monumentality, Robert and Michael Heizer's projects expanded the reach of a modern mode of context creation at work in Cold War development projects, Big Science, positivist archaeology, and the "deskilled" art of the late midcentury. Despite their varied scale, locations, and discursive claims, these projects all shared a confidence in the documentary and transformative powers of modern technology and transdisciplinary practice, deploying these tools to articulate highly ambitious knowledge claims and material interventions. While these confident modern projects were haunted by anxieties—whether they concerned the apocalyptic futures of technoscientific development or discomfort at the unruly modernity at the margins of Cold War Latin America—this mode of context creation offered powerful techniques for reaffirming these men's confident relations to their sites. The appearance of these ways of knowing and doing across such disparate locations challenges the usual categories through which disciplinary histories are narrated as well as the binary, oppositional framing of Cold War political and generational discourses. These methodological affinities underline the need for analyses that bridge common domains of historical analysis in order to follow similar boundary-crossing kinships, both literal and methodological. Tracing these kinships can call attention to the wider historical *epistemes* that inform individual and

disciplinary practices and can critically witness evolving means of engaging the sites where knowledge and art making unfold.

Notes

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1. For extensive attention to the logistical operations, bureaucratic processes, expert knowledges, and public reactions that surrounded the creation of *Levitated Mass*, see *Levitated Mass: The Story of Michael Heizer's Monolithic Sculpture*, directed by Doug Pray (Los Angeles, 2013), DVD.
2. These efforts to connect contemporary and ancient art at the Los Angeles County Museum of Art (LACMA) include an ancient American art gallery with fixtures, cases, and other installation elements designed by contemporary artist Jorge Pardo. See Cecilia Klein, "In the Belly of the Beast: Cecilia F. Klein on Jorge Pardo's Exhibition Design at LACMA," *Artforum* (January 2009): 85–86, 89–90.
3. For examples of art historical accounts of the appropriation of the pre-Columbian in contemporary art, see, for example, Barbara Braun, *Pre-Columbian Art and the Post-Columbian World: Ancient American Sources of Modern Art* (New York, 2000); Jesse Lerner, *The Maya of Modernism: Art, Architecture, and Film* (Santa Fe, 2011); and Lucy Lippard, *Overlay: Contemporary Art and the Art of Prehistory* (New York, 1995). For a rich analysis of appropriations of the Olmec in late-midcentury public and land art, see Luis M. Castañeda, "Doubling Time," *Grey Room* 51, no. 2 (2014): 12–39.
4. Stefan Helmreich, *Alien Ocean: Anthropological Voyages in Microbial Seas* (Berkeley, 2009).
5. Alfonso Caso, "Definición y extensión del complejo 'Olmeca,'" in *Mayas y Olmecas, segunda reunión de mesa redonda* (Mexico City, 1942), 43–46. Many details of the *cultura madre* claim have since been disputed. For a useful summary of these debates see Christopher Pool, *Olmec Archaeology and Early Mesoamerica* (Cambridge, 2007), chap. 2. For an account of scientific activities surrounding these early excavations see Robert J. Kett, "Ornithologists in Olman: Epistemological Ecologies in the Field and the Museum," *Curator: The Museum Journal* 57, no. 2 (2014): 173–88.
6. Martin Baumhoff, "Obituary: Robert Heizer," *American Anthropologist* 82, no. 4 (1980): 843–46.
7. *Ibid.*, 845.
8. Fred Stross, "Introduction: The Application of the Physical Sciences to Archaeology," *Contributions of the University of California Archaeological Research Facility* no. 12 (1970): 1.

9. Peter Galison, *Image and Logic: A Material Culture of Microphysics* (Chicago, 1997), chap. 9.
10. Peter Galison, "The Many Faces of Big Science," in Peter Galison and Bruce Hevley, eds., *Big Science: The Growth of Large-Scale Research* (Stanford, 1992). Articles by Seidel, Galison, Hevly, and Krige in the same volume note that UC Berkeley and Northern California more generally were at the center of the development of Big Science. Robert Seidel, "The Origins of the Lawrence Berkeley Laboratory"; Peter Galison, Bruce Hevley, and Rebecca Lowen, "Controlling the Monster: Stanford and the Growth of Physics Research, 1935–1962."
11. Bruce Trigger, *A History of Archaeological Thought* (Cambridge, 1989), 313. Trigger's analysis draws on Patterson's social history of American archaeology. Thomas Patterson, "The Last Sixty Years: Toward a Social History of Americanist Archeology in the United States," *American Anthropologist* 88, no. 1 (1986): 7–26.
12. Alison Wylie, *Thinking from Things: Essays in the Philosophy of Archaeology* (Berkeley, 2002), 4.
13. Geoff Bowker, "How to Be Universal: Some Cybernetic Strategies, 1943–70," *Social Studies of Science* 23, no. 1 (1993): 107–27.
14. Trigger, *History of Archaeological Thought*; Wylie, *Thinking from Things*.
15. Lewis Binford quoted in Gavin Lucas, *Understanding the Archaeological Record* (Cambridge, 2012), 62.
16. Philip Drucker and Robert Heizer, "Gifts for the Jaguar God," *National Geographic Magazine* 110, no. 3 (September 1956): 371.
17. Robert Heizer, "New Observations on La Venta," in Elizabeth Benson, ed., *Dumbarton Oaks Conference on the Olmec* (Washington, DC, 1967), 12–13.
18. For useful overviews of the cultural politics of the Cold War in Latin America, see Jean Franco, *The Decline and Fall of the Lettered City: Latin America in the Cold War* (Cambridge, MA, 2002); Greg Grandin, *The Last Colonial Massacre: Latin America in the Cold War* (Chicago, 2004); Gilbert Joseph and Daniela Spenser, eds., *In from the Cold: Latin America's Encounter with the Cold War* (Durham, 2008).
19. "Descarado saqueo de joyas arqueológicas," *Camara* (February 10, 1968). Papers of Robert F. Heizer, National Anthropological Archives, Smithsonian Institution, Washington, DC.
20. Frank Morrison, William Clelow, and Robert Heizer, "Magnetometer Survey of the La Venta Pyramid," *Contributions of the University of California Archaeological Research Facility* no. 8 (1970): 1–21.
21. *Ibid.*, 1. More recently, archaeologists have argued that the pyramid was originally built in a fluted, stepped structure, bearing a closer resemblance to more common pyramidal forms in Mesoamerica. See John Graham and Mark Johnson, "The Great Mound of La Venta," *Contributions of the University of California Archaeological Research Facility* no. 41 (1979).
22. Susan Gillespie has discussed how difficult it has been to arrive at an "accurate" map of La Venta amid ongoing archaeological investigation, but more importantly amid changing archaeological theories and representational conventions. Susan Gillespie, "Archaeological Drawings as Re-presentations: The Maps of Complex A, La Venta, Mexico," *Latin American Antiquity* 22, no. 1 (2011): 3–36.
23. Robert Heizer, John Graham, and Lewis Napton, "The 1968 Excavations at La Venta," *Contributions of the University of California Archaeological Research Facility* no. 5 (1968): 127–54.
24. *Ibid.*, 132.

25. As Jason Weems argues, “Viewers of high-altitude images could perceive the structures of the natural and human worlds from the *outside*—a position that embodied a new exercise of knowledge and authority” for archaeology. Jason Weems, “‘Wings over the Andes’: Aerial Photography and the Dematerialization of Archaeology Circa 1931,” in Joanne Pillsbury, ed., *Past Presented: Archaeological Illustration and the Ancient Americas* (Washington, DC, 2012), 325. Aerial photography would also be important to the work of Michael Heizer. For an account of the role of aerial photographs in documenting and disseminating the work of land artists, see Tom Holert, “Land Art’s Multiple Sites,” in Philipp Kaiser and Miwon Kwon, eds., *Ends of the Earth: Land Art to 1974* (Munich, 2012).
26. Heizer, Graham, and Napton, “1968 Excavations,” 138.
27. Morrison, Clelow, and Heizer, “Magnetometer Survey,” 2.
28. Such a system—the “two-sensor difference magnetometer”—was quite new at the time of the La Venta survey, having first been tested in 1965 and first applied in an archaeological context in 1966. *Ibid.*, 3.
29. Philip Drucker to Robert Heizer, July 27, 1968. Papers of Robert F. Heizer, National Anthropological Archives.
30. For example, see Lorraine Daston and Peter Galison, *Objectivity* (Cambridge, MA, 2010), and Bruno Latour “Circulating Reference: Sampling Soil in the Amazon Forest,” in *Pandora’s Hope: Essays on the Reality of Science Studies* (Cambridge, MA, 1999).
31. Robert Heizer to Philip Drucker, October 7, 1968. Papers of Robert F. Heizer, National Anthropological Archives.
32. Morrison, Clelow, and Heizer, “Magnetometer Survey,” 8.
33. *Ibid.*, 8.
34. *Ibid.*, 9.
35. *Ibid.*, 11, 14.
36. Frank Morrison, “High-Sensitivity Magnetometers in Archaeological Exploration,” *Contributions of the University of California Archaeological Research Facility* no. 12 (1971): 11.
37. Dave Hickey quoted in Holert, “Land Art’s Multiple Sites,” 99.
38. As Suzaan Boettger notes, “Heizer’s familiarity—unique in this group [of early American land artists]—with the geography of arid environments of the Far West states allowed him to initiate experimentation with the construction of large-scale works of art on site.” American land art has come to be powerfully associated with the West, often at the expense of a richer understanding of the movement’s history. Early experiments by Robert Smithson, Claes Oldenburg, Walter de Maria, and others took place largely on the East Coast. Heizer would accompany Smithson, Nancy Holt, and de Maria on travels in the West before they undertook their own projects in the region. Suzaan Boettger, *Earthworks: Art and the Landscape of the Sixties* (Berkeley, 2002), 115.
39. Miwon Kwon, *One Place After Another: Site-Specific Art and Locational Identity* (Cambridge, MA, 2002), 13.
40. Pamela Lee, *Chronophobia: On Time in the Art of the 1960s* (Cambridge, MA, 2004), 51.
41. Kwon, *One Place*, 11.
42. Virginia Dwan, “Changing Boundaries,” in Kaiser and Kwon, *Ends of the Earth*, 94.
43. *Ibid.*, 94. While photography would prove crucial in the dissemination of land art, Heizer himself has become reluctant to offer documentation of his works in publications or gallery settings, instead insisting upon the importance of on-site experiences to understanding his work. I have chosen to respect this preference

- in this article and avoid the reproduction of photographs of Heizer's finished work. For an examination of the mediation of the work of Heizer and other land artists through photography, see Kaiser and Kwon, "Ends of the Earth and Back," in Kaiser and Kwon, *Ends of the Earth*.
44. Robert Smithson, "A Sedimentation of the Mind: Earth Projects," in Jack Flam, ed., *Robert Smithson: The Collected Writings* (1968; reprint, Berkeley, 1996), 110.
 45. See John J. Curley, *A Conspiracy of Images: Andy Warhol, Gerhard Richter, and the Art of the Cold War* (New Haven, 2014) for a rich account of the importance of art's entanglement with Cold War political struggles.
 46. Smithson, "A Sedimentation of the Mind," 106.
 47. Heizer quoted in Michael Kimmelman, "Art's Last, Lonely Cowboy," *New York Times Magazine*, February 6, 2005.
 48. Theodore Roszak, *The Making of a Counter Culture: Reflections on the Technocratic Society and Its Youthful Opposition* (Berkeley, 1969), 5.
 49. *Ibid.*, 50.
 50. Douglas McGill, *Michael Heizer: Effigy Tumuli: The Reemergence of Ancient Mound Building* (New York, 1990), 20.
 51. Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, The Whole Earth Network, and the Rise of Digital Utopianism* (Chicago, 2006), 32.
 52. Robert J. Kett and Anna Kryczka, eds., *Learning by Doing at the Farm: Craft, Science, and Counterculture in Modern California* (Chicago, 2014), 26.
 53. For further reflection on the connections between land art and the communalism of the late midcentury, see James Nisbet, *Ecologies, Environments, and Energy Systems in Art of the 1960s and 1970s* (Cambridge, MA, 2014).
 54. Julia Brown and Michael Heizer, "Interview," in Julia Brown, ed., *Sculpture in Reverse* (Los Angeles, 1984), 11.
 55. *Ibid.*, 34.
 56. Brown, *Sculpture in Reverse*.
 57. Another major work by Heizer, *Effigy Tumuli*, explicitly draws on ancient mound constructions of the Mississippian culture. See McGill, *Effigy Tumuli*.
 58. *Ibid.*, 19.
 59. Brown and Heizer, "Interview," and Kimmelman, "Art's Last Cowboy." And for an analysis of pre-Columbian phenomenologies of size, see Mary Weismantel, "Coming to Our Senses at Chavín de Huantar," in *Making Senses of the Past: Toward a Sensory Archaeology* (Carbondale, 2012).
 60. See the G. Robert Deiro Papers at the Center for Art and Environment at the Nevada Museum of Art, Reno. Deiro was a pilot hired by Heizer to locate a suitable site for *City*. He would later be hired to perform similar work for Walter de Maria.
 61. For descriptions of these logistics and their associated technological applications and expert collaborations, see correspondence with Heizer in Robert Scull Papers, Archives of American Art, Smithsonian Institution, Washington, DC, and Samuel Wagstaff Papers, Getty Research Institute, Los Angeles. For a documentary account of the processes involved in the creation of *Levitated Mass*, see the film *Levitated Mass*. See Germano Celant, ed., *Michael Heizer* (Milan, 1997) for extensive photographs of Heizer's construction processes.
 62. Deskilling has become a blanket term for referring to a number of changes that occurred to artistic practice in the postwar period, including a deemphasis on artisanal ability and a corresponding embrace of managerial studios characterized by distributed labor and industrial modes of manufacture. As many authors have shown, this shift in artistic production was bound up in simultaneous

- developments in consumer, industrial, and corporate cultures. My interest here is to illustrate how science, often discussed as an evocative imaginary or subject of critique for art in this period, in fact served as another resource for models of distributed, nonartisanal labor for newly networked artistic practices. See Benjamin Buchloh, *Neo-Avantgarde and Culture Industry* (Cambridge, MA, 2003); Caroline Jones, *Machine in the Studio: Constructing the Postwar American Artist* (Chicago, 1996); and John Roberts, *The Intangibilities of Form: Skill and Deskilling in Art After the Readymade* (New York, 2007).
63. Sam Wagstaff, "Michael Heizer's Use of Photography," in Brown, *Sculpture in Reverse*, 72.
 64. *Ibid.*, 73.
 65. *Ibid.*, 72.
 66. Nisbet, *Ecologies, Environments, Energy Systems*, 86.
 67. *Ibid.*, 68, 76.
 68. Brown and Heizer, "Interview," 42.
 69. See, for example, Heizer's correspondence in Scull Papers and Wagstaff Papers.
 70. Robert Scull Oral History, Archives of American Art, 43.
 71. Quoted in Kimmelman, "Art's Last, Lonely Cowboy."
 72. For example, see David Monteyne, *Fallout Shelter: Designing for Civil Defense in the Cold War* (Minneapolis, 2011).
 73. Turner, *Counterculture to Cyberculture*, 33.
 74. Bruno Latour, *We Have Never Been Modern* (Cambridge, MA, 1993). Latour argues that modernity is premised upon the false division of the world into bifurcated categories—nature and culture, human and nonhuman—and progressive understandings of time. Beneath these modern myths exists a hybrid world that violates the boundaries of modern domains, where science mixes with politics, technology with nature. These hybrids demand new forms of analysis and description.
 75. See Rebecca González-Lauck, "The Architectural Setting of Olmec Sculpture Clusters at La Venta, Tabasco," in Julia Guernsey, John E. Clark, and Barbara Arroyo, eds., *The Place of Stone Monuments: Context, Use, and Meaning in Mesoamerica's Preclassic Transition* (Washington, DC, 2010), and Ann Cyphers and Anna di Castro, "Early Olmec Architecture and Imagery," in William Fash and Leonardo López Luján, eds., *The Art of Urbanism: How Mesoamerican Kingdoms Represented Themselves in Architecture and Imagery* (Washington, DC, 2009).