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DESERT TESTING¹

by Alessandra Ponte

For this is the age of experimentation, and we have not yet learned to read its protocols.

Avital Ronell, 1995²

For Nietzsche, it is the experimental character of modern science that has caused the collapse of cathedrals, which, in turn, has been conducive to the ruin of moral systems founded on the faith in absolute, divine truths. In one of the first aphorisms of *The Gay Science*, Nietzsche points to the new, immense and paradoxical field of study opened up by the triumph of scientific atheism over the Christian faith, which will be the analysis of moral matters. According to Nietzsche, it would require whole generations of scholars to accumulate, sort and compare data, and to investigate the customs and passions of every age and people. To achieve this, it would be necessary to write histories of love and envy, avarice and cruelty. Comparative histories of laws and punishments, the moral influence of food, and a philosophy of “moral climates” should also be written. Experiments on collective life would have to be attempted, and a dialectic of matrimony and friendship developed. Having accomplished this colossal task, the integral essence of moral judgment could be set up. At this point, Nietzsche explains:

... the most insidious question of all would emerge in the foreground: whether science can furnish goals of action after it has

proved that it can take such goals away and annihilate them; and then experimentation would be in order that would allow every kind of heroism to find satisfaction — centuries of experimentation that may eclipse all the great projects and sacrifices of history to date. So far, science has not yet built its cyclopic buildings; but the time for that, too, will come.³

Nietzsche's second edition of *Gay Science*, published in 1887, is one of his most thorough attempts to reform the language of past metaphysics. As a philosopher, the reformer opposes science, and also as a philosopher, he opposes art. However, at the same time, he objects to past philosophy and the language associated with this past. Philosophy, as a discipline, must disappear; but philosophers, or thinkers, must remain. They must learn to talk in an unprecedented way, with novel words, by borrowing new forms of communication from that which has survived from past philosophy: science and art.⁴

In a recent essay titled “The Test Drive,” Avital Ronell has located in Nietzsche's *Gay Science* the starting point for an interpretation of the scientificity that dominates our technologically oriented world. This Nietzschean notion of scientificity would be capable of embracing “the qualities both of destructive and artistic modes of production ...”⁵ Nietzsche advanced the idea that both science and art repeatedly undergo a series of experiments, or tests. The primacy of the test is

¹ In this text I am using the terms «test» and «experiment» as interchangeable, even though the first pertains more precisely to the technological domain and the second to the scientific one. Historians of science, however, tend to agree about the fact that «all the issues that recent sociology of science has raised about experiment in science can be raised about testing in technology»: Donald Mackenzie, «From Kwajalein to Armageddon? Testing and the Social Construction of Missile Accuracy», David Gooding, Trevor Pinch, Simon Schaffer, eds., **The Uses of Experiment. Studies in the Natural Sciences** (Cambridge: Cambridge University Press, 1993, first edition, 1989), pp. 409–435.

² Avital Ronell, «The Test Drive», **Deconstruction is/in America. A New Sense of the Political**, Anselm Haverkamp, ed. (New York and London: New York University Press, 1995), pp. 200–220, p. 201.

³ Friedrich Nietzsche, **The Gay Science**, trans. Walter Kaufmann (New York: Vintage Books, 1974), p. 82.

⁴ Giorgio Colli, introduction to the Italian translation, F. Nietzsche, **La gaia scienza** (Milan: Adelphi Edizioni, 1979), pp. 6–7.

⁵ Avital Ronell (see note 2), p. 201.



1. Peter Goin, Orchard Site (The Hanford Nuclear Reservation)
2. Peter Goin, Collapsed Hangar Yucca Flat (The Nevada Test Site)

coextensive with the recognition of the modern experimental disposition.⁶ It is this particular disposition that can be detected in the fields of political theory, cybernetics, and artificial intelligence.⁷ Moreover, this trend also has an effect on language, truth, probability, and process.⁸ For Ronell, this is why “experimentation is a locus of tremendous ethical anxiety..., that travels way beyond good and evil.”⁹ The American desert provides an ideal locus to test the meaning of experimentation across the sciences and the arts. Attempts to conceptualize the topos, the logic, the aesthetics of spaces in our societies may also be interrogated so as to reinterpret how inscriptions (texts), circumstance, and happenstance connect with one another in a testing situation.¹⁰

Ethical Anxiety

The desert could also be used as a test site for the last few decades of critical theory, though here critical theory is as likely to come back with a blunted edge or a shattered perspective.

Rebecca Solnit, 1996¹¹

In his *Nuclear Landscapes* of 1991, Peter Goin presented a number of impressive photographs, portraying sites used by the United States to build and test atomic weapons: the Nevada Test Site, the Hanford Nuclear Reservation, and the Bikini and Eniwetok atolls. In Goin's career, the exploration of nuclear landscapes came after the completion of previous projects investigating the blending

⁶ Ibid., p. 201.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid., p. 202.

¹⁰ The experiment has been the subject of quite a number of studies published by historians of science in recent years. Their analyses tend to confirm the interpretations of philosophers about the issues raised by the test and the experiment. They describe the experiment as a way of «constructing knowledge» and point out the ever provisional nature of the results of the test. Here are some of the arguments: «... no single experiment, by itself, can resolve a scientific controversy, because it is always possible, in principle, to challenge elements of experimental procedure. When an experiment produces a controversial result, it is generally possible for other scientists to find fault with the experiment or the methodology, and thus dismiss the result as spurious. When an attempt is made to replicate an accepted experimental finding, negative results can be explained away on similar grounds.» Benjamin Sims, «Concrete Practices: Testing in an Earthquake-Engineering Laboratory,» *Social Studies of Science*, Vol. 29, n. 4, August 1999, pp. 483–518, p. 486. On the experiment, see also the seminal work of Bruno Latour, in particular Bruno Latour, Steve Woolgar, *Laboratory Life. The Construction of Scientific Fact* (Princeton: Princeton University Press, 1986). On the «geography of science» see David N. Livingstone, «The Spaces of Knowledge: Contribution towards a Historical Geography of Science,» *Society and Space*, Vol. 13, February 1995, pp. 5–34.

¹¹ Rebecca Solnit, «Scapeland,» in *Crimes and Splendors: The Desert Cantos of Richard Misrach*, Anne Wilkes Tucker, ed. (Boston and New York: Bulfinch Press/Little, Brown and Co. in association with the Museum of Fine Arts, Houston, 1996), pp. 37–58, p. 42.

of human artifacts in the landscape.¹² During 1977–78, the first series involved extensive traveling throughout Central America and revealed his overwhelming encounter with the ruins of Pre-Colombian architecture, especially the more mysterious sites not identified in archeological maps. This was followed by a survey of contemporary ruins in the American South; then by photographs of the abandoned Erie Canal in Buffalo, New York State, and of the overgrown Mesabi Iron Range in Minnesota. In 1984, Goin undertook a vast survey of the Mexican-American border, involving more than three years of field and darkroom work.¹³ The project, in the words of the author, “sought to reflect not just the geography of the border” but also to uncover “the social, economic, and political complexity created through the artificial division of a shared landscape.”¹⁴ It was also the catalyst that helped define the nuclear landscape project.

In 1984, Goin moved to Nevada and became fascinated with the awe-inspiring landscape of the radioactive test site. He was one of the first outsiders authorized to photograph what he designates as a landscape of fear. This site of invisible and uncontrollable danger echoed for Goin the enigma and magnificence of the Pre-Colombian ruins. He writes about the perilous site:

Subsistence craters, created by underground detonations, are everywhere. Is that slight depression a subsistence crater, or is it

*simply an earthen depression that I am interpreting as dangerous? Are the Mayan mounds an archeological site, or are they earthen mounds created by the forces of erosion?*¹⁵

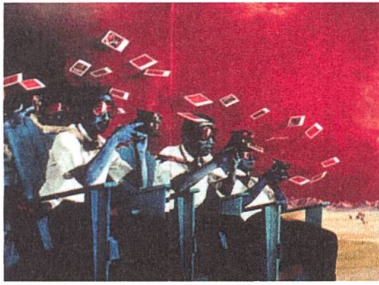
Goin could have asked himself even more questions: those ruins, do they not appear as landscapes of fear? Or, does their antiquity, the mystery still surrounding this civilization and its apocalyptic disappearance, inspire a different aesthetic judgement? And, if this is the case, how do Mayan ruins relate to nuclear ones? The photographer appears to teeter on the brink of admitting to the “beauty” he sees in both, but for ethical reasons he also draws back from the perception of the nuclear landscape as beautiful.

Also, in 1991, Patrick Nagatani published *Nuclear Enchantment*, a series of photographs begun in 1983. These carefully constructed “tableaux vivants” were produced initially in Los Angeles, in collaboration with the painter Andrée Tracey, and later in New Mexico with the help of students working as actors or set painters.¹⁶ Even before he moved to New Mexico, the location of the first atomic test, Nagatani’s work was already revolving around atomic themes; not too surprisingly, since he was born on August 19, 1945 – thirteen days after the first fission bomb was dropped on Hiroshima – of Japanese-American parents who had been interned in a camp during World War II. The Los Angeles period includes *Alamogordo Blues*, 1986, a tableau influenced by the more playful,

¹² Peter Goin, **Nuclear Landscapes** (Baltimore/London: John Hopkins University Press, 1991). Peter Goin, together with photographers from five countries, is also a member of the Atomic Photographers Guild founded in 1986 by the Canadian Robert Del Tredici. Peter Goin offers his own interpretation: «The photographs in **Nuclear Landscapes** were not taken to convey the sense of beauty found in these areas. In fact, celebrating the beauty of these landscape contradicts the subject and intent of the project. In contemporary landscape photography, there is a critical dialogue that centers on how photographers will address the role of beauty. How does a photographer convey content and still make the photograph appealing to the eye? Should a photograph appease and soothe the viewer, or challenge the viewer to think about the subject? Formal beauty can be a contradictory element in a photograph that comments critically on land use and land management. Many popular contemporary photographs do not attempt to reconcile aesthetic and content. This issue is central to the originality of this project.» The arguments of Goin in relation to the problem of the «beauty» of nuclear landscape photography are not far from those elaborated in Deborah Bright, «Of Mother Nature and Marlboro Men: An Inquiry into the Cultural Meanings of Landscape Photography», Richard Bolton ed., **The Contest of Meaning: Critical Histories of Photography** (New York: Lustrum Press, 1989), pp. 125–143.

¹³ Peter Goin, **Tracing the Line: A Photographic Survey of the Mexican-American Border**, limited edition artist book, 1987.

¹⁴ Peter Goin, «Prologue», **Nuclear Landscapes** (see note 12), pp. XVII–XXII, p. XVIII.



3. Patrick Nagatani, Andree Tracey, *Alamogordo Blues*, 1986

4. Patrick Nagatani, *Fat Man and Little Boy*, F-117 D's, 27th Tactical Fighter Wing, Cannon Air Force Base, Clovis, New Mexico, 1990

ironic approach of Tracey. It is a wry reference to a famous 1946 photograph of a group of scientists sitting out in beach chairs in the desert, protected only by sunglasses, watching an atomic bomb test. In the Nagatani/Tracey version, blue-skinned Japanese experts, shooting multiple Polaroids, are placed against a fantastic desert background painted in red. Japanese tourists, taking photos of each other next to the obelisk commemorating the first atomic test at the Trinity Site, eating sushi while contemplating rockets at the National Atomic Museum in Albuquerque, or holding miniature souvenir versions of the Nike-Hercules Missile Monument (St. Augustine Pass), also appear in a number of tableaux, created later in New Mexico and presented in *Nuclear Enchantment*.

Nagatani is one of the few artists who addresses the question of atomic tourism, a widespread phenomenon, the success of which is attested by The Bureau of Atomic Tourism, a website "dedicated to the promotion of tourist locations around the world that have either been the site of atomic explosions, display exhibits on the development

of atomic devices, or contain vehicles that were designed to deliver atomic weapons."¹⁷ Making fun of the conventional image of Japanese tourists, and blaming the victim, is hardly the only object of Nagatani's careful "atomic" cartography of New Mexico. Other actors animate Nagatani's landscapes: boy scouts, school children, and Native Americans. Hopi and Navajos are portrayed, for instance, playing a leisurely game of Scrabble, while the story of a nuclear waste site is being broadcast on the evening news. Or they are seen performing one of their ritual dances next to a missile range, or living in a village close to a contaminated site. Their kachinas hover above missiles and radioactive rivers. In Nagatani's New Mexico, traces of the nuclear age coexist with the state's multiple layers of history, and become especially poignant when they encounter the still preserved Native American culture. The mysterious ruins, left by the ancient inhabitants of its desert territory, produce a haunting impression in Nagatani's *F-117A Stealth Fighter*, Pueblo Bonito, Chaco Culture National Historical Park, New Mexico, 1990. These photo-

15 Ibid., p. XIX.

16 Photographs by Patrick Nagatani, essay by Eugenia Parry Janis, *Nuclear Enchantment* (Albuquerque: University of New Mexico Press, 1991).

17 See www.atomic-tourism.com : «Graded A» by *Entertainment Weekly*; «Selected as 1 of 20 Web Gems by *The Wall Street Journal*»; «Rated Four Stars by *The Seattle Times*.»

graphs capture the double “enchantment” of New Mexico as a state that embodies both the “threat” and “glory” of the atomic age and caters to the needs of generations of fugitives escaping from modernity and technology in their quest for the “primitive.” It is the encounter with the unspoiled culture and beliefs of the “other” that unshackles the new self in a purified nature.

Photographs by Goin and Nagatani were included in *Nuclear Matters*, an exhibition held at San Francisco’s Camerawork in 1991, curated by Timothy Druckrey and Marnie Gillett who sought to explore “the issues surrounding the nuclearization of culture,”¹⁸ a phenomenon that did not come to an end with the thawing of the Cold War and that was still “laden with an insidious sense of universal destruction.”¹⁹ The exhibition catalogue included photographic works of the Atomic Photographers Guild, together with works of Berlyn Brixner, who was assigned the job of filming the first atomic explosion at the (code name) Trinity Site, fifty miles from Alamogordo, New Mexico. Also exhibited were the five photographs that a newspaper and army reporter, Yoshito Matsuhige, took in the city of Hiroshima on August 6, 1945. These were the only photographs taken in the city the day the bomb exploded. For the curators of the exhibition, one of the main issues is how to address those troubling images: are they mere documents, or is it art that can be displayed in galleries or in museums? For Druckrey, however, Matsuhige’s images suggest that the “dimensions [of the event] were unimaginable – and hence almost un-imaginable,”²⁰ in allusion to Theodor Adorno’s famous remark that poetry after Auschwitz was impossible. For the curators, the challenge of photographs representing massive destruction leads to the notion of the un-repre-

sentable. Photography, inheritor of both science and the tradition of art, either romantic or realist, is called upon to represent the total annihilation of reality. This is certainly a paradox – the nihilism inherent in technological societies – that cannot be fathomed within the confines of common sense or pragmatic judgement. Thus, one must think about the controversial status of these photographs.

The events of 1945 – Trinity, Hiroshima, and Nagasaki – have been characterized in aesthetic appraisals. One observer, the *New York Times* reporter William Laurence, described what he saw at Trinity Site on Monday, July 16, 1945, at 5:30 AM this way:

And just at that instant there rose from the bowels of the earth a light not of this world, the light of many suns in one. It was a sunrise such as the world had never seen, a great green super-sun ... Up it went, a great ball of fire about a mile in diameter, changing colors as it kept shooting upward, from deep purple to orange, expanding, growing bigger, rising as it expanded, an elemental force freed from its bonds after being chained for billions of years. For a fleeting instant the color was unearthly green, such as one sees only in the corona of the sun during a total eclipse. It was as though the earth had opened and the skies had split. One felt as though one were present at the moment of creation when God said: ‘Let there be light.’²¹

In its references to the sun, a rainbow of interstellar colors, the eclipse, the opening earth, the splitting skies, and finally the biblical “Fiat lux!”, combining natural and supernatural entities, the description borrows from the vocabulary of art, from baroque epiphanies to sublime and romantic commentaries. The sublime, as it were, is a rhetorical trope that was glossed by the pseudo-Longinus. It referred to what was called the elevated

¹⁸ Timothy Druckrey, Marnie Gillett, eds., *Nuclear Matters*, exh. cat. (San Francisco: Camerawork, 1991), Preface, p. 3.

¹⁹ Ibid.

²⁰ Ibid., p. 6.

²¹ William L. Lawrence, *Dawn Over Zero. The Story of the Atomic Bomb* (New York: Alfred A. Knopf, 1946), pp. 10–11.



5.,6. Filmstills, from: *Trinity and beyond: The Atomic Bomb Movie*. Directed by Peter Kuran, Visual Concept Entertainment, 1995

style of speech. During the eighteenth century, first Edmund Burke and then Emmanuel Kant transmuted this style of speech into an aesthetic notion. While classical beauty is characterized by what is measurable through harmony and proportion, the sublime refers to the immeasurable, to the limitless, to the unimaginable. Doubtless, observers of Trinity did not know much about aesthetics, but, nonetheless, their vocabulary conveys that kind of meaning. For both Burke and Kant, “beauty” was supposed to induce pleasure in the beholder, whereas the “sublime” indicated the particular representation of what elicits pain and fear.

In 1990, Richard Misrach, together with his wife Myriam Misrach, published *Bravo 20: The Bombing of the American West*. This collection of spectacular photographs depicts the landscape “sculpted” by decades of test bombing by the U.S. Navy, which have devastated vast desert areas of Nevada.²²

The introduction describes the progressive appropriation of Nevada as proving ground by the Navy, Army, and Air Force and the extreme harm exacted on the environment and its inhabitants by

this usurpation, which actually began in 1942. It also recounts the struggle of citizens against the military to force withdrawal of the Navy from the Bravo 20 bombing range. At the end of the book, Misrach presents his project for a 64-square-mile site that would have been America’s first environmental memorial.²³

In 1996, photographs of Bravo 20 were included in *Crimes and Splendors: The Desert Cantos of Richard Misrach*, an exhibition presenting this artist’s epic series, undertaken from 1979 on. It presented stunning images of death, where the themes of tourism, ecological disaster, and technological feat blend in the American desert.²⁴ In *Crimes and Splendors*, a book based on the exhibition, four Cantos are devoted to military abuses of desert areas in the United States. Canto VI, “The Pit,” discloses awesome images of pits for dead animals in Nevada, where locals deposit dead livestock, often for “unknown” reasons. Canto IX, “The Secret (Project W-47),” reveals desolate views of the abandoned Wendover Air Base in Utah, theater of still classified stages in the development of atomic bombs. Canto X, “The Test Site,” shows

²² Richard Misrach, with Myriam Weisang Misrach, *Bravo 20: the Bombing of the American West* (Baltimore: Johns Hopkins University Press, 1990).

²³ On this project see Andrew Ross, «How to Occupy Your Own Country,» *Documents*, Fall/Winter, 1992, pp. 12–19, and in the same issue Miwon Kwon, «The Pleasure of Nature In Ruins,» pp. 20–26.

²⁴ Anne Wilkes Tucker, ed., *Crimes and Splendors: The Desert Cantos of Richard Misrach* (see note 11).

photographs of the Nuclear Test Site (Nevada), of Snow Canyon (Utah), an area exposed to fallout from early atomic testing, and of Rocky Flat Mesa (Colorado), a site heavily contaminated by a nuclear weapons plant. Canto XI, "The Playboys," frames the bullet-ridden pages of two issues of *Playboy Magazine* used for target practice and found near the nuclear test site, a pointed commentary on the contradictions of American culture. As a prologue to the nineteen cantos, Misrach inserts views of desert sites in Egypt and Israel, matching them with disturbingly similar views taken in Nevada and California. Most of the photographs, for example the first pair, Swimmers, Pyramid Lake Indian Reservation, Nevada, 1987 and *White Man Contemplating Pyramids*, Egypt, 1989, seem to echo a tradition typical of American landscape photography, that of comparing geological formations in the New World with celebrated monuments in the Old. Such comparison could imply the possibility of construing features of the American desert in terms of biblical associations. Nevertheless, other photographs – especially the last two, *Pyramid and Sphinx, Las Vegas, Nevada*, 1994 and *Tennis Courts and Pyramids*, Giza, Egypt, 1989 – suggest perhaps a different, more complex interpretation. The suburban features that characterize the banality of both views evoke a shared cultural background, but, in this case, it is the American landscape that provides the clues for the interpretation of contemporary views of the biblical desert. In other words, Misrach's carefully organized sequence of photographs seems to describe a pervasive phenomenon: the "Americanization" of the landscape – in this case the desert – through the global expansion of the marketplace, which threatens to erase millenniums of cultural and religious associations. Where does Misrach stand in relation to the sites he photographed for two decades? In his exten-

sive introduction to *Bravo 20*, Misrach expresses conventional opinion, denouncing ecological and human catastrophes. It appears that his convictions would then align themselves with the documentary production of other "post-apocalyptic" photographers. But, as the film critic and novelist David Thomson has observed: "His pictures, I think, are more profound than the book's text."²⁵ This opinion seems to be shared by Rebecca Solnit. Addressing the issue of "beauty" in Misrach's opus, she writes:

In the present, it often seems that the Left would like to deny beauty as a motivating force altogether, to deny the power of form and embrace content alone – as though the two were separable. Beauty is profoundly undemocratic. In bodies it is especially the property of the young, some more than others – and as a quality of women it is enormously problematic, grounds for objectification, discrimination, and obsession, commonly called a myth and a trap; while exceptionally beautiful property itself – such as land and great works of art – is likely to be a privilege of the wealthy. Perhaps the Left equates beauty with evil. The Right follows Aquinas and endeavors to deny and suppress those beauties that tempt, the nonalignment of the ethical and the aesthetic.²⁶

Solnit hypothesizes that it may be the language that contemporary critics use in their discussion of beauty that makes beauty contrary or, at least, problematic. She writes of the degeneration of aesthetic language in the last century, recalling how the Eighteenth Century, the period that pervasively interrogated the aesthetic of the landscape in all its forms (in painting, poetry, garden design, scenic tourism), had introduced three distinct aesthetic categories to discuss what now is simply labeled beauty: the Beautiful, the Picturesque, and the Sublime. The Beautiful, explains Solnit, is best represented by peaceful and radiant, idealized and

²⁵ David Thomson, *In Nevada. The Land, the People, God, and Chance* (New York: Alfred A. Knopf, 1999), p.154.

²⁶ Rebecca Solnit, «Scapeland» (see note 11), p. 47.

²⁷ *Ibid.*, p. 48.



7. Richard Misrach, *Playboy #97 (Marlboro Country)*, 1990,
Canto XI: *The Playboys*, 1988–1991

8. Richard Misrach, *Tracks, Black Rock Desert, Nevada*, 1989,
Canto VIII: *The Event II* 1987

pastoral landscapes of antiquity, as in the paintings of Claude Lorrain. Such icons gave inspiration for many landscape gardens of the British aristocracy, with their green sloping lawns and placid rivers and lakes. The Sublime is the aesthetic of the terrifying, experienced from a distance. Solnit quotes Edmund Burke who wrote: “The passion caused by the great and sublime in nature is astonishment; and astonishment is the state of the soul, in which all its motions are suspended, with some degree of horror.”²⁷ In contrast, the Picturesque, according to Solnit “was the territory of the rough, the irregular, the idiosyncratic – [as illustrated by] Thomas Gainsborough’s ruined cottages ...”²⁸

A Dialectical Aesthetic.

The picturesque, far from being an inner movement of the mind, is based on real land; it precedes the mind in its material external existence.

Robert Smithson, 1973²⁹

In the eighteenth century, the Picturesque (*pittoresco* in Italian) was literally anything that was judged to be proper enough to be transposed into a picture, or a painting (*pittura*). To Solnit’s observations, perhaps, one should add the fact that the Picturesque emerged primarily as an aesthetic of decay. For an educated elite, it justified the visual enjoyment of objects previously excluded by the classical theory of representation. If the bright, the new, the whole, the symmetrical, the strong, the smooth pertained to the Beautiful, then the decayed, the worn, the aged, the dirty, the ragged, the unevenly lit, characterized the Picturesque. It may be said that the eighteenth century notion of picturesque things prefigured the Kantian perspective of “disinterested pleasure,” detaching the visual appearance of things from their existence in a socio-political context. This peculiar aspect of the Picturesque provoked, even amid its theorists, ethical angst. The artist Uvedale Price (1747–1829), for example, warned the enthusiastic owners of rural estates against the preservation of picturesque broken-down cottages in the villages,

²⁸ Ibid.

²⁹ Robert Smithson, «Frederick Law Olmsted and the Dialectical Landscape,» *Artforum*, February 1973. Re-published in Nancy Holt, ed., *The Writings of Robert Smithson* (New York: New York University Press, 1979), pp. 117–128, p.119.

reminding them that morality should take precedence over aesthetic pleasure. Reverend William Gilpin (1724–1804) admitted that industrious factory workers presented a more morally pleasing picture than idle, ragged peasants, adding nevertheless that the first were unsuitable for painting while the latter were eminently appropriate. The most radical critic of the Picturesque as a form of “immoral” aesthetic, came, however, from John Ruskin, writing during the Victorian period, almost eighty years after the introduction of the notion. In *Modern Painters*, Ruskin censured the Picturesque as “heartless”:

In a certain sense, the lower picturesque ideal is eminently a heartless one: the lover of it seems to go forth into the world in a temper as merciless as its rocks... The shattered window, opening into black and ghastly rents of wall, the foul rag or straw wisp stopping them, the dangerous roof, decrepit floor and stair, ragged misery or wasting age of the inhabitants — all these conduce each in due measure, to the fullness of his satisfaction. What is it to him that the old man has passed his seventy years in helpless darkness and untaught waste of soul? The old man has at last accomplished his destiny, and filled the corner of a sketch, where something of an unshapely nature was wanting.³⁰

Ruskin thus inaugurated a trend of critical thinking, which expanded from painting to photography and still survives today. But it must be recalled that the detached visual pleasure of the Picturesque did open the way to the abstraction of the modernist vision and offered a framework within which artists could begin thinking about the representation of the trivial, the shattered, the overlooked. Questioning Ruskin’s Victorian position, it may be possible to reject the idea of the Picturesque as an “immoral” aesthetic and rethink it as an aesthetic “beyond good and evil” that offers freedom to artists who operate in uncharted territories.

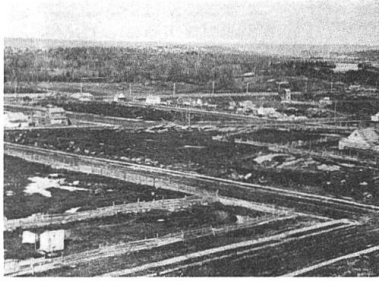
From this point of view, the resuscitation of the Picturesque by Robert Smithson in the nineteen sixties offered a novel perspective and an aesthetic that eluded the trap of moral judgement, both by undoing the Scholastic association of *pulchrum* and *honestum* and by overcoming the neoclassical linkage between ethics and aesthetics. Here is what Smithson wrote in his famous essay about Frederick Law Olmsted’s work at Central Park in New York City:

Inherent in the theories of Price and Gilpin, and in Olmsted’s response to them, is the beginning of a dialectic of the landscape. Burke’s notion of ‘beautiful’ and ‘sublime’ function as a **thesis** of smoothness, gentle curves, and delicacy of nature, and an **antithesis** of terror, solitude, and vastness of nature, both of which are rooted in the real world, rather than in the Hegelian Ideal. Price and Gilpin provide a **synthesis**, with their formulation of the ‘picturesque,’ which is on close examination related to chance and change in the material order of nature. The contradictions of the ‘picturesque’ depart from the static formalistic view of nature. The picturesque, far from being an inner movement of the mind, is based on real land; it precedes the mind in its material external existence. We cannot take a one-sided view of the landscape within this dialectic... As a result we are not hurled into the spiritualism of Thoreau[v]ian transcendentalism, or its present day offspring of ‘modernist formalism’ rooted in Kant, Hegel, and Fichte. Price, Gilpin, and Olmsted are forerunners of a dialectical materialism applied to the physical landscape. Dialectics of this type are a way of seeing things in a manifold of relations, not as isolated objects. Nature for the dialectician is indifferent to any formal ideal.³¹

The Picturesque is a synthesis of beautiful and sublime: it is a superior notion, inasmuch as it introduces chance and change in art, and it is based on concrete land, the actual physical landscape. Neither a projection of the mind, nor an ideal object of modernist formalism, it enables

³⁰ Quoted in: Wolfgang Kemp, «Images of Decay: Photography in the Picturesque Tradition,» *October*, n. 54, Fall 1990, pp. 103–133, pp. 106–107. The commentary on Price and Gilpin is also taken from this essay.

³¹ Robert Smithson, «Frederick Law Olmsted...» (see note 29), p. 119.



9. Anonymous, *Central Park*, 1885, looking northwest from Park Avenue possibly around 94th and 95th Street.

10. Robert Smithson and Robert Fiore, *Central Park*, 1972, construction site with graffiti, behind The Metropolitan Museum of Art.

the artwork to establish a dialectical relation with materials, with matter, with the real land.

Perhaps, to understand fully Smithson's fascination with Olmsted's parks, one needs to forget the recurrent narratives, recounting the construction of vast pastoral ranges and large swaths of grass in the heart of the metropolis, providing physical recreation and moral improvement to its inhabitants. While he remains remote from the landscape architect's social mission, Smithson also stays away from any kind of transcendental, romantic, or even ecological vision of the landscape. He envisions Central Park in terms of an engineering masterpiece, similar to the work of a herculean artist, able to compose with the land itself. He compares Central Park's feat to having: "an orchid garden in a still mill, or a factory where palm trees would be lit by the fire of blast furnaces."³² He is enchanted by the vision of an army of laborers, moving ten million horse-cart loads of earth, transforming a wasteland into a manmade landscape through a process of permanent change. This is why he celebrates – something unusual for him – the creation of a green space. As a rule, Smithson is suspicious of gardens; he dislikes their

being green and dank; he associates them with the kind of late modernist art he despises, such as, for instance, a perfect, metallic form set up amidst a befittingly trimmed, grassy swath. He dismisses especially any kind of sculpture garden, as sites of display unduly wet and quaint, or excessively snug and neat. Certainly, he would have disliked the most famous, even legendary one – the Abby Aldrich Rockefeller Sculpture Garden, designed by Philip Johnson, in the Museum of Modern Art, which opened in 1953.³³ Avoiding the dampness of the "sculpture garden," which for Smithson is nothing more than a "limbo of modernisms," the artist should move to the desert:

... Depreciation of aridity means that one would prefer to see art in a dewy green setting – say, the hills of Vermont, rather than the Painted Desert. Aristotle believed that heat combined with dryness resulted in fire: where else could this feeling take place than in a desert or in Malevich's head? 'No more "likenesses of reality," no idealistic images, nothing but a desert!' says Malevich in *The Non-Objective World*. Walter De Maria and Michael Heizer have actually worked in the Southwestern deserts. Says Heizer, in some scattered notes, 'Earth liners installed in Sierras, and down on desert floor in Carso-Reno area.' The desert is less

³² Ibid., p.118.

³³ Franz Schulze, **Philip Johnson. Life and Work** (New York: Alfred A. Knopf, 1994), pp. 208–209.

'nature' than a concept, a place that swallows up boundaries. When the artist goes to the desert he enriches his absence and burns off the water (paint) on his brain. The slush of the city evaporates from the artist's mind as he installs his art. Heizer's 'dry lakes' become mental maps that contain the vacancy of Thanatos. A consciousness of the desert operates between craving and satiety.³⁴

Smithson transports the artist toward the American desert, as a site of experimentation that frees him from the confines of the studio: "the snares of craft and the bondage of creativity..."³⁵ In urging the artist to leave the studio, Smithson is reacting against the "idealistic" relation with technology implied by objets d'art created by artists such as David Smith and Anthony Caro, who during the Fifties and Sixties in New York, had fervently embraced the industrial, modernist legacy, and had boldly proclaimed to be working as "steel welder" and as "laboratory technician."³⁶ According to Smithson, this had led to a fetishization of "steel and aluminum as a medium (painted or unpainted). Molded steel and cast aluminum are machine manufactured, and as result they bear the stamp of technological ideology."³⁷ Such late modernist artists considered steel as a technologically purified material, with industrial, specific properties, such as hardness and resistance to corrosion. In the United States, the birth of this formalist trend may be situated with the "Machine Art" exhibition of 1934, curated by Philip Johnson for the Museum of Modern Art, that displayed sculpturally abstract, flawlessly manufactured objects, including a motorboat propeller

and a circular saw.³⁸ Yet, for Smithson, the most important property of steel was precisely that it could rust. This happens when the fetishistic "steel sculpture" begins to oxidize, which is, for Smithson, "an interesting non-technological condition."³⁹ Accordingly, the artist must immerse the ideally formed, timeless "art object" into the flow of time, into the hardships of duration to explore the residues left behind by the industrial processes of matter's purification, as well as the degradation of its purified form when subjected to time and weather. Things then reveal their cracked surfaces, expose their "corroded moments": patina, disuse, waste, inactivity, entropy, ruin. For Smithson "burnt-out ore or slag-like rust is as basic and primary as the material smelted from it."⁴⁰

To abandon the studio and the city for the desert is not equivalent to a romantic return to nature. "Sadism," Smithson writes, "is the end product of nature, when it is based on the biomorphic order of rational creation."⁴¹ Nature can be cruel, even sadistic, and has no feelings; it is neither good nor bad: it is just as it is. The American deserts of the Sixties and the Seventies were the sites of relentless tests of nuclear devices, disintegrating matter at an enormous scale. Here, science and technology were stamping the most staggering marks on the land, and also stacking tremendous heaps of residues. Given the starting point outlined by Smithson, they became the privileged sites for the experimentation of De Maria, Heizer, and Smithson himself. During a famous interview with Julia Brown, Heizer described how he began traveling, assembling notes, drawings,

34 Robert Smithson, «A Sedimentation of the Mind: Earth Project,» *The Writings of Robert Smithson* (see note 29), pp. 82–91, p. 85. See the extensive footnote on gardens for the quotation about «sculpture gardens.»

35 Ibid., p. 87.

36 The transformation of the artist's studio into a laboratory in postwar America has been examined in depth by Peter Galison and Caroline A. Jones, in: «Factory, Laboratory, Studio: Dispersing Sites of Production,» Peter Galison, Emily Thompson, eds., *The Architecture of Science* (Cambridge, Mass: The MIT Press, 1999), pp. 497–540.

37 Robert Smithson, «A Sedimentation of the Mind...» (see note 34), p. 86.

38 Franz Schulze, *Philip Johnson* (see note 33), pp. 98–99.

39 Robert Smithson, «A Sedimentation of the Mind...» (see note 34), p. 86.

40 Ibid., p. 87.

41 Ibid.



11., 12. Filmstills, from: *Plowshare*, United States Atomic Commission, unclassified per U.S. Department of Energy, Nevada Operations Office, 1968

and paintings in Nevada and in the Mojave Desert after 1967: “[A]t the time I wasn’t even attempting to make sculpture. I was attempting to make a remark about art and society. My purpose was merely to observe and respond, so I just did that. I didn’t question what I was doing, I was experimenting, I’d been experimenting for years.”⁴²

Test Site

The H-bomb, that’s the ultimate sculpture.

Michael Heizer, 1982⁴³

In 1957, while planning the “pacific” use of atomic explosions in massive engineering projects, the Atomic Energy Commission (AEC) launched Project Plowshare. One of the main sponsors of the program, which lasted 16 years, was the Hungarian émigré, Edward Teller, a star of nuclear physics and the “father of the H bomb.” Teller was well known to the American public, as

he had been on the winning side of two major issues after World War II: the first concerning the rapid development of the hydrogen bomb and the second relating to the creation of the Livermore Radiation Laboratory in 1952, a national center for research on atomic weapons, set up to compete with Los Alamos. Teller, enthusiastically embracing his role of national scientist, argued in 1957 against the banning of nuclear tests. He also tried to convince President Eisenhower of the feasibility of developing a “clean bomb” in a short period of time, with little or no radioactivity, if testing would be permitted to proceed.⁴⁴ One year later, Teller co-authored an article in *Life Magazine*, “The Compelling Need for Nuclear Tests,” which would be included in his book, *Our Nuclear Future*, opposing the suppression of nuclear tests. His case for not disarming was informed by three things: his deep mistrust that the Soviet Union would disarm or respect treaties; his conviction that the public had a false perception of the risks posed by fallout, which he presents as minimal;

⁴² Julia Brown and Michael Heizer, «Interview», Julia Brown, ed., **Michael Heizer. Sculpture in Reverse** (Los Angeles, The Museum of Contemporary Art, 1984), pp. 8–43, p.11.

⁴³ Gabriel Bertram, «Works of Earth», **Horizon**, n. 1, Washington D.C., January-February, 1982, p.48.

⁴⁴ This information is taken from Scott Kirsch, «Experiment in Progress: Edward Teller’s Controversial Geographies», **Ecumene**, Vol. 5, n. 3, July 1998, pp. 267–285. The essay is part of the themed section of the journal dedicated to «Nuclear Engineering and Geography», with three more essays on the Plowshare program. On Plowshare, see also Dan O’Neill, **The Firecracker Boys** (New York: St. Martin Press, 1994).

and, finally, the urgent need for “defensive” nuclear weapons, to be used tactically against enemy forces, avoiding the destruction of cities and the annihilation of the civilian population. Concluding *Life’s* article, Teller praised “the spirit of adventure” and the “fearless exploration of the unknown” in science and technology during the last centuries:

*When we talk about nuclear tests, we have in mind not only military preparedness but also the execution of experiments which will give us more insight into the forces of nature. Such insight has led and will lead to new possibilities of controlling nature. There are many specific political and military reasons why such experiments should not be abandoned. There also exists this very general reason – the tradition of exploring the unknown. It is possible to follow this tradition without running any serious risk that radioactivity, carelessly dispersed, will interfere with human life.*⁴⁵

In 1968, Teller published a book entitled *The Constructive Uses of Nuclear Explosives*, together with Wilson K. Talley, professor of applied science at University of California-Davis, Gary H. Higgins, Plowshare division leader at the Livermore Lab, and Gerald W. Johnson, director of the Navy Labs in Washington, D.C. In the preface, the authors recount how, during the crisis provoked by the Egyptian blockade of the Suez Canal in 1956, a group of scientists of the Lawrence Radiation Lab at Livermore began to explore the possibility of excavating of a new canal through friendly territory by utilizing nuclear explosives. Of course, the project was never implemented but this was the initial impulse that gave life to the Plowshare Program. The idea of digging a canal with nuclear bombs was proposed the following year, this time as an alternative to the

Panama Canal. This kind of endeavor was still under consideration more than 10 years later, when *The Constructive Uses of Nuclear Explosives* was published. Along with canals, the Plowshare scientists proposed digging artificial harbors. Between 1956 and 1961, Plowshare worked on the so-called Project Chariot to offer a blueprint for future constructions. Atomic tests in the Pacific were considered unsatisfactory because the craters had been “punched,” rather than excavated in the atolls. Having chosen a site in a remote area of the Alaskan coast, scientists made a complete ecological survey of the area, but the project was first delayed and then abandoned. In 1969, U.S.A. and Australian authorities jointly announced a collaborative survey of the feasibility of a nuclear harbor on the west coast of Australia, at Cape Keraudren. Thanks to the efforts of Australian scientists who feared the destructive effects of the operation on the environment, the survey had to be canceled a month after being announced. According to the sponsors, this new, relatively safe, and cheap “earth-moving” technology was to be employed also to “improve” California’s system of dams and canals, and to facilitate the opening of more efficient railroad and highway passages through the Bristol Mountains.⁴⁶

In the preface to *The Constructive Uses of Nuclear Explosives*, the scientists account for the failure to bring to completion their schemes with two types of argument: the first emotional and the second political. The emotional reasons are explained as follows:

A nuclear device is an energy source with orders of magnitude above the conventional, and its effects are not in the range to which constructive use of high explosives have accustomed our

⁴⁵ Edward Teller, Albert L. Latter, «The Compelling Need for Nuclear Tests,» *Life Magazine*, February 10, 1958, pp. 64–72, p. 72.

⁴⁶ The last scheme, under the name of Project Carryall, was developed in collaboration with the California State Division of Highways and the Santa Fe Railway. Other proposals of the Plowshare scientists, which were never implemented, included Project Oil Sand, designed to recover oil sand from the Athabasca area in Alberta (Canada), and Project Ketch, a commercial scheme to create an underground gas storage chamber in Appalachian Pennsylvania.

thinking. In addition, the first use of nuclear explosives, in war, displayed their destructive potential, and this characteristic still captures the imagination.⁴⁷

Then follows the political argument:

In any major civil construction local politics must be considered. An economical nuclear-explosive project may be so large that it is brought to the attention of the entire world... Furthermore, international agreements or treaties which are designed to limit the development of nuclear weapons may, unfortunately, apply to the peaceful uses of nuclear explosives as well.⁴⁸

Even if Plowshare projects were not implemented because of such “emotional” and “political” reasons, the scientists did manage to set in place an impressive testing program that was carried out mainly on the Nevada Test Site, but also in New Mexico. One of Nagatani’s tableaux actually depicts a test site in Carson National Park (New Mexico), where a small plaque was put up to commemorate Project Gasbuggy, a twenty-nine kiloton explosion in December 1967. Another nuclear device was detonated during Operation Gnome in December 1961, forty-eight kilometers southeast of Carlsbad. The most spectacular and well-publicized test of Project Plowshare was the one that swiftly shoveled Crater Sedan out of the Nuclear Test Site in Nevada, which today represents a major attraction for the public tour. David Thomson writes in *In Nevada*:

Here on July 6, 1962, only months before the Cuban missile crisis, they exploded a device yielding 104,000 tons, buried 635 feet under the ground. The crater is like a geometric form,

by which I mean to say that there is no apparent irregularity. All the sides descend and slope inward at the same angle. These walls seem raked. The lip of the crater is tidily round. But I have not conveyed the scale. It is 320 feet deep and 1,282 feet across. As much as 12 million tons of earth were vaporized or moved. It is, I think, next to Hoover Dam, the most beautiful man-made thing in the state of Nevada. Indeed, it is already on the National Register of Historic Places, which means, I suppose, that even if the Test Site came to be abandoned one day, no one could spoil this bleak wonder.⁴⁹

For the scientists involved, Project Sedan was mainly an exercise in rhetoric: they wanted a dramatic display of the capability, and also the safety, of nuclear earth-moving technology.⁵⁰ The test was approved in the wake of the public controversy that culminated with the cancellation of Project Chariot in Alaska, where members of the local university, polar scientists, and Eskimos challenged the authority of the Plowshare experts, forcing them to withdraw to the seclusion of the Test Site in Nevada. How was the Nevada desert initially selected as a testing site? At the opening of a chapter entitled “Test,” in *Our Nuclear Future*, Teller’s words are inspiring:

Testing of atomic explosives is usually carried out in beautiful surroundings. There is a good reason for this: the radioactive fallout. Because of the fallout, the test site must be isolated. The presence of human population does not improve nature (with exceptions which are quite rare and the more notable). Also, to keep the site clean, tests must be carried out in the absence of rain. Therefore, at the site one usually finds sunshine and solitude. For the participants the beauty of nature forms the backdrop to preparations of experiments which are difficult and

⁴⁷ Edward Teller, Wilson K. Talley, Garry Higgins, Gerald W. Johnson, *The Constructive Uses of Nuclear Explosives* (New York: McGraw-Hill Book Company, 1968), p. v.

⁴⁸ Ibid.

⁴⁹ David Thomson, *In Nevada* (see note 25), pp. 244–45.

⁵⁰ The test produced five times more radioactivity than predicted, but was nevertheless considered a success by the Atomic Energy Commission.

exciting to everyone involved. At the end, the atomic explosion is always dwarfed by its setting. But the work that culminates in the detonation is rewarded by something quite different from a flash and a bang.⁵¹

Who would imagine that not only a poet but also an artist was hidden behind the mysterious veil of the physicist and the hardened skin of the Cold War warrior, who inspired the character of Dr. Strangelove in Stanley Kubrick's movie *Dr. Strangelove, or: How I Learned to Stop Worrying and Love the Bomb* (1964)?

In 1972, Michael Heizer left New York and moved to Nevada. Generations of his family had lived in Nevada since the 1880s. One grandfather had been a mining engineer, the other a geologist. His father was an archeologist, expert of the Great Basin of California and of the Yucatán, who also worked in various fields in Egypt, Bolivia and Peru. When he died, he was writing a book on ancient systems for transporting heavy stones. It was Heizer who led Smithson and De Maria to discover Nevada's vast, barren spaces, which were quite familiar to him.⁵² As he has stated a number of times, he was the first to leave the constraining city in search of a place to create "American art." Also, what brought him there was clearly not the "beauty" of the landscape or its vistas. In conversation with an art critic of *The New York Times* in 1999, he repeated almost literally what he had expressed previously:

I have no interest in landscape in terms of art. I think American landscape art is one thing, but my work doesn't have anything

to do with that, it has to do with materials. I went to those places for material. When I bought property in Nevada, I bought it because I had done studies and found sands and gravel that could make concrete, and clay soils that could be used for soil cements, and running water. These were all raw materials.⁵³

There was another reason, however, to choose Nevada, as he had already explained during his interview with Julia Brown in 1984:

[Heizer]: It interested me to think about building Complex One on the edge of a nuclear test site in Nevada, and having the front wall be a blast shield. We had specifications for seismic conditions for the strength of the concrete that were the highest specifications that could be achieved. We measured all our water, we washed all our sand, we mixed carefully and had laboratory shear that surpassed what the engineer said we were required to have.

[Brown]: Your land in Nevada is next to a nuclear test site?

[Heizer]: Yes, it's a highly charged area, but I am reluctant to discuss it that much.

[Brown]: But it's part of your planning?

[Heizer]: Part of my art is based on an awareness that we live in a nuclear era. We're probably living at the end of civilization.⁵⁴

The "American art" Heizer chose to produce had to do with advanced technology and vast dimensions. It was a sort of petrification, or a materialization of what he called the "American sensibility." At the time he was considering leaving New York, Heizer read something that had a profound impact on him. It was about changes in the way phone calls were handled. The re-routing of New York calls through Denver led the artist to

51 Edward Teller, Albert L. Latter, *Our Nuclear Future: Facts, Dangers and Opportunities* (New York: Criterion Books, 1958), p. 80.

52 Heizer insists on having been the first to discover the desert of Nevada as a new space of artistic experimentation. See, for example, what he asserts during a conversation reported in Michael Kimmelman, «A Sculptor's Colossus of the Desert», *The New York Times*, Sunday, December 12, 1999. His role and influence on the works of De Maria and Smithson is also mentioned by Germano Celant in the Milan exhibition catalogue of 1997. See: Germano Celant, ed., *Michael Heizer*, exh. cat. (Milan: Fondazione Prada, 1997), p. XIX. In any event, Celant does mention one antecedent, that of Jean Tinguely, who in 1962 realized a work, *Étude pour une fin du monde n. 2*, in a dry salt lake near Las Vegas.

53 Julia Brown and Michael Heizer, «Interview», *Michael Heizer. Sculpture in the Reverse*, p. 11. In *The New York Times* conversation (Kimmelman, *ibid.*, p. 49), Heizer recounts that, in 1970, he hired a pilot from Las Vegas to help him find a property: «It had sand and gravel, running water from a creek, isolation, the right climate – and it was cheap.»



13., 14. Michael Heizer, *Double Negative*, Mormon Mesa, Overton, Nevada, 1969–1970, photographs by Gianfranco Gorgoni, Sygma.

rethink his ideas about distance and measure. He was also fascinated by the large, jumbo aircraft and strategic bombers being built, and, in general, by things “being done that felt uniquely American – a lot of them had to do with size – size and measurement.”⁵⁵ He felt the clock was ticking, the end of the world was coming, and that “the idea of living in the post-nuclear age informed everything.”⁵⁶

Heizer was inspired by American deserts, inasmuch as their vast range suggested the possibility of the technological manipulation of what he called “materials.” This manipulation would be done on a scale comparable to the geographical engineering envisioned by the Plowshare Program. Completed in the summer of 1968, one of Heizer’s early works in Nevada, *Nine Nevada Depressions*, consisted of sites arranged in a linear sequence, spreading over 520 miles.⁵⁷ Heizer even took on the vocabulary of Project Plowshare, and borrowed the term “earth-moving” from their scientists. In 1969, he first used heavy machinery, such as bulldozers, to realize *Five Conic Displacements*, an aligned series of excavations on the ground of Coyote Dry Lake in the Mojave Desert, California. This work accurately renders the sketches and

models, published by the Plowshare Program, representing the alignment of nuclear craters necessary to carve canals and highways.

With *Double Negative* (1969–70), the most spectacular of his sculptured, negative spaces, Heizer actually deployed an astonishing array of industrial machines, including cranes, loaders, transports, and Redi-mix cement trucks. “The result,” writes the art critic Germano Celant, “is titanic, and consists of a double incision in the sides of the Mormon Mesa, created by moving 240,000 tons of rocks and sand to make two cuts, each fifty feet wide and defined by 90 degrees walls and two descending ramps at 45 degrees. In all, the sculpture measures 1500 feet in length.”⁵⁸ There are photographs of the containers for the stacks of dynamite that were used to blast through the Mesa’s rocks. There is also a dramatic sequence of filmstills, recording the initial, gigantic explosion. Without doubt, the sudden expansion of pulverized rock, followed by the slow dissipation of dusty clouds over Mormon Mesa, echoed the development of a mushroom cloud above a nuclear testing site. While discussing the giant earth-moving gear, the artist corroborates the undeniable connection: “The rental system allows the artist practically any

⁵⁴ Julia Brown and Michael Heizer, «Interview,» p. 16.

⁵⁵ Ibid., p.10.

⁵⁶ Ibid., p.11.

⁵⁷ *Nine Nevada Depressions*, 1968, was commissioned by Robert C. Scull, a New York taxi magnate.

⁵⁸ Germano Celant (see note 52), pp. XXVII–XXVIII.

application he desires. It is now possible to rent a nuclear explosion.”⁵⁹ The “negative” forms Heizer blasted out in the desert underscore how nuclear devices can carve the surface of the Earth, inscribing immense trenches.

This is not to say that Heizer simply mimics the icons of nuclear science. In his search for an American art, Heizer looked not only at the most staggering, and terrifying, techno-industrial feats of the twentieth century; he also contemplated the archeological remains of the pre-Columbian era. He superimposed, so to speak, one source of inspiration over the other, in order to evoke their power. This is particularly evident in the work that followed *Double Negative*, for instance, *Complex 1*, the first element of a titanic enterprise entitled *City*, begun in 1972 and still in progress. *Complex*, a term similar to *ensemble*, *compound*, or *ancient site*, is borrowed from archeology, a discipline familiar to Heizer through his father’s career. The idea for *City* came to Heizer in 1970 during a visit to the Yucatán, while he was preparing a study on the serpent motif in the ball court of Chichén Itzá. The Yucatán was not the only reference, as Heizer linked the project of *City* to other grandiose ensembles of pre-Colombian monuments – those of the Olmec, Maya, Inca, and Aztec.

Heizer maintained that he was attempting to achieve what had been accomplished for centuries, but has since been forgotten. In the Nevada desert, next to the Test Site, three complexes are being built around a curved, sunken plaza or pit. The massive structures, based on a rectangular plan with sloped sides, look like mastabas. Commenting on *Complex 1*, the artist referred to the mastaba form that shaped the mound over the burial of Zoser at Saquara. Both the primitive building techniques and monumental character

intrigue the sculptor. The concrete banding and projection that define the “facade” of the mastaba are, instead, akin to the serpent motif at Chichén Itzá. Heizer points out that his use of cantilevered elements was an impossible engineering feat for the builders of Chichén.

The juxtaposition between ancient techniques of construction (for instance, the transportation of large stones) and advanced, contemporary technologies is a recurring theme of the narrative that frames Heizer’s work. Addressing his ever expanding use of machinery, he even becomes epic:

Complex 1 required cranes, loaders, pumps, Cats, graders, mixer and water trucks, batch plants, forms, re-bar, scaffolds, surveying, drilling, welding and compacting equipment; everything, almost the whole encyclopedia of construction was used in that one sculpture.⁶⁰

All this equipment has resulted in the construction of works able to instill the same state of wonder and awe that ancient megalithic architecture had inspired. Heizer drew a distinction between two main types of societies: “megalithic” societies, which built large structures out of massive materials, and “piecemeal” societies, which likewise built large structures, but out of small elements. For Heizer, contemporary society is a piecemeal society, which builds enormous structures out of “millions of fragments.”⁶¹ While megalithic architecture tends to be smaller in dimension, it has a superior grandness that mightily impacts onto the observer, and this is the effect that Heizer attempts to replicate. He wants to establish a “dormant dialogue”⁶² with the powerful monoliths of antiquity, discarding, in the process, the original intent behind the forms: “Who, in our time, wants processions for spirits, sacrificial

⁵⁹ Michel Heizer, in «The Art of Michael Heizer,» *Artforum*, n. 5, December 1969, pp. 32-39; quote, p. 35.

⁶⁰ *Ibid.*, p. 33.

⁶¹ *Ibid.*

⁶² *Ibid.*

platforms, or ceremonial buildings? These functions are no longer meaningful but are interesting for contemporary society if phrased in terms it can identify with.”⁶³ The question seems to be how to “rephrase” an ancient text in contemporary terms, and how to offer secularized relics without the revival of forgotten or bygone values. Gilles Tiberghien, a historian and art critic, has suggested that the Hegelian definition of “inorganic sculpture” (*unorganische Skulptur*) could apply to the work of such sculptors as Robert Morris, Robert Smithson, or Michael Heizer. For Hegel, any sort of building, from a house to a temple, is characterized by its destination, its instrumental use (habitation, place of worship, locus of display), whereas sculptures (representations of men and gods) present an end in themselves. This means that a sculpture doesn’t need to be useful to exist. For Hegel, however, if one goes back in time toward the dawn of civilization when architecture and sculpture were not yet differentiated arts, the obelisk, the pyramid, and the colossal statues of ancient Egypt offer examples of an architecture that existed for itself, without bearing on any external, hetero-directed need or functional use. Additionally, unlike sculpture (of kings or divinities), these primitive works of art were even freed from the necessity of having exterior shapes that reveal their interior meaning.

Independent of circumstance and context, these archetypal works operate like symbols since they stand as something “autonomous” whose meaning does not lie beyond them, in an exterior realm such as utility or instrumentality. Accordingly, for Tiberghien, such independent objects are neither sculpture nor architecture, but rather encompass both spheres at once, an aspect which

is echoed in Minimalist and Land Art works.⁶⁴

By inscribing these works within the question of the “origin” of art and architecture, Tiberghien’s interpretation is quite persuasive, accounting, as it does, for the fascination of the American artists with ancient ruins. One might ask, then, what links such “original” forms to a technologically dominated “now,” where, according to Heizer, nobody is looking for spiritual ceremonials, sacrificial rites, or consecrated areas. Do these original forms still maintain their power and meaning when people no longer kneel in front of them? Perhaps the question should be whether, despite his pronouncements, Heizer’s work is really about the disappearance of the power of original forms. Or does he, in contrast, actually envision, if not their restoration, at least the preservation of their memory?

Or, in other terms, do those forms still retain an aura, recalling Walter Benjamin’s notion of this “strange wave of space and time”? Actually, in his famous essay, “The Work of Art in the Age of Mechanical Reproduction,” Benjamin addresses the “decline of the aura,” and not its death or disappearance. Art historian Georges Didi-Huberman has pointed out the apparently ambiguous position towards the aura held by Benjamin: was he really announcing the destruction of it, or, instead, thinking of its restoration? Benjamin doesn’t eliminate the aura from the work of art, because aura always retains an “originary” capacity. In the Benjaminian sense, the origin is what emerges from the process of becoming and disappearance. The aura (of religious cult images, of icons) survives as something that declines and eludes dogmatic confinement.⁶⁵ Both the aura and its decline are present in an artist’s work, possibly.

⁶³ Ibid.

⁶⁴ Gilles A. Tiberghien, *Land Art* (Paris: Éditions Carré, 1993), Chapter 2: «Sculptures Inorganiques», pp. 61–83. English translation: *Land Art* (New York: Princeton Architectural Press, 1995).

⁶⁵ Georges Didi-Hubermann, «The Supposition of the Aura: the Now, the Then, and Modernity,» *Negotiating Rapture. The Power of Art to Transform Lives*, exh. cat., (Chicago: Museum of Contemporary Art, 1996), pp. 48–63; see pp. 49–53.

This happens because the aura being original, relates to questions of forgetfulness, memory, and reminiscence.⁶⁶ For Benjamin, as for Heizer, interpreting an image means to accept remembering an original significance that survives, while rejecting a nostalgic rebirth or revival.

Test/Text

The living organism, in a situation determined by the play of energy on the surface of the globe, ordinarily receives more energy than is necessary for maintaining life; the excess energy (wealth) can be used for the growth of a system (e.g. an organism); if the system can no longer grow, or if the excess cannot be completely absorbed in its growth, it must necessarily be lost without profit; it must be spent, willingly or not, gloriously or catastrophically.

Georges Bataille, *The Accursed Share*, 1949⁶⁷

In 1962, the US Department of Defense, together with the Atomic Energy Commission, published a revised edition of a report entitled *The Effects of Nuclear Weapons*. Most of the illustrations are concentrated in the section dedicated to the scientific analysis of the structural damage provoked by air blasts to industrial, residential, commercial, and administrative structures, and also to such infrastructures as roads, bridges, railroads, automobiles, trucks, train cars, suspension towers, transformers, and utility poles. With cold precision, some of the images document the devastation at Hiroshima and Nagasaki. Chilling captions inform the reader about the nature of the pictured ruins: "Industrial-type steel-frame building (0.35 mile

from ground zero at Hiroshima). Wooden beams should be noted."⁶⁸ "Destroyed industrial area showing smokestacks still standing (0.51 mile from ground zero at Nagasaki)."⁶⁹ "Three-story, reinforced-concrete frame building; walls were 13-inch thick brick panel with large window openings (0.13 mile from ground zero at Hiroshima)."⁷⁰ "One-story, reinforced-concrete building with steel roof trusses (0.26 mile from ground zero at Nagasaki). Note the resistance offered by end interior walls when acting as shear walls."⁷¹ The majority of the photographs in *The Effects of Nuclear Weapons*, however, illustrate the results of tests conducted at the Nevada Test Site. There, scientists, in collaboration with the Army, laid out parking lots, built antenna towers, installed heavy machinery, constructed steel frame buildings and concrete houses in order to subject them, in controlled conditions, to the effects of nuclear explosions. Possibly, the most compelling series of tests is devoted to residential buildings, portraying the structures before and after a detonation. A comprehensive selection of typical American suburban houses was reconstructed and then blasted. The process was documented in black-and-white images that uncannily evoke some of the artworks produced in the 1960s and early 1970s in America. The text that introduces the photographs reads as follows:

A considerable amount of information on the blast response of residential structures of several different kinds was obtained in the studies made at the Nevada Test Site in 1953 and, especially, in 1955. The Nuclear device employed in the test of March 17, 1953, was detonated at the top of a 300-foot tower and

⁶⁶ Georges Teyssot, «History as a Destructive Remembrance,» *Lotus International*, n. 81, Milan, 1994, pp. 117–122.

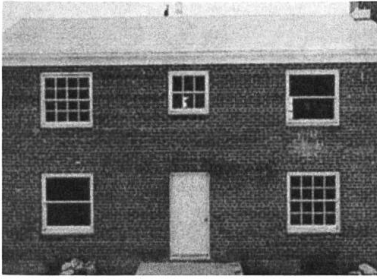
⁶⁷ Georges Bataille, *The Accursed Share. An Essay on General Economy*, trans. Robert Hurlley (New York: Zone Books, 1988), 2 vols., vol. 1, p. 21.

⁶⁸ Samuel Glasstone, ed., *The Effects of Nuclear Weapons*, prepared by the United States Department of Defense (Washington D.C.: United States Atomic Energy Commission, rev. ed. 1962, 1st ed. 1957), p. 218, fig. 5.55a.

⁶⁹ *Ibid.*, p. 221, fig. 5.60a.

⁷⁰ *Ibid.*, p. 238, fig. 5.86b.

⁷¹ *Ibid.*, p. 240, fig. 5.88c.



15., 16. Wood frame house before and after a nuclear explosion, Nevada Test Site. Samuel Glasstone, editor, *The Effects of Nuclear Weapons*, prepared by the United States Atomic Energy Commission, 1962

the yield was about 16 kilotons. In the test of May 5, 1955, the explosion took place on a 500-foot tower and the yield was close to 29 kilotons. In each case, air pressure measurements made possible a correlation, where it was justified, between the blast damage and the peak overpressure. The main objectives of the tests on residential structures were as follows: (1) to determine the elements most susceptible to blast damage and consequently to devise methods for strengthening structures of various types; (2) to provide information concerning the amount of damage to residences that may be expected as a result of a nuclear explosion and to what extent these structure could be subsequently rendered habitable without major repairs; and (3) to determine how persons remaining in their houses during a nuclear attack may be protected from the effects of blasts and radiation.⁷²

Those stark images have been an ingredient for many desert movies, from Michelangelo Antonioni's *Zabriskie Point* (1970), in which the dazzling final scene, featuring the explosion of a house and its contents in slow motion, might be read as a symbolic ending of consumer civilization, to Dominic Sena's *Kalifornia* (1993), which ends with

a scene set on testing grounds, where dummies represent radiated inhabitants.⁷³

In 1967, Edward Ruscha published his small volume, *Thirtyfour Parking Lots in Los Angeles*, depicting empty parking lots, in a series of black-and-white photographs taken from a helicopter on a Sunday. These thirty-four images of oblique white lines drawn on dark asphalt, together with thirty-four captions, record only the address of the lots. Ruscha used the same technique of black-and-white photographs with abridged captions in *Twentysix Gasoline Stations* (1962), in *Some Los Angeles Apartments* (1965), and in *Real Estate Opportunities* (1970), the latter, according to French art critic Yves-Alain Bois, constituting "one of his most devastating books."⁷⁴ Bois' remark appears under the entry "Zone," in the exhibition catalogue *Formless. A User's Guide*, recalling the concept of "thermodynamics in reverse." The idea was taken from Georges Bataille, who exploited principles of thermodynamics in his theory of expenditure. First developed by Sadi Carnot in 1824, this was a theory of the heat engine.⁷⁵ Carnot's cycle

⁷² Ibid., p. 200.

⁷³ Edward Dimenber, «Beyond Cinema: Space, Time, and Entropy in *Zabriskie Point*,» in *Paragrana, Internationale Zeitschrift für Historische Anthropologie*, vol. 7, 1998, no. 2, Akademie Verlag, pp. 241–249.

⁷⁴ Yves-Alain Bois, «Zone,» in *Formless. A User's Guide* (New York: Zone Books, 1997), p. 226.

⁷⁵ Michel Serres, *Hermes. Literature, Science, Philosophy*, Josué V. Harari and David Bell, eds. (Baltimore: The Johns Hopkins University Press, 1982), pp. 34–35, pp. 54–62.

explains why motors create movement by consuming energy or power. This cycle produces circulation by means of reservoirs and differences in temperature, which generate residue at the end of the cycle. During the nineteenth century, as soon as one could theorize about heat machines or combustion engines, the notion of time changed. From this moment on, time is endowed with a direction, and is irreversible. Every thermodynamic system drifts from order to disorder, from a powerful difference to a state of dissolution, from which no energy, no force, can arise.⁷⁶ This process of dissolution is called the law of entropy. Maximal energy is always upstream in an irreversible process, a law that was later applied to the cosmos in general, by Hermann von Helmholtz, among others.

Because of the sun's surplus of energy, Bataille thought that we are condemned to a perpetually growing production, and to permanent surplus, a kind of "reverse entropy." This unbalanced growth creates a cosmic disequilibrium, which is to be self-regulated by devices that kick in as soon as the unspent energy has accumulated. War is a typical example of amassed and unproductively expended energy. There are two corollaries to this thesis of overproduction and expenditure: on the one hand, Bataille's radical optimism that envisioned humanity's future as a voluntary renunciation of utilitarian things, of the accumulation of riches, and the multiplication of unproductive expenditure; on the other hand, Bataille's radical pessimism about the effects of overproduction, for instance, the entropic growth of nonassimilable residue or waste. For Bataille, the emblem of waste's output is dust, leading to the daily war that domestic help wage against it with brooms

and vacuum cleaners. This battle, according to the philosopher, will inevitably end with dust victoriously overpowering "abandoned buildings and deserted dockyards" in the form of garbage and trash.⁷⁷ Bataille's prediction anticipates the failure of the domestic fight against dust, and foresees its extension to the entire city, creating formless "zones" increasingly abandoned and overcome by waste.

These urban areas necessitate a continuous process of recycling in order to stop the spread of wasteland through entropic proliferation. The "zone" consists of abandoned lots awaiting buyers. The numerous "For Sale" billboards in Los Angeles photographed by Ruscha in *Real Estate Opportunities* (1970) are emblems of the "zone." In another instance, the "zone" is made up of vacant and useless interstitial spaces, which New York City sold for a very low price. Gordon Matta-Clark then bought and photographed them for his book *Reality Properties: Fake Estates* (1973). These properties in the borough of Queens were so small that they had no use-value whatsoever. False merchandise, fake "real estate," they reveal the repressed manifestation of entropy in the urban context.

Ruscha's and Matta-Clark's works clearly belong to the same context. Both artists confront falseness, emptiness, and the void; they perceive the formlessness that is triggered by entropy. This is exemplified in Ruscha's other booklets, such as *Every Building on Sunset Strip* (1966), *Nine Swimming Pools and a Broken Glass* (1968), and *A Few Palm Trees* (1971). In the work of both artists, the repetition of photographic format underlines the uniformity of the topic and the anonymity of the sites. And in Bois' words, Ruscha's work specifically displays the will to elicit "a recognition of

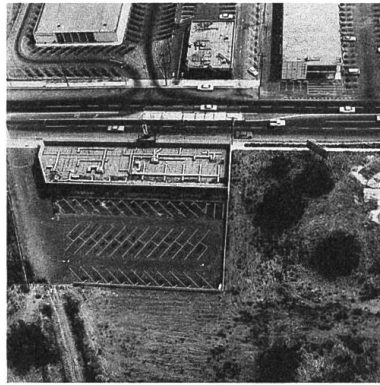
76 Ibid., pp. 71–75.

77 Bois, Krauss (see note 74), *ibid.*

78 Ibid., p. 231.

79 Mark Francis, ed., **Dan Graham** (London: Phaidon, 2001).

80 Robert Venturi, Denise Scott Brown, Steven Izenour, **Learning from Las Vegas: the Forgotten Symbolism of Architectural Form** (Cambridge, Mass.: MIT Press, rev. ed. 1977, 1st ed. 1972).



17. Edward Ruscha, *Thirty-Four Parking Lots in Los Angeles* (Pierce College, Woodland Hills), 1967

18. Edward Ruscha, *Thirty-Four Parking Lots in Los Angeles* (Eileen Feather Salon, 14425 Sherman Way, Van Nuys), 1967

the same as nothing.”⁷⁸ Ruscha’s transparent and non-judgmental stand is a far remove from the polemic denunciation of Dan Graham’s *Homes for America* (1966)⁷⁹, or Robert Venturi’s “perverse admiration” for Levittown and Las Vegas.⁸⁰ One could add other works of the same period, for example Smithson’s *Partially Buried Woodshed* (1970), or destroyed objects by Gordon Matta-Clark, such as *Splitting* (1974).⁸¹ These works tie in with the entropic testing in Nevada, with the monotonous American urban and suburban landscape, and also with the wastelands and rust belts.

Bataille developed his post-Nietzschean thesis on the world’s dynamics between two important texts: *La Notion de dépense/The Notion of Expenditure* (1933) and *La Part maudite/The Accursed Share* (1949), concluding his political opus under the searing light, so to speak, of atomic explosions and the nascent Cold War.⁸² This new type of conflict would take place not in the battlefields of old, but mainly on the testing sites of the two opposing powers. Bataille’s central concern resides in the economic implications of such a war, the vast amount of wealth spent, and the huge quantity of

energy literally blown up during the arms race. Bataille tried to think about the nuclear threat, the fearsome escalation caused by the possibility of mortal conflict between the United States and the Soviet Union and advocated “alert consciousness” as opposed to active fear of a foreseeable Armageddon. In *The Accursed Share*, he hypothesizes a nonmilitary competition between different methods of production and considers the awakening of the mind when confronted with extreme danger. Observing that a mental state of vigilance can result in some positive, clever thinking, he writes:

But while it [the awakening] is the result of menace, and though it was once linked to the feeling of a useless effort, of the game already lost, the alert consciousness cannot in any way surrender to anguish; it is dominated rather by the assurance of the moment (the laughable idea that darkness alone will be the answer to the will to see). But, up to the last, it will not be able to give up the *tranquil* pursuit of *good fortune*. It will give up only in the happy event of death. **In this situation of absolute schism, what prevents one from believing war to be inevitable is the idea that under the present conditions ‘the economy,’ to alter Clausewitz’s phrase, may ‘continue it by other means.’**⁸³

⁸¹ See Pamela M. Lee, *Object to be destroyed. The Work of Gordon Matta-Clark* (Cambridge, Mass.: The MIT Press, 2000).

⁸² On nuclear criticism and issues related to the Cold War, see “Nuclear Criticism,” themed issue of *Diacritics*, Summer 1984, in particular the essay of Jacques Derrida, “No Apocalypse, Not Now (Full Speed Ahead, Seven Missiles, Seven Missives),” pp. 20–31; see also Richard Dellamora, ed., *Postmodern Apocalypse: Theory and Cultural Practice at the End* (Philadelphia: University of Pennsylvania Press, 1995).

⁸³ Georges Bataille (see note 67) vol. 1, p. 171.

Accordingly, Bataille suggests different means of spending the excess of wealth produced by the American economy, which he considers to be “the greatest explosive mass the world has ever known.”⁸⁴

Bataille’s new kind of “alertness” in the face of danger and his refusal to surrender to the forces of “anguish” correspond to what Ronell alludes to in her essay, offering a possible idea of place defined by the test:

The relation of testing to the question of site is essential. The test site, as protoreal, marks out a primary atopolis, producing a ‘place’ where the real awaits confirmation. The test site is not a home (unless you’re a homunculus). Linked to a kind of ghostless futurity the site offers no present shelter. This explains perhaps why Nietzsche names the *gaya scienza* in the same breath that convokes ‘we who are homeless’: ‘We children of the future, how could we be at home in this today – in this fragile, broken time of transition?’⁸⁵

For Nietzsche, testing and experimentation are related to acts of negation and affirmation, and since they are conducted in the name of life, and also by life itself, they imply a strong, joyous personality. Ronell proceeds:

But Nietzsche, being Nietzsche, knows how to affirm the unhinging of home as the preparation for another future, one not rooted in the ideologies of the home front. The logic of the test site that we have not yet understood concerns precisely the relation of the site to life; we still know only how to leave the test site uninhabitable, mapping ever more deserts as eco-wasteland, unexploded arsenal, littered terrain, the ‘third world’. The question that Nietzsche presses on us is therefore never merely one of affirming homelessness after metaphysics, but of rendering spaces habitable, multiplying trajectories for life and the living, refiguring the site of experimentation in such way as to ensure

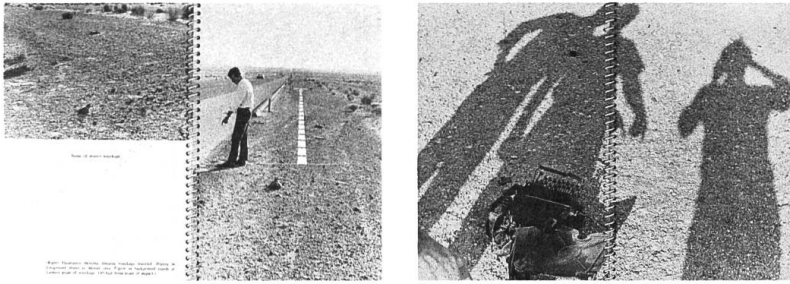
that it is not already the ensepulchered reserve of the living dead. In other words: why have we not yet thought the test site on the side of life? ⁸⁶

Nietzsche opposed the view that experiment implies objectivity and desubjectivation. The Nietzschean science has little to do with objectual observation, but belongs to the superior order of curiosity and experimental imagination. As a risk taker, the experimental spirit is not at home anywhere; (s)he is a wanderer, a hermit. Furthermore, (s)he disrupts received knowledge, disentangles the mind from rules, and dissolves the “petrification of opinion.”⁸⁷ Construing habitable desert spaces, multiplying trajectories for the living, refiguring the site of experimentation within an entropic economy: this has been the scope of artists such as Ruscha, Smithson, and Matta-Clark. Is there an experiment that could lead to results that would place us on the other side of doomsday? One of Ruscha’s booklets contains a visual narrative, contrary to most of the others. *Royal Road Test* (1967) illustrates a 1966 experiment carried out on a highway across the Nevada desert, 122 miles southwest of Las Vegas. The test consisted of throwing a typewriter out of the window of a Buick moving at 90 miles an hour. The photographs are like exhibits for a trial: they show the site, the automobile, the car window, the typewriter, the participants (driver, thrower, and photographer), records of the distance the wreckage traveled and the point of impact, and close-ups of the debris. The last photograph in the series portrays the carcass of the typewriter in the shadows projected by the performers, one of them pointing at it, the other looking closely, and the third taking a picture. The narrative of the book, as in the case of Heizer’s work, cannot be reduced to parody or an ironic send-up of the scientific tests

⁸⁴ Ibid.

⁸⁵ Ronell (see note 2), p. 209; and Nietzsche (see note 3), p. 338.

⁸⁶ Ronell (see note 2), pp. 209–10.



17. Edward Ruscha, *Royal Road Test*, 1967, caption on left page: "Scene of strewn wreckage" and right: "Illustration showing distance wreckage traveled. Figure in foreground points to impact area. Figure in background stands at farthest point of wreckage. 189 feet from point of impact."

18. Edward Ruscha, *Royal Road Test*, 1967

in the desert. An interpretation is suggested by the choice of a typewriter, a machine to write that is destroyed by the speed of another machine, the automobile.

Ruscha's undoing of the typewriter seems to be connected to the production of *Liquid Words*, a series of paintings he produced between 1966 and 1969. These word-pictures were created by painting on horizontal canvases, expanding on the technique introduced by Jackson Pollock. Ruscha's letter paintings have been viewed as belonging to the struggle of art, from Cézanne to Pollock, to overcome the phenomenological perpendicularity of (vertical) painting and (horizontal) writing. Additionally, the use of quirky materials in the writing of *Liquid Words* (beans, pieces of food, maple syrup, caviar, and substances like axle grease) has led some critics to relate his research to Bataille's interest in raw and crude materials. The liquefaction to which the words are subjected evokes the notion of entropy since, in our contemporary society, languages are exposed to an irreversible process of devitalization, dis-articulation, and erosion. Therefore, "liquid words" are

depleted words, with little meaning left, remnants of an exhausted language. Coinciding with the publication of Jacques Derrida's *Of Grammatology* (1967), Ruscha's opus has been interpreted as an attempt to explore the unbridgeable, repressed gap between the sound of words and the silence of writing.⁸⁷ One may ask, however, what the wrecked typewriter seeks to proclaim: the end of Western logocentric thinking? A melt-down of language? The impossibility of communication in an entropic, postnuclear age? Probably none of the above. Ruscha's "liquidation" of a mechanical writing device is not motivated by the will to destroy, which in Bataille's words would be to "surrender to anguish." The test provides a text, a narrative that is subject to never-ending analysis and resists simple interpretation. The results of the test do not offer any "truth," they do not moralize, condescend, or preach; they are forever provisional. However, on the aforementioned "side of life," they do open up the possibility of more tests, of an endless testing of sites that become the canvas on which one can set out to write, to paint, or to build – or to incise, to wreck, and to ruin.

⁸⁷ Ronell (see note 2), p. 213; and Nietzsche (see note 3), p. 238.

⁸⁸ Here, again, see the crucial analysis of Yves-Alain Bois, «Liquid Words,» in *Formless. A User's Guide* (see note 74), pp. 124–129; and Yves-Alain Bois, *Edward Ruscha: Romance with Liquids, Paintings 1966–1969* (New York: Rizzoli, 1993).