Nuclear Mycology: Mushroom Cloud Iconography and Contemporary Art

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The mushroom cloud constitutes a beautiful, monumental image. It is the visual creation that symbolizes the twentieth century, overwhelming all other artistic creations of its time. It will continue to have a powerful effect in the centuries to come.¹

Cai Guo-Qiang

After the 1945 bombing of Hiroshima and Nagasaki, the infamous mushroom cloud icon was stamped and sold as a symbol of American power. The image was released to the general public in conjunction with Japan’s surrender, thus inextricably linking the icon to military triumph. As the atomic age carried on, so did the consumption and appropriation of an icon that, until its inaugural detonation at the Trinity Site in New Mexico on 16 July 1945, was foreign to the eyes of human kind. The bomb’s novelty led its plumb of smoke to instant fame—a visceral fascination like the unveiling of a new color. Life magazine for example, devoted the entire 20 August 1945 issue to the atomic bomb, publishing a slew of mushroom cloud photographs.² By the end of 1945, President Harry Truman was declared “Man of the Year” and shown on the cover of Time magazine with his portrait in the foreground of a billowing mushroom cloud.³ From this point forward the mushroom cloud promoted government initiatives in gaining support for the arms race. The powerful, voluptuous shape supplemented rhetoric around winning the Cold War and saving the free world. Historian Paul Boyer wrote that the mushroom cloud was “the quintessential visual symbol of the new era.” He went on to say, “much like whistling in the dark, it helped us to

³ Ibid.
be unafraid as it shored up our confidence during those highly uncertain times.”4 With growing public concern for the effects of nuclear bomb testing in the 1950’s, the Limited Test Ban Treaty of 1963 moved the practice underground and the mushroom cloud image promptly followed; changing ideologies severed its presence in the public sphere. Its cultural potency however was not to be stifled. The mushroom cloud motif continued to surface, albeit in more diverse ways: from a catalyst for fear, to realms of nostalgia, to the leading symbol of anti-war protests. Each of these posthumous adaptations deserves analysis in its own right. In this study, I will investigate mushroom cloud iconography in contemporary art through the work of Chinese-American artist Cai Guo-Qiang and through a mycological framework examine the etymology of ‘mushroom cloud’ and consider the resultant implications of its ecological metaphor.

We must begin (as so many have before) in the shadow of Shakespeare, by considering “what’s in a name? That which we call a rose”—or in the atomic bomb, a mushroom. After all, the names “rose,” “geyser,” “dome-shaped column,” “great funnel” and “cauliflower,” were all proposed by various writers and journalists to describe the ballooning aftermath.5 None of these however reflect the socio-ecological parallel between nuclear energy and the fungi kingdom—a mere starting point for considering Americans’ continued fascination with the mushroom cloud. In her paper “The Nuclear Mushroom Cloud as Cultural Image,” Peggy Rosenthal draws on physics historian Spencer Weart’s

observation that the “mushroom has been a universal folk symbol of transmutation,” arguing that the adoption of the mushroom cloud as the symbol for the atomic age stems from the “collective unconscious.” Both scholars support their position with various ethnomycological examples from the ominous or villainous mushrooms of Western folklore, to the use of mushrooms as hallucinogens in “mystic experiences of rebirth” and “divine transformations.” What they both overlook however is the role mushrooms play in the natural ecosystem. This may appear to be irrelevant for Rosenthal and Weart or the general public who have adopted the term ‘mushroom cloud,’ but the working effects of fungi are ubiquitous whether or not we are aware of their operation or their influence on human lives. Thus, it cannot be overlooked; we must scrutinize the ecological metaphor.

There are three different modes of existence in the world of fungi: saprophytic, symbiotic and parasitic. First, saprophytic mushrooms consist of species that feed on organic matter; they are the decomposers and recyclers of the ecosystem. In terms of the atomic bomb, we see not the act of decomposition, but rather unadulterated obliteration, which to the naked eye carries semblance: pulverization, leveling, and disappearance. Second, symbiotic mushrooms create interspecies relationships primarily with vascular plants, which allow for the transfer of nutrients between those that flourish and those in need; they work to balance the ecosystem. Although these partnerships are often mutually beneficial—which one would have to be drowning in denial to argue such for the utilization of nuclear weapons—the American political landscape of the late 1940’s was one that justified these

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6 Ibid.
7 Ibid.
bombs as a duty for the future of democratic diplomacy. Thus, National Defense measures were in their own way balancing global relations—at least in their own minds. Lastly, (and most applicable to the mycological metaphor) parasitic mushrooms are those that subsist on living organisms—often to the point of their victim’s demise. This is applicable to both the resource extraction and processing required of nuclear technologies as well as to the socio-political implications of harboring such disproportionate power. The mushroom cloud therefore emerges simply as a fruiting parasite to declare a victory over docility. It is to no surprise that fear is inextricably linked to parasitism as well as nuclear annihilation.

Let us now turn to the work of Chinese-American, New York-based artist Cai Guo-Qiang. His art practice is laden with symbolic gestures rooted in the natural world. As many artists growing up in China in the 1960’s, he was highly influenced by the Mao Zedong’s maxim, “destroy nothing, create nothing.”\(^8\) For Guo-Qiang, this has become a literal manifestation in his work. He is most well known for his use of explosives and fireworks to create ‘gunpowder paintings’ and performances. This practice developed into a flourishing motif after he moved to New York City in 1995. During a residency at MoMA’s P.S.1. in 1996, he documented a series of actions titled, The Century with Mushroom Clouds: A Project for the 20\(^{th}\) Century, in which he detonated small handmade explosives creating miniature mushroom clouds in highly politicized landscapes: Nevada Test Site, Robert Smithson’s Spiral Jetty (1970), Michael Heizer’s Double Negative (1969-70) and in front of the

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Manhattan skyline. He appropriates the mushroom cloud as a kind of “cultural readymade”\(^9\) and the massive earthworks by Smithson and Heizer are recontextualized, bringing to the fore their close vicinity to the active nuclear bomb testing in the region.

Curator and art historian Miwon Kwon in her essay “The Art of Expenditure,” argues Guo-Qiang’s conflation of art and war should be equated with earthworks more generally, not through the traditional reading of Land art as post-Minimalism expanding into the natural landscape, but as one of expenditure as described by Georges Bataille.\(^{10}\) After all, the American government was not the only one to see barren, arid land as available for the taking.

Curator and Land art scholar, Ben Tufnell, considers the sites chosen by Guo-Qiang as symbols of the creative power of the United States. The Manhattan Project for example, which hosted its first headquarters in the borough, was a multibillion dollar research and development endeavor led by the United States in collaboration with Canada and the United Kingdom to create the first atomic bomb. Michael Heizer’s *Double Negative* too suggests the power of American creativity by addressing the simultaneous natural and human constructed negative space within the landscape.\(^{11}\) The culturally charged earthworks merge with the implication of creation and destruction evoked in the detonation

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\(^{11}\) Michael Heizer’s *Double Negative* (1969) is a 9-meter wide, 15-meter deep, 457-meter long trench dug from (and dumped into) opposing sides of Mormon Mesa near Overton, Nevada.
of miniature mushroom clouds. One can also look to Heizer himself who said that the atomic bomb was “the ultimate sculpture”\textsuperscript{12}—an arguably dehumanizing notion but one that reflects the ways in which such a cataclysmic weapon of war has been flattened and framed for public consumption.

The Century with Mushroom Clouds: A Project for the 20\textsuperscript{th} Century is indeed a critique of such consumption, specifically that of the atomic tourism industry. However, this element in the work is fading with book reproductions and Internet circulation of Guo-Qiang’s photographic documentation.\textsuperscript{13} The images were first exhibited in a series of eight as a component to Crab House (1996)—an interspecies, relational installation by Guo-Qiang that I will discuss in detail in a moment. The photographs were printed on postcards, duplicated, and sold for $1 each. The choice to include the documentation as postcards is significant and exemplifies Guo-Qiang’s intention to represent the mushroom cloud as a photographic icon. Robert Hariman and John Louis Lucaites, in their book No Caption Needed, position the iconic photograph as a leading artifact of public culture in contrast with photojournalism, which they argue exists as closer to public art. They define icon as the


\textsuperscript{13} Tufnell sites Susan Sontag in relating the development of photography as simultaneous with the development of tourism. The Century with Mushroom Clouds thus positions Guo-Qiang within the ever-popular dialogue around performance documentation; the images were indeed two-second performances first and video documentation/printed photographs second. Ibid, 3.
photographic images appearing in print, electronic, or digital media that are widely recognized and remembered, are understood to be representations of historically significant events, activate strong emotional identification or response, and are reproduced across a range of media, genres or topics.\textsuperscript{14}

Guo-Qiang optimizes this connection in relation to the mushroom cloud (even fifty years after its inauguration) and explicitly connects the work to a greater discourse of atomic tourism. His series of postcards anticipates John O’brian and Jeremy Borsos’s book titled, \textit{Atomic Postcards: Radioactive Messages from the Cold War} published in 2011. The book compiles beautiful photo reproductions of postcards from the atomic age, each containing handwritten, signed and dated correspondences. One example is a postcard from the Pioneer Club in downtown Las Vegas showing a glorified mushroom cloud on the horizon as seen from the city. Another example is from the West Central Pacific depicting an official military photograph of nuclear testing at Bikini Atoll—an operation that required the displacement of hundreds of residents and resulted in mass fallout contamination. The message on the back reads simply, “THIS WAS PRACTICALLY RIGHT IN OUR FRONT YARD (LAST JULY) QUITE A SITE TO WATCH.” O’brian in the opening essay of the book problematizes the framability of mushroom cloud photographs. He asks, “should these pictures be framed as a source of pleasure, or framed as a source of caution?” He discusses the replication of mushroom cloud imagery as often void of any tragic or

destructive element and paradoxically symbolizes joy and excitement of travels and tourism.\textsuperscript{15}

Contemporary art too falls into the hands of tourism, especially with the rise of participatory and relational art in the 1990’s. Cai Guo-Qiang’s interactive installation, \textit{Crab House} (1996) took place in an off-site venue for P.S.1 The Institute for Contemporary Art, in New York. The exhibition juxtaposed the mushroom cloud icon with layers of biological symbolism. Besides the display rack filled with postcards as I discussed above, there was video documentation of \textit{The Century with Mushroom Clouds}; framed photographs and drawings relating to Guo-Qiang’s field research; two copies of an artist book featuring official nuclear test photographs; and a mural-sized gunpowder painting representing a birds eye view of earth ridden with nuclear explosions—the abstracted charcoal plumbs were made to “look like a field of mushrooms growing on the planet.”\textsuperscript{16} Designed to function as a teahouse, the space was equipped with tables and chairs and was open to the public. Visitors were invited to enjoy a cup of Reishi or Lingzhi mushroom tea, which is used in traditional Chinese medicine (and increasingly in the West) for its immune boosting qualities and detoxification. Ironically, it is revered as the ‘mushroom of immortality’ and its medicinal uses date back to the first emperor of China, 221-207 B.C.\textsuperscript{17} The exhibition space also included 167 live crabs strewn about the sand laden floor. On one hand, the crabs “signify

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\textsuperscript{16} Krens and Munroe, eds. \textit{Cai Guo-Qiang: I Want to Believe}, 238.
\textsuperscript{17} Paul Stamets, \textit{Growing Gourmet and Medicinal Mushrooms}, 3\textsuperscript{rd} ed. (Berkeley: Ten Speed Press, 2000), 352.
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the relationship between nuclear radiation and death”\textsuperscript{18} (they are after all one of the few creatures to survive in high levels of radiation), but on the other hand, one can consider the crab as a symbol of the cancer epidemic, thus acting simultaneously with and as an antithesis to the mushroom cloud.

The crab has also notably been taken up by cancer campaigns not for its link to the zodiac sign, as is often assumed, but because when cancer cells are magnified, they resemble the shape of a crab.\textsuperscript{19} Nancy Webb at a paper presentation at Concordia University, paraphrased Susan Sontag in saying that “cancer’s burden of metaphors stands for the deeper insufficiencies of contemporary culture—including stunted attitudes about death and disease and the relentless capitalist drive toward growth.”\textsuperscript{20} Crab House then functions in a cycle of symbolism: the “insufficiencies of contemporary culture” lead to political unbalance and nuclear warfare, thus creating inhabitable landscapes saturated with cancer causing radiation (which however unintuitive, is still the preferred method for cancer treatment). This invokes Audre Lorde’s notion that “the master’s tools will never dismantle the master’s house.”\textsuperscript{21} Yet, the work steers our attention towards the billowing atomic

\textsuperscript{18} Krens and Munroe, eds. \textit{Cai Guo-Qiang: I Want to Believe}, 240.
\textsuperscript{19} Nancy Webb, “‘The Night Side of Life:’ Cancer in the Popular Imagination During the Cold War Era” (paper presented in a Master’s seminar at Concordia University, Cold War: Art, Architecture and Global Politics, 1945-1989, taught by Nicola Pezolet, Montréal, Québec, April 13, 2015).
\textsuperscript{20} Webb, “‘The Night Side of Life.’”
plumb and asks us to consider the mushroom organism. Indeed, today the Reishi mushroom is widely used for cancer treatment.²²

Guo-Qiang is one of many artists to have taken up the mushroom cloud icon.²³ One of the earliest examples emerged from Italy, with a group called Arte Nucleare. The movement was founded in 1951 by Enrico Baj, Sergio Dangelo and Gianni Bertini, and later joined by international artists such as Yves Klein, Asger Jorn, Arman and Piero Manzoni. The group of painters and poets created work in response to the atomic age, warning their audience of the risks of developing nuclear technology. By the early 1960’s (again congruent with the Limited Test Ban Treaty), Arte Nucleare had completely dissolved.

It was Andy Warhol’s, Atomic Bomb (1965) that promptly revitalized the consumption of the mushroom cloud icon that, until its rapid disappearance from the public sphere, went unabashed for two decades. His nearly nine-foot tall canvas depicts serialized screen-printed images of a classic mushroom cloud silhouette amongst a blood-red sky. The rectangular framing of each cloud reads like a graphic novel, the narrative simply cycling back onto itself. Furhtermore, Warhol’s registrations are asymmetrical, revealing the artistic process and challenging the act of reproduction in relation to the atomic bomb. The


²³ For other examples of contemporary artists who have taken to the mushroom cloud icon see Chris Drury (1948–) Mushroom Cloud, 2010; Subodh Gupta (1964–) Line of Control, 2008; and Samson Kambalu (1975–) Two Mushroom Clouds, 2011.
composition as a whole darkens from top to bottom. Perhaps then there is a narrative—one in which we lose sight of an anticipated death. Peggy Rosenthal in her survey of atomic culture, describes the mushroom cloud as “projecting back the array of human responses to all that it stands for: responses of pride, parochial possessiveness, creative resistance, denial, [and] despair.” In other words, the mushroom cloud was destined to prevail as an icon regardless of its evolving contexts. It was Warhol however who edged it back into the fore.

It is important to note that Andy Warhol was seventeen years old when the atomic bomb was introduced into the American consciousness. Despite the deep-seated and cross-cultural influence of the mushroom cloud icon, its resonance as a cultural symbol differs greatly from those who lived through the era of its development (Warhol) and those born after its integration into society (Guo-Qiang). The latter generation is utilizing the mushroom cloud icon as a meta symbol. Guo-Qiang, by creating a work at the end of the 20th century that looks to the changing symbolism of the mushroom cloud in retrospect, leaves today’s audience wondering what are the ramifications of its appropriation in the 21st century? Does the mushroom cloud in contemporary art perpetuate notions of

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25 Peggy Rosenthal develops a chronologically based cluster of metaphors for which she believes the mushroom cloud image is received. They include the “procreational mushroom cloud” in its earliest reception, which includes epithets such as the ‘birth place of the bomb;’ the “adolescent mushroom cloud” stamping itself on school emblems and rhetoric around shear thrill, power and freedom; the “marketable mushroom cloud,” which used the explosive connotation to sell; the “mass murderous mushroom cloud,” led by the antinuclear movement; the “military mushroom cloud” that looked to utilize its force as a prevention of future wars; and the “aesthetic mushroom cloud,” for which we find ourselves in an analysis of contemporary art. Ibid, 66-80.
nostalgia as per its uptake in mass media? Dina Titus in her article “The Mushroom Cloud as Kitsch” argues that protesters who have utilized the mushroom cloud in opposition to military measures inadvertently perpetuated the assimilation and desensitization of the mushroom cloud icon. What then can be said about its integration into contemporary art?

Rosenthal discusses the effect of the mushroom cloud in more timeless terms, claiming that the icon continues to “touch us deeply [and] grab us in the gut. [...] When they’re in our presence, they don’t stay in our peripheral vision.” Also notable is her notion that there is a “conflation of life-giving and death-dealing images in mushroom cloud iconography.”

This speaks to the paradox of the nuclear bomb’s power to protect through the act of annihilation.

The same paradox is evident in the fungi kingdom; for a mushroom to thrive, another organism must die or be decomposed. In fact, this may prove to be a benefit for dealing with nuclear fallout. The rapidly emerging field of mycoremediation—best known for employing mushrooms that can break down hydrocarbon molecules (like those found in petroleum products) to render once-toxic waste environmentally safe—has turned an eye towards radioactivity. Research is currently underway to determine the ability of fungi to help remediate radiation contamination.

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In the wake of the Fukushima Daiichi nuclear power plant disaster and other disconcerting nuclear energy developments in the last decade, the mycological underpinnings of nuclear power is as relevant as ever. In the months following the Fukushima power plant’s nuclear meltdown, Japanese photographer Takashi Homma joined a fleet of photojournalists to the aftermath. The wreckage and human loss from the magnitude 9.0 earthquake and resulting tsunami however were not Homma’s point of interest. He instead turned to the forest to document irradiated mushrooms, staging the specimens against a sterile, white background. His gorgeous compositions are as much tongue-in-cheek irony as they are an empathetic cry for social and environmental balance. The photographic series was published in a limited run book called *Mushrooms from the forest 2011* in conjunction with an exhibition at Blind Gallery in Tokyo’s Yoyogi Village the same year.29

The mushroom cloud icon in Homma’s work flips onto itself, challenging Vince Leo’s argument that the term ‘mushroom,’ in relation to nuclear bombs, evokes a sense of the natural, “treating it as a physical occurrence rather than an act of war.”30 Leo’s notion is convincing in considering Americans’ desensitization towards the mushroom cloud icon, but Homma’s photographic series demonstrates the cost to the natural world due to nuclear development, and thus exposes the consequences of selfish progress. The Tohoku

earthquake becomes an easy scapegoat for the disaster, but in being so, dissolves any question of what differentiates a “physical occurrence” from an “act of war.” These inherent ecological metaphors surrounding nuclear aftermath reveal the power of iconography. By myco-po-morphizing the atomic bomb, we have inadvertently coupled the victim and the prey. What then can be gleaned from the ecological precedent of balance to help handle the unwieldy annihilative power of nuclear weapons?
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