The Smoke of Nuclear Modernity drifts through the Anthropocene
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Introduction

Working with the nuclear economy and nuclear aesthetics is a complex ethical process; one that twists and turns through spirals of technical jargon, nuclear utopianism and deep psychic fear. In this culture of extremes, artists engaging with contemporary nuclear culture walk a political tightrope interrogating how nuclear aesthetics are reproduced whilst avoiding the simplifying tropes of industry and activism. In parallel to artistic practices, this essay explores some of the constructions of nuclear modernity, and the means of escape and betrayal, which contribute to rethinking nuclear aesthetics in the early twentieth century.

If we look back at Moholy-Nagy's *Nuclear* paintings, also made as a contemporary response to the nuclear culture of his time, we can see how an interrogation of atomic visual affects are deeply rooted in the politics of nuclear modernity. In contrast artistic practices today are engaging with social contexts, the lived experience of radiation, sensing, and deep time cultures of folklore, ritual, archiving and site marking. Today questions of radioactive visibility are articulated through: print, sound and data capture technologies sensing radiation in the landscape; an investigation of materials and geological mapping; and traditional forms of care and solidarity in the advent of disaster. In theoretical terms, artworks can bring us closer to the nuances of nuclear culture, perhaps making visible the moments in which we might try to escape nuclear modernity, or at least make visible its totalizing affect.

Nuclear Modernity

Shortly after the bombing of Hiroshima and Nagasaki, László Moholy-Nagy captured the emerging nuclear imaginary in *Nuclear CH I* (1945), a painting that depicts a nuclear world balanced on the modern grid of Chicago. The painting shifts in scale, from the monochrome urban plan to the global nuclear condition, where the world is exposed to the full light spectrum of the atomic explosion. The grid is a paradigmatic sign of modernity; its infinitely extendable, mathematical partitioning of space emblematic of Enlightenment rationality and implicit mastery of the physical world. In contrast, the organic 'bubble' earth seems less solid and more fragile, yet it also signals a complete, closed environment. Moholy-Nagy's painting is significant not just because it is one of the first artworks of the atomic age but because it instantiates a set of spatial relations between the bomb, the position of the observer, and the planet. The painting situates the artist and viewer in the position of the pilot (a position of removal and complicity), a vantage point from which the nuclear explosion can be apprehended as sublime spectacle and not as an act of mass destruction. The event of the detonation is represented as world-making – it defines and encompasses the 'whole earth': from inside this world, the effects and knowledge of the nuclear cannot be undone.

Moholy Nagy's painting reminds us that the vision of an atomic armed and powered future to end all wars and provide free electricity was a product of a modern belief, as exemplified in Eisenhower's speech 'Atoms for Peace' (1953). Today things are different: the early twenty-first century brings global nuclear proliferation, reactor meltdowns and contamination; plans for geologic storage of waste, accompanied by the realization that nuclear materials are slowly drifting from state to private and now public responsibility. At the same time the idea of progress is re-examined within the human time of the Anthropocene, raising a crisis of the 'present' in all its temporal confusion, and modernity in all its historical splendor.

Betrayal

Whilst the arts commonly deal with historical politics from a comfortable distance, Isabelle Stengers' writing on modernism and subjectivity (2008) can help to think through the way in which art might get closer to nuclear modernity in the present. Nuclear modernity can be summarized here as an ideological commitment to nuclear technologies based on enlightenment rationality and control of nature, exemplified by Maholy Nagy's painting. Stengers defines modernism by its distinction "they believed/we know" (2008, p.49); where Modernism assumes factual knowledge in comparison to pre-modern belief. This distinction is vital to unraveling nuclear belief as a modernist construction. The moment that knowledge is understood as belief reveals that each era defines its knowledge as fact and the era before as simply believing.

Isabelle Stengers uses Deleuze's idea of a 'refrain', a phrase or an idea, repeated through song, chanted, hummed to provide a means or journey of escaping fear whilst avoiding capture (2008, p.42). To take

Stengers ideas further into the realm of nuclear aesthetics, we might think of this refrain as our own subjective experience to connect with fear and find a line of flight to a different way of understanding the world. Whilst art as a form of refrain might articulate practices of survival and solidarity, it does little to address the relationship between art and political change when we are still bound by the conventions of the modern territory. So instead of opposition to the modern, Stengers draws on Deleuze and Guattari's process of betrayal: "bringing into disclosure an ingredient that both belongs to the territory and connects with an outside against which this territory protects itself." (Stengers, 2008, p.42).

Instead of trying to escape the ideological frameworks of nuclear utopianism, the idea of betrayal offers a new strategy: a way of getting closer to the materials, processes, bureaucracies, sensing devices, languages of the nuclear economy. Here artists immerse themselves in radioactive sites, symbols, materials, discourses, to bring the fears home, to make them visible not as an external sublime but as a localised uncanny. Artworks can also articulate Bruno Latour's actor network theory of assemblages (Latour, 2005), where the moment and manner in which things, objects, people and ideas come together articulates a force. Perhaps it is the fabrication of these assemblages that artists make perceptible, finding new sites and modes of operation to be able to articulate a line of flight or mode of betrayal.

In the nuclear betrayal, the refrain of nuclear superiority (aesthetic, military, technological) is presented as modern belief. Like many technologies developed with scant regard for sustainable management of resources, the nuclear military industrial complex is based on both empirical scientific knowledge and the modern dream of the future that neglects the folkloric traditions of the past and the critique of the present. The modern dream, explains Stengers made a distinction between objectivity and subjectivity, between science and art.

If things are different today, it is that we can understand subjectivity as a powerful voice or force, not specifically positioned as 'anti-modern', but developing new interdisciplinary strategies for dialogue between art, science, engineering and sociology. Stengers describes a feminist pre-modern subjectivity in the present evoked by neo-pagan witch Starhawk through the call to smell the smoke of the burned witches that still hangs in our nostrils (Starhawk cited in Stengers, 2008, p.48). It is this sensory memory of how the ancient traditions of empowered women are felt to be a threat to hierarchical patriarchy which is reclaimed as agency by the women's anti-nuclear peace movement.[i] But the challenge for art is to find ways of reclaiming different kinds of pre-modern subjectivity within post/hyper-modern desire whilst living within the modern nuclear territory.

In the Pacific the smell of the smoke, the historical sensory memory, is not from the burning of witches, but from the people who experienced the atomic bombs in Hiroshima, Nagasaki and Bikini Atoll; the bad breath of Gojira. The smell hangs in the conversations, memories and radioactive dust of Fukushima, encased in the black vitrified glass of the repository flasks, and the piles of sacks of contaminated topsoil in the exclusion zone. Nuclear believers separate these historical moments, but those who lived through both periods of radioactive contamination can feel the drifting dust in the refrain of nuclear safety and the rhetoric of natural background radiation. The stories and radioactive isotopes of Fukushima are finding their way to international shores and artistic practices.

Archives

In many ways all artworks that deal with the nuclear are part of an ongoing archive in that they evidence the complexity of nuclear culture within their time and open up new ways of thinking about the nuclear economy. Although the homogenizing nature of the global nuclear industry is a powerful force, each country or region is affected differently and is developing its own nuclear vernacular of architectural and aesthetic responses, from Derek Jarman's garden at Dungeness to Katsuhiro Miyamoto's shrine for the Fukushima Dai'ichi Nuclear Power Plant.

These works, like all nuclear related artistic practices, form part of the archive of nuclear experience for future generations through their exhibition, display, publication and entering into collections. Through this critique, the archive has evolved from the domain of documents, and site markers (Bryan-Wilson, 2003), to the multifarious and complex forms of how and where knowledge is embedded, or lost, in a culture. In this way the nuclear site marker is not simply a monument, but a process of creating layers of evidence of complex cultural belief systems (Sebeok, 1984). In this way, subjectivity becomes an important political and

aesthetic tactic.

Today nuclear technologies are visible in their decay and failure. No longer part of the shiny vision of the future, we can't take them for granted or pretend to hide their waste products. The decommissioning of power stations, submarines, the stockpiles of waste, the ongoing catastrophe of Fukushima, all impact on the public realm; not just through fallout and radioactive water flowing into the Pacific Ocean, but in terms of public visibility. Responsibility for the nuclear industry and its products is shifting from centralized state (weapons) to decentralized private (energy) to a distributed public (waste monitoring). The institutions will not last for the lifetime of the toxic waste they have created, and new forms of public consultation are being used to engage local populations in waste monitoring.

The time frames for human consciousness have dramatically shifted in the last few years through the discussion of the Anthropocene, the impact of human existence evidenced in the geological strata of the planet. In 2015 the emergence of the concept of the Nuclear Anthropocene (Peter C. Van Wyck) draws on the detectable radiological fallout from weapons testing (Zalasiewicz, 2015); and the insertion of anthropogenic radionuclides into the fossil record by building geological repositories deep in the strata of the earth. (Hancock, 2015). Now that these nuclear materials are entering the public realm, the nuclear archives can include a wider perspective from the modernist vision, and these archives can include art.[ii]

Conclusion

Revisiting Moholy-Nagy's painting has a contemporary resonance with the radioactive globe of the Anthropocene, where the nuclear cannot be undone. It is this knowledge and experience of living within a radioactive environment that continues to inform visual artistic responses and contributions to nuclear discourse. Here art can open up different modes of critique enabling a space in which subjectivities can be addressed and new forms of aesthetics and organization can take shape. Whilst the bureaucracy of public consultation processes might seem to normalise nuclear culture, the complexity of contemporary art creates spaces in which to resist capture and create new lines of flight.

In a post-Fukushima world we have an opportunity to review where we sit within the Nuclear Anthropocene, counter-factually and spiritually as well as geologically. Further discussion of art and nuclear modernity is needed to rethink the political and aesthetic bind between nuclear science and a vision of the future to enable a greater understanding of the deep time of radiation. This process demands that we look further backwards and forwards in time: from pre-modern forms of organization and culture to the twenty-first century nuclear vernacular and future insights to come.

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i At Greenham Common Women's Peace Camp women constructed an asymmetrical space and network to that of the military industrial complex which deployed American nuclear armed Cruise Missiles at USAF Greenham Common in Berkshire. The Women celebrated their subjectivity whilst engaging the law to remove the weapons and return the base to common land.

ii Britain's National Nuclear Archive is planned to be built at Wick, Scotland, next to the decommissioned Dounraey fast reactor research centre. www.nda.gov.uk/2012/12/national-nuclear-archive-project/