

**AIR TIGHT:  
POLEMICS AT THE INTERSECTION OF  
ART, TECHNOLOGY AND THE PUBLIC DOMAIN**

by

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Submitted to the Department of Architecture  
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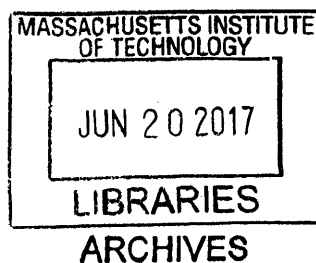
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**ABSTRACT**

The author's methodological framework is used to position his art practice in relation to an ecology of thinkers, artists, and activists engaged with defending democratically governed un-privatized public space. Historically, there is a legacy of artists working with techniques of dispersion, sequestering, and the visualization of otherwise imperceptible components of air to create meaning. Starting in the mid-1960s, a number of artists and engineers worked together to create pneumatic projects such as airborne inflatables released in the urban environment and mist machines capable of enveloping an entire building in a cloud of fog. However, as this thesis argues, the early 1970s marks the moment when a radical rupture happened in the artistic use of air as a medium. Air became a space to fill with toxicity as a sign of public protest. It was also the time of a motivational shift in how artists began working with air. This era also marked the beginning of a political activation of air space as an environmentalist tactic of critique. Forty years later, thanks to nano technology and capitalist regimes, society's relationship to air space is changing drastically. Innovation in air quality sensors is allowing for the most precise readings of one's immediate air space ever. This comes from breakthroughs in carbon nanotube air composition sensing, a technology finding a wide range of applications in various military and health related industries simultaneously. What is at stake socially in the widespread proliferation of such technology? The author will unfold his interest in this emerging site of inquiry by recounting the principle objectives in his art practice and his use of air as a medium.

Keywords: Air Space, Sky Art, Pneumatic Art, Dispersions, Sequestering, Visual Arts, Nano, CAVS, E.A.T., Ultra-red, Gustav Metzger, Public Smog

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## INTRODUCTION

In this thesis, an effort will be made to trace and connect the work of certain influential artists insofar as such work helps clarify the argument that air space<sup>1</sup> is the next site where the co-opting of democratic governance<sup>2</sup> in the public domain is to be contested. When we speak of air today we cannot avoid talking across various spatial dimensions and scales. Our bodies breathe air and exhale air. On the nano scale, our cells and those cells of many living things on this planet take oxygen from the air and release carbon dioxide in turn. When cells die even more carbon is released into the environment, ever changing the molecular composition of the surrounding air. In a way, we are all walking around with little clouds of gaseous chemicals and microorganisms exuding from our bodies thanks to the fundamental organic processes that keep us alive.<sup>3</sup> Yet, before there is air there is vacuum, as in outer space. When Earth's atmosphere was created, alongside it a heterogeneous space was also created. Air is a gaseous collection of materials that make up the contents of space making it, in turn, inhabitable for forms of life. A key element in this research project is to reflect on the signs of a particular paradigm shift in how we are relating to air on cultural and economic terms. Air is not a shareable resource any more than it is also an exploitable resource.

Since air is quite an immaterial concept, I will refine the concept into two formulations based on how air presents itself in art works examined in this thesis: air as medium and air as space. The first formulation refers to the employment of air to produce unique formal characteristics in an art work. The second formulation of air is more of a metaphorical convention that will allow me to speak of air as a site that is inhabited by humans, politics, and regimes of power, such as transnational corporations and corrupt governments. I will ground this theorization of the *public sphere* with a discussion of the texts of German

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<sup>1</sup> I will discuss the notion of air space in the pages below.

<sup>2</sup> Chantal Mouffe writes that the current regime of neoliberalism operates with a version of inclusive democracy that is not truly representative of the diversity of people that conform the public sphere. I will discuss this further in the pages below. However, I contend that there is a technological rupture leading air space to become a privatized space before the public is able to exercise a democratically arrived plan for the management of its newly discovered resources. (Mouffe, Chantal. *The Democratic Paradox*. Verso London-New York. 2000, 18)

<sup>3</sup> Weschler, Charles J. "Commemorating 20 years of Indoor Air" *Indoor Air Journal*, No. 21 2011, 205–218 & "Changes in Outdoor Pollutants since the 1950s", *Atmospheric Environment Journal*, No. 43 2009, 156-172

sociologist Jürgen Habermas and his critics, and explore the capacity of different art practices for engaging with this subject matter.

## **LITERARY REVIEW**

This thesis will collect and synthesize viewpoints from a diverse range of historical literature. However, to balance the selection, these texts will conform to certain criteria; namely, their influence in elucidating complex notions across disciplinary fields of what it means to make air visible, materially available, and controlled. For this reason, many (but not all) of the texts will come from thinkers that have helped define shared parameters of understanding in fields akin to philosophy, critical theory, and cultural studies.

There will be mention of theorists such as Michel Foucault, Chantal Mouffe, and Gilles Deleuze. The extracted ideas from visiting such theorists' works will be to assist our understanding of the primary texts I'll be working with, such as artist interviews or artist talks used in the thesis. These artists and artist groups will include, Ultra-red, Amy Balkin, Gustav Metzger, Experiments in Art and Technology (E.A.T.), and Otto Piene. The central topics in this thesis revolve around the notion of artworks operating in the public domain along political motivations. Especially important will be those artworks that are part of a historical trajectory of pushing the manipulation of air into directions beyond what was done at the time. Thus, I will return to the question of how air is used by the artistic examples I cite. Nonetheless, as another central concern of this thesis is to understand how current technologies reveal new ways air can be abstracted and deployed through computational and economic matrixes that are politically charged, a certain amount of literature will be derived from scientific writings, articles and publications focusing on developments in technological research. This type of literature will focus on new technologies that in some form or another are already being tested at the Massachusetts Institute of Technology (MIT), the institution from where this thesis is being written and archived. Hence, this thesis will try to contextualize these ramifications according to the topic of the contested public domain, the financialization of air space and regimes of nature.

Complementing the literature review will be the introduction of key artworks and art practices that also focus on themes such as defining the public domain and the recurrence of air and its composition as an increasingly tangible medium deployed for political engagement. Throughout most chapters, an effort will be made to trace and connect the work of certain influential artists insofar as such work relates to the central topic of the thesis.

## **POSITING A NEW NOTION OF AIR SPACE**

Initial inspiration for this research came from a notion of *public domain* that pertains to specific theoretical frameworks that have long existed. I would like to discuss the work of theorists that have formulated ways to address the most urgent problems in the conception of the public domain, to reveal its genealogy, its contradictions and its porosity. However, my intent is to place their theoretical work as closely as possible to the concerns in my art practice. There are many trajectories indeed that other artists and thinkers have taken to think of the public domain as a site where democracy, critical memory and oppositional modes of thinking and political imagination can be tested and re-imagined.

One concern in my artistic practice when dealing with notions of public domain is how it all translates to actual space. Are our immediate surroundings designed to evoke distinctions between public and private? Would such design even be visible? Another concern I have relates to my desire to extract a type of currency with capacity for political mobilization by positing a particular framing of dynamics inside the public domain. For instance, how does the public domain exhibit *publicness*? Does it imply equal access for all, and if so, at what cost? Who is the public and how are they able to share a? Through this line of questioning I arrived at the inspiration behind my decision to research the connection between air, public domain, and art. Air as I currently think about it, is pre-conditional to making any place co-habitational. Air is the myriad form that denies the vacuum from its emptiness. Air, in this sense, creates space for occupation. In this research project I will call this space, *air space*<sup>4</sup>. As a space that is inhabited,

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<sup>4</sup> The way I am treating *air space* has a different meaning than the noun “airspace”. The latter refers more commonly to the space in which aircrafts fly which usually falls under the jurisdiction of a given country.

air space is thus an extension of the public domain. As an amorphous stream of micro particles in constant flux, the components that make up the physical state of this air space is never fixed. Materially, air spaces are undergoing continual movement and recombination with other air spaces unless confined by air tight walls.<sup>5</sup> And even when such walls are in place, sound, light, electromagnetism, and radiation can further affect any given air space rendering it even more heterogeneous and different from other air spaces.

Equally important is the affecting of air space by a plethora of human industry. In fact, all living and non-living objects potentially change air space chemically and organically just by way of moving, breathing, dying, and even decaying. Air space is indeed constructed by many different players at once and it is this rare quality that makes it a good lens for speculating on the limitations and affordances of re-thinking the notion of public domain. It is important to consider that air is no longer pure. Instead it is imbued with the economies of power and resistance that historically have staked claims in it. As this process progresses, perhaps it is time to look further than the agora or town square as the site in contention and look closer at the particles entering and leaving our bodies.

#### **ARRIVING AT POLEMICS OF AIR SPACE AND THE PUBLIC DOMAIN**

German philosopher, Peter Sloterdijk<sup>6</sup> asks us to think of the air around us and the air we breathe as being “configured in a complexity” of ways since the advent of modernity. Air has already become “co-opted and weaponized” by powers of state and capital. The urgency lies in assessing how to preserve the fabric and the essence necessary for the construction of shared, democratic air spaces.

Before such contestations could be developed though, it would be productive to understand this field by outlining the major traits of the public domain as the notion has been presented by various thinkers of the 20<sup>th</sup> Century when the notion was developed. Most people will credit Jürgen Habermas with having popularized the term *public sphere* and the theory that attempted to describe it first.<sup>7</sup> He

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<sup>5</sup> E.g. a balloon

<sup>6</sup> Sloterdijk, Peter. *Terror From the Air*. Cambridge: MIT Press, 2009, 5

<sup>7</sup> Fraser, Nancy. “Rethinking the Public Sphere: A contribution to the Critique of Actually Existing Democracy.” *Social Text* No. 25/26. 1990, 60

published *The Structural Transformation of the Public Sphere* in 1962 and continued working on themes presented therein for the rest of his career. One of the major points in this text discussed the emergence of a new collective political force in the late feudal era in Europe. This emergent body politic was made up by the faction of society that was coming into power thanks to a burgeoning capital based economy. With the, “emergence of finance and trade capitalism, the elements of a new social order were taking shape.”<sup>8</sup> A new capitalist configuration meant reforms were set in place that granted property and ownership rights to members of society outside the regimes of the monarchy, the aristocracy and the clergy.

These new conditions favored a certain strata of society of the time, nonetheless. It was still a league of men with white features albeit no longer part of the royalty or noble class<sup>9</sup>. This new social group would organize into a representative party capable of making demands to the government for their best interests and they would call themselves the public. Moreover, there is another breaking of power that happened when the noble regimes disintegrated which manifested itself in land ownership policy and the planning of cities. As the land of the nobles was being reformatted into national and non-nationally owned territories, it was the wealthy class that was able to buy-up and remove all new property that was produced before those from the poor lower classes could respond. This action of dividing the space of cities into privately owned spaces when before they belonged to the “king sovereign,” is what led to the creation of the first private spaces. There would also be spaces and land that was not claimed by either the new state or the upper class. These spaces would become the public space of the new urban sites to come.<sup>10</sup>

Habermas would attract many critics who in turn created seminal writings that critiqued the “habermasian public sphere” as a space of exclusion. Essentially these theorists condemned the naming of the post-feudal social structures as a democratic public society when there were so many problems

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<sup>8</sup> Habermas, Jürgen. *The Structural Transformation of the Public Sphere*. MIT Press, Cambridge, MA. 1991, 15

<sup>9</sup> *Ibid.*, 16-25

<sup>10</sup> *Ibid.*, 25

affecting whom was able to participate. Habermas made broad claims that there was an actual representative public born in the revolutions of 17<sup>th</sup> century Europe.

A few years before the French Revolution, the conditions in Prussia looked like a static model of a situation that in France and especially in Great Britain had become fluid at the beginning of the century. The inhibited judgments were called “public” in view of a public sphere that without question had counted as a sphere of public authority. But was now casting itself loose as a forum in which private people, come together to form a public, readied themselves to compel public authority. The publicum developed into the public, the subjectum into the reasoning subject, the receiver of regulations from above into the ruling authorities’ adversary.<sup>11</sup> It was a system that only represented a select few in power, the white property-owning male majority. The public sphere upon which our current democratic voting system is based upon was defined by a socio historical process favoring white owners of capital. This newly created public sphere declared autocratically that through their election systems they were to speak on behalf of everyone in the populace, when in fact these systems prevented participation based on race, gender, economic, health and criminal status and political inclination. Included in this revisionist framework are Nancy Fraser, Mary Ryan, Joan Landes and Geoff Eley. But their critical engagement is not dismissive but striving to complement and expand Habermas’s project. For example, Fraser actually introduces her essay *Rethinking Public Space*, 1992, with the line, “Those of us who remain committed to theorizing the limits of democracy in late-capitalist societies will find in the work of Jürgen Habermas an indispensable resource.”<sup>12</sup> These writers’ engagement with Habermas seems to be an effort to find the conditions of a true public sphere.

By today’s standards, the public spheres discussed by Habermas were not embodying the true nature of his “publicum.” It seemed Habermas missed to point out that to truly achieve any semblance of being representational there would have to be a democratic system that was more accessible. The notion

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<sup>11</sup> Habermas, 25-26

<sup>12</sup> Fraser, Nancy. *Rethinking Public Space*, Cambridge: MIT Press, 1992, 110



of the *publicum* would meet fierce rethinking by political philosophers such as Michael Hardt and Antonio Negri. Their collaboration on the book *Multitude: War and Democracy in the Age of Empire*, 2004, as part of a trilogy on the critique of Empire and Commonwealth, posit the conceptual framework of the *multitude* in lieu of the publicum. Chantal Mouffe synthesized their argument along these terms<sup>13</sup>:

Since in the passage to postmodernity and biopolitical production, labor power has become increasingly collective and social, a new term is needed to refer to this collective worker, it is the 'Multitude'. Hardt and Negri believe that the passage to Empire opens new possibilities for the liberation of the Multitude. They see the construction of Empire as a response to the various machines of power and the struggles of the Multitude. Multitude, they say, called Empire into being and globalization in so far as it operates a real deterritorialization of the previous structures of exploitation and control is a condition of the liberation of the Multitude. The creative forces of the Multitude that sustain Empire are capable of constructing a counter-empire, an alternative political organization of the global flows of exchange and globalization, so as to reorganize them and direct them towards new ends.

The great differences between the multitude and publicum are differences of scale first off. The multitude<sup>14</sup> is the body politic in a global economy that no longer thrives of local "structures of exploitation." All nationalities and ethnicities are now affected by the choices of the few in power. This paradigm shift undoubtedly added an amount of complexity that would leave Habermas' notion of the publicum. More importantly, by this shift in economic power on a global scale, the "subjectum" of Habermas, who was "the receiver of regulations from above", is situated many removals away from the European history with which Habermas framed his theories.

Others have tried to deconstruct and reframe theoretical approaches toward Marxism, rethinking the public and private as a configuration of space that was being produced by the actions, transactions,

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<sup>13</sup> Mouffe, Chantal. Critique as Counter-Hegemonic Intervention. 2008 Transversal Texts. European institute for progressive cultural policies (EIPCP)

<sup>14</sup> The multitude is also theorized extensively as a concept by Paulo Virno, in the book *A Grammar Of The Multitude*, 2004, who shared with Negri and Hardt a desire to renounce the system of representative democracy.

political forces and other economies defining such a space. Henri Lefebvre's *State, Space, World*, examines modes of production in the late 20<sup>th</sup> Century; Lefebvre's theories demonstrate the interplay of forces of power that prevent the transmission of knowledge and production value from one class to another. He reveals the difficult paradoxes prevailing in the fight for a free public sphere. For Lefebvre, a true transformation in the illusory free reality he lived in, space was co-opted by false definitions of public, erasing its potential to flourish. If sites where power regimes differed were to be produced, then the ownership of the means of production needed a decisive change of hands. Lefebvre writes, "[the revolution of space] gives a new dimension to it, starting from the suppression of a particularly dangerous form of private property, that of space: underground space, ground space, aerial space, planetary space, and even interplanetary space."<sup>15</sup> There is a definite recurrence of the positivity in Lefebvre's statement on how to suppress "a particularly dangerous"<sup>16</sup> appropriation of space. The production of new spaces had already been mastered by artists by the time Lefebvre was writing.

What is of great concern to this thesis as well is the recurrence of a specific type of subject that would become the agitator of values of this public sphere. In the texts featured in *Fearless Speech*, 2001, Michel Foucault develops a genealogy of the word and historical rhetorical figure of speech known as *parrhesia*<sup>17</sup>. Parrhesia was evident when people engaged in debate with the intent of revealing the truth. To engage in parrhesia is to engage in a dialogue along similar lines of that employed in the Socratic Method<sup>18</sup>. Parrhesia is driven by the pursuit of speaking despite the risk posed to the individual who is speaking. Foucault likened it to "fearless speech" because parrhesia was always enacted towards the person or people denoting authority. The notion of free and fearless speech as it has become used today owes a lot to this ancient yet recurring figure in political philosophy. The type of truth that the parrhesiastes recalls could be compared today to publicly presenting a careful and undeniable critique of

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<sup>15</sup> Lefebvre, H. *Space: Social Product and Use Value*, 1979, 194

<sup>16</sup> *Ibid.*, 194

<sup>17</sup> In Foucault's treatment of this term he states that a person that "speaks the truth" is called the *parrhesiastes*

<sup>18</sup> The Socratic Method is a form of debate in which both parties are willing to argue a question to find the underlying truths posed by the issue at hand.

the “structures of exploitation” of a globalized capitalist regime<sup>19</sup>. Foucault points out that throughout Classical Greek history<sup>20</sup> it was no small gesture to speak directly to a monarch in the streets. In the Roman Empire of Dio Chrysostom there are writings of how Diogenes was brave enough to speak to Alexander the Great in the town square as he passed with his entourage. Diogenes was but a civilian of no political power or wealthy standing. Nevertheless, Alexander could not kill Diogenes out of anger there in the square, *publicly*, in plain sight of everyone in the courtyard. If he had acted violently, it would only prove Diogenes’ critiques of Alexander’s government were obviously true. Diogenes was cunning enough as to know that Alexander would be forced to lower himself down from his godly status to share the square and have a conversation with him. But it could have easily happened that his bravery might have been squashed in a whim by Alexander. With this historical anecdote, Foucault’s aim is to illuminate the fact that Diogenes’ act resulted in the people of the square witnessing the truth behind the shroud of power that protected Alexander.<sup>21</sup>

The reemergence throughout history figures using parrhesia proved for Foucault that there is a societal need for this trait. He studied several instances since the ancient Greek writings to see how fearless speech and truth would be taken up by individuals and groups at different eras. Beyond his historical recounting though, Foucault also developed a theory of the practice of parrhesia in community life, public life, self-diagnosis and self-examination. For him, the frankness of a parrhesia position meaningful to producing legacies of resistance. Foucault summed up this important inquiry in one of the six lectures from which *Fearless Speech* was based: “my intention was not to deal with the problem of truth, but with the problem of the truth-teller, or of truth-telling. [K]nowing who is able to tell the truth, and knowing why we should tell the truth, we have the roots of what we could call the ‘critical’ tradition in the West.”<sup>22</sup>

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<sup>19</sup> E.g. labor sweat shops, race, gender and class inequality, corporate power, and government corruption

<sup>20</sup> An era that spanned 500-300 BC

<sup>21</sup> Foucault, Michel. *Fearless Speech*. Semiotext, 2001, 122-133

<sup>22</sup> Foucault, 4

To speak freely, as a parrhesiastes does, requires an artfulness in speaking the truth to the powers that be. As much as parrhesia was encouraged in courts of Athens 500 BC it was also cheered in theaters when the performers could speak so boldly against the authorities. I would argue to in favor of returning currency to the word parrhesia today. In our contemporary context public intellectuals could be thought as enacting parrhesia. For example, we find figures that stand out in various fields speaking out publicly on what they believe is the most urgent problem to solve today. But only a few professions today deal with the monumental risk of enacting true parrhesia. The risk aspect deserves emphasizing. The platforms produced by artists, poets, writers, activists, political collectives, and the hybrid bodies that operate between such disciplines, could offer opportunities for parrhesia to happen. Parrhesia is the act of speaking truth on the front line, where one is vulnerable to the retaliation of the power structure that is under critique.

Foucault's research into parrhesia and the parrhesiastes revealed a serious dilemma for social theorists, political philosophers and artists alike. It became a question of strategy. Could parrhesia inform a critique of the late capitalist era? Is the search for truth and making it public a worthwhile act of resistance for the oppressed? Today it is no longer clear in which direction private forces, such as corporations, will turn to assume control of our freedoms. This is one of the pressing issues inherent to the problematic site that is the public domain. In the present time, who and how will the truth-telling happen and to what effect? It has become a question equated to the search for freedom. Chantal Mouffe's *Agonistics: Thinking the World Politically*, is an indictment of all those claiming under false pretenses to be supporters of democracy. Her 2013 book examines in depth the relevance of agonistic practices, the distinction between *political* and *politics*, and *agonism* as a fundamental requirement for arriving at a democratic and pluralistic social space. As a political philosopher, Mouffe is preoccupied as well with Habermas' legacy and has tried to imagine the implications of having a democratic system that's truly pluralistic and not governed by the elite. She introduces the notion of antagonism and tries to reformulate it to be effective in today's political context. According to her, to practice antagonism is to practice

having a voice on issues that affect all. It also carves out a path to why the promise of representative democracy has yet to be truly fulfilled by any government since modern times.

Mouffe boldly distinguishes between ancient and modern democracy in her book *The Democratic Paradox*, 2000. It is “not one difference of *size* but of *nature*. The crucial difference resides in the acceptance of a type of *pluralism* which is constitutive of modern liberal democracy. Such a recognition...implies a profound transformation in the symbolic ordering of social relations.”<sup>23</sup> For Mouffe, the contemporary understanding and deployment of the notion of *pluralism* is a major hurdle in order to materialize the diversity of opinions and voices that are invisible under our current governmental system. In other words, the methods set by a select few in power meant to encourage pluralism and to guide how our world is to be governed by representative democracy do not actually provide structures through which the poor and disenfranchised are able to adequately speak their needs, such as their “right to be treated equally” and the “right to life, liberty and security of persons.”<sup>24</sup> Mouffe also argues that pluralism is not something that can become an “object” to be reduced and reified into a fixed notion. It is always in flux and thus requires for its sustenance a political system that can shift to meet its changing needs. The government does not acknowledge that the variety of voices of those oppressed in society are virtually unable to appear in the public sphere. These voices are muted by a system that does not even know how to depict their existence properly. The homeless, the destitute, the oppressed, the enslaved and the imprisoned are examples of those unable to speak and be part of the democratic project.<sup>25</sup> It becomes then a question of who is able to speak at all in society. For Mouffe, we live in a time where there are unperceivable configurations of power that limit who is able to participate and be heard in society, affecting both public and private life. These hegemonic configurations prevent other possibilities of life and political structures from coming into being. Racism, sexism and classism are some of the bigger expressions of these hegemonic mechanisms. But in reality it is a very convoluted network derived from

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<sup>23</sup> Mouffe, Chantal. *The Democratic Paradox*. Verso London-New York. 2000, 18

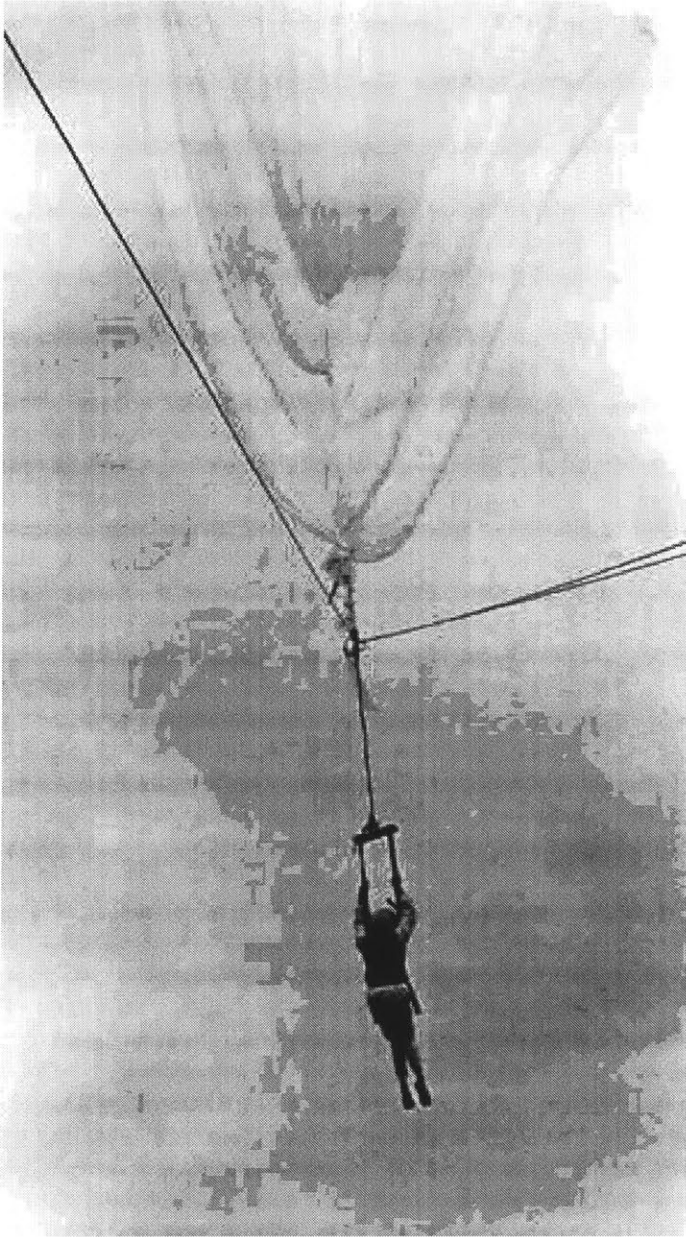
<sup>24</sup> From Article 1 and 3; *Universal Declaration of Human Rights*, United Nations General Assembly on 10 December 1948 at the Palais de Chaillot in Paris, France.

<sup>25</sup> Mouffe, 18-27

the regime of “liberal democracy, which orders the symbolic values of social relations and is much more than a mere ‘form of government’. For Mouffe, the “pluralism of liberal democracy is a pluralism without antagonism... that partakes of the liberal evasion of the political.”<sup>26</sup> It is an empty claim that has substituted the fight to arrive at a “we” for an exclusive fortress of minority interests.

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<sup>26</sup> Ibid., 18-27



Otto Piene. *Lift and Equilibrium*, 1969. A girl suspended in the air by helium filled inflatables over Briggs Field, MIT. Image: CAVS Special Collection, MIT.

## ART AND TECHNOLOGY IN THE LATE 1960s AND EARLY 1970s

The strand connecting the diverse art practices of the art and technology groups I will touch upon in this chapter was the implicit understanding that art no longer had to function at the scale of the traditional confines that a gallery or museum had to offer. The projects I will describe involve building new architecture, creating spectacles and staging celebrations in the urban environment. Figures such as German Zero artist Otto Piene or the members of the artist and engineer group, Experiments in Art and Technology (E.A.T.), were able to blur the disciplinary codes of both art and technology. More importantly, they were quite well received outside the institutions of art as they were able to amass substantial financial support from corporations and institutions specializing in technology and innovation such as Bell Laboratories in Murray Hill and MIT in Cambridge. E.A.T. was supported by the former while Piene worked as faculty and director at the Center for Advanced Visual Studies (CAVS) at MIT. And, inversely, engineering tools and methodologies became a prevalent go to for those involved in this emerging field of art and technology. The construction “of the environment” was to replace the exhibition or the canvas. Precision tools and precise operations guided new artistic projects. At that moment expertise in electronics, acoustics, and physics was required and costly. But all this was necessary if “air, light, water, electricity, RF waves: they would all be manipulated freely and in yet unheard ways”<sup>27</sup> in the late 1960s and early 1970s. Additionally, their artwork, like that of many artists working at the time, was redefining of how the audience was to interact with the art on display. Key formulations such as “audience participation” and the “artist’s responsibility” gave way to new understandings of how art could begin to operate on the *civic scale*<sup>28</sup> posited by original CAVS founder Gyorgy Kepes. “The form of art practice that Kepes envisioned was “civic” because the artist, by creating or calling attention to

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<sup>27</sup> Klüver, Billy et al. *Pavilion: by Experiments in Art and Technology*. NY 1972, xii-xiii

<sup>28</sup> In *Environment between System and Nature*, 2014, Etienne Benson outlines Kepes vision of civic scale in the following manner. “CAVS offered a vision of civic art that was sensitive to environmental problems and human-nature interactions in urban settings. Civic art was a technologically sophisticated, publicly engaged form of artistic practice that was, in Kepes’s words, ‘prophetic of a new world outlook pervaded by a sense of continuity with the natural environment and oneness with our social world.’ As Kepes used it, the term ‘environment’ referred both to the natural environment, as in the quote above, and to artificial environments, including those constructed by artists.” 1-8



environments, acted as an interpreter and critic of changes in the total human environment.”<sup>29</sup> In further chapters in this thesis, this legacy is linked to the work of artists in later generations, e.g., Ultra-red and, subsequently, Amy Balkin.

During the 1969-1974 period in which the artists and groups affiliated with CAVS and E.A.T. operated, there was a sense of positivity. The aesthetic and organizational decisions for merging the tools, the working methods, and the production techniques of the scientific and engineering realms meant a vast amount of formal possibilities were at hand. But where did these groups stand in relationship to the radical agenda and big sociopolitical debates of the time. For example, Vietnam is not mentioned in neither Otto Piene’s nor E.A.T.’s projects. Since there were no clear references in the work of neither Piene nor the group operating as E.A.T. to concurrent radical movements<sup>30</sup> which were abound in late 1960s and early 1970s America, More so, it was as though they hoped they could have a universal impact that was good for all through their work. The project to humanize technology was seriously considered, and while global warming was not yet a concept, the mission to stop irresponsible industrial excesses and halt the rise of pollution in the environment was just beginning to take shape. Upon leaving CAVS under the direction of Piene, Kepes wrote: “Individual artistic imagination is neither self-generated nor self-contained; it belongs to the larger environmental field of nature and society. Its role and its strength constantly change, for the artist’s responses are in a certain constant relation to the changing human conditions that generate them. The imaginative power of the artist, in its luckiest moments, creates models of sensibility and feeling that will enable all of us to live the fuller, richer life possible at this time in an ever-changing world.”<sup>31</sup>

The impetus for the “artist’s responses” manifested differently in the work of the group of artists and engineers that participated in the beginnings of E.A.T.. Michelle Kuo described the event *9 Evenings*:

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<sup>29</sup> Benson, 5

<sup>30</sup> Social movements that often attracted the interests of artists and many radicals in the late 1960s and 1970s ranged from anti-war protests, nationwide activities by militant groups such as the Black Panthers or the Weather Underground, and the psychedelic “turned-on” activism of groups supporting Timothy Leary.

<sup>31</sup> Kepes, Gyorgy. “Toward Civic Art.” *Leonardo Journal*, Vol. 4, No. 1 Winter 1971, 73

*Theater and Engineering*, which marked the very first collaboration between the founders of the group, as, “a colossal enterprise whose ambition was matched only by its scale. More than thirty engineers from the Bell Lab Campus in Murray Hill, New Jersey, worked together with ten artists...9 *Evenings* moved collaboration to a peculiar kind of collective production, that...fundamentally altered roles of authorship, disciplinary bounds, and the terms of performance.”<sup>32</sup> The events took place over nine evenings, as per the title, in the 69th Regiment Armory in New York City, “not by coincidence the site of the 1913 Armory Show” regarded as the first large scale modern art show in the United States of America.<sup>33</sup> “The New York press, largely unfamiliar with downtown performance, was baffled by the program. Rather than decry the art, a potentially vulnerable position, they chose to attack the technology. Particularly attacked was the sound system used in performances...despite including such innovations as wireless microphones embedded in tennis racquets and rapid configuration via a central patch station more advanced than anything previously used in theater before.”<sup>34</sup> The reverb and distortions that were being explored by E.A.T. was mistaken as a “technical difficulty” by the art critics of the time.

### **SKY ART IS NOT AIR PLUS ART**

Considering the formal configurations of air explored by participants of E.A.T. or CAVS, it needs to be made clear that there was never a truly dogmatic or precise deployment of air as medium, theme, or philosophy. Rather, it was a very flexible medium that was called upon in these artists’ cross-media interventions for a variety of reasons. For Otto Piene, air was sometimes deployed with heliums to float inflatables. Air in this sense, was used to inflate membranes made from newly available plastics that were light and resistant. Another way it was used was as part of a mechanism to execute a material *dispersion*<sup>35</sup>. Sometimes a given air space had steam and mist dispersed into it. Other times, sound and

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<sup>32</sup> Kuo, Michelle & Morris, C.. *9 Evenings Reconsidered: Art, Theater, and Engineering*, 1966. MIT List Visual Arts Center, Cambridge. 2006, 68

<sup>33</sup> *Ibid.*, 68

<sup>34</sup> Wardrip-Fruin, Noah. *Introduction: Four Selections by Experiments in Art and Technology*. The New Media Reader. Cambridge: MIT Press, 2003, 19

<sup>35</sup> I will return to the technique of the *dispersions* into air spaces and its counterpart, sequestering’s in the pages bellow.

infrared waves were released. Amongst the students, faculty and fellows at CAVS in the early 1970s, Piene had become the primary experimenter with inflatables, often using the sky as the stage. In Cambridge, Massachusetts on MIT's Briggs Fields in 1969, he lifted a young student into the sky over the football field using several helium-inflated balloons attached to her body. This would become one of the first examples of what Piene would call "Sky Art" in 1969.<sup>36</sup> More specificity about what Piene understood as "Sky Art" did not arrive until much later, though; and when it did, it bared little if any of the legacy of the CAVS of the the late 1960s and early 1970s when the term was supposedly coined. For example, Kepes' push for "art on a civic scale" was missing. Between 1981 and 1983, Piene held three annual international Sky Art Conferences as an attempt to gather artists who worked with the sky and outer space and develop an understanding of the issues and potentials in Sky Art. A culminating Sky Art Conference was held in 1986. For this event, Piene and his partner Elizabeth Goldring launched the project *Desert Sun/Desert Moon*, inviting artists on a retreat into the open deserts of California<sup>37</sup> far from the built environment of cities.<sup>38</sup> Piene and Goldring worked on a publication to accompany the "collaborative environmental sky work"<sup>39</sup> that included a direct statement, trying to define the subject of their interests in Sky Art. It was titled *Desert Sun/Desert Moon* and it featured the Sky Art Manifesto. Artists, musicians and engineers involved in the Sky Art events included Lowry Burgess, Paul Earls, Charlotte Moorman, Joan Brigham and George Greenamyrit, but the manifesto only attributes official authorship of this text to Piene as "Director", Goldring as "Co-Director" and Burgess as "Senior Consultant"<sup>40</sup>. An excerpt of the manifesto reads,

Our reach into space constitutes an infinite extension of human life, imagination and creativity. The ascent into the sky is mirrored by the descent into inner space as it reflects the

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<sup>36</sup> Goldring, Elizabeth. *Desert Sun/Desert Moon* and the Sky Art Manifesto. Leonardo Journal. Cambridge: MIT Press, 1987, 346

<sup>37</sup> They visited sites not far from Los Altos, including places such as Alabama Hills and Mt. Whitney.

<sup>38</sup> Goldring, 339-338

<sup>39</sup> One of two descriptions of the project *Desert Sun/Desert Moon* in this text. The second time, it reads, "'86 SKY ART Conference was a series of temporary events and installations utilizing the temporal landscape of sky and space to evoke at the same time mythic and immaterial dimensions of that sky and space.'", Ibid., 346

<sup>40</sup> Ibid., 346

cosmos. Our release from gravity represents a fundamental shift in human consciousness—flight and release which open a new dimension of humanity...The artist as creator and framer of exemplary phenomena and messages goes into space there to beam signals back to earth...The artist as explorer of the inner self continues the dialogue with the universe in space...The artist as frontier poet with the artist's sensory instrumentarium goes into space to widen human perspective on the new world'—sky and space...<sup>41</sup>

The treatment of air as a material or as an explicit space was not mentioned as a vital component of Sky Art in the manifesto. The “space” which “constitutes an infinite extension of human-life” referred to “outer space”, adopting into art technologies that had been conceived for space research. At the same time, Sky Art as it was posited in this manifesto could not correlate with the concept of air space that I developed in the previous chapter. It was not about occupying or territorializing the air of the sky. The manifesto also distanced itself from addressing any issues pertaining to art made in the public domain. For example, as mentioned above, it would be hard to connect the notion of Kepes' “civic scale” to the formulations of Piene's Sky Art manifesto. In my opinion, it is easy to discredit the Sky Art project for not having a critical edge. One could argue that the great territory of outer space that Sky Art claimed as its stage was not quite full of pressing problems as was the “social world”<sup>42</sup> down below. It was more frivolous than the work of, say, an artist such as Gustav Metzger<sup>43</sup> who also employed different uses of air in his art projects.

In 2008, Piene interviewed with Robert Russett for *Leonardo Journal* and re-established the importance of medium and environment as a concept in Sky Art. When asked about his opinion on the place of “high technology... in the future of art,”<sup>44</sup> Piene said,

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<sup>41</sup> Goldring, E. and Piene, O.. “Statement: IV. Sky and Space Artists' Manifesto.” Paris. November 3, 1986. From Goldring, E.. “Desert Sun/Desert Moon and the SKY ART Manifesto”. *Leonardo Journal*. Cambridge: MIT Press, 1986. 345

<sup>42</sup> Kepes was concerned with changing environmental problems and this meant working in the built environment of urban spaces.

<sup>43</sup> Metzger is a contemporary of Otto Piene and the members of E.A.T..

<sup>44</sup> Piene, Otto and Russett, R.. “Sky, Scale and Technology in Art.” *Leonardo Journal*. October Cambridge: MIT Press, 2008, 512

In regard to the evolution of media in general... new art forms do not necessarily rule out old art forms... Modern technological art, cannot replace... the possibilities of manually made art. I have used traditional art forms, like drawing... for the realization of larger, multimedia installations. The main focus of my work, however, is on... Sky Art, which exploits a wide range of possibilities including inflatable flying sculpture, telecommunication, and image-projecting lasers, as well as other technology. I am attracted to Sky Art because it has certain qualities that intimate, traditional media do not offer—specifically a complex interplay involving people, *objets d'art*, high technology, human environment and nature. As a result, Sky Art is capable of transforming themes and phenomena into engaging communal forms of imagery—legible, kinetic, architectural and highly visible... These works include *Blue Stat Linz*, an air-inflated helium-lifted sculpture measuring almost 50 feet in diameter and almost 300 feet high.<sup>45</sup>

Considering the manipulation of mediums in Piene's Sky Art body of work, which almost always featured inflatables, Piene's description "air-inflated helium-lifted sculpture", synthesizes the function of air as a tool. In this sense, we do not get a conflation of *sky* and *air*. It is clear that he thought of both as different. In other words, being filled with air and attaining structure from the pressure that *air* produces is what renders the inflatables of Piene as *pneumatic*<sup>46</sup> apparatuses. This likens air much to an actual medium because it allowed Piene to produce the formal aspects of his inflatables. Sky was the environment or the stage in which his Sky Art would operate. The members of the group E.A.T. refrained from incorporating, conceptually or poetically, any discussion of *sky* resembling Piene's work in any way. However, they did explore pneumatic forms in their projects.

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<sup>45</sup> Ibid., 512

<sup>46</sup> This is in regards to the use of "pneumatic" in physics, referring to the act of being moved or worked by gaseous air or wind.



Gordon Matta Clark. *Fresh Air Cart*, 1972. Performance in New York City. Image: Museum of Contemporary Art, Chicago.

## E.A.T.; PAVILIONS AND PNEUMATICS

Beyond the MIT in the 1970s, there was another institution I have already mentioned is associated with the upper echelons of polytechnic research and development. It was called Bell Labs and it was located in Murray Hill, New Jersey. People working in Bell Labs often lived in New York City and made the commute to work every day. The labs produced many Nobel Prize laureates and attracted premiere researchers from various fields of science, ranging from telecommunications to materials engineering. Bell Labs extended its research into to the arts in the mid-1960s. Soon, artists such as Robert Rauschenberg, Gordon Matta Clark and John Cage were invited to associate with Bell Labs and started crisscrossing the international art scene with efforts to tackle the potential of the “art and technology” agenda. E.A.T. was officially formed in 1966 in the aftermath of the first large artist-and-engineer collaboration experiment in New York, *9 Evenings: Theatre and Engineering*. By 1967 the leading technology expert of the group, engineer Billy Klüver became the president of E.A.T..<sup>47</sup> He was also the most adamant about producing texts to help the public and the press grasp their interests, motivations and challenges as a group representing different disciplines and working sensibilities<sup>48</sup>. He was the driving force behind the text Pavilion. Other important figures in the leadership of E.A.T., amongst many, were Fred Waldhauer, an engineer, and the artists Robert Rauschenberg, Öyvind Fahlström and Robert Whitman. In their explorations at the intersect of two disciplines of knowledge production, air was to be used as a vehicle for art, as well as for practical purposes such as heat reduction, aeroponic irrigation, infrared wave, radio wave, and soundwave distribution. It was ultimately a medium to manipulate climate and generate energy for societies of the future. Art historian Barbara Rose, who was closely affiliated to the group, outlined a historical thread placing E.A.T. along a “struggle... of ideas from Dada Francis Picabia (Relache 1924) through constructivism to Jean Tingley, who delivered lectures such as “Art,

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<sup>47</sup> Rose, Barbara. *Art as Experience, Environment, Process*. Pavilion by Experiments in Art and Technology. Edited by Billy Klüver, E.P. Dutton & Co., Inc. New York. 1972, 60-104

<sup>48</sup> This is the tone he adopts in his 1972 essay *The Pavilion*, appearing in the book Pavilion by Experiments in Art and Technology. But it is a tone you find in other samples of writings that were published by the MOMA New York such as *The Garden Party in 1968*, Klüver, ix-xvi.

Machines et Mouvement” in 1959 and created paintings of such machines as moving organisms<sup>49</sup>. Over the years, E.A.T. had many prominent collaborators from both the art and engineering disciplines. Some of the renowned artists participating in E.A.T. included John Cage, Lucinda Childs, Alex Hay, Deborah Hay, Steve Paxton, Yvonne Rainer and David Tudor. Amongst the notable engineers involved were Bela Julesz, Max Mathews, John Pierce, and Manfred Schroeder. At times, though, E.A.T. enlisted as many as seventy different engineers for a specific project.<sup>50</sup> Perhaps the most prominent of E.A.T.’s engagements was their project for Expo’70, entitled *Pavilion*. They would create for the pavilion a structure that operated inside and outside based on the flow of air in and out of the geodesic, Buckminster Fuller-inspired dome. It was a structure build to house myriad displays of technology and art experiments inside and outside its walls. Inside the dome, a large mirror occupied the entire ceiling and reflected the viewer’s images at an unexpected scale. It was capable of creating an almost holographic image, which E.A.T. termed the “real image”, of anyone inside the space.<sup>51</sup> It would reflect the subjects in such a way that their image would stay fixed and they would be able to walk around and see their fixed image from different angles. On the outside and above this “negative-pressure, air-structure mirror” dome was installed the Fog and Light Frame, a work that introduces’ E.A.T.’s specific conception of air. Making air visible without any container was a different tactic than Otto Piene’s.

E.A.T. also claimed that the mist machine designed by artist Fujiko Nakaya, a machine that miniaturized water droplets that could float in the air, was going to find a practical purpose in the real world. The fog sculpture actually functioned later as an irrigation tool, predating the popular spread of aeroponic irrigation systems. It should also be noted that inside the dome, another work involved turning the environment into a light show, appropriating the reflective mirror. Inflatables were also present and there would be a sense that “the first proposals, made before scientists were consulted as to their

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<sup>49</sup> Rose, 74-75

<sup>50</sup> Ibid., 74-75

<sup>51</sup> Klüver, 246-266



feasibility, seemed to be in the realm of rather farfetched science fiction. Both Rauschenberg and Öyvind Fahlström wanted to do projects that involved levitating themselves, other figures or specific objects.<sup>52</sup>

E.A.T.'s grand project *Pavilion* (1970) was commissioned for the Expo '70 with funding from Pepsi Company. It was the first instantiation of the world fair in Japan. It would be held in Osaka between March 15 and September 13 of 1970. The central theme that year was, "Progress and Harmony for Mankind."<sup>53</sup> *Pavilion* was a success despite the reported claims of "technical difficulties" claimed by the press<sup>54</sup>. However, being part of an expo about progress it was interesting that the members of E.A.T. chose to title their project *Pavilion*. The production of a pavilion as a type of building apt for world fairs would fit more with the long historical tradition set when Joseph Paxton designed the Crystal Palace structure for the Great Exhibition in Sydenham, England, of 1854. The Crystal Palace was a new type of pavilion within a trajectory in landscape architecture and design inspired by the grottos and the theater garden of the 1600s. Bestiaries and performance stages preceded the pavilion, the museum and the art gallery as places for aesthetic reflection by the ruling classes. Barbara Rose distanced E.A.T.'s *Pavilion* from the former historical display phenomena favoring the Crystal Palace because it likely featured innovation in the technology it used for building transparent glass walls; she wrote, "Space. Air. Light. Color. These are the traditional elements art metaphorically depicted in painting. In *Pavilion*, all of these elements are actual. Images are real instead of being represented. Certainly the pavilion represents the most developed and sophisticated form of a new realism...the Crystal Palace exhibitions with its impressive interior space, has certain analogies with the *Pavilion* dome of E.A.T..<sup>55</sup>

It is interesting to compare this aspect of E.A.T.'s *Pavilion* to Piene's notion of space-making and architecture on the civic scale; for example, in *Centerbeam* (1975), CAVS's most notorious collaboration with engineers, we find Piene outlining his project's radical potential in the way it deconstructs the elements that make up a modern building. For Piene, *Centerbeam* reflected the "theme of household [in]

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<sup>52</sup> Rose, 92-93

<sup>53</sup> Ibid.

<sup>54</sup> This was a press reaction similar to the one that occurred during *9 Evenings*

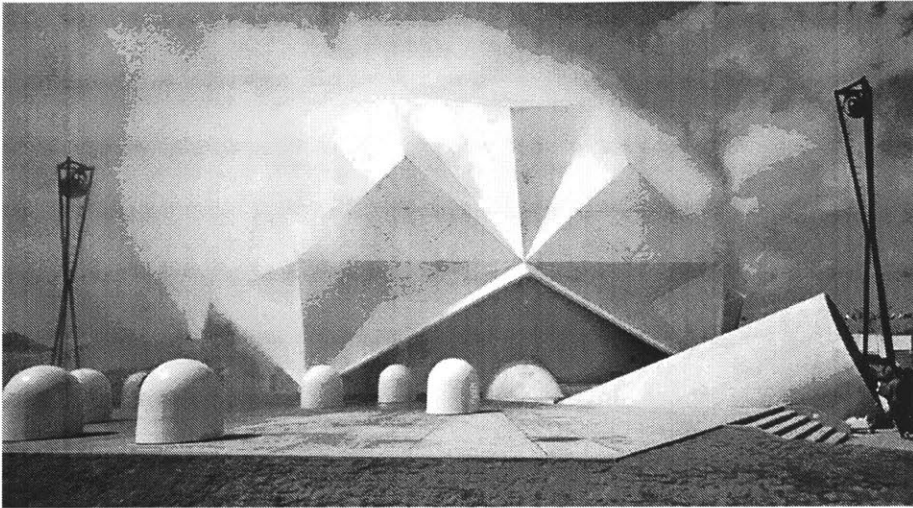
<sup>55</sup> Rose, 61-63.

the way I would interpret it later in life...it actively involved gas, steam, water, electricity, and every form of communication was represented, wire transmissions radio and television, it was the spine of the service track of a building laid out horizontally.”<sup>56</sup>

In the end, the types of experiments, programs and other events happening inside and around E.A.T.’s *Pavilion* and CAVS’s *Centerbeam* could be thought as pioneering works within the lineage of works of art featuring inventions and applications from the cutting-edge of that time’s technology. This could not be said about the work of Gustav Metzger, as one could gather from the title of one of Metzger’s work entitled *Auto-Destructive Art*.

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<sup>56</sup> Bureaud, Annick. “From Zero to Sky Art: Interview with Otto Piene”. *ArtPress* No.322, 2006, 3-4



E.A.T. Pavilion for the Pepsi Expo Osaka 1970. View of the outside being covered in mist. Image: Pavilion by Experiments in Art and Technology, E. P. Dutton & Co., Inc, 1972



E.A.T. Pavilion for the Pepsi Expo Osaka 1970. View from inside highlighting the effects of the giant mirror. Image: Pavilion by Experiments in Art and Technology, E. P. Dutton & Co., Inc, 1972

## METZGER'S CRITICAL AIR SPACE

Artist Gustav Metzger was born in Germany in 1926 and spent his youth years as a war refugee. His family was Polish Jewish. Like Piene, Metzger also renounced the promises of “progress” of modern Europe. Too much of the postwar project seemed complicit with the conditions that had led up to WWII. The European art scene seemed equally unsavory as well. Metzger opted instead to create an art that would become engaged in activism and a rejection of capitalism. On the one hand he engaged in a critique that targeted human-nature relations and the roles of unbridled technological development in dooming society to a very bleak future. On the other hand, he was committed to informing and educating the public through his practice.

When we now reflect on nature, it is with considerable doubt and hesitancy and uncertainty. A good deal of fear is involved. We are faced with a gigantic task: the deconstruction, de-definition, demystification, and redefinition of that term which sums up one of the big issues of our time – Environment. The young are rightly attracted to studies having to do with matters of the Environment... much of this effort will be squandered unless there is more clarity. As biotechnology expands into different areas of life, clear thinking and communicating on the Environment, nature, and human natures becomes... a matter of life or death. Political, legal, scientific, and medical issues are among those involved. Fields such as philosophy, ethics and aesthetics are also concerned, as is the field of Artificial Intelligence, robotics and computers.<sup>57</sup>

Since the 1960s, Metzger was capable of working in response to vary diverse themes in technological innovation and art. He worked on group exhibits as influential as “Happenings and Fluxus” in Cologne in 1971 and was also one of the first artists experimenting with cybernetic art.<sup>58</sup> Although he began painting in 1956 in London, he would be known for creating mostly impermanent art works that would “auto-

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<sup>57</sup> Metzger, Gustav. *Nature Demised Resurrects As Environment. Damaged Nature, Auto-destructive Art.* Nottingham, UK. Russel Press, 1996, 8-9

<sup>58</sup> *Ibid.*, 82-97

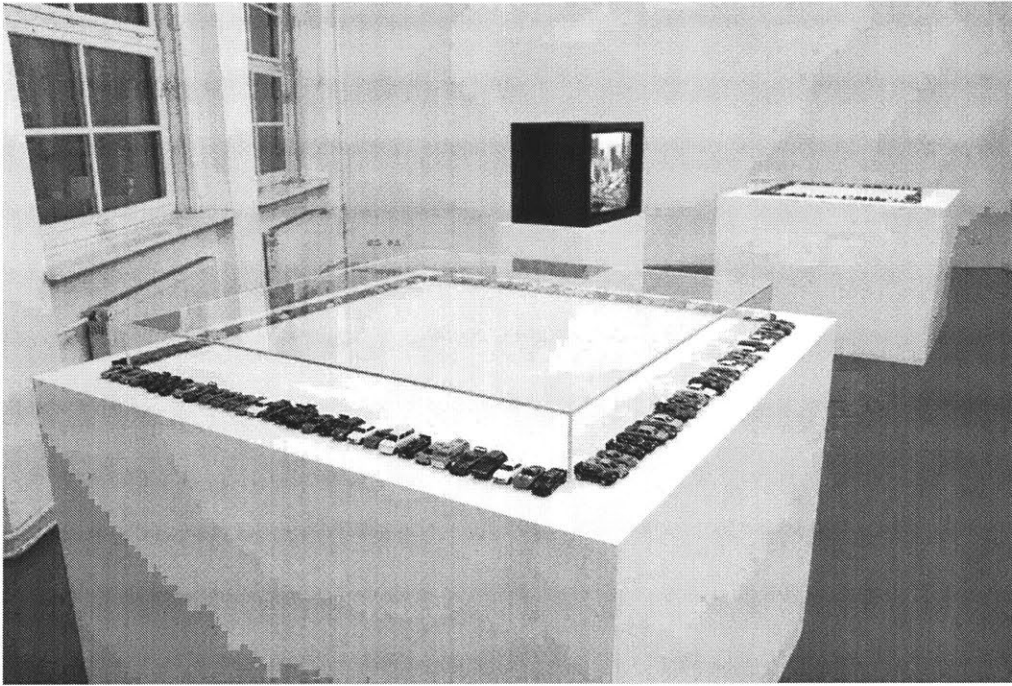
destruct” following rules of his own design.<sup>59</sup> His first art works in this direction included producing paintings by applying acid to stretched nylon<sup>60</sup> to have it start melting immediately. Metzger started his painting practice in a studio but for works such as the latter acid paintings he did go out into the public sphere to produce them. One notorious example was his *Acid Action Painting*, 1961, where he chose the specific date of the opening of the International Union of Architects Congress in London in 1961.<sup>61</sup>

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<sup>59</sup> Ibid.

<sup>60</sup> Instead of oil on canvas

<sup>61</sup> July 3, 1961. Concurrently timing events of auto-destructive art with conferences and meetings of great socio-political significance was a tactic he attempted again with the *Stockholm Project (Phase I)*, but was not successful. Metzger, by carefully timing his auto-destructive art events, achieved a political resonance that heightened the critical statements of his work.



Gustav Metzger. *Prototype of Stockholm Project, June (Phase 1)*, 1972-2007. Image: Cubitt Gallery



Gustav Metzger. *Stockholm Project, June (Phase 1)*. Sharja Biennial, 2007. Image: Cubitt Gallery

Metzger held a light up to new ways in which the figure of the artist and the activist could merge. And with this almost militant criticality he proceeded to identify tensions in our society, focusing time and time again on issues of the environment, with the goal of making the public aware so as to empower them to make a change. Metzger embedded in his art a political message, he “wanted to spark conversation in the viewers” around the topics he was critiquing.<sup>62</sup> This was particularly the case for environmental issues that included for Metzger different facets of nature with all its animals and vegetation. It also included for him air itself, which was another frustrating victim of the fierce machines of human industrial production and flawed governmental systems that “were empty bureaucracies.” Metzger was finding a way to work towards revolutionary causes to “affect real change in the system” as an activist. But he also did not want to be complicit with organizations that simply did not adhere enough to the radical propositions they endorsed.<sup>65</sup>

There was also the importance of the notion of *extinction* in his work. He was not only using extinction to reflect on problems such as pollution and the mismanagement of our environment. In Metzger’s work, extinction would inform the temporality of his art works, supporting the auto-destructive result as a positive outcome. He wanted to produce works that only lasted a defined period of time because Metzger would argue that making art that was collected as a commodity would hinder his political message.<sup>66</sup>

But because the subject matter Metzger chose was so closely involved in making the problems of our environment visible, he was drawn to making as clear a statement as possible that human activity was to blame. At one point he chose air as the central medium in one of his most well known projects called *Stockholm Project, June (Phase 1)*. Before actually achieving the form he had envisioned for the artwork, he tried to stage it a different venues, each one affecting how the project would actually be constructed. For Metzger, it was originally meant to be installed outside the UN General Assembly in Stockholm from

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<sup>62</sup> Metzger, G. Interviewed by T.J. Demos. Cubitt Gallery, 2011.

<sup>65</sup> Metzger, Demos.

<sup>66</sup> Ibid.

June 5-16<sup>th</sup> in 1972 but it was unfeasible for many reasons. He then proposed the project to the selection panel of Documenta 5 in 1972. However, it was not installed, regardless of Metzger's conceding to making the work at a reduced scale following more moderate specifications than he originally wanted.<sup>67</sup> In future exhibitions Metzger, would show an at-scale prototype of the work on a pedestal instead. The tabletop model-sized sketch of the *Stockholm Project June (Phase 1)* consisted of one hundred and twenty miniature cars arranged so as to have their miniature rear end exhaust valves attached to the walls around the entire perimeter of a wide and somewhat flat transparent acrylic cube. Metzger would call the built out version of this transparent structure a "sort of tent-like structure" and it would be the center of the project.<sup>68</sup> Also in the life-sized version of the work, Metzger would have the cars releasing the pollution generated by their engines directly into tent space over a predetermined length of time, in the case of Documenta 5 he had requested the one hundred day duration of the exhibit that would start on June 30, 1972. For Documenta 5 he had hoped to have only four cars surrounding each wall of a transparent tent with their engines running at all times so that pollution itself could be made visible and rendered as sculpture in the process.

Metzger's *Stockholm Project June (Phase 1)* was, formally speaking, a dispersion of a gaseous mix of hazardous chemicals into a container with transparent walls. He essentially created a very specific air space<sup>69</sup> of toxicity sectioned off from the rest of the environment. However, this is where we see the overlap in artistic techniques of the time. E.A.T.'s *Pavilion* dome was able to cover itself in fog at Expo '70. They also dispersed air to create a new air space around their dome; an air space that occluded vision but that also served as a model for a large-scale plant irrigation device.<sup>70</sup> With the employment of various water mist machines that featured innovations in nozzle design, the air that was dispersed was heavily saturated with humidity.<sup>71</sup> The political dimension attained by using techniques of air dispersion is

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<sup>67</sup> Ibid

<sup>68</sup> Ibid.

<sup>69</sup> Here I am referencing the notion of air space I develop in relation to the public domain

<sup>70</sup> Klüver, x

<sup>71</sup> Ibid., x



completely reliant on the intent of the artist using it. Whereas E.A.T. was featuring a mist machine that could double as a new utilitarian product and an artistic device simultaneously<sup>72</sup>, Metzger's polluted air visualization was an actual sociopolitical gesture meant to spark a radical dialogue in society at the time. It aimed to change the course of broken governments and excessive production of waste, without claiming any redeeming path for technology or even for art as a commodity.

The motives behind Metzger's artworks were always charged with the politics of the time. The *Stockholm Project June (Phase 1)* was aimed at environmental discourse regimes that were just beginning to occupy a global stage. This work targeted one of the most lasting United Nations campaigns of the 1970s. The UN General assembly convened on a special occasion in Stockholm to draft the first marching steps towards creating an international coalition to manage humanity's negative impact on the environment. Later becoming known as the Stockholm Conference of 1972, it was during this meeting that air pollution was first targeted as the most urgent example of industry's impact on the world affecting all alike. The Stockholm Declaration which was signed there was basically the precedent for the Kyoto Protocol arrived at more than two decades later.<sup>73</sup> Some items on the declaration echoed causes that the UN is still fighting for today. "Rational planning should resolve conflicts between environment and development", "wildlife must be safeguarded", and "science and technology must be used to improve the environment" all became UN sanctioned goals for the world to work on in 1972.<sup>74</sup> However, Metzger's *Stockholm Project, June (Phase 1)* entertained none of the positive energy and hope that the representatives at the conference displayed to the media. By making this artwork a gesture of environmental activism that was meant to self-destruct after two weeks (the entire duration of the actual Stockholm Conference) it was as though he was critiquing the very act of producing an environmentalist

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<sup>72</sup> It was essentially a as a proof-of-concept for the making of a patentable commodity Fujiko Nakaya's mist technology was released in the market as a component in various aeroponic irrigation systems. Nakaya was a Japanese artist working with E.A.T. leading up to Expo '70 where mainly his technology was used to cloak the exterior of the Pavilion dome. Klüver, x

<sup>73</sup> *Stockholm Declaration of 1972*. Declaration of the United Nations Conference on the Human Environment. United Nations Environment. Accessed: unep.org

<sup>74</sup> Ibid.

act. Put differently, Metzger had the least trust possible in the proclamations of those countries present at the conference because he could almost prophetically see just how far along the path of irrevocable damage we were already as a society, even back then.<sup>75</sup> For Metzger, the UN was not going to be able to change the economic forces and mass desensitization towards destruction that “*growth* always meant” when spoken by the overlords of capitalism. Given how similar the goals of the Stockholm Declaration are to the propositions of any modern day Climate Summit is proof of how foretelling Metzger’s artwork was, even when it was not actually fully realized in that time. However, in 2007, in the Sharja Biennale, it would have one hundred twenty life-size cars surrounding “an environment visibly being filled up with pollution.”<sup>76</sup>

#### **ULTRA-RED: NOISE AND SILENCE DEPLOYED AS REVOLUTIONARY TACTIC**

So far, except for interjections pointing toward relationships significant to my own art practice, I have examined historical examples of artists working with air as medium, issues of the public domain, and discussed artistic practices that incorporate collaborations with engineers and the technologies they control. To serve as a sort of scale by which to measure the political dimension of such artists I have first provided a discussion of the rhetorical figure of *parrhesia*, as developed by Foucault, and the great significance involved in the gesture of speaking the truth. I then went into a discussion of the critique of representational democracy by way of different writings of Chantal Mouffe. The political dimension that Gustav Metzger embraced in his work was a result of him wanting to be an activist as well as an artist. He also contested the extent to which the world’s governing entities were actually trying to better the conditions for the public<sup>77</sup>. Ultra-red is the next artist group I will discuss as they exhibit in their art work the political explicitness of a figure such as Metzger.

As per the Mission Statement posted on Ultra-red’s website, “in the worlds of sound art and modern electronic music”, Ultra-red has developed since the early 1990s as a unique politically engaged

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<sup>75</sup> Metzger, Demos.

<sup>76</sup> Ibid.

<sup>77</sup> E.g. The United Nations General Assembly at Stockholm in 1972

global presence.<sup>78</sup> They are a collective that has had several members over time working together to examine the confluences of art and political organizing so much so that they have sustained up to ten different locales for their Militant Sound Investigations in the United States and Europe. However, the participants have all maintained their own independent political practices aside from being part of the Ultra-red. Hence there had been motility in the more than twenty three years of their existence. “Founded in 1994 by two AIDS activists, Ultra-red has taken active roles in social movements including the struggles of migration, anti-racism, participatory community development, and the politics of HIV/AIDS.”<sup>79</sup>

Ultra-red has no single organized political affiliation. However, the individual members of Ultra-red are engages with specific social movements such as anti-racism in Britain, the struggles of migration in Germany, community-based education in London and Los Angeles, and the struggles for housing and just community development in East Los Angeles.<sup>80</sup>

Central to their interests across the various fronts of their practice is the “enunciating of social relations” by way of artistic tactics such as producing records, radio-shows, public performances involving active participation by the audience, appropriation of sound, art works, texts and music, acoustic recording and re-mixing, and writing. Furthermore, “Ultra-red takes up the acoustic mapping of contested spaces and histories utilizing sound-based research (termed Militant Sound Investigations) that directly engage the organizing and analyses of political struggles.”<sup>81</sup>

The “acoustic mapping of contested space” is how Ultra-red refers to their use of acoustic and sonic methods in surveying the particular sociopolitical configurations in a site of tension. They do field recordings in a given site, then they manipulate those recordings digitally into completely recombined sonic artworks such as musical albums and art exhibitions. In their artistic practice to amplify the

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<sup>78</sup> Ultra-red. *Ultra-red: Mission Statement*. Accessed: <http://www.ultrared.org/mission>

<sup>79</sup> Ibid.

<sup>80</sup> Ultra-red, *Organizing the Silence*. On *Horizons: A Critical Reader in Contemporary Art*. Edited by Hlavajova, Maria, Simon Sheikh, Jill Winder. Netherlands: BAK, 2009, 195

<sup>81</sup> Ibid.

struggles of oppressed social groups it could be said that they deploy sound in air space to help amplify the context from which social movements of resistance emerge. In their mission statement they make it clear that sound is deployed as a vehicle to “enunciate... social relations.” *Structural Adjustments*<sup>82</sup>, released as an album on compact disc to accompany the project of the same name, did all of the above. The technique employed by the work is what is most resonant with the dispersions into air spaces of E.A.T.’s *Pavilion* and Metzger’s *Stockholm Project June (Phase 1)*, only with Ultra-red it takes place on aural terms. In this album, the digital sound of heavily manipulated field recordings creates an intentional “noise”<sup>83</sup> of political conception. It suggests that by playing the politically produced song list of *Structural Adjustments* out loud someone could be staking a claim on the sound field of a “contested space.” I would argue that preceding the act of claiming the sounds of any space there must be a claim made on the air space<sup>84</sup> therein first. Sound waves travel through air. The micro galaxy of particles in the air in a given site determines how sound waves will bounce and behave aurally. One way that Ultra-red expresses an interest in the dynamics of sound in space is by discussing silence in relation to the horizon,

In sound, the horizon is typically figured as some form of silence, as in the limit—either phenomenological or epistemological—of perception. For the sound artist, the construction of silence can be defamiliarized with a simple intervention that asks the listener to attend to sounds that are beyond the threshold of intention as opposed to the threshold of hearing. In these instances, the command, “Listen!” is equivalent to a finger indicating a distant vanishing point.<sup>85</sup>

In Ultra-red’s work there is an intent to activate the perception of the audience enough to pick up what otherwise is unperceivable. However, Ultra-red is also interested in pointing to the ways silence becomes a sort of wall that must be broken down. The noise that they are interested in making combats the statements of capitalist machines using the claim “urban redevelopment” to remove immigrant Latin

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<sup>82</sup> Ultra-red. *Ultra-red: Structural Adjustments/Ajustes Estructurales*. Album Cover Text. Published in English and Spanish. Compact Disc. Audio Only. Germany: Mille Plateaux. 2000, 1-12

<sup>83</sup> Ultra-red, 4

<sup>84</sup> I.e., the concept of air in the public domain I discussed previously.

<sup>85</sup> Ultra-red, *Organizing the Silence*, 193

Americans from East Los Angeles in 1999<sup>86</sup>. The noise that created in *Structural Adjustments* grabs recorded samples from aural moments in the lives of a community that is fighting for their right to stay in their homes.<sup>87</sup> On track number eleven on the CD, the composition consists of repeating, stuttering sounds of door keys opening the hall where the protesters will organize to protect themselves in a confrontational landscape of East Los Angeles threatened by one of the infamous state affiliated redevelopment agencies of California, all five hundred of which are now defunct after being charged with several accounts of corruption. Track number five consists of site recordings of the 19 of December, 1998, protest march through Aliso village and Aliso Extension protesting the reduction in public housing for low-income Los Angelenos. The message coming from the redevelopment agencies of California that is put into question in at least these two tracks of *Structural Adjustments* is the one that proclaims poor immigrant Latin American populations and the communities they live in are not legitimately part of the state. Instead of being encouraged to grow as a community they face eradication by the state.

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<sup>86</sup> Ultra-red. *Structural Adjustments*, 2

<sup>87</sup> *Ibid.*, 2



Ultra-red. *Structural Adjustments*, 1997. Image of contents of compact disc album release.

By recording, remixing, distributing and amplifying the sounds of the contested spaces in the city that are threatened by state supported property developers, Ultra-red is translating an East Los Angeles issue into a critical format that resonates on scale touched upon early in this research paper. *Structural Adjustments* echoes Mouffe's critique of the failed pluralist agenda of liberal democracy.<sup>88</sup> Ultra-red finds illegitimacy in the notion of public space. *Drifts From Bushes to Barrio*<sup>89</sup> indicates the tone with which Ultra-red postures that public space is not always what it appears to be. It reads,

"The route taken is public space... a fiction you can taste by the frictions it conceals (and, despite all efforts to the contrary, nurtures and proliferates)."<sup>90</sup>

As a document of the State of California's treatment of the population that Ultra-red is working with, *Structural Adjustments* is an album that indexes the voice and existence of a part of the publicum that is otherwise invisible.

The entire title of the project *Structural Arrangements| Ajustes Estructurales* is itself very important. First, the title is presented in English and in Spanish because it reflects the language of the community in East Los Angeles that helped create Ultra-red's project. In fact, the text appearing throughout the entire album cover is presented in this way as well. Second, the title also reflected another interest they had. Ultra-red's treatment of sound in space is also informed by a preoccupation with architecture. They immaterially create space through manipulating and organizing sound instead of by deploying inflatables or erecting polytechnic dome buildings. The final entry in the booklet provided with the *Structural Adjustments* CD is entitled *Architectonica versus Dwelling*. In this text, Ultra-red develops further on their theoretical intent behind the types of activist projects they support. They forefront in this text speculations that question how urban space has become the territory of capitalist production and not a place for the betterment of human life. Architects are implicit in the removal process whereby space from the sphere of non-production becomes a surplus producer. Spectacle culture is also critiqued in the text,

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<sup>88</sup> Mouffe, Chantal. *The Democratic Paradox*.

<sup>89</sup> The title of a short passage on the cover of *Structural Adjustments* Album Cover, 1

<sup>90</sup> Ultra-red, *Structural Adjustments*, 2-3

because of the regime that popular music and mainstream media enjoys over the public's sound waves, the public's transmission air per say. "In sharp contrast to sound's irreducible contingency, the image has been used widely to wrestle apart buildings from social practice." And they critique a modern history of architecture, in Lefebvre's terms, "when housing became habitat and alienation followed."<sup>91</sup>

It is important to acknowledge other works of Ultra-red to see how the absence of sound was also treated as a medium in their work. In *Silent\Listen*, 2005 to present, Ultra-red merges a critique of a truly difficult and controversial episode of homophobia in modern art history with a cultural study of the AIDS crisis and those affected by it. The resulting form is a performance of the reproduction of John Cage's *4'33''*. This is the famous piece that Cage would perform throughout his career, "the most important piece of American 20<sup>th</sup> Century music."<sup>92</sup> But instead of performing inside a concert hall, Ultra-red has been performing various iterations of *4'33''* inside communal meeting rooms in art centers, institutions and other types of venues. The audiences that showed up were sometimes asked to come because of their involvement in the AIDS awareness movement. On occasions the audience is made up almost entirely of homosexual men living with AIDS. Ultra-red sets-up tables and chairs in these *Silent\Listen* events and asks people questions right after the *4'33''* has been played instead of ending the performance with claps.<sup>93</sup> The reference to Cage's work is a nod to the Silence=Death social movement campaign that ACT UP (AIDS Coalition to Unleash Power) created.<sup>94</sup> Some of the members of Ultra-red belonged as well to ACT UP. By organizing the silence of *4'33''* differently, as in situating it in front of a mostly homosexual male audience living with AIDS, allows for a new form of collective inquiry or a space for "inquiring collectively" into what it means to take a stance of resistance. In other words, they ask questions that get to the root of the meaning of democratic space, where voices and questions that otherwise could not be asked specifically because of the silence evoked by Cage's piece. Akin to the question of agonistics

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<sup>91</sup> Ultra-red, *Structural Adjustments*, 6-14

<sup>92</sup> Ibid.

<sup>93</sup> Ultra-red, *Organizing The Silence*, 202

<sup>94</sup> Ultra-red, *Organizing the Silence*, 200-204



proposed by Mouffe, Ultra-red asks indicting questions about how the AIDS epidemic is fought; “Who speaks? Whose voice is amplified? Who listens and what do they listen to?”<sup>95</sup>

In a technical and formal sense, there is no dispersion of sound waves or of anything else into the air spaces where *Silent|Listen* events take place. I would suggest, via analogy, that the silence that is framed by the re-enacting of Cage’s 4’33’’ acts almost like an acknowledgement that there is already too much inhabiting the air space surrounding the issue of the AIDS crisis. It is an air heavy with a history of pain and unresolved matters. It is not about adding or taking over territory in that space. For me, amidst all the negative weight the AIDS crisis evokes, there is a poetic lightness of touch in the resistance tactics of Ultra-red in *Silent|Listen*.

For me, the act of appropriation of 4’33’’ is akin to repositioning the vestiges of a historical rupture in the world of music and art as a tactical tool. 4’33’’ was only a fragment of the composing interests of John Cage, for example. Yet, the types of concerns expressed by the work of Ultra-red are made stronger by their introduction of this composition. Ultra-red appropriates Cage as a virus would appropriate a host to slightly change its behavior.

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<sup>95</sup> Ultra-red, 204



Amy Balkin. *Public Smog*, 2004-ongoing. Image: Still from slideshow documentation, Amy Balkin

## FROM PUBLIC SMOG TO NATURE REGIMES

I will now discuss the work of Amy Balkin, *Public Smog*, 2004-Ongoing, and then enter a discussion to develop the notion of *nature regimes* as posited by contemporary German sociologist Jens Lachmund, who specializes in the social studies of technology, environment and science. This brief case study offers an example of different methods to engage, critique, and possibly change governmental policies in relation to our environment. It is about the confluence of air spaces that make up the atmosphere of the Earth.

Amy Balkin produced a fairly controversial art project related to the right to clean air and a clean atmosphere. She called the work *Public Smog*. In 2004, with the help of several donors and lots of fundraising she was able to purchase and retire emission offsets in regulated emissions markets, making them inaccessible to polluting industries. Thinking in sculptural terms, she used this process to build an intangible quasi-imaginary park that would “exist in the unfixed public airspace above the region where offsets were purchased and withheld from use.” Balkin proceeded to petition UNESCO to protect the atmospheric space as a product of cultural heritage.

To appreciate better the strategies that Balkin employed in making *Public Smog*, it is necessary to understand a little more of the structure that regulate the emission market that Balkin is referring to in her work. Carbon credits<sup>96</sup> trading and offset emissions markets are ways that air spaces are being financialized by oppressive systems on a global scale. The following is a summary of how they work,

Carbon trading is a complex system which sets itself a simple goal: to make it cheaper for companies and governments to meet emissions reduction targets – although, as we will show, emissions trading is designed in such a way that the targets can generally be met without actual

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<sup>96</sup> Gilbertson, Tamra and Reyes, Oscar. “Carbon Trading: How It Works And Why It Fails”. *Critical Currents* no. 7, November 2009. 7-9. Carbon trading lies at the center of global climate policy and is projected to become one of the world’s largest commodities markets, yet it has a disastrous track record since its adoption as part of the Kyoto Protocol. outlines the limitations of an approach to tackling climate change which redefines the problem to fit the assumptions of neoliberal economics. It demonstrates that the EU Emissions Trading Scheme, the world’s largest carbon market, has consistently failed to ‘cap’ emissions, while the UN’s Clean Development Mechanism (CDM) routinely favours environmentally ineffective and socially unjust projects. This is illustrated with case studies of CDM projects in Brazil, Indonesia, India and Thailand.

reductions taking place. Carbon trading takes two main forms: 'cap and trade' and 'off setting'. What is cap and trade? Under a scheme called 'cap and trade', governments or intergovernmental bodies such as the European Commission hand out licenses to pollute (or 'carbon permits') to major industries. Instead of cleaning up its act, one polluter can then trade these permits with another who might make 'equivalent' changes more cheaply. This is the approach underlying the European Union's Emissions Trading Scheme (EU ETS), the world's largest carbon market, which was worth US\$ 63 billion in 2008 and continues to expand rapidly... The second type of carbon trading is off setting. Instead of cutting emissions at source, companies, and sometimes international financial institutions, governments and individuals, finance 'emissions-saving projects' outside the capped area. Although off sets are often presented as emissions reductions, they do not reduce emissions. Even in theory, they at most merely move 'reductions' to where it is cheapest to make them, which normally means a shift from Northern to Southern countries. Pollution continues at one location on the assumption that an equivalent emissions saving will happen elsewhere. The projects that count as 'emissions savings' range from building hydro-electric dams to capturing methane from industrial livestock facilities. The carbon 'savings' are calculated according to how much less greenhouse gas is presumed to be entering the atmosphere than would have been the case in the absence of the project. But even the World Bank officials, accounting firms, financial analysts, brokers and carbon consultants involved in devising these projects often admit privately that no ways exist to demonstrate that it is carbon finance that makes the project possible.<sup>97</sup>

In relation to the notion of medium, there is a relationship to air and space that is insinuated conceptually in *Public Smog*. The opposite of a dispersion of materiality into air space is a sequestering of materiality. The embodiment of *Public Smog* would have essentially been an immaterial air space in the sky exhibiting the action of a permanent removal of pollution from the environment. If the airspace in Public

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<sup>97</sup> Gilbertson and Reyes, 8-11

Smog was a cube, it would appear as the opposite of the tent in Metzger's *Stockholm Project June (Phase 1)*, which succeeded in rendering car generated pollution and air space itself visible.

The idea that she is making visible a superstructure, transforming air from material reality to a set of imaginary value transactions, is also tantamount to this project and separates it from Metzger's practice quite a lot. She does not materially produce a visible park in the sky, but the act reflects back on the operations of nature regimes such as emission market environmentalism. The politic the signatories of Balkin's petition to UNESCO in *Public Smog* are asked to support is one that appears to be free of class and race distinctions. Asking 50,000 people to sign her petition regardless of background highlighted the inclusive and participatory scale of Balkin's project. All those individuals signing the document were also contributing to the form that the artwork was taking albeit in a minor way. The petition itself is a plea to unite as cultures and to question what it really means to produce a worthy environment for future generations. This take on neutrality between heterogeneous communities, the idea that fighting pollution involves the concert effort of everyone is quite effective in uniting people. In my opinion, it brings other questions related to how the discourse of sustainability as a "natural regime" actually functions. While in the past anthropologists have used the term nature regime to suggest "general modes of incorporating nature in different cultures", Lachmund develops the idea a bit further, helping understand that the term "nature regime" could evoke an interdisciplinary critical position:

"A nature regime... consists of a dynamic set of relations that include (1) the portions of the non-human world that are claimed to represent valuable forms of nature and that therefore are supposed to require public attention or care, (2) the practices and discourses through which such claims are produced, promoted, and incorporated into public policies, and (3) individuals, collectives, and institutions that assemble around and actively sponsor these claims."<sup>98</sup>

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<sup>98</sup> Lachmund, Jens. *Greening Berlin: The Co-Production of Science, Politics, and Urban Nature*. Cambridge: MIT Press, 2013, 11-25

The process of petitioning for a site to receive UNESCO World Heritage status is tactic that generates a lot of meaning in *Public Smog*.<sup>99</sup> Balkin is also putting into question the terms by which the United Nations determines a cultural site of heritage. She is making visible how public policy established by the United Nations General Assembly is failing to accomplish what it sets out to do because how it is fundamentally reifying definitions of culture and nature. This in turn will only ever attribute value and resources for preservation to a fraction of sites of the world. Asking these questions pushes the degree towards which Balkin's critique is discernable on this whole set of environmentalist policies. The following is an excerpt of the criteria to bestow UNESCO World Heritage Status to a site. The petition that Balkin presented for signatures at Documenta 13 in Kassel, 2012, was developed with these guidelines as framework. It reads as follows:

- (i) "to represent a masterpiece of human creative genius;
- (ii) to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
- (vii) contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance"
- (viii) "is an outstanding example representing major stages of Earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features"
- (ix) "is an outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems, and communities of plants and animals"
- (x) "contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation"<sup>100</sup>

Balkin is able to ignite a conversation on air and pollution by engaging with a document of public policy and dialectically revealing that it is full of problematic assumptions. As a critique of this system, she is creating an art work that is site-specific such as many land art projects before. Her conceptual park is a

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<sup>99</sup> The United Nations Educational, Scientific and Cultural Organization (UNESCO). *The Criteria For Selection To Be Included On The World Heritage List*. 2017 Version. Accessed: [http://whc.unesco.org/pg\\_friendly\\_print.cfm?cid=146&](http://whc.unesco.org/pg_friendly_print.cfm?cid=146&)

<sup>100</sup> Ibid.

site that is “aesthetic” in the sense that it is a work of art engaged with the practice of sculpture. It is an aesthetic object dematerialized yet part of “a significant history of discursive, bureaucratic, and anti-visual artwork”<sup>101</sup>. As Balkin, points out,

Legal subjects can be challenging for artists – especially for those working without a background in jurisprudence and its history, codes, forms, processes, its specialist knowledge related to ethics, norms, and time, or its fraught relationship to justice and role in legitimizing the nation state. While the law does meet the visual and performative in the public trial, visual evidence and legal transcripts, codes, and other documents are also visual by-products of closed or occluded processes.<sup>102</sup>

*Public Smog* is also telling of the “interchange of human values, over a span of time or within a cultural area of the world”<sup>103</sup>, because driving cars and producing smog in the sky through pollution generating industry is a key component of human culture over the last two centuries.

As more economic incentives comes out to encourage the cooperation of industries known for their polluting practices and heavy consumption of resources, it would appear that there still needs to be rigorous ways of measuring the efficacy of such incentives. The time when the system of carbon offsetting via carbon credits was instituted now seems long ago.<sup>104</sup> As I discussed previously, some public intellectuals and the cultural production they engage is critical in nature and in line with the rhetoric of parrhesia. The research that Balkin did for *Public Smog* is capable of producing new knowledge to help us question the decisions that nation heads and industries are making on our behalf. But returning to the place that air occupies in the artwork *Public Smog*, it becomes clear that air is treated by Balkin also as a carrier of types of socio political commentary. Balkin says,

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<sup>101</sup> Balkin, Amy & T.J. Demos. *The Law Of The Land. An Interview With Amy Balkin*. International New Media Gallery. 2013. Accessed: <http://www.inmg.org/archive/balkin/catalogue/demos/#.WPzygdLysiZ>

<sup>102</sup> Ibid.

<sup>103</sup> UNESCO

<sup>104</sup> Kyoto Protocol was enacted of December 11, 1997

Public Smog, actually, is both a counter model that contains a negative critique and the possibility of positive remediation. I support and have affinity in my work for movements that seek to reconstitute or articulate commons that have been lost or are in the process of being destroyed. This is the Public Domain and Public Smog, as projects rather than movements, are subject to the same range of critiques as other works that act to support, engage with, or enact politics, and share similar limits and risks of instrumentalisation.<sup>105</sup>

There is however a pretty important subtext in the work *Public Smog* derived from the critical awareness it turns not only to what is public or private space but, also, to what is “public” about smog. I connect the notion of smog, which is essentially air toxified by human industry, to that of air space in a state of toxicity. In *Stockholm Project June (Phase 1)*, Gustav Metzger also pursued containing pollution and visualizing it, but I am would push the definition of pollution to expand. I think it is necessary to push the manifold ways that pollution is visualized today to include toxic chemical, biological, and social conditions of a site. I would like to strike a comparison between the notions of nature regimes and toxicity. Contemporary theorist Jens Lachmund is preoccupied with how the modern era, with all its problematic political formations and new modes of production, develop even more complexity when studied through the lens of environmental history and sociology. The “dynamic” quality of his theorization of nature regimes declares that the points supporting its power to manifest influence are in a state of flux over time, since the regime relies on the ever changing public policy of a state and the commitment of the players therein to support that regime.<sup>106</sup> It can then be construed that nature regimes are not a phenomenon of the past but an ever changing and ever adapting system of legitimation that could be found in the construction of cityscapes and landscapes of today. The most conspicuous reality of these regimes is that they become “nested at different geographical scales and with different institutional extensions” making it hard to isolate the specific ideologies they emerged from to begin with.<sup>107</sup> This is

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<sup>105</sup> Balkin & Demos.

<sup>106</sup> Lachmund, 45

<sup>107</sup> Lachmund, 9



why it is beneficial to use diverse methods of deconstructing the complexity of nested nature regimes that the effect that they create as an intersection into economies of given air space sites. The political forces which give form to today's environmental movements in major cities of developed countries such as the US and Germany are closely related to how language is deployed and how natural spaces are crafted in and around urban centers. Architect Paulo Tavares develops a metaphor about air in a site governed by totalitarian rule,

A techno-military-ecological rationale operating at the bio-environmental level... emerges negatively in the form of a lethal ecology. Implied in this scheme, air appears as a central element of interventions, for it is the element which should be carefully regulated and protected in order to preserve the life of the population, as it was the material through which, in the paradigmatic 'exceptional atmosphere' of the concentrations camp, was used as the medium of mass murder.<sup>108</sup>

If there is a pressing role for art in environmentalism and urban planning it is helping to rearrange conditions that prevent people's voices from reaching the powers that govern in a more cohesive way. This is a long lasting dialectical enterprise that Amy Balkin, Gustav Metzger and Ultra-red have all engaged with. I think that my work also asks authoritative or governing bodies to consider how they could better serve the diverse needs of the multitude they supposedly represent. To start discussing the more specific concerns in my art practice it is first necessary to cover more ground on how I feel our air space is being affected by technology today.

### **SENSING FIXATION: TECHNOLOGIES THAT RE-PRESENT AIR**

There are currently many technologies that deploy chemical, physical, and visual operations that help financialize air space and blur the boundaries between private and public domain. A great example though is a particular research project intended to produce a bird's-eye view of the air quality across the entire

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<sup>108</sup> Tavares, Paulo. *Air: General Essay on Air, Defined and Begun: Probes into the Atmospheric Conditions of Liberal Democracy*. Center of Visual Cultures, Goldsmiths, University of London. 2008, 12

interior and exterior spaces of MIT. The research project is called Clairity and its web-based interface updates its air quality readings every ten seconds based on samples by its sensors. It was created to provide an easily understandable live image of air quality in terms of pollution. It measures rough particles, fine particles and volatile organic compounds (VOCs). It was released for the first time by researchers at MIT in 2014. Clairity is “a network...to measure local air quality and make it easily understandable to the public. [Clairity] deployed 24 sensor nodes on the MIT campus that monitor concentrations of five types of pollutants in both indoor and outdoor locations. Data collected from the sensors is available on a website in real time, and may be graphically displayed or downloaded by individual users.”<sup>109</sup> The interesting part of Clairity to me is that it is a model of a new type of image creating device. It is a visualization tool of urban air space. Furthermore, Clairity is the model of a system that could potentially index air space on an urban scale non-stop, every ten seconds. This temporal dimension reads to me as a pre-emptive type of tactic. It delivers a granular surveillance of air space and in doing so affects our relationship to air that makes it more tangible. Clairity is like the prototype for a new type of watch guard system monitoring air in case it is invaded by toxicity.

Technologies measuring air quality on a smaller scale appear to be fulfilling a particular role for authorities enforcing the power of the state, such as the military or law enforcers. Great access to high resolution technologies for air quality sensing has the potential to change our relationship to air on many levels. It may have the ability to provide new ways of policing public space. In the meantime, people are already pretty aware of the potential dangers of toxicity in their air space. New sensing technologies can be calibrated to pick up specific groups of chemicals in the air via Bluetooth, transmitting live results for rapid visualization on a computer. In other words, there are sensors that can transmit information about air born hazardous chemicals to a smartphone. These types of technology are also being explored in the MIT Department of Chemical Engineering. There is a technology that is funded by the military produced at the laboratory of Dr. Timothy Manning Swager that is capable of assigning capabilities to sensors, such as

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<sup>109</sup> Department of Civil & Environmental Engineering, Massachusetts Institute of Technology: *Clairity*. Accessed: <http://clairity.mit.edu/site/html/home.html>

smaller sizes and a one dollar cost per unit of production. Manufactured at a very small scale (one inch by one inch in size) such sensors are programmed to detect chemical weapons and explosives that are concealed in bags in airports.<sup>110</sup> Similar technologies to Swager's are sensing air more rapidly and with more precision than ever before; so much so that a new capacity has emerged for these sensors to become tools of control and surveillance by the state, e.g. security officers in airports.

The co-opting of air spaces of the publicum is not only the polluting or the financializing of their air. Co-opted is the very relationship a subject has to air. It is as though construction air as a surrogate of air, in its material and psychological manifestations. I would contend that advances in computation is allowing for the construction of new air. Methods for capturing data about the chemical patterns and movements of particles in the air of spaces we live in are becoming cheap, wireless, continually more precise, and widely available. The conditions that have allowed this phenomenon could be attributed to increased investments from scientific institutions in the broad field of nano technology research. MIT's new Nano Lab for instance is slated to encompass myriad research in physics, chemistry, electrical engineering, and biology simultaneously; all-in-all disparate disciplines unified under the umbrella category of nano scale. The monetary incentive to experiment with air related research will be big. In December 2016 Vitality Air of Canada sold 500 water bottle sized canisters of clean Canadian air to Chinese buyers from Beijing, a city that occasionally shuts down school and business activities when smog reaches critical levels on any given day. The company claims a set of urgencies in relation to air,<sup>111</sup>

Our highest priority is the health and wellbeing of families. Fresh air plays a vital role in the physical and emotional wellness of people at all ages, and every role in the household can benefit from breathing cleaner. The struggle has been that clean air hasn't been easily affordable or accessible. Vitality Air exists to support the health of families in a convenient and cost-

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<sup>110</sup> Trafton, Anne. "Detecting Gases Wirelessly and Cheaply". *MIT News Office* December 8, 2014 Accessed: <http://news.mit.edu/2014/wireless-chemical-sensor-for-smartphone-1208>

<sup>111</sup> Hunt, Katie. "Canadian Start-Up Sells Bottled Air To China, Says Sales Booming". *CNN News*. December 16, 2015. Accessed: <http://www.cnn.com/2015/12/15/asia/china-canadian-company-selling-clean-air/>

effective way. We offer pure mountain air in an easy to use can that offers dozens of clean breaths for use by your entire family.<sup>112</sup>

This type of marketing pitch relies on rarefying the commodity of air, which according to them, “the struggle has been that clean air hasn't been easily affordable or accessible,” which is expected of a corporate business. They need to explain why their product has value and make sales. What is salient about Vitality Air though, is that their break into the global market was the result of producing a replica of air as a commodity. There was no need for highly technical apparatuses. The founders of Vitality Air first product prototype was “a zip locked air bag”<sup>113</sup>. In other words, they did not succeed in producing actual new air, materially speaking. In reality, they succeeded in producing a branding apparatus to add imaginary exchange value to something that is imperceptible and always in flux, and made it appear naturally fit in a capitalist economic system. They re-produced air as commodity.

### **OPENING PATHS, SPIRALING FALLS**

Air sensors are now part of a system for interpreting reality. As more and more sensate the air around us becomes with the aid of technology there exists a possibility that new paths will open leading to possible ruptures in the interactions with the components of air that normally are imperceptible. Who will rise to claim the territories that these new paths lead to? Will there be a rearrangement of the terms upon which humanity approaches the trillions of living microbes such as fungi and bacteria that conform this space? Is there a method for thinking on these micro dimensions that is inclusive of the macro dimensions of air space such as having too much pollution in the atmosphere? Gilles Deleuze is able to give form to complex philosophical theory by invoking drawing,

“Thus a continuous labyrinth is not a line dissolving into independent points, as flowing sand might dissolve into grains, but resembles a sheet of paper divided into infinite folds or separated into bending movements, each one determined by the consistent or conspiring

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<sup>112</sup> Vitality Air Online Store. Accessed: <https://vitalityair.com/about-our-air/>

<sup>113</sup> Hunt.

surrounding... A fold is always folded within a fold, like a cavern in a cavern. The unit of matter, the smallest element of the labyrinth, is the fold, not the point which is never a part, but a simple extremity of the line.”<sup>114</sup>

With air space, perhaps instead of a line we should start theorizing through the logic of the model of a petri dish. If provided the right conditions in a laboratory, a single microbial system can colonize an entire petri dish. The paradigm with air space is that no petri dish, as it were, is safe from cross contamination. Air space is permeable. Everyone’s air space is potentially modified by activity in a single air space. Put in other words, instead of a “fold” mechanism producing forking paths, we have a mechanism creating new individual environments that are aggregates of millions of other environments *ad infinitum*.

The question is how not to let these new “machines” be co-opted by the state and private interests alike. Air can indeed be deployed as a medium of marketing, publicity and new types of political propaganda by regimes of power but perhaps it is more dangerous to consider how it will be deployed in the future when technologies for synthetic biology have become more commonplace. For instance, since the 1990s scientists working in the genetics field of “clustered regularly interspaced short palindromic repeats” or CRISPR, look forward to the day in which kids working from their garage will be able to hack DNA and create new species of plants and animals.<sup>115</sup> “The CRISPR interference technique has enormous potential application, including altering the germline of humans, animals, and other organisms, and modifying the genetics of food crops. By delivering the Cas9 protein and appropriate guide RNAs into a cell, the organism's genome can be cut at any desired location. Ethical concerns have been expressed about the prospect of using this nascent biotechnology for editing the human and non-human germline.”<sup>116</sup> Soon, the CRISPR project will lead the field of preventive medicine by launching a new species of mosquito immune to malaria disease. The expectation is that this species will mate with other

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<sup>114</sup> Deleuze, Gilles. “The Fold-Leibniz and the Baroque: The Pleats of Matter”. *Architectural Design Profile* No.102: Folding in Architecture. 1993, 18

<sup>115</sup> Esvelt, Kevin. *Knotty Objects: Steak*. An MIT Media Lab two-day conference. 2015. Video can be accessed at: <https://www.media.mit.edu/events/knotty/overview>

<sup>116</sup> *Ibid*.

mosquito species and pass this malaria-free dominant gene down generation after generation effectively eradicating the existence of malaria carrying mosquitos. But even in the event that CRISPR technology could succeed at plans such as this one, what are the possible pitfalls of such a project? After how long will they manifest and for whom?

In my art practice I am concerned with the political dimensions of such nano-scaled operations just as much as I am preoccupied with the social and environmental scales they might influence. CRISPR technologies will allow for a new type of removal. Akin to genocide, where the goal is to destroy all the subjects of a certain group, CRISPR aims at destroying all the genetic instances of an undesired group. I wonder if through my art practice I will be able to trace the effects of violent gestures such as these and the effects they have on the individual or on a community of people. What does the psyche do after knowing that we can now develop such control over life? If those working on this technology are aware of the ethical dimensions they are wagering with, what are there contingency plans in case of a crisis?

#### **EXPANDED METHODOLOGY: THE AUTHOR'S PERSONAL NARRATIVE**

The following is a discussion of artworks that I have used as a way of thinking through form about the issues in this thesis<sup>117</sup>. This work will be presented not to illustrate the conclusions in this thesis but to push the thought process to levels outside of what is available by academic modes of writing. These artworks represent concepts I have been revisiting as an artist in many forms and instantiations over the last seven years. Referring to works over such a large expansion of time is a new type of perspectival exploration for me. I hope that it will reveal new relationships that are appreciable only with the aggregation of time.

Mine is a practice about exploring the power of art to reveal that which could not be made visible otherwise in the realm of the social and political. It is a practice about investigating confluences of oppressive systems of violence in institutions of power and trying to upset the transactions that perpetuate

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<sup>117</sup> This would be an alternative to thinking through writing.

them. Boston based works such as *This Is the Breath of Someone That Used to Be Here*, 2016, at Massachusetts Institute of Technology (MIT), or *Pro-Crisis Studio*, 2016, at Salem State University (SSU), are two good examples of how I do this because in both works I am collaborating with individuals fighting some sort of systematized violence. In the case of *This is the Breath*, the guards of the Museum of Fine Arts Boston were protesting as a union against mass layoffs, the implementation of a highly controversial AI-based security system and newly implemented terrorist prevention drills every morning. As their plight escalated, they were also forbidden from talking amongst themselves during work hours. In the case of *Pro-Crisis Studio*, I was collaborating with minority university students being pigeonholed as culturally ignorant by their faculty and a number of national newspapers. Before I arrived to the Art, Culture and Technology Program at MIT's School of Architecture and Planning, I was invested in notions of trauma and how certain disasters, at the scale of Hurricane Katrina or the Texas City disaster of 1947, for example, came to shape entire landscapes, cities, human relationships, and the cultural modes of production therein. I was interested in the invisibility of trauma. This was the result of studying at the Cooper Union from 2003-2007, as at that time there were a lot of artists there examining trauma in interesting ways. Dennis Adams, former Director of the Visual Arts Program (VAP) at MIT, an antecedent of the current ACT, and Walid Raad, definitely reared me in that direction with their positions as core faculty.

I also work like this now because it speaks to my personal history or, rather, to the complexities of my cultural heritage. I am Filipino on my mother's side and black on my father's side. My mother grew up in Mexico City and my father was born and raised in Louisville, Kentucky. I was born an identical twin in San Francisco, but I spent ten years of my childhood in Mexico City. If at times issues of identity are questioned in my work in a complicated way, it is due to these complexities. But I am not afraid of going in and out of narratives of identity construction in my art; a tangent, perhaps, to recent framings of the politics of recognition. Sometimes, I will strategically deploy my "heritage" in an art project to disrupt a certain notion of authorship or of how an artist supposedly leave traces of her identity (personal history, sexuality, familial lineage, etc.) in their art. For this reason, I feel compelled to do an

artwork based on the Mexican Día de los Muertos celebrations or do a work based on black astronaut Ronald E. McNair, an MIT alum who died in the Challenger Spacecraft explosion, and his experiences with institutional racism in higher education. Somewhat related to this topic is the fact that I often work with other people when designing an artwork. My partner Alejandra Bandala, who trained as an artist in Guadalajara and is now a museum collections manager, supports me while producing my most recent projects.

I came to art through drawing and painting as a teenager in Mexico City. This was Mexico in the 1990s, a time that saw broad governmental and private sector corruption, a severe national currency devaluation, the beginning of drug cartels intermingling with President Salina's family, as well as the insurgence of the Zapatist movement. It was a tough environment altogether and not very safe on the streets, with pollution levels so bad that birds fell dead from the sky and schools would have to close sometimes. I witnessed a murder in front of my house, and other things I would rather forget. I left Mexico at fifteen to live in New Jersey. Moving out of Mexico was very tough as we spent four months splitting a bed in a cheap motel room, getting food at church charities because we could not afford groceries. Things turned around for my family eventually and I encountered my first mentor in art, Joe Begonia, an alum of Yale's Graduate School of Painting teaching in my high school. I liked living in Jersey and it was there that I developed the fastest as a young artist. I lived on Long Beach Island, a coastal town where Robert Smithson spent his summer holidays as a young artist and did crazy things such as conduct cartographic experiments in the town of Loveladies by urinating in specific spot around its periphery. It was an interesting art historical context to live in.

There is something about Smithson that still affects my work today. Especially so when it comes to his modality of gazing in the *Spiral Jetty* film of 1970. Looking askew at the world is sort of a point of departure in my art, especially as I think outside the conventions of working in specific mediums. What excites me right now about air is how it performs as a catalyst on multiple levels in the art I tend to do. For example, air evokes many things to many people, it has many meanings in different fields from chemistry to biology, from the nano scale to the global, and thus it becomes a point of entry for those



looking at my art. I like that air is also a vehicle of sorts. Many things traverse it including light, sound, gravitational waves, RF waves and much more. But one theme in my artwork relates to the most basic human use of air in the sense that it allows us to have a voice when we exhale it through our lungs. One aspect of my work at the moment is to provide a voice to new forms of political speech.

I would say that I wanted the *Pro-Crisis* studio project at SSU to operate in the convergence of air and sound. In this project, I implement the “people’s microphone”<sup>118</sup> protest tool of the 1999 World Trade Organization’s protests in Seattle and the 2011 Occupy Movement in New York as a tool of collective thinking, critical pedagogy and understanding the aesthetics of the site of mass protests. The *people’s mic* was born from the need of amplifying a message from an individual inside a crowd of hundreds to thousands of protesters so that all those present may hear them. One person yells a phrase, chant or question and the crowd repeats it word for word in unison, effectively spreading the message horizontally instead of along top-down lines. It is a unique phenomenon that allows for crowds to organize and almost operate as a hive.

The breakdowns in communication that happened in SSU after the University decided to continue showing the *State of the Union*<sup>119</sup> exhibit, despite protests and a temporary shutdown, made this institution a unique place to test the power of the people’s mic in a new setting. I wanted to bring a protest communicational tool to the SSU community because I felt really at odds with how newspapers such as the *Washington Post*<sup>120</sup>, the *Boston Globe*<sup>121</sup> and even an art magazine such as *Artforum*<sup>122</sup> had told the story,

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<sup>118</sup> Also known as the “people’s mic”

<sup>119</sup> A day after the US presidential election results revealed Donald Trump as president in 2016.

<sup>120</sup> Rampell, Catherine. “The Left Needs to Learn That Depicting Racism is Not Racist.” December 08, 2016.

Accessed: [https://www.washingtonpost.com/opinions/the-left-needs-to-learn-that-depicting-racism-is-not-racist/2016/12/08/5f0e8db0-bd8b-11e6-94ac-3d324840106c\\_story.html?utm\\_term=.8a4703b079d0](https://www.washingtonpost.com/opinions/the-left-needs-to-learn-that-depicting-racism-is-not-racist/2016/12/08/5f0e8db0-bd8b-11e6-94ac-3d324840106c_story.html?utm_term=.8a4703b079d0) on 04/24/2017

<sup>121</sup> Gay, Malcolm. “Salem State Art Exhibit Closed Over KKK Painting to Reopen”. November 30, 2016. Accessed: <https://www.bostonglobe.com/arts/art/2016/11/30/namesalem/pAp5ZKwHpovKL906Oz9CPO/story.html> on 04/24/2017

<sup>122</sup> Luca, Dustin. “Salem State University Shuts Down Exhibition Responding to US Presidential Election”. November 25, 2016. Accessed: <https://www.artforum.com/news/id=64989> on 04/24/2017

An exhibition at Massachusetts's Salem State University featuring works by artists responding to issues that surfaced during the 2016 presidential election season was closed temporarily after it was heavily criticized for displaying works depicting Ku Klux Klan members and Nazi concentration camps, Dustin Luca of the Salem News reports. Titled "State of the Union," the show opened on November 9, the day after Donald Trump became President-elect of the United States. Curator Ken Reker said, "With this contentious election and the difficult dialogues that were going on, I wanted to create a show that lifted some of those hopes and concerns for people in the art world."

People responding to the show on social media called for faculty suspensions and questioned why artworks showcasing hate were included in the exhibition. Artist Garry Harley's canvas of the Ku Klux Klan caused some gallery goers to say that the show supports and may perpetuate racial inequality in America.<sup>123</sup>

I felt the newspapers dismissed the students behind the protest. Mostly of a diverse black and Latino heritage, they were now being chastised by the media for being unaware of how art is meant to function. People responding to the exhibition on social media called for faculty suspensions and questioned why artworks showcasing hate were included in the exhibition. An emotional chord was struck in that young student community.

I wondered if the distress at SSU stemmed from issues that plagued was the latest expression in a history of racial discrimination and the systemic exclusion<sup>124</sup> of American's of color from the institutions of higher culture<sup>125</sup>. Ten days after the incident, with the help of a professor of sociology at SSU, Daniel Delgado, I was able to suggest an artistic intervention to work on with the students, faculty, and curators

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<sup>123</sup> Ibid.

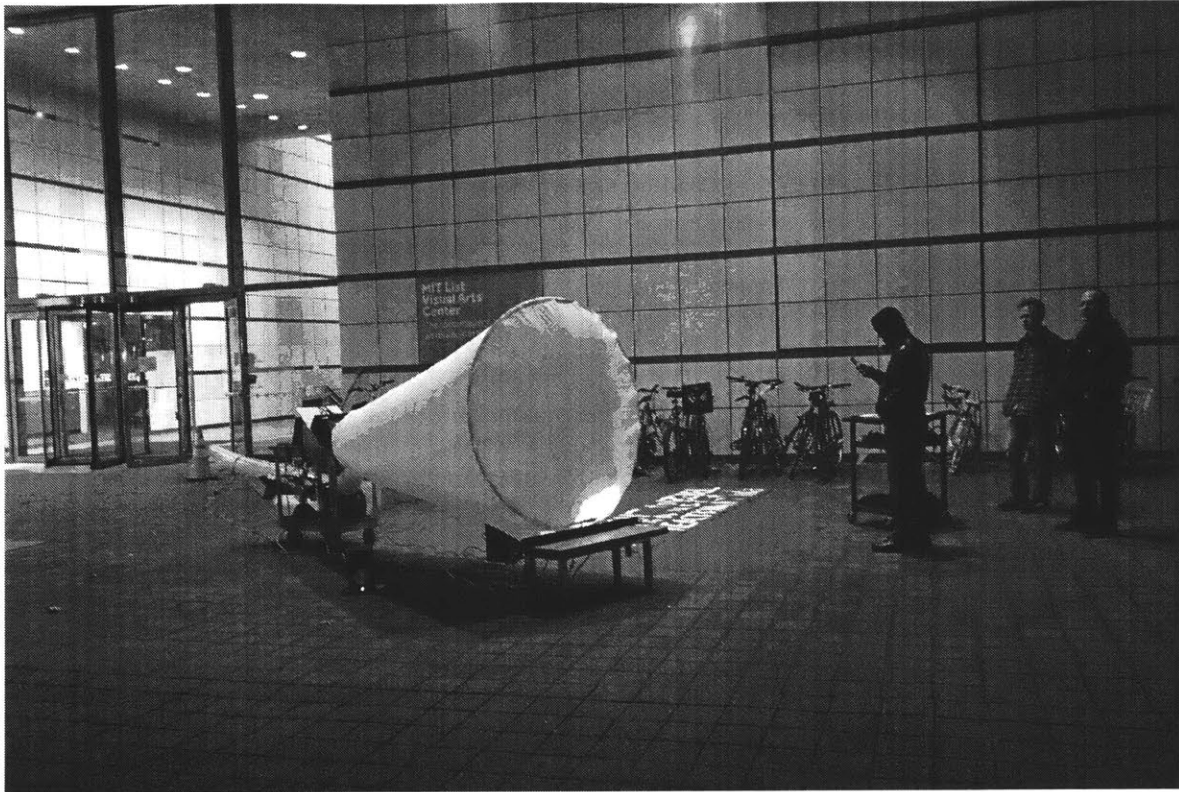
<sup>124</sup> I was considering the recent interventions of the group known as Gal-dem, who had recently staged an unofficial fashion-forward take over at the Victoria and Albert Museum in the UK, referenced in the next footnote.

<sup>125</sup> Okolosie, Lola. "People of Colour are Painfully Absent from our Museums. Let's Change That." November 4, 2016. Accessed: <https://www.theguardian.com/commentisfree/2016/nov/04/people-of-colour-absent-museums> on 04/24/2017

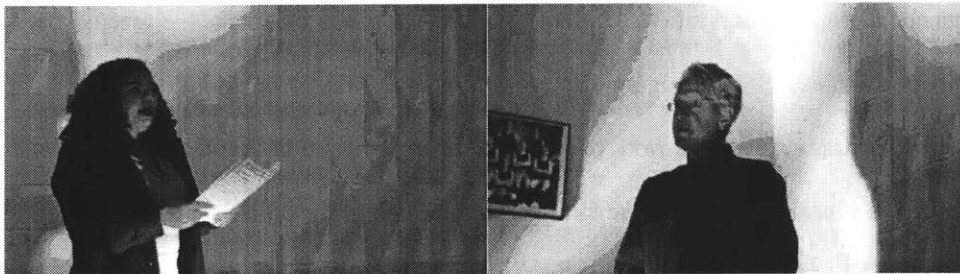
affected by the response to *State of the Union* exhibit. The goal was to design an exhibit with a horizontal structure, without central authority. Everyone involved would have a say in what was to be exhibited.

The point that interests me the most in this project is that certain forms of activism and configurations that shift power are functional across different contexts. That is something that I am always pushing in my current practice. The WTO and Occupy protests notoriously happened outdoors. However, in *Pro-Crisis Studio* I was molding the *people's mic* to fit the temporal-spatial conventions of the lecture hall and the *artist talk* form of discourse, albeit, it was an abstraction of the latter. In addition, I was deploying the *people's mic* in a State's pedagogical institution for individuals that perhaps did not even identify as being protesters. In the end, using this activist tool allowed for the protesting students to share their opinions and concerns more intimately with the administration of SSU and vice versa, because everyone present was forced to repeat the claims made by each individual in attendance that night.

The air in our lungs should allow us to have a voice, or at least grant us the right to participate in building our civic spaces, but that is not the case in the reality we live in. Voice and the ability to communicate are freedoms that need to be at the disposal of everyone regardless of race, gender, class, and other forms of discrimination. I think that a subtext running through much of my work is that the kind of air I am speaking of, the conditions which allow free expression, is always on the brink of extinction and requires immediate critical attention. The encroaching on liberties such as the freedom of expression is a catastrophe parallel to the polluted conditions of the air we breathe that are causing global warming. And so, in my work, air is the production field where I am able to amplify political voices of resistance.



Ron Martin. *This Is the Breath of Someone That Used to Be Here*, 2016. Inflatable structure with live audio/video feed of 9 guards protesting the labor conditions at the Museum of Fine Arts, Boston. Installed outside of MIT Wiesner Building, Cambridge, MA.



Ron Martin. *Pro-Crisis Studio*, 2016. Students and faculty of SSU practicing the “People’s Microphone” during a segment of the event. Salem, MA.

## **BUILDING THINGS TO THINK DIFFERENTLY**

My own artwork operates in part as an ongoing dialogue with the lineage laid out by Metzger, E.A.T. and CAVS. My own experiences and perspectives have informed how close or how far the themes in my work and my concerns are situated in relation to theirs. But even at times when I am not intentionally creating moments of reference, these tends to happen. I have pursued this history before this written thesis and it has allowed me to visit and challenge concepts of the architectural form of the pavilion. It has fueled me to explore the capacity of an artist to act and meaningfully participate in the fight against air pollution and the problems that cause it. It has made me question the role of technology that claims sustainability or utopic values. As I develop this thesis, many questions still haunt me from a decade back. I have already given two examples (e.g. Metzger and Balkin) of art that has been used in the activist effort to spread awareness about global environmental issues. But what I still wonder is, what comes after everyone has been made aware? What role will art have in the environmentalist field?

Though perhaps presented as such, contemporary environmentalism, generally speaking, is not only a scientific-based alteration in modes of industrial production, nor is it only a movement spearheaded by a central figure or a single group. In fact, contemporary environmentalism is also a “regime of nature”<sup>126</sup> and it has laid a stronghold on modes of cultural discourse that have in turn made their own signification of the concept. Certain a priori rationalizations provide validations that make the green drive appear imminent: nature as a subject, global imaging data projects such as MIT’s Sensible Cities, etc. This condition opens up new paradigms for the work of art that aims at being political and critical within the public sphere. The artist’s attention does not have to linger in the camp of the organizations co-opting ecologies and public space. The gaze, instead, could be directed towards sites where nature produces more open paths, such as my work that is now investigating how to communicate with diverse fungi, such

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<sup>126</sup> Lachmund’s usage of the term is recalled here

as mushrooms. I am currently trying to think more about what it means to sense the life of other living things. I feel that my exploration of breath, voice, and air space will help me make progress on this front.

I have also wanted to explore scale and inhabitable spaces before considering “air space” as a succinct concept. *Keep Something for A Rainy Day*, 2009, my contribution to the 53rd Venice Biennale as part of the group Plantation, was a conceptual waterwheel designed to paddle, pump, and disperse fresh potable water to visitors in its surrounding area, as well as to plants through a mist system used in aeroponics. You could say that it was a low tech reformatting of some of the elements of E.A.T.’s Pavilion. *Keep Something* was dependent on human energy. It was activated when exhibit visitors induce kinetic motion by sharing their physical energy with the climbers that were part of the work of art. No electricity was at play, only pneumatic and mechanical systems. The air space around the pavilion, however, did cool down with the mist apparatus making the benches a pleasant place to rest.

The Venice Biennale provided one of the largest and most ambitious platforms for the realization of this project. The show itself attracts various types of viewers from around the world who, in turn, bring several ways of interacting with the artwork on display. Although the process of creation might begin with the artists, it is the audience—art enthusiasts, other artists, critics, collectors, dealers, and curators—who further the cycle of creation by giving meaning to the projects on display and to the efforts of the Biennale’s organizers. In *Keep Something*, both the experience of the viewer and the actions of the work of art perform this sort of relationship as well, which is akin to a form of symbiosis. The pavilion we created relied on the energy input of the viewer to enact its functionality.



The process in which an artwork is made can, in and of itself, reflect a critical account of the contemporary social, political, cultural, and phenomenological context of the place where the work is brought into existence. I wanted to give priority to uncovering those characteristics of a site that would transform an environment into an optimistic atmosphere. In other words, the hope of this artwork was to allow for playtime and spontaneity to contribute to the audience's experience. An important part of what is capable through art making is the power to grab an exhausted language, deconstruct it, rebuild it, send it through the ringer, and build it up again.

## **CONCLUSION**

Deciding to pursue this thesis was a question for me of whether air and public space, artistic practice and innovation in technology relate significantly outside of my own body of work. What was revealed to me along this project was that I had metaphorically crafted a lens through which to see how air has evolved in recent years as a medium for artists. I want to open up new paths of inquiry into how air as medium will evolve even further thanks to technology. This part of the research is more of a subjective conversation that is in constant flux as I do not believe that a definitive and static position is useful. I hope that the concerted telling of the story of art, technology and the fight for the public domain was capable of providing an entry way into questions such as, which legacies of art and air carry currency for younger generations of artists and thinkers?

Beyond the initial questions motivating this research project, the other goal pursued was to find a methodology to allow readers to understand the complexity of the subject matter. A methodology would allow practitioners from a wider range of specializations such as theorists, historians, curators, etc., to more easily engage with the relevance of the legacies that I outlined. I identified formulations such as "air space", and the formal technique of "dispersions" and "sequestrations" in order to create conventions of language for others to use. There is an extreme urgency to see that, because of new advances in sensing technology, the battleground for fighting the co-opting of public space is shifting to new dimensions.



There are many fields that are well into the nano era of space production. Material sciences, medicine, mechanical and electrical engineering, biology, ecology and chemistry are all fields of study that are responsible for innovations in technology that operate mostly on the nano scale. Collaboration between all these areas of research, akin to what is observed at a place such as MIT, is producing the technologies that will change our living conditions the most. Research in these fields is responsible for breakthroughs like those of the Swager Lab at MIT which go on to support the military industry of the US. Politically engaged artists should continuously be urged to examine a practice that engages on the nano scale. The following note was issued by the coordinators of Knotty Objects<sup>127</sup> regarding the emerging world of synthetic biology. It really conveys the new world that technology of this sort is creating,

When the materials of design, however, are not plastics, wood, concrete, or glass, but rather living cells or tissues, the implications of every project reach far beyond the form-function equation, as well as preconceived notions of comfort, modernity, or progress. A new generation of designers and artists are today facing the challenge set by scientists. Some of them work with visible organisms such as plants and animals, others with bacteria and tissues, and then there are those that tinker with DNA to create new beings and new materials. Or new foods.<sup>128</sup>

The paths that people can take to effect change in the air spaces of the future are forking and extending on a constant loop. This is true in the world of technological innovation. It is a constant wager with unknown outcomes. I think it is time to find ways to create social institutions to help those outside that sector have their voices heard on the matter. I feel that my art practice is helping in this pursuit. That is why air and voice are so relevant in my work.

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<sup>127</sup> Knotty Objects was a conference happening at MIT's Media Lab in 2015. It brought together leading practitioners in architecture, synthetic biology, genetics, art, design and philosophy. Over a course of four roundtable discussions they considered the direction of their corresponding industries in the face of technological innovations.

<sup>128</sup> Media Lab, MIT. *New Dimensions in Organic Design*. Knotty Objects website. Accessed: <https://www.media.mit.edu/events/knotty/sessions#organic> on 04/23/2017.



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