EVERYONE PLAY:

SOUND, PUBLIC SPACE, AND THE (RE)MAKING OF PLACE

Elizabeth W. Biggs

A DISSERTATION

PRESENTED TO THE FACULTY

OF PRINCETON UNIVERSITY

IN CANDIDACY FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

RECOMMENDED FOR ACCEPTANCE

BY THE DEPARTMENT OF

MUSIC

[Advisor: Perry Cook]

June 2009

Table of Contents

List of Figures and Tables

Abstract

This thesis discusses the ways that sound can be used in public art to intensify the public's engagement with the spaces surrounding them as well as their own creativity; to create a sense of connection between their outer and inner worlds. At a time when technology seems to seductively and incrementally envelop each of us in a solipsistic bubble, I believe we must instead learn to use it as a means of connection.

By investigating some of the key terms from the title of my dissertation – everyone, play, sound, public, space and place – my first chapter introduces rich and interesting dialogues among the fields of visual art, music, cultural theory and geography. This discourse provides an intellectual scaffolding which informs the three following chapters, arranged in a kind of taxonomy of participation, moving outward in a spiral of increasing freedom given to the audience. Each investigates a strategy that artists working with sound have used to engage the public: physical interactivity, cinematic listening, and sonic psychogeography.

The second chapter investigates the idea of physical interactivity by focusing on David Byrne's 2008 sound work, *Playing the Building*. This work transformed an historic building in Lower Manhattan into a musical instrument by inviting the public to play an old organ which literally sounded its pipes, beams and walls through transducers connected to the building blocks of the structure. By exploring the space and playing the organ, visitors sounded the building itself as well as its history, and found themselves, literally, in resonance with an important part of New York's past.

In the third chapter, I explore the ideas of cinematic listening and physical cinema by proposing a genre in which the solipsistic technology of mobile listening can be converted into an instrument of reconnection, in which the flâneurie of the sound walk is experienced cinematically, the world a screen with headphones providing the soundtrack, thus transforming space into meaningful place through narrative and aesthetics. Janet Cardiff's 2004 cinematic sound walk, *Her Long Black Hair*, is analyzed and a number of strategies are put forward that translate sound theory from cinema studies to this new genre of cinematic listening.

The fourth and final chapter investigates Christina Kubisch's *Electrical Walks,* a public sound work for electromagnetic headphones, from the perspective of several sonic walks through history. By creating their own walking trajectories through the city, *Electrical Walk*'s participants compose individual soundtracks from the whirs and drones permeating the city's electrical grid, turning the city itself into a sonic interface. The chapter introduces this work, then eavesdrops on a whirlwind history of sonic walks, exploring the resonances among *Electrical Walks,* the Australian Aboriginal songlines, Hildegard Westerkamp's acoustic ecology soundwalks, Erik Satie's perambulations through Paris, and Gustav Mahler's liberatory nature walks. I end with an epilogue summarizing the way these ideas relate to my dissertation piece, *11 Dreams in Red Hook.*

Dedication

This dissertation is dedicated first and foremost to my family, without whom I could have never embarked on this path, and who have supported me unstintingly: Mom, Bill, Dad, El, Charley, Karen, Andrew, Genny, Molly, William, Pearson, Sierra, and Coco: thank you for your support, your encouragement, your laughs, and your love – with special thanks to my mom and dad, Ann Reeves and Jim Biggs, for a musical childhood filled with guitar sing-alongs, Bach, and of course *Old Man River*. I also owe very great thanks to my advisor Perry Cook, whose playful spirit and deep creativity has continually inspired and challenged me, and to my first reader Paul Lansky, who sharpened my ear to the musicality of the world and from whom I learned the generosity of teaching. One of my first courses at Princeton, taught by Perry and Dan Trueman, was about interactive sound installation; it sent me down the path I'm on, and I'm grateful for it.

I am indebted to many other teachers: Fred DeHaven, who taught me to sing; Alouette Hedges, whose piano lessons and theory worksheets got me started; David Thomas, whose modal church music inspired me to write my own; Wayne Hiller, who sat next to me improvising on the piano for hours in the seventh grade; Stephen Scott, whose bowed piano ensemble ushered me into the world of new music; Dawn Logsdon, Ray Wang, and the editors at Preview, who helped me become fluent with image editing; Pauline Oliveros, who taught me to listen; Fred Frith, who taught me to trust the music I heard; Willie Winant, who taught me to try banging on things; Maggi Payne, from whom I learned never to listen to work without learning something; David Lang, who challenged my uncompositional ways; Kurt Ralske, who got me going on visual processing; Steve Mackey, whose insightful comments on my music never fail to meet their mark; and Dan Trueman, who has given me great advice of all kinds. Dmitri Tymoczko and Barbara White have inspired me through their interdisciplinary focus, and I owe Steve and Barbara great thanks for their support of my performances through the Princeton Composer's Ensemble. All of these teachers have been crucial to my evolution as a composer, writer and thinker.

Prologue

As a child, it never occurred to me that people didn't, couldn't, or wouldn't make music or play with sound as part of their daily lives. As far as I could tell, we had all sat on the kitchen floor, banging pots and pans, singing songs to ourselves. We had all lustily sung along to the songs that adults or other kids sang for us. We had all experimented with humming, drumming, and for the advanced, whistling. Unbeknownst to me, we had also all danced around to any manner of sounds, especially those of our mother's, while in the womb.[1]

So as I grew older, I wondered how I'd wound up in a reality where people were often ashamed to make non-verbal sounds beyond humming a song alone in their car or shower, where large numbers of people claimed to be tone-deaf, where musical creativity was ascribed to 'geniuses', where those who claimed to actually write their own music were asked, with incredulity, "You mean, there are living composers?" True, garage bands persist and teenagers make electronic dance music in their bedrooms, *American Idol* is for the moment quite popular, and everyone loves karaoke; each of these might be looked upon as signs of healthy musical participation. But in fact each of these cultural manifestations consists primarily of the imitation of existing forms. The quality of each is judged not on its own merits, but by how well the imitation conforms to these pre-existing forms, sometimes to a startlingly specific degree. The garage band that can't break out just the right distortion sound is dismissed as wimpy; without exactly the right quarter-note bass kick the trance track is doomed. God help the sorry singer who doesn't strike the right MTV-friendly pose on American Idol; and the karaoke singer who doesn't hit that high falsetto note just like Roy Orbison did is pitied, if not outright booed. It takes guts to be original these days.

However, all is not lost. Over the past century, public works involving sound and music have become more common, and these have increasingly provided opportunities for ordinary people to re-engage with their auditory worlds, to explore the world through their

---

[1] Giselle E. Whitwell, "Life Before Birth: Prenatal Sound and Music," APPPAH Homepage (Association for Pre- and Perinatal Psychology and Health), <http://www.birthpsychology.com/lifebefore/sound1.html"> (accessed April 13, 2006).

ears, to engage in creative play with sound, and to interact sonically with others, in situations in which success is impossible to measure except through smiles, closed eyes, or renewed pleasure in the ears. Such work is not without its challenges, both technical and social. Work that depends upon technology can be notoriously difficult to weather- and vandal-proof. It can be expensive to mount such pieces. Municipal red-tape can be a headache. Longterm pieces require some kind of stewardship. Most importantly, whether it's meant to be permanent or just for the day, if a work is to be accepted by the community in which it's placed, it must take into account the community's needs, desires and realities.

But facing these challenges is worth it. These works, free and open to everyone, remind us of our musical creativity, invite a shared sense of wonder, evoke memories, and invite us to engage with the physical, social and emotional spaces around us, as well as our own creativity. They create a sense of connection to both our outer and inner worlds. At a time when technology seems to seductively and incrementally envelop each of us in a solipsistic bubble and public space is increasingly viewed as inconvenient and obsolete, I believe it's crucial that we learn to use technology as a means of connection – to ourselves, to one another, to our communities, and to the world at large. The strategies laid out in this thesis are an attempt to begin such an endeavor.

A note on classification: as the artists I discuss blur the line(s) between art and life, I have attempted to blur the lines between work that is variously labeled as music, sound art, conceptual art, performance, and site-specific installation. I'm uninterested in territorializing artistic practice or defining genres; what I propose instead is an all-embracing exploration of public works involving participatory listening and sounding. By tracing their histories and finding out just what makes them tick, I hope I will inspire listeners, sounders and situation-makers everywhere.

Chapter 1: Introduction

Everyone

> everyone. *pronoun* everybody, each one, the whole world, each person, every person, all and sundry, one and all.[2]

Over the course of the past century or so, there has been a move towards increasing participation in the arts, towards a definition of artist as catalyst as opposed to the romantic and modernist conception of artist as genius, shaman and hero. Beginning with the Futurists and Dada, and continuing through the work of John Cage, the Situationists, Happenings, Fluxus, and eventually manifesting in works of performance art, conceptual art, land art, and most recently relational art, artists have worked to activate the audience as participant, to situate their work as an experience, not an object. Why was this necessary? And how did it come about? What follows is a whirlwind tour of the history of active audience participation in the post-industrial era.

Nonliterate cultures did and do incorporate active participation in the performing arts in the forms of play, games, sports, theater and ritual.[3] With the rise of modern culture and the urban middle class, performer and audience became increasingly separated, and culture became commodified. Ordinary people began paying to access the very culture that they themselves had spawned; for instance, sheet music sales of folk music soared with the rise of the industrial revolution.[4] Artists of all disciplines were increasingly viewed as distant geniuses, even gods. Around the turn of the twentieth century, artists began to question this quasi-religious role of the artist by exploring boredom, absurdity, outrage, and the everyday. Erik Satie's 1893 composition *Vexations*, for example, asks a pianist to repeat a one-page musical motif 840 times; variously interpreted as jest, provocation, proto-Cagean meditation and precursor to his later 'furniture music' (and Brian Eno's ambient music), the work surely tweaks the hallowed tradition of dialectical music.

---

[2] Collins Essential Thesaurus, 2nd edition, s.v. "everyone."
[3] Richard Schechner, *Performance Theory* (London and New York: Routledge Classics, 2003), 8-19.
[4] Donal McGraith, "Anti-Copyright and Cassette Culture" in *Sound by Artists*, ed. Dan Lander and Micah Lexier (Toronto: Art Metropole/Walter Phillips Gallery, 1990), 73-74.

As World War I broke out, violence and political firestorms intensified these questions, finding voice in the anti-art movements of Futurism and Dada. Artists reached for everyday materials and audience participation as a way to bridge the distance that had grown between themselves and their audience. In 1917, Marcel Duchamp famously (and secretly: he was a director) submitted what he called a 'Readymade' sculpture, a urinal, to a supposedly uncensored art exhibit put on by New York's Society of Independent Artists, only to be rejected. The publicity that followed brought the Readymade to the fore and arguably pioneered conceptual art. Less well known is the fact that a year earlier Duchamp had produced his first audible Readymade, *A bruit secret (With Secret Noise),* a ball of twine pressed between two brass plates that makes an enigmatic sound when shaken; this was a piece of art that was not conceptual but rather participatory. Its primary meaning was revealed only through the active participation of its audience.[5]

Figure 1.1. Marcel Duchamp's *Fountain* (1917, left) and *A bruit secret* (1916, right).

This move to involve the audience intensified as the century wore on, manifesting in events such as Dada street performances[6] and Soviet collective performances[7] in the early

---

[5] Pontus Hulten, ed. *Marcel Duchamp: Work and Life* (Cambridge, MA: MIT Press, 1993), 22-23 April.
[6] Andre Breton, "Artificial Hells. Inauguration of the '1921 Dada Season'," trans. Matthew S. Witkovsky, *October* 105 (2003): 137-144.

1920s. Philosophers such as John Dewey (*Art as Experience,* 1934[8]) and Henri Lefebvre (*Critique of Everyday Life,* 1947[9]) wrote about the importance of perceiving the aesthetics of the ordinary and the alienation of the individual from everyday life, respectively, but it wasn't until the 1950s that three simultaneous forces – John Cage and his Black Mountain cohorts, Guy Debord and the Lettristes/ Situationists, and Japan's Gutai Group – would revolutionize the art world by challenging the public to participate in their works.

In 1952, John Cage premiered two seminal works: *4'33"* and *Black Mountain Event.* Cage's career to this point had spiraled around the idea of 'the composer as listener', an idea he expounded on in his 1957 essay "Experimental Music":

> Formerly, whenever anyone said the music I presented was experimental, I objected. It seemed to me that composers knew what they were doing… But giving the matter further thought, I realized that there is ordinarily an essential difference between making a piece of music and hearing one. A composer knows his work as a woodsman knows a path he has traced and retraced, while a listener is confronted by the same work as one in the woods by a plant he has never seen before.
>
> Now on the other hand, times have changed… What has happened is that I have become a listener and the music has become something to hear.[10]

Cage wants to take himself, as an individual, out of the equation; he wants to hunt for sounds in the same way he hunted for mushrooms, wants to find the strange and the beautiful in the most unexpected places. 1952 finds him upping the ante by reversing the equation: asking the audience to become the composer by asking them to do the very sort of listening he had espoused for himself. Inspired by Robert Rauschenberg's *White Paintings,* which caught the shadows, dirt and dust of their environments,[11] Cage premiered *4'33,"* his 'silent' piece, in August 1952. David Tudor sat in front of his piano, without making a sound,

---

[7] Northwestern University Department of Slavic Languages and Literatures, "Agit-Drama, Annenkov's *The Storming of the Winter Palace,* <http://max.mmlc.northwestern.edu/-mdenner/Drama/plays/agit/agit1.html> (accessed March 5, 2009).
[8] John Dewey, *Art as Experience* (New York: Penguin, 1934; reprinted 2005).
[9] Henri Lefebvre, *Critique of Everyday Life, Vol. 1,* trans. John Moore (New York and London: Verso, 1947, reprinted 1991).
[10] John Cage, "Experimental Music," in *Silence* (Middletown, CT: Wesleyan University Press, 1973), 7.
[11] Rauschenberg had said "I always thought of the white paintings as being not passive but very – well – hypersensitive," he told an interviewer in 1963. "So that people could look at them and almost see how many people were in the room by the shadows cast, or what time of day it was." Quoted in Calvin Tomkins, *Off The Wall: A Portrait of Robert Rauschenberg* (New York: Picador, 1980/2005), 64-65.

for four minutes and thirty-three seconds. At the beginning of each of the three movements, he opened the piano lid and then closed it respectfully. No musical sounds were produced; rather, the audience was left to listen to the noises of the hall —the quiet shuffling, the birds outside, the cleared throats; all, the piece declared, were music.
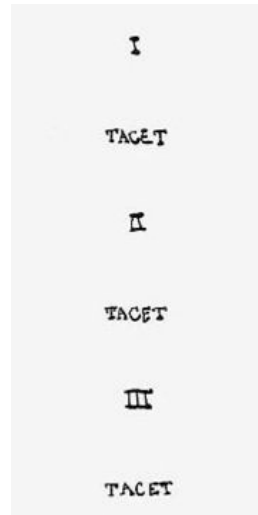
Figure 1.2. Robert Rauschenberg seated in front of *White Painting* (seven panel, 1953, left). John Cage, *4'33"* score (1952, right).

Theater Piece No. 1, performed a month later at Black Mountain College, took a more circus-like approach to the idea of audience-created meaning. The listeners were spread around a space featuring concurrent (and improvised) mixed media performances by dancer Merce Cunningham, poet Charles Olsen, artist Robert Rauschenberg, poet and potter M.C. Richards, pianist David Tudor and others. Cage describes the piece:

> I was on a ladder delivering a lecture which included silences
> and there was another ladder which M.C. [Mary Caroline]
> Richards and Charles Olsen went up at different times...
> Robert Rauschenberg was playing an old-fashioned
> phonograph that had a horn and a dog on the side listening,
> and David Tudor was playing a piano, and Merce
> Cunningham and other dancers were moving through the
> audience and around the audience. Rauschenberg's pictures
> were suspended above the audience.[12]

---

[12] Michael Kirby and Richard Schechner, "An Interview with John Cage," in Mariellen R. Sandford, ed., *Happenings and Other Acts* (Abingdon, UK: Routledge, 1995), 53.

The audience's seating made it impossible to see everything at one time, thereby offering each person a different experience and lending the entire piece an aura of what Brandon LaBelle describes as "multiplicity of action … the simultaneous movement of sound upon sound, image upon image."[13] The performance was much closer to the anarchy of real life than to the proscenium-based performance tradition.

In his book *Background Noise,* Labelle writes, "Whereas *4'33"* silences music, *Black Mountain* reaches for a silencing of singularity; *4'33"* makes transparent the space of music, as an opening onto sound, *Black Mountain* fills space with a density of material and input. Yet both operate to frame a listener's relationship to music by being aware of their positioning: *4'33"* by pointing toward their own presence and *Black Mountain* by complicating perspective."[14] We might say that both *4'33"* and *Black Mountain* shifted the responsibility of "composing the piece" to the audience in different ways: the first through the subtraction of performance elements, the latter through their multiplication. These two strategies, what we might term minimal and multiple, were to become distinct paths in both visual art and music.

1952 also saw 21-year-old Guy Debord, who had recently formed the Paris-based Lettriste International as a splinter political-artistic group from the ashes of Dada and Surrealism, create *Hurlements en faveur de Sade (Howls for Sade).* This film consisted primarily of projected blackness with no image; the only sound to be heard was the sound of the projector. From time to time white lights would flash and seemingly aimless dialogue would be heard; then all would descend to black "silence" again. Like Rauschenberg's white paintings and Cage's silences, Debord's film provoked the audience into an active and even more confrontational engagement (two years earlier, several of his associates had been arrested for hijacking Easter Mass at Notre Dame Cathedral and delivering a sermon rejecting Christianity in violent terms). If Cage was inviting everyone in, the Lettristes were telling everyone off.[15] The Lettristes considered themselves a revolutionary organization, not an aesthetic one; to that end they aimed to destroy the old, bourgeois way of doing things.

---

[13] Brandon LaBelle, *Background Noise: Perspectives on Sound Art* (New York: Continuum, 2006), 19.
[14] Ibid., 20.
[15] It's certainly understandable that postwar artists in Europe might find themselves angrier and more pessimistic than postwar artists in the United States, given the trauma of World War II.

"The most urgent expression of freedom," they wrote, "is the destruction of idols, especially when they claim to represent freedom."[16] The Lettristes also coined the term *psychogeography,*[17] calling for exercises such as the *dérive,*[18] in which one drifted through the city according to desire. Their many manifestos radicalized the idea of audience participation, though most of their plans failed to materialize in any meaningful way.

In 1957, the Lettriste International merged with the London Psychogeographical Association to form the Situationist International, a group whose theoretical writings on the freedom of the individual when faced against "the society of the spectacle"[19] would prove incalculably important, but whose uncompromising view that everyone was an artist, when taken to its logical end, left no room for artists themselves, almost all of whom were exiled from the group. (A 1963 manifesto declared "The time for art is over. The point now is to *realize* art, to really create on every level of life everything that hitherto could only be an artistic memory or an illusion, dreamed and preserved unilaterally. Art can be realized *only by being suppressed.*"[20]

Meanwhile, halfway around the world in Japan, a group of artists calling themselves the Gutai Group formed in 1954. They drew inspiration from New York's Action painters, particularly Jackson Pollock: their idea was to lift the action out of the painting into the real world; to spotlight the action itself as the art, rather than the trace left by the action. Gutai means "concrete," and like Cage they were interested in real life, in getting away from representation, in using materials for their own sake, and in engaging real bodies in real space:

> It is ... in its conception of exhibitions as vast amusement
> parks containing pockets of meditative spaces and delicate
> sculptural objects that the Gutai group excelled. In its second
> outdoor show (July 1956), for example, held, like the first in a
> pine forest, [Sadamasa] Motonaga hung between the trees
> long sheets of plastic filled with colored water that filtered
> the sun's light; Michio Yoshihara (born 1933) dug a hole in the
> sand where he almost buried an electric light; Shimamoto

---

[16] Guy Debord, quoted in Simon Ford, *The Situationist International: A User's Guide* (London: Black Dog Publishing, 2005), 26.
[17] Guy Debord, "Introduction to a Critique of Urban Geography," in *Situationist International Anthology,* ed. Ken Knabb (Berkeley: Bureau of Public Secrets, 2006), 8.
[18] Guy Debord, "Theory of the Dérive (1958)," in *Situationist International Anthology,* 62-66.
[19] Guy Debord, *Society of the Spectacle*, trans. Ken Knabb (London: Rebel Press, 2006).
[20] J.V. Martin and others, "Response to a Questionnaire from the Center for Socio-Experimental Art (1964)," in *Situationist International Anthology*, 185.

constructed a catwalk of planks, supported by uneven springs, on which people were invited to walk; Kanayama zipped through the entire ground with a 300-foot long strip of white vinyl, adorned with black footprints that made it look like a runway and ending up in a tree. A sense of play was pervasive."[21]

Figure 1.3. Shozo Shimamoto, *Please Walk On Here* (1956), Second Outdoor Gutai Exhibition.

A feeling of play was in the air, and it was about to gain momentum. From 1957-1959, Cage taught a highly influential "Experimental Composition" seminar at the New School for Social Research in New York City. His class put a greater emphasis on event and duration than on sound itself.[22] Among his students were George Brecht, Al Hansen, Dick Higgins, and Allan Kaprow, all of whom would become extremely important to participatory art in the 1960s. Brecht, Hansen and Higgins became seminal figures in the Fluxus movement, while Allan Kaprow famously pioneered art events called Happenings during the New School Seminar. It might be argued that Fluxus and Happenings took *4'33"* and *Theater Piece*

---

[21] Hal Foster and others, "1955a: Nonwestern avant-gardes," in *Art Since 1900: Modernism, Antimodernism, Postmodernism* (New York: Thames & Hudson, 2004), 375.
[22] For some reminiscences by Allan Kaprow of John Cage's New School class, see Gordon Mumma and others, "Cage's Influence: A Panel Discussion," in *Writings Through John Cage's Music, Poetry and Art*, ed. David Bernstein and Christopher Hatch (Chicago: University of Chicago Press, 2001), 171-172.

No. 1, the minimal and the multiple, to their respective ends: Fluxus stripping performative

elements down to concentrate the audience's perception and attention onto the simplest

gesture, Happenings presenting a playful anarchy of movements, lights, and sounds designed

to overwhelm the audience and create a thousand experiences in one.

As an undergraduate at New York University, Allan Kaprow had been inspired by

John Dewey's 1934 book, *Art as Experience.*[23] In this influential book (originally a series of

lectures at Harvard), Dewey argued that aesthetics could not be conceived of as apart from

human experience; that contemporary culture lacked the wholeness of incorporating

aesthetic appreciation into daily life; and that it was necessary to reestablish a connection

between the aesthetic experiences of everyday life and what was locked away in the museum

as 'art'. Dewey wrote:

> When artistic objects are separated from both conditions of
> origin and operation in experience, a wall is built around
> them that renders almost opaque their general significance,
> with which esthetic theory deals. Art is remitted to a separate
> realm, where it is cut off from that association with the
> materials and aims of every other form of human effort,
> undergoing, and achievement. A primary task is thus imposed
> upon one who undertakes to write upon the philosophy of
> the fine arts. The task is to restore continuity between the
> refined and intensified forms of experience that are works of
> art and the everyday events, doings and sufferings that are
> universally recognized to constitute experience…
>
> … In order to *understand* the esthetic in its ultimate and
> approved forms, one must begin with it in the raw; in the
> events and scenes that hold the attentive eye and ear of man,
> arousing his interest and affording him enjoyment as he looks
> and listens: the sights that hold the crowd – the fire-engine
> rushing by; the machines excavating enormous holes in the
> earth; the human-fly climbing the steeple-side; the men
> perched high in air on girders, throwing and catching red-hot
> bolts. The sources of art in human experience will be learned
> by him who sees how the tense grace of the ball-player infects
> the onlooking crowd; who notes the delight of the housewife
> in tending her plants, and the intent interest of her Goodman
> in tending the patch of green in front of the house; the zest of
> the spectator in poking the wood burning on the hearth and
> in watching the darting flames and crumbling coals. These
> people, if questioned as to the reason for their actions, would
> doubtless return reasonable answers. The man who poked the
> sticks of burning wood would say he did it to make the fire
> burn better; but he is none the less fascinated by the colorful

[23] Jeff Kelley, "Introduction," in Allan Kaprow, *Essays on the Blurring of Art and Life*, ed. Jeff Kelley (Berkeley: University of California Press, 2003), xi.

drama of change enacted before his eyes and imaginatively
partakes in it. He does not remain a cold spectator.[24]

Dewey's urge to marry art and experience, Jackson Pollock's action paintings, and Cage's ideas about chance, events and duration all inspired Kaprow, who eventually began describing himself as an "un-artist."[25] Kaprow claimed that the works that he initiated during the Cage class were 'proto-Happenings;' in the autumn after the class ended, his *Eighteen Happenings in Six Parts* took place at New York's Reuben Gallery. The work consisted of a series of scored events; spectators were instructed to move around the gallery at carefully timed intervals to witness actions such as a woman squeezing oranges, artists painting and lighting matches, and a performance by an orchestra of toy instruments. Kaprow's 1961 work *Yard*, playful and absurd, filled the front yard of the Martha Jackson gallery with a mass of piled-up car tires. Visitors were invited to explore these tires – to scramble around on them, to engage with other people there (whether artist or visitor), to come up with their own ideas about what might be done on them. By offering a flexible/uncommitted/playful environment for people to participate in as they wished, Kaprow put forward the concept of art as literal playground. Like *Theater Piece No. 1* from Black Mountain, Kaprow's works and the Happenings scene in general emphasized simultaneity and the acceptance of chaos. Happenings, Kaprow said, "invite us to cast aside for a moment these proper manners and partake wholly in the real nature of the art and (one hopes) life."[26]

---

[24] Dewey, 2-3.
[25] Allan Kaprow, "The Education of the Un-Artist, Part I (1971)," in *Essays on the Blurring of Art and Life*, 97-109.
[26] Kaprow, "Happenings in the New York Scene," in *Essays on the Blurring of Art and Life*, 18. It should be clarified that this highly political manifesto was quite controversial; Fluxus maintained a healthy diversity of political and aesthetic opinion.

Figure 1.4. Allan Kaprow, *Eighteen Happenings in Six Parts* (1959, left) and *Yard* (1961, right).

Meanwhile, several of the students from Cage's class had loosely formed a group they called Fluxus. An early Fluxus manifesto, written by George Maciunas in 1963, reads in part:

> Promote living art, anti-art, promote NON ART REALITY
> TO BE ~~fully~~ grasped by all peoples, not only critics,
> dilettantes and professionals.[27]

Another manifesto, written two years later, clarifies:

> Fluxus Art – Amusement
>
> To establish artist's nonprofessional status in society,
> he must demonstrate artist's dispensability and inclusiveness,
> he must demonstrate the selfsufficiency of the audience,
> he must demonstrate that anything can be art and anyone can
> do it.[28]

Fluxus had the same general goal as Happenings – to blur the line between life and art – but with their self-titled Events, Fluxus artists went about it differently. Instead of creating free-flowing situations of excess in which each person's experience could be thought of as the artwork, their strategy tended to concentrate the audience's attention onto small,

---

[27] Hannah Higgins, *Fluxus Experience* (Berkeley: University of California Press, 2002), 76.
[28] Tony Godfrey, *Conceptual Art* (London: Phaidon, 1998), 103.

everyday matters. Fluxus put a frame around ordinary occurrences by isolating them. George Brecht's *Drip Music,* for example, consists of the artist slowly dripping water from one container into another. The audience experienced the work to the extent that they could concentrate their listening on the dripping. Another primary Fluxus art form was the Fluxkit. Fluxkits were suitcases full of objects to play with; the artwork was not considered to be the objects themselves but the participatory experience of the audience's experience with them. Implicit in all Fluxus works is an exhortation to sharpen sensory awareness all the time, to start seeing and hearing the world aesthetically as Dewey had encouraged.

Figure 1.5. George Brecht, *Drip Music* (1959) and George Maciunas, *Fluxkit* (1966).

These forces – John Cage and the Black Mountain artists, Guy Debord and the Lettristes (and later Situationist International), the Gutai Group, Kaprow and other Happenings artists, and Fluxus – were among the first of many to push away from art as an object and outward towards art as an experience. The 1960s were a jumping off period for many movements that sprang from this desire for experience as a primary artistic aim: minimalism, conceptual art, installation art, land art, performance art, light art, sound art, interactive art and relational art were all born from the desire to move away from the art object and incorporate the audience's experience into the work.[29]

---

[29] This movement towards experiential art was also influential on music, dance, and theater, as well as encouraging interdisciplinary experimentation among all of these.

This was not a philanthropic gesture, nor merely an attempt at Dewey's holistic integration of art and experience (though that was certainly part of it); it was also an opportunity for artists to open up their work to a greater variety of possibilities by exploring an organic kind of indeterminacy. There were some real aesthetic reasons for artists to want to include the audience's creative impulses in their work. Kaprow framed participation in a particularly formal manner. "For anyone once involved in the painter's problem of unifying a field of divergent phenomena," he wrote, "a group of inactive people in the space of a Happening is just dead space. It is no different from a dead area of red paint on a canvas."[30] To him, the movement from painting to Assemblage to Environment to Happening was an artistic response to the geometric confinement of the square room. There were other aesthetic grounds for abandoning complete artistic authority. Cage famously expanded the possibilities of what a piece of music could sound like through the use of chance and indeterminacy in his compositions. The unpredictability of audience participation and the use of public space as site explore the same territory. In this new world, the artist or composer's role becomes that of a catalyst for a situation, the creator of a whole universe of options, rather than a creator of objects or the composer of a fixed score.

What then, is the role of the participant in public sound art? What qualifies as participatory work? It could be argued, of course, that all true listening is participatory. While steering away from this kind of relativism in an effort to narrow the field, my definition of participation here is still fairly broad. Participation may predate the exhibition or performance of the piece (as in collaborative work), or it may be the primary activity of the exhibition or performance of the piece. It may require a definite commitment, or be something that you can simply enjoy as you pass by. It may take just a few seconds, or as long as the rest of your life. But at base, a participatory work is one that without your participation, would not exist.

---

[30] Allan Kaprow, *Assemblage, Environments & Happenings* (New York: Harry N. Abrams, Inc., 1966), 196.

Play

> Play.
>
> —*Synonyms* 2. show. 3. diversion, pastime. PLAY, GAME, SPORT refer to forms of diverting activity. PLAY is the general word for any such form of activity, often undirected, spontaneous, or random: *Childhood should be a time for play.* GAME refers to a recreational contest, mental or physical, usually governed by set rules: *a game of chess.* Besides referring to an individual contest, GAME may refer to a pastime as a whole: *Golf is a good game.* If, however, the pastime is one (usually an outdoor one) depending chiefly on physical strength, though not necessarily a contest, the word SPORT is applied: *Football is a vigorous sport.* 18, 19. liberty. 23. enact. 25. personate, impersonate. 30. use. 32. bet. 33. back. 45. sport, frolic, romp, revel. 47. dally.
>
> —*Antonyms* 3, 45. work.[31]

Of course, bringing art out into the streets takes all kinds of different forms, and many of those forms overtly challenge participants, willing or not (the Lettriste invasion of Notre Dame, for example). What I'd like to focus on in this text, however, is the idea of participation as play.

What is play, exactly? What does play mean, in the context of public artwork and performance, and how might it manifest itself? The dictionary definition printed above is instructive: we see that play is a 'diversion,' 'often undirected, spontaneous, or random,' that it potentially involves 'liberty,' 'impersonation,' 'sport, frolic, romp or revel,' and 'dalliance.' And finally, most definitively, that it is the opposite of 'work.'

Johan Huizinga, a Dutch historian and philosopher, is well known as one of the primary theorists of play. In his seminal text, *Homo Ludens,* he argues that play is the central force underlying human life. Huizinga defines play as:

> a free activity standing quite consciously outside "ordinary" life as being "not serious," but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings which tend to surround themselves with secrecy and to stress their

---

[31] play. Dictionary.com. Dictionary.com Unabridged (v 1.1). Random House, Inc. http://dictionary.reference.com/browse/play (accessed May 9, 2008).

difference from the common world by disguise or other means.[32]

By deconstructing this paragraph, we might get at some meaningful aspects of play. First of all, play is a free activity. No one can be coerced into playing: if they are coerced, it no longer feels like play. The public must freely choose to engage with playful public sound works; they cannot be assaulted by them.

Secondly, play not only stands outside of 'ordinary life' but does so 'consciously'. The ordinary rules of life don't apply during play – players are temporarily liberated from their everyday social roles. This can be seen, of course, in the specter of adults climbing mounds of tires (as in Kaprow's 1961 *Yard*) or stooping down, ears cocked to navigate the city by the electrical sounds of subway grates, stoplights and other devices (as in Christina Kubisch's recent *Electrical Walks*). They are, however, well aware that they are playing. Should they suddenly need to resume their everyday roles, this conscious 'vacation' will quickly come to an end.

Third, play 'absorbs the player intensely and utterly.' The player's attention is on the play. For the moment, other cares and concerns have been left behind, and the player concentrates with the utmost attention on the objects of play, whether these are concrete objects or, for instance, musical ideas within the brain. This quality of focus is part of what makes play feel so good, particularly at a time when many people's lives feel overwhelmingly fragmented.

Fourth, play is connected with 'no material interest' and 'no profit can be gained from it.' It is, then, completely unproductive. This is a very important point. If something is to be gained from play, it is no longer play but a task to be completed. There's a twist, though. Psychological studies have shown play to be crucial to the functioning of our lives; it fulfills all kinds of social, cognitive, creative, emotional, physical, and sensual needs. If these are all benefits, how can one of play's definitions be one of 'nothing to be gained'? And what about professional 'players': musicians, athletes, actors? The answer is that the player must forget this notion of gain during the moment of play, must not bear this ulterior motive in

---

[32] Johannes Huizinga, *Homo Ludens* (New York: Beacon Press, 1955), 13.

mind, or the activity will not feel like – and indeed will not *be* – play. The player's focus must entirely be on the play. This unproductivity is at the very core of play's definition, as work might logically be defined as an activity which *does* produce some profitable gain or material interest. It's not surprising that the dictionary definition of play defines work as its antonym.

Fifth, play 'proceeds within its own boundaries of space and time.' At first glance this may not ring true: for instance, one might argue that three-year-olds do little but play *wherever* and *whenever* they find themselves. However, their play always occurs in some specific time and place, and their fantasy or game always bears a definite relation to this specific time and place – until the time and place change with the next game. Similarly, although the motive behind public sound works is sometimes to incite a more playful attitude *all the time* in the listener, the work itself takes place in a specific time and place; and what's more, the time and place act as boundaries – when the participant leaves that time and place, the play changes, or ends.

Sixth, play operates 'according to fixed rules and in an orderly manner.' We might describe these rules, more flexibly, as 'limits.' Like 'boundaries of space and time' this may seem counterintuitive: what about unstructured play? But a glance at children playing in the yard, or people exploring interactive art, or a soundwalking expedition will reveal that each of these activities has limits (even if, as in the children's case, the limits for one particular play activity last only a minute). The physical environment, the social situation, the time and place, each necessarily limits the activity in quality and scope. Richard Schechner, a founder of performance theory, goes further, writing, "One of the qualities of play in higher primates in the wild is the balance between its improvisational quality and its orderliness: in fact, play is the improvisational imposition of order, a way of making order out of disorder."[33] This feels right; one might even define any kind of art- or music-making this way, as the creation of limits on an entropic world. In fact, the English language refers specifically to the performance of music as 'playing.' When we 'play' music, we are playing with sonic patterns in our minds and out loud, ordering and reordering them, enjoying the patterns of others and

---

[33] Schechner, *Performance Theory*, 104.

making them up ourselves. The aesthetic ordering of objects, whether external and physical or internal and abstract, is fun for human beings. It is playful.

Seventh, play 'promotes the formation of social groups.' Because the players are submerged into a world apart, with its own rules, it should come as no surprise that this shared experience brings them closer together. Indeed, we might say that children befriend one another because they have played together, as opposed to playing together because they are friends. Of course, the deeper the commitment, the deeper the social connection; those who take part in a public sound work for fifteen minutes together are unlikely to form a lasting bond, but this in no way negates the value of the social experience they've shared, particularly in a culture where people find themselves increasingly socially alienated from one another. These social groups 'tend to surround themselves with secrecy' and 'stress their difference from the common world through disguise or other means.' Both of these qualities seem to be attached to more particular sorts of play. In his book, Huizinga's elaboration of secrecy actually focuses less on secrecy per se and more on the playing group's feeling that they live in a world apart, that their rules are different, that they don't care what the world outside thinks.[34] This air of superiority, in fact, almost negates the need for both secrecy and disguise, which might be better seen as ornamentation and celebration than disguise. While costumes are certainly characteristic of competitive play – the teammates, after all, need a way to distinguish themselves – they're not often seen in more casual play. A question to keep in mind, however, is what these 'other means' of stressing difference from the common world might be. And to whom are they stressing these differences?

Huizinga's definitions are quite useful in establishing some guidelines of play. But as Allan Kaprow points out in his essay, "Education of the Un-Artist, Part II," Huizinga – a European denizen of the early 20th century, a survivor of the first world war and starvation casualty of the second – was conditioned to put a great deal of emphasis on 'agonistic play,' that is, competitive play, sublimated violence – and very little emphasis on what he referred to as 'lower play,' for which participation is its own reward.[35] Agonistic play, which usually takes the form of a 'game' in which winning and losing become supremely important, can

---

[34] Huizinga, 12-13.
[35] Allan Kaprow, "Education of the Un-Artist, Part II," in *Essays on the Blurring of Art and Life*, 119-125.

easily morph from play into something more akin to war. In his essay, Kaprow concentrates on 'lower play', urging artists to re-define themselves as players and to impart non-competitive play into society by taking on the role of playful educator. All of the pieces discussed in this thesis explore this idea of play as its own reward.

There are a few characteristics of play mentioned by neither Huizinga nor Kaprow that seem critical, and these are that play is sensual, developmental, and joyful. Play is sensual, physical, animal. Many animals play together as a sort of rehearsal for later life experiences (cubs playing at hunting one another, for example). While this has an emphatic instinctual goal, it seems that animals also take pleasure in pure sensory experience: kittens wrestling, birds singing songs that seem to have no evolutionary need, dogs running and panting and leaping. While it would be unwise to group animal and human play too closely together, it can't be denied that human play also takes great joy in pure physicality and sensory stimulation. Dancing, singing, rolling down a hill – all these forms of play encourage pure enjoyment of the body, and of the senses. Most forms of play, in fact, luxuriate in some kind of physicality.

Play is also developmental. It encourages people to exercise their social, emotional, cognitive, physical and artistic skills. People learn through play; that's one of the main reasons they enjoy it. Young children and animals spend all of their time playing – their job, in fact, is to learn through playing[36] – but many adults are deprived of rich learning experiences in their everyday lives, and play creates opportunities for them to continue pleasurably building neural connections in their brains.

Finally: play is joyful and fun! Play feels pleasurable; if it's not pleasurable, it doesn't qualify as fun. The feeling of pleasure plunges us into the experience, into presence, into being fully aware of here and now; we feel happy and joyful during play. One might even hypothesize that play functions as a dependable way for us to feel such joy as part of our day to day lives.

---

[36] In 1989, the importance of play was acknowledged in Article 31 of the Convention on the Rights of the Child, adopted by the General Assembly of the United Nations, which guarantees the rights of children to rest, leisure, play, and age-appropriate recreational activities and arts, as well as the opportunity of such to all children. United Nations, "Convention on the Rights of the Child," United Nations. <http://www.un.org/documents/ga/res/44/a44r025.htm> (accessed March 2, 2009).

Play, then, is an activity with a distinct footprint, what we might describe as any willfully chosen, socially liberating, focused, nonproductive, improvisationally ordered, social, sensual, developmental and fun activity – and is what I hope to create, and to find, in publicly situated sound works.

Sound

> What we call "sound" is really an onrushing, cresting, and withdrawing wave of air molecules that begins with the movement of any object, however large or small, and ripples out in all directions. First something has to move – a tractor, a cricket's wings – that shakes the air molecules all around it, then the molecules next to them begin trembling, too, and so on. Waves of sound roll like tides to our ears, where they make the eardrum vibrate; this in turn moves three colorfully named bones (the hammer, the anvil, and the stirrup), the tiniest bones in the body... The three bones press fluid in the inner ear against membranes, which brush tiny hairs that trigger nearby nerve cells, which telegraph messages to the brain: we *hear*.[37]

We hear long before we see. Halfway through gestation, we begin a sonic relationship with our mother, and with the sounds around her. In the womb we dance around to any manner of sounds, and especially those of our mother, while our senses of sight and taste and smell are enveloped in a recurring sameness. As infants, we are barraged by sights and sounds, perceiving the world in a constant rush of synaesthesia. Slowly, slowly, we begin to filter sounds out, to focus our eyes on specific objects instead of gazing/listening/feeling/smelling the great multi-sensory Everything. And before we know it, we begin to literally overlook sound. We look over it, above it, as we shoot glances around our worlds, soaking in our visual environments. We still use the sounds around us to perceive our spaces, and of course our alarm systems are always attuned to out-of-the-norm sounds, but in general we take the constant rush of sound as just that – a constant, easy to tune out. Just because we're not paying attention to it, though, doesn't mean that its importance is diminished – as anyone who has at least temporarily lost their hearing can attest. Sound is our most powerful sense, our strongest connection to our current reality.

---

[37] Diane Ackerman, *A Natural History of the Senses* (New York: Vintage Books, 1990), 177.

As art looked toward public space, temporality, experience and participation, it was inevitable that artists would begin to include sound in their works. For sound encapsulates all of these qualities by its very definition. Since our bodies automatically respond to sound, we might even say that all sonic work is to some degree participatory and experiential. Sound also defines space; whenever we hear a sound we're also hearing the space within which it lies. Sound is a paradox: immaterial yet manifest on the physical plane. Sound vibrates. Sound vibrates *us*. It doesn't just vibrate our eardrums, of course – it also vibrates our bones, our blood, our muscles, and our memories. Sound touches us, literally. We are powerless against it – as R. Murray Schafer has noted, we have no earlids,[38] and cannot 'listen away'. We're stuck.

This sense of submission, like others, is often pleasurable – as long as we can't do anything about it, we may as well enjoy it. And of course sound doesn't always overpower us. It often seduces us, sneaking up on us out of nowhere. Sound infiltrates us, resonating our very bodies, and we therefore have an incredibly intimate relationship with it. We hear with our entire bodies, not just our ears. The resonance of our cavities, our skull, our bones, all contribute to our listening. Just try humming to feel this in action.

Unlike vision, in which we consciously decide to look at a separate object which is some distance from us, and from which we can turn our gaze as we like, when we hear we have no choice but to vibrate at the same rate as another object, and are therefore tied to it in ways we may not even understand. Sound, then, has the ability to engage the audience in ways that the purely visual never can. And sound does not resonate our bodies alone. It resonates our minds, our emotions, our memories. Critic Max Bruinsma has referred to sound as a "carrier"[39] and it is certainly true that sounds are powerful in triggering memories, in bringing narrative elements to the fore of our minds and acting as catalysts for our own stories, in a Proustian sense. If one imagines one's past as a collection of thousands or even millions of nonlinear experiences floating through the brain, one might imagine a sound resonating disparate memories or fragments that share some kind of emotional vibratory frequency.

---

[38] R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester, VT: Destiny Books, 1994), 11.
[39] Max Bruinsma, "Notes of a Listener," in *Sound By Artists*, 93.

Imagine I am listening to the sound of a flute. The flutist blows air through a cylindrical bamboo shaft, causing vibrations with particular amplitude, pitch and timbre created by overtones and noise: a seemingly phenomenological act, vibrating the air molecules inside the flute and pushing them out into the world at large. I hear these flute sounds, and they activate seemingly unrelated fragments of association and emotion like so many sympathetic strings, inside myself. I am reminded of walking alone through the Indian countryside, of loneliness, of, perhaps, a large tree. Searching for a way to marry these disparate fragments, my mind creates a blurry, indefinable narrative which may exist simply as a feeling, a mood, a premonition. This subconscious activity calls the listener into a participatory experience as much as any physically interactive work; Gerald Edelman, a Nobel Prize-winning neuroscientist, has written that "every act of perception is an act of creation, every act of memory is an act of imagination."[40]

The content of a sound, then, is important, but its form, its style, its *how,* may be even more so. The way someone answers a question can tell us more about the answer than the semantic content of the answer itself. Douglas Kahn has referred to *significant noise,* that is, the ways in which noise can determine meaning. In his book *Noise, Water, Meat* he writes:

> A silent figure of significant noise exists in handwriting. There exists a basic form of letters intended to be read without any problem whatsoever. It is a form similar to the one in front of you at this very moment, lodged long ago in the institution of printing. Between pure legibility and an entirely illegible scrawl there lies a great deal of variability. Significant noise cannot be disentangled from the specifics of such variability; it is a legibility of an apparent illegibility. What one considers to be a scrawl depends on who is doing the considering, when, where, and in what capacity. Where a teacher would be intolerant of scrawl, a graphologist would be excited by its wealth of information, and this would not preclude the teacher who moonlights as a graphologist. Instead of inhibiting communication, where noise exists so too does a greater communication.[41]

The way in which handwriting becomes a scrawl, the lean to the left, the tightness of the letters, the way the writer dots an i or crosses a t, lends personality to the work. It may tell us more about the writer than the words on the page. In the same way, music is heavily

---

[40] Gerald Edelman and Giulio Tononi, *A Universe of Consciousness: How Memory Becomes Imagination* (New York: Basic Books, 2000), 101.
[41] Douglas Kahn, *Noise Water, Meat: A History of Sound in the Arts* (Cambridge, MA: MIT Press, 1999), 26.

dependent upon the particulars of timbre, the individual elements of noisiness and overtones that define its sound. Music without any noise at all would quite possibly be unbearably boring and communicate nothing at all; in point of fact, it is probably not possible.

In his essay, "Notes of a Listener," Bruinsma discusses Maurizio Nannucci's 1976 audio work, *Parole,* which investigates this idea of noise as meaning.[42] Armed with a reporter's microphone, Nannucci asked dozens of people to tell him the first word that came to their mind. What results is a thirteen-and-a-half minute contemplation of hesitancy, in which the answers that people give mean almost nothing at all, and the way in which they are delivered means everything. When I write 'means nothing', I suppose I mean that while the words themselves (cat, frying pan, skyscraper) may or may not resonate our memories while listening to them, our strongest resonance will likely occur as an emotional response to the hesitancy of the answers, flashing back on our own memories of vulnerability and hesitation.

Alvin Lucier's seminal tape performance piece, *I Am Sitting In A Room*, consists of the composer speaking into a microphone in a particular acoustic space, and recording his speaking into a tape player. This sound made material is then looped and recorded into another tape recorder, which is then played and recorded by the first tape recorder. This process is repeated over the course of nearly an hour, until the composer's voice has been 'smoothed out' and subsumed by the resonant frequencies of the room, which are exponentially reinforced by the process. It is, in effect, the story of a man disappearing. Towards the end of his speech, the composer says "This process will smooth out any irregularities in my voice." Because of the noise (the "how") of his particular human voice – he stutters – the process takes on an emotional as well as an acoustic resonance. It is as if we are listening, in slow motion, to his holding out his vulnerability and slowly allowing it to dissolve. The effect is magical, both acoustically and emotionally. Noise, then, can be considered as meaningful, as significant.

So, when noise becomes signal (as it does for the graphologist), what then, exactly, can be defined as noise? It may be the tear smudge on the sheet of paper, blurring the handwriting; to an historian, however, this 'noise' may be highly significant. For the

---

[42] Bruinsma, 93.

graphologist, it may be fact that halfway through the pile of letters the writer seems to have purchased a typewriter. Indeed, noise might be defined as any unwanted information. For the average person, of course, 'noise' simply connotes unwanted sounds, sounds the listener tries to filter or even drown out.

Just how do we filter out such unwanted information, such noise? Our neurological systems develop filtering systems early on. The filtering occurs in our brains, not in our ears. Deaf people who have been given cochlear implants often have a difficult time dealing with the Niagara-like onslaught of sounds that they suddenly experience, because their brains have not developed the filtering systems that allow us to foreground certain sounds while allowing others to submerge into the background. Of course, when we are sounding ourselves we are likely to foreground our own sounds and filter out others; we are also likely to foreground human voices, very loud sounds (sirens, crashes, bells) and sounds that are particularly important to us (a mother can often hear an infant rustling in his crib when no one else can). In *4'33"*, Cage turned this filtering system on its head. By putting the audience into an intense listening situation through cultural prompts (an indoor concert, rows of chairs, etc) and then instructing the pianist to not play for specified lengths of time, the hall's noise was foregrounded as sonic event. But what was filtered out? What was the 'noise' of the situation? Was Cage attempting to get rid of 'noise' as a concept? Or was he trying to swap signal and noise? The question becomes a sort of koan.

In any case, we now have a greater awareness of sound and noise in our lives than we've had in some time. There are many reasons for this. One is the invention of radio, recording, telephonic and informational technology. We now have the ability to engage sonically with distant spaces and times, to play just about any sound that has ever sounded, at the click of a mouse, the swipe of a screen. In tandem with globalization and the development of the internet, this means that sound has become immediate as well as literally material; it can be played, replayed, saved, fragmented, manipulated. It now simply exists as data, as zeroes and ones, as potential. We are surrounded, literally, by blankets of sound. So much so that we consider almost all of it noise, a kind of aggregate background blur which we either ignore or overwhelm with personal audio devices. This sonic crush is part of a

greater problem of sonic ecology: instead of a healthy balance between input and output, most of us simply choose to consume sounds while neglecting expressive sonic output of our own. In a noisy world, claiming sonic territory for one's own (as with those who blast music from cars or boomboxes) is considered subversive, defiant and rude because it's just more unwanted sonic information, another layer added to an already noise-soaked environment. And most people believe that they are not 'musical', at least not musical enough to be worthy of putting any kind of sonic expression out into the world. This imbalance has led to an almost completely commodified landscape of music, but things seem to be changing. A desire for sonic expression can be seen in the multitude of bedroom music producers, karaoke singers, and weekend guitarists who are determined to make a sonic imprint on their world. These may not be the most original musical activities, but it's a good start.

In his seminal work *Noise: The Political Economy of Music,* Jacques Attali theorizes that a culture's state of music predicts its future political and economic developments.[43] He describes four phases of musical (and ultimately sociopolitical) economies, each of which breaks through from the previous phase through an unwanted 'noise' that eventually comes to define the future. Attali's four phases begin with the sublimation of violence into culture through ritual *sacrifice*, followed by the *representation* of ritual through communal spectacle, which is then transformed into what he considers our present stage, *repetition,* in which music (and eventually all other forms of information and power) is stockpiled and consumed by the individual, characterized by its presence or absence rather than its content.[44] About this current state, Attali writes:

> Mass music is thus a powerful factor in consumer integration, interclass leveling, cultural homogenization. It becomes a factor in centralization, cultural normalization, and the disappearance of distinct cultures.
>
> Beyond that, it is a means of silencing, a concrete example of commodities speaking in place of people, of the monologue of institutions. A certain usage of the transistor radio silences those who know how to sing; the record bought and/or listened to anesthetizes a part of the body; people stockpile the spectacle of abstract and too often ridiculous minstrels.

---

[43] Jacques Attali, *Noise: The Political Economy of Music* (Minneapolis: University of Minnesota Press, 1977), 11.
[44] Ibid., 31-32

> But silencing requires the general infiltration of this music, in addition to its purchase. Therefore, it has replaced natural background noise, invaded and even annulled the noise of machinery. It slips into the growing spaces of activity void of meaning and relations, into the organization of our everyday life: in all of the world's hotels, all of the elevators, all of the factories and offices, all of the airplanes, all of the cars, everywhere, it signifies the presence of a power that needs no flag or symbol: musical repetition confirms the presence of repetitive consumption, of the flow of noises as ersatz sociality.[45]

Just as the saturation of the environment by machine noise annulled the quasi-religious power of the 'loud sound' by making it all too common and banal, the saturation of the environment by the repetition of commercial music replaces the honest spectacle of music. We've heard it all before, and we are bored.

In a world saturated with repeated commercial music and sounds, any individual sound which is not repeated, which is not commercial, attains a special kind of meaning and retains the subversive quality of noise. Of course, like all others, this subversive 'noise' is proposed by Attali to fracture the current phase, repetition, in the birth of a new cultural structure which he refers to as *composition*:

> An exchange between bodies – through work, not through objects. This constitutes the most fundamental subversion we have outlined: to stockpile wealth no longer, to transcend it, to play for the other and by the other, to exchange the noises of bodies, to hear the noises of others in exchange for one's own, to create, in common, the code within which communication will take place.[46]

In other words, a phase in which people make music for pleasure alone; this might be seen as a kind of musical anarchy. Participatory sound projects make good on this movement by promising a personalized experience in which the 'noise' of variability reveals individuality through both listening and sounding.

---

[45] Ibid., 111.
[46] Ibid., 143.

26.

Public

pub·lic [puhb-lik]

-adjective

1. of, pertaining to, or affecting a population or a community as a whole: public funds; a public nuisance.

2. done, made, acting, etc., for the community as a whole: public prosecution.

3. open to all persons: a public meeting.

4. of, pertaining to, or being in the service of a community or nation, esp. as a government officer: a public official.

5. maintained at the public expense and under public control: a public library; a public road.

6. generally known: The fact became public.

7. familiar to the public; prominent: public figures.

8. open to the view of all; existing or conducted in public: a public dispute.

9. pertaining or devoted to the welfare or well-being of the community: public spirit.

10. of or pertaining to all humankind; universal.[47]

The physical aspects of sound provoke an interesting question: is listening private or public? It would be easy to at first leap to the conclusion that listening is private; after all, sound vibrates our very bones, our very blood. The shared resonance between sounder and listener is intimate, indeed. But this relationship is rarely one-to-one. Everyone within earshot is vibrating at this frequency as well. You're all sharing a vibratory frequency, sharing an experience, participating in this physical event together. There exists an unspoken physical relationship among a crowd.

The sounds we hear affect us all. At the same time, we spend our lives broadcasting our own sounds, bodily and otherwise, all of us. It is impossible to walk through this world silently. So all of the sounds you create are resonating your neighbor's body, to some degree, and all of his sounds are resonating yours: it's hard to imagine a more social or public activity. Music and sound have historically functioned as communal and unifying activities, whether in the form of work songs, church bells, or roaring waterfalls which serve as muses for song. There is some evidence that sound can literally unite us in terms of rhythmic entrainment.

---

[47] public. Dictionary.com. *Dictionary.com Unabridged* (v 1.1). Random House, Inc. http://dictionary.reference.com/browse/public (accessed: June 18, 2008).

Sound offers a chance to connect not only to the physical, but to the social worlds around us, to the other people we so often ignore. Sound is intrinsically relational.

The word 'public' implies its opposite, 'private' and is, of course, culturally and historically specific. How do we know a place is 'public'? And is there really such a binary relationship between public/private or might there be grey areas? According to Setha Low and Neil Smith, "public space is traditionally differentiated from private space in terms of the rules of access, the nature and control over entry to space, individual and collective behavior sanctioned in specific spaces, and rules of use."[48] As a beginning, let's say that public space is physically accessible, with no barrier to entry, no legal behavior that is unsanctioned, and no rules of use beyond local and federal law. But even this definition breaks down under examination: is an airport a public space? a park after hours? a shopping mall? a crosswalk? Each of these is non-private, but each holds within itself a series of restrictions, both in terms of cost of entry and of sanctioned behavior and rules of use. And as Low and Smith have pointed out, private space is often regulated by public rules, such as zoning laws and laws governing sexual expression.[49]

Art in public spaces is defined by many authors as 'public art,' art which is funded by governmental bodies for the official good of the citizenry. Government organizations such as the GSA, NEA, and various Percent for Art programs fund public art projects to the tune of millions of dollars a year across the United States, not to mention nonprofit agencies such as the Public Art Fund and Creative Time, both of which exist to create public art projects in New York City. Defining 'public art' this way is a start, but it's a bit like creating a genre entitled 'museum art': it's a definition based on institutional validation and context, not on intrinsic qualities.

If we persevere, however, we might think of public art as art which is explicitly sited outside of traditional arts contexts in order to maximize its chance of engaging an ordinary, non-specialized art audience, perhaps unexpectedly. Thinking about public art in this way maintains inclusivity of all kinds of spaces which might not otherwise be defined as public:

---

[48] Setha Low and Neil Smith, *The Politics of Public Space* (New York: Routledge, 2006), 3-4.
[49] Ibid., 5

rest rooms, highways, and subway grates, as well as the more traditional urban plazas, city parks, and sidewalks.

How might we define 'public' in the context of participatory art? Should public work be defined as work that is open to anyone to participate? Is it work that is placed squarely in the path of the average person going about their ordinary day? Anything public affects the community as a whole; is open to all persons; acts in the service of the community; is maintained by the community; is generally known and familiar to everyone; is open to the view (and hearing) of all; is devoted to the wellbeing of all; and pertains to everyone. It's universal. So how might we define public space? What makes a space public? Is it simply the fact that it is accessible to all, that it was created for all, that it is maintained by the community it is intended for? And why situate sound work in public space, whatever it may be? In this dissertation, public space is defined as space that is both physically and socially accessible to all, that is or could be part of the community's everyday life. Public art is defined as work that is addressed to everybody, not just a specialized arts audience.

It's important to remember that the dictionary definition of 'public' includes the idea that public anything – including space – *affects* everyone in the community as well, implying that the artist has responsibility alongside opportunity. The public is not merely invited to experience public art; in many cases they have no choice *but* to experience the work. It's important, then, for artists to think about this responsibility and the various modes of participation available to passersby and participants alike.

Space and Place

> Space is a common symbol of freedom in the Western world. Space lies open; it suggests the future and invites action. On the negative side, space and freedom are a threat... To be open and free is to be exposed and vulnerable. Open space has no trodden paths and signposts. It has no fixed pattern of established human meaning; it is like a blank sheet on which meaning may be imposed. Enclosed and humanized space is place. Compared to space, place is a calm center of established values. Human beings require both space and place. Human lives are a dialectical movement between shelter and venture, attachment and freedom. In open space one can become intensely aware of place; and in the solitude of a sheltered place the vastness of space beyond acquires a

haunting presence. A healthy being welcomes constraint and freedom, the boundedness of place and the exposure of space.[50]

What is the difference between a space and a place? Is there a difference? I often do tai chi in a small park near my apartment, and I almost always stand in a special spot which feels powerful to me, facing east, offering mottled light and shadow and a view of the entire park. On the occasions that I've come to see my spot 'taken,' I've felt annoyed, as if the other is trespassing. I have a personal relationship with this particular portion of public space – to me, it has become place. In Yi-Fu Tuan's seminal book, *Space and Place: The Perspective of Experience,* quoted above, he spells out the dialectic between space and place in clear terms.

Space invites phenomenological listening, attention, wakefulness; it is ripe with potential, and activates freedom. Place invites memory, reflection, and imagination; it is created through the ordering of chaos, through definition, through closing off space, by making it one's own through architecture, movement, habit, memory, narrative. Place requires commitment, a willingness to at least temporarily define a space as something specific. By defining it, we give up on its myriad other possibilities; like any commitment, it entails a movement from pure entropic potential to a hierarchy of priorities. At its best, space that has not been domesticized into 'place' offers freedom and potential; at its worst, as Tuan writes, it becomes threatening and alienating. Likewise, place might alternately be experienced as warm and cozy, or as claustrophobic.

	Space	*Place*
Public	an unknown park	the park where I eat lunch
Private	a brand new apartment	my bedroom

Table 1.1. Public vs. private, space vs. place.

Table 1.1 shows a matrix of *public* and *private*, *space* and *place*. A *public* space or place is one to which all people (more or less) have free access. A *private* space or place is one to

---

[50] Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977), 54.

which access is restricted. A public or private *space* is one which is neutral to me, to which I have no ties. A public or private *place* is one which I set apart from others, which has meaning to me. So, in looking at Table 1.1, we can distinguish four possibilities: public space, public place, private place and private space. Public space is easy to think of: anywhere we have not been or thought about before, a space that stretches before us with potential and no ties. For example, an unknown park in a part of town we've never visited. A public place, on other hand, might be the park in front of the building in which I work, where I eat lunch every day. That place has meaning to me. A private place is, of course, a place that has meaning to me to which the public is not invited: for example, my bedroom. Finally, a private space is less common, but we might think about a new apartment into which we are moving, into which we have not yet settled. The space is clearly defined into bedrooms, living room, kitchen, etc., but it holds very little meaning to us until we unpack our lives, physical and otherwise, into its space. In this thesis, I will primarily discuss public space and place.

Physical	topography, architecture
Kinetic	paths through space
Social	social centers of gravity, crowds vs privacy
Emotional	memory, narrative, emotion
Aesthetic	order out of chaos

Table 1.2. Ways of creating place from space.

One way to think about creating public art is the creation of place out of space. Table 1.2 portrays several of the ways we can make place out of space. Broadly, we might think of interventions to a neutral space as being motivated by physical, kinetic, social, emotional, or aesthetic factors (as well as any combination of all of the above).

Most commonly, physical topography and intervention (that is, architecture) shape our gestures, our choreography, the way we move, think, and interpret space as a series of places. By playing with space, dividing it into hierarchies and closing parts of it off, architects create place. When this architecture limits and stylizes the choreography, the

movement of collective bodies, architecture can create a sense of place which is often communal. (For instance: "Let's meet at Grand Central's big clock.") This prioritization of space is often related to the compartmentalization of specific activities, for example, play, as mentioned earlier. An example of a physical intervention might be New York's Metropolitan Museum, whose broad stairs create a place for sitting, people-watching and meeting up with friends in addition to serving as the entrance for the museum.

The movement of people through space also creates its own set of definitions; the architecture and topography of a space cause people move in very specific ways throughout that space. As this choreography is repeated over time, on either an individual or collective scale, it creates a sense of place within the space being navigated. This sense of place may not relate directly to a particular geographical spot, but may rather refer to the habitual movement, to the path. This kinetic pathfinding is often communal; landscape architects refer to the paths that people naturally make (usually in contradiction to the official paths laid out for them) as *desire lines*.[51] As with any desire, kinetic pathfinding can also be an individual affair. There's a particular route I walk when I leave my apartment and go to the subway. Although I might choose from dozens of routes, I am inclined to take the same one each time, primarily because there's a deep path worn down there in my mind, and it has meaning for me.

Place may also come about based on social factors. Spaces where groups of people or particular communities tend to gather develop their own center of gravity, attracting even more people in turn. Of course, there may be other reasons for the initial attraction of people to the space, but once the social center of gravity is established it often becomes the primary place-making factor. Think about the way that people will favor a crowded restaurant over an empty one, or even how hordes of young people move each year to cities such as New York, Chicago and San Francisco. People often want to be where other people are – up to a limit. When people feel they do not have enough space, when they feel crowded by other people, then they demand more space; just another oscillation between the yin and yang of place and space.

---

[51] Matthew Tiessen, "Accepting Invitations: Desire Lines as Earthly Offerings," in *Rhizomes* 15: *Deleuze and Guattari's Ecophilosophy*, ed. Dianne Chisholm, Winter 2007, <http://www.rhizomes.net/issue15/tiessen.html> (accessed March 13, 2009).

This demand for more space seems to be increasing. At the beginning of the 20th century, about one person in ten lived in a city. At the turn of the 21st century, half of the earth's population lives in a city, and that proportion is expected to rise over the course of the next fifty years.[52] Given that human beings need a healthy balance between place and space, it's surely no accident that privacy has become increasingly fetishized. In his book *Dialogues in Public Art,* Tom Finkelpearl writes:

> And, in truth, great time and energy have been expended in the twentieth century in creating the technical tools of privacy and separation: indoor plumbing replaces the public fountain; the wristwatch replaces the public clock on the tower; records and CDs replace live music; movies replace live drama, and TV replaces movies. All of these could be seen in terms of separation – pulling away from public, toward individual experiences. In fact, privacy has become something of an obsession in recent decades."[53]

The manifestations of this obsession with privacy have only increased since this was written. Cell phones have replaced pay phones; mobile audio has fragmented the music world; and video-on-demand is disrupting DVD rental. As physical conditions get more crowded, people seem to compensate through ever-increasing social distance. So, while traditionally, social gatherings indicated *place*, now the opposite might also be true: spaces which offer inviting surroundings and a luxurious privacy may beckon as an appealing *place*.

Place may also be created through emotional factors. Spaces in which one has had an emotional experience, or that are associated with a memory or narrative, set themselves apart from neutral space very easily. A childhood bedroom, our mother's favorite restaurant, a town we've explored in a novel, the park bench where we said goodbye to the love of our life – all of these are strongly experienced as place, not at all as neutral space – as if we have emotionally colonized space.

Finally, we may create place through a process of aestheticization. Human beings like to create order out of chaos, and we may look at a space and see or imagine a pattern in it. This process makes us experience the space differently – it is no longer a stranger.

[52] "Half of Global Population Will Live in Cities by End of this Year, Predicts U.N.," UN News Centre, 26 February 2008 <http://www.un.org/apps/news/story.asp?NewsID=25762&Cr=population&Cr1> (accessed March 2, 2009.

[53] Tom Finkelpearl, *Dialogues in Public Art* (Cambridge, MA: MIT Press, 2000), 36.

Let's compare two artists who have done the bulk of their work in public spaces. Max Neuhaus, who has been creating public sound works since the 1960s, has written of how important he feels it is for people to stumble across his work, how he hopes that the work will blend with the existing soundscape. He wants people to question whether they are discovering a pre-existing aesthetic feature of the existing urban landscape or experiencing a piece of art.[54] We might say that his work creates place by aestheticizing the environment, and by creating an invisible sonic topography. Richard Serra, on the other hand, who creates colossal abstract steel sculptures that are far from invisible, has written that site-specific works should "restructure both conceptually and perceptually the organization of the site."[55] That is, rather than blend in, his work should change the way people experience a place – in other words, *re*-make a place; redefine it for the public. The public has not always enjoyed these interventions; his sculpture, *Tilted Arc,* was famously removed from New York's Federal Plaza after many workers objected to it. His works are so large that they function as architectural interventions to public space. Neuhaus hid his interventions; Serra challenges the public with his. Both artists redefine their spaces to create a sense of place for the public, but in vastly different ways.
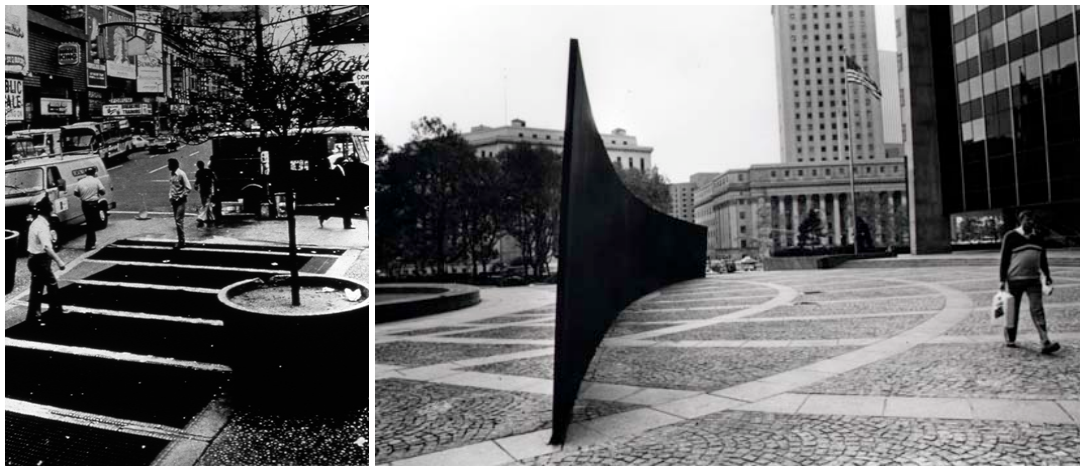
Figure 1.6. Max Neuhaus, *Times Square* (1977, New York); Richard Serra, *Tilted Arc* (1981, destroyed 1989, New York).

[54] Max Neuhaus, *Times Square* drawing, <http://www.diacenter.org/ltproj/neuhaus/neuhaus-timessquare-top.gif>. Accessed 24 February 2009.
[55] Richard Serra, "*Tilted Arc* Destroyed," *Art in America* 77, no. 5 (May 1989), 41.

Space is strange, and place is familiar. Each one of us experiences all of these methods of placemaking every day of our lives. They overlap: for instance, a place may have emotional resonance, as well as aesthetic appeal, because of a physical intervention that's been created there. Once we have a sense of how these forces operate in our lives, we can harness them in our design of public sound works.

Why use sound, specifically, to provoke place-making? Sound is uniquely powerful in bringing our attention to the *here* and *now*. As a globalized urban culture, we spend increasing time in virtual worlds – as we walk through public space, we might be talking to someone on another continent, listening to our own music mix on our ipods, reading an email someone sent us yesterday, or playing a virtual game. If we would like to connect ourselves, and our culture, to our corporeal worlds, we need a way to reconnect to the present. Sound can do this through its temporal nature. From a purely phenomenological viewpoint, listening to the sounds around us can remind us to pay attention to the physical, corporeal, sensual world that surrounds us.

Sound can also determine our path through space; we are attracted by some sounds and repulsed by others. Sounds that occur regularly over time acquire the status of *soundmarks*, as defined by R. Murray Schafer;[56] these soundmarks, such as a church bell, a factory whistle, or a jackhammer, are regular enough to provoke a pattern of sonic navigation. If we pay conscious attention, this sonic navigation may turn into a form of large-scale aesthetic composition – by walking the landscape in a particular way, we compose our ongoing soundscape.

Finally, sound's function as a carrier of memory and narrative makes it potent as a way of marking place through emotion. By associating a space with a memory, a story, or a pure emotion, we turn it into a place that has meaning for us. In particular, the soundmarks that dot our listening spaces might acquire emotional meaning for us by becoming carriers of particular memories or emotions we experienced while hearing those sounds; these individual memories might be individual, complicating the sense of public and private, or more communal, in which case they may invoke the social aspects of the experience.

---

[56] Schafer, 10.

Public space is by definition noisy: not necessarily (though often enough) in the sonic sense, but also in the informational sense. Within any individual's mind, a public space consists of a network of meaningful places, or at least, a network of potentially meaningful nodes. When dozens, hundreds, or thousands of people inhabit a public space, there exists an almost infinitesimal palimpsest of possible networks and meanings of place. There is an inherent paradox between the fact that cities are highly structured spaces in which almost everything one senses has been processed through a human brain to be orderly, and the fact that the interactions therein are far too complex to be controlled. In this tableau, sound and noise are inherently unruly, unplanned, and unexpected, invoking the idea of noise in Cage's *Black Mountain* sense, of a multiplicity of equally valid viewpoints and ideas in which any individual experience is just a sampling. Modernist art, architecture and music sought to silence this noise in order to highlight the aesthetic qualities of an autonomous visual or sonic object; however, contemporary artists and musicians have increasingly been drawn to a more inclusive aesthetic in which this noise is paid attention to, one might say improvised with, rather than silenced. Likewise, public space: rather than avoiding dirty back streets, forgotten empty yards, abandoned construction sites, we might consider creating work that invites connection with these forgotten places. By connecting with forgotten spaces and unruly noises, we may just connect with the parts of ourselves we'd rather forget and silence as well.

What's Ahead

The chapters that follow discuss three strategies – the physical, the narrative, and the navigational – of playing with sound to make or remake place. I will explore these strategies through the analysis of three public sound works. David Byrne's work *Playing the Building* literally resonates a building, allowing the audience to sonically activate and physically listen to an historic structure and to experience both sounding and listening to place on a very physical level. Janet Cardiff's *Her Long Black Hair* creates a palimpsest of narrative and emotional soundmarks within the bounded space of New York's Central Park, thereby creating a network of emotionally potent places within that space. And Christina Kubisch's

Electrical Walk gives participants the tools to create a sonic composition out of the city's electromagnetic waves by sonifying the path they trace through the city. By exploring these three strategies, I hope to highlight some of the ways that people creating sound work might engage the public with the spaces they inhabit, creating meaningful physical, social and aesthetic places in their worlds.

Chapter 2: Giving Voice to Space: David Byrne's *Playing the Building*

Figure 2.1: David Byrne, *Playing the Building* (2008).

Playing the Building

The Battery Maritime Building is haunted.

Whistling sighs traverse its peeling industrial façade. Fading in and out of one another, they come from another time, another body. Artificial resuscitation coaxes the building's last breaths of life mechanically from its cast-iron pipes, like a mechanical Aeolian harp playing the industrial remnants of the twentieth century.

Throughout the space, puncturing the whistle-like moans, sounds the clanking of metal against metal: hammers striking radiators, pipes, girders. Like Morse code, the hammering spells out the spatiality of the room, now here, up high – then suddenly there, behind you in the corner, making you jump. Nine thousand square feet of abandoned, nearly derelict, warehouse space. Don't turn your back on any part of this room. It's alive.

And occasionally: a rude and unapologetic drone coming from the girders or the floor. A loud electrical rumble, like the belch of a giant. Lopsided motors strapped herky

jerky to the structural elements of the room, vibrating the very space you're in, as well as you yourself: your bones, your muscles, your fluids. As if to say: there's nothing you can do. There is no getting out of this sonic environment. We are haunted by these sounds as surely as the space we are in.

Visual artist and former Talking Head David Byrne is responsible for this haunting. In the summer of 2008, in cooperation with public art agency Creative Time, Byrne turned the 9,000 square foot former ferry building into a gigantic participatory sound installation, rewiring an electrical organ to send air to the building's flutelike pipes, trigger solenoids to hammer at its radiators and activate oscillating motors to vibrate its girders. The Beaux Art building, built in 1909 for passengers traveling to Sunset Park, Brooklyn via ferry, stopped serving passengers in 1938 and served various private uses before being essentially abandoned as a little-used warehouse for New York's Department of Transportation. Until Byrne's installation, the space had not been open to the public for decades, and it shows. To enter the gorgeously decrepit building you had to sign a waiver absolving Creative Time and the city of any responsibility for physical injury.

However, the building is changing. In 2006, the city completed a $60 million renovation of the building's exterior, and began running summer ferries to Governor's Island from its slips. In coming years, a massive interior renovation and architectural addition is planned which will add four glass stories to the top of the building and include a boutique hotel, gourmet food market, and rooftop restaurant. 2008's hot haunted days were possibly the last for the building's 20th century derelict charm.

The project began several years ago in Sweden. Byrne was asked to propose a site-specific project at a Stockholm paint-factory-turned-art-space, Färgfabriken. Inspired by the rawness of the space and its exposed structural elements, he set to work thinking up a project using sound and involving visitors with the industrial space in a hands-on way. His final proposal reads as follows:

PLAYING THE BUILDING

A sound installation in which the infrastructure, the physical plant of a building is converted into a giant musical instrument. (I use the term musical loosely. It might not play melodies in the conventional sense... but it might.)

To create this various devices are attached to parts of the building structure — to the metal beams, the plumbing, the electrical conduits, the heating pipes, the water pipes — and are used to make these things produce sound. No amplification is used, no computer synthesis of sound, and there are no speakers. The machines will produce sound in three ways: through wind, vibration and striking. The devices that are part of the piece do not produce sound on their own, but instead they cause the building elements themselves to vibrate, resonate and oscillate so that the building itself becomes a very large musical instrument.

It is a way of activating the sound-producing qualities that are inherent in all materials. The materials' nature and form will be what determines what kind of sound they produce. Everyone knows that if you strike a metal beam with your hand you get a sound — well, this piece does a similar thing, but without hurting your hand, and it will be able to activate materials in different parts of the space simultaneously — something you cannot do with your hands.

Wind:

A blower forces air through electrical conduits or pipes, eliciting a whistling series of notes, depending on the length of the pipe. (The wind will blow through the electrical conduits by a small air pump. At sufficient pressure the air will cause the air inside the conduit pipes to resonate and produce flute-like tones.)

Vibration:

Machines attached to the metal crossbeams cause them to vibrate, sending out a low hum and throbbing sound. The girders can be made to vibrate using oscillating motors... and since the girders are of varying lengths they will produce different pitches and sounds. They will need electrical power and another cable running from the keyboard/switcher, which will turn them on and off. There will be maybe 4 or 6 of these units scattered around the room, some near and some far away.

Striking:

The hollow metal columns that line the interior of the space are made to clang and ping. These large iron objects can be struck by mechanical devices — solenoids — much like mechanical bell clappers.

The wiring and the mechanics will be plainly visible — no attempt will be made to conceal any mechanism or wiring.

Switches that activate these machines are triggered by a simple keyboard located at a central position (within viewing distance of all the machines and of the pipes or beams whose vibrations they control, so that visitors might hear what depressing each key does.) Visitors are invited to sit at the keyboard and "play" the building. Some keys might trigger machines that activate the specific structures gradually — a quick tap on some keys might produce no result, but a steady depression would allow oscillations to build up and a sound to emerge. A handwritten legend above each note group will describe which part of the building that note activates.

(Possibly the keyboard could be coin-operated. It takes a few Kr to make it active for a few minutes. This would emphasize the mechanical nature and place a time limit on "performances".)

The machines that activate the pipes and crossbeams would not do them any structural harm or damage. There would be no danger to the building or the visitor.[57]
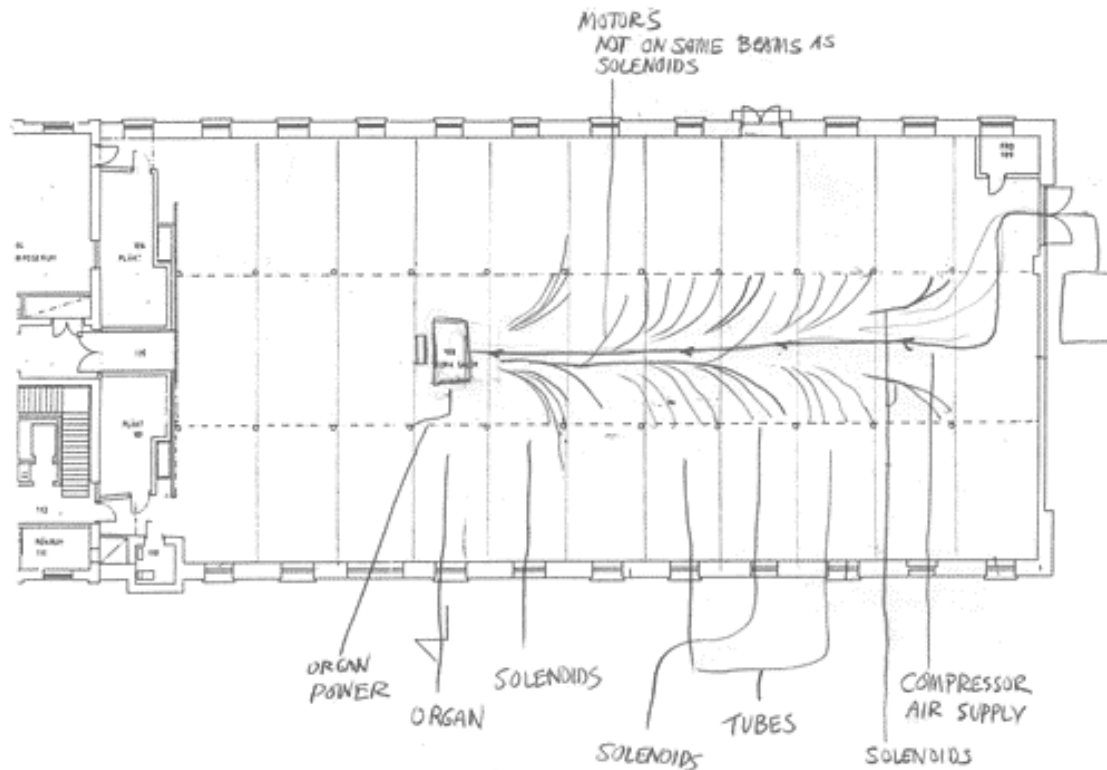
Figure 2.2. David Byrne's hand-drawn schematic of *Playing the Building* (2005).

One of the defining factors of the experience of *Playing the Building* comes through in this proposal: the very 'initself-ness' of the sound. Byrne makes it clear that he doesn't want

[57] David Byrne, "Playing The Building" [Weblog entry.] DavidByrne.com. August 2005, <http://www.davidbyrne.com/art/art_projects/playing_the_building/about/db_orig_essay.php> (accessed July 23, 2008).

anything more high-tech than electricity and motors in his project ('no amplification ... no computer synthesis ... no speakers.'). Everything audible is visible. There are no smoke and mirrors, no Wizard of Oz hiding behind the curtain, no secrets. What you see is what you get. And what you hear. The piece is – literally – elegantly clunky, with physically moving parts working together mechanically in a visually obvious way. Both the site of the installation and its technology serve as a kind of elegy as we glide from the gritty viscerality of the twentieth century's age of industry to the smooth virtuality of the twenty-first's age of information.

Sounding

Although Byrne's piece explicitly operates outside its orbit, the age of information has made creating interactive sound works vastly more feasible for artists. Although 21st century America, with its digitally airbrushed photos and polished music, may not at first seem like fertile soil for messy experiments in sonic creativity, a number of developments suggest otherwise. Surely the most visible of these developments has been the fulfillment of Moore's Law, which states that the complexity of integrated circuits doubles roughly every two years.[58] In real life terms, that's meant that in the last forty years the costs of computer hardware have come so far down that projects that might have taken a team of engineers months to build at a cost of hundreds of thousands of dollars might now be accomplished by a single artist with a little programming experience in a few afternoons, at negligible cost. Though there will always be those pushing the technical (and budgetary) envelopes, for many artists the hard part has now become the creative content and form of the interactive experience, not the wrangling of technology.[59]

Intimately related to the development and proliferation of electric circuitry are the overwhelming social and political changes that have accompanied the shift from a mechanical to an informational culture. These changes were anticipated by theorist Marshall McLuhan forty years ago. One of McLuhan's central ideas is that networks of electric

---

[58] "Moore's Law: Made Real by Intel Innovation," *Intel*, 13 April 2006, <http://www.intel.com/technology/silicon/mooreslaw> (13 April 2006).
[59] However, since artists now generally work without technical assistance, they may still find the technology challenging.

circuitry can be seen as extensions of our own human central nervous systems, creating one

unified central nervous system of which we are all a part. In 1967, McLuhan wrote:

> Electric circuitry has overthrown the regime of 'time' and
> 'space' and pours upon us instantly and continuously the
> concerns of all other men. It has reconstituted dialogue on a
> global scale. Its message is Total Change, ending psychic,
> social, economic, and political parochialism. The old civic,
> state, and national groupings have become unworkable.
> Nothing can be further from the spirit of the new technology
> than 'a place for everything and everything in its place.' You
> can't go home again.[60]

McLuhan's ideas were prophetic. The internet, mobile phone networks, satellite

communication, data compression, global positioning systems, social networking: all have

made the importance of 'time' and 'place' shrink, if not disappear quite as readily as

McLuhan predicted. We're able to see things from multiple viewpoints, and to a lesser

extent, multiple 'timepoints', much more easily now.

Consider the sonic prospects: we can listen to almost any location in the world with

a simple internet search; we can collaborate with a musical soul mate on the other end of the

globe by sending a sound file back and forth dozens of times within a single day; we might

collaborate with hundreds or even thousands of people on a single audio file hosted on the

internet in a sped-up sonic version of the Surrealist parlor game Exquisite Corpse; we can

play music in real-time with players on every continent; and we can immediately broadcast

the results to nearly a quarter of the world's population[61] (not to mention broadcasting to

real times and spaces, perhaps as part of a publicly located sound work). Much of the music

that has ever been recorded is available to us instantly, at the push of a button, whenever

(and increasingly, with mobile technology, *wherever*) we want it. I can purchase, today, an

off-the shelf item for less than $40 which will allow me to create an interactive installation

with my $1000 laptop computer in the span of an afternoon. These are astonishing

possibilities.

And yet, the very magnitude of these possibilities overwhelms us and threatens to

dry up our creativity. In such an ocean of sound, what should we listen to? Is it even

---

[60] Marshall McLuhan, *The Medium is the Massage: An Inventory of Effects.* (New York: Bantam Books, 1967), 16.
[61] "Internet Usage Statistics," Internet World Stats, <http://www.internetworldstats.com/stats.htm> (accessed
August 7, 2008).

worthwhile trying to make any kind of original sound? Of the more than one billion people on the internet,[62] who shall we interact with? If our collaborators are merely screen names without personality or emotion, if we find ourselves spending entire days working in our apartments, communicating only through the abbreviated language of email and the band-pass filters of the telephone, if we never touch those people we collaborate with or know anything about their lives, *if our collaborations have no human scent whatsoever,* have we really achieved the unity that McLuhan forecast? I would argue that we have not. One thing is certain: this seismic social change is slowly eroding the notion of the elite individual artist, and one of the most interesting challenges I see facing today's culture is how to humanize collaborative work while accepting the diminishing of the purely individual point of view. The creation of participatory artwork is an exciting way to harness collective artistry while maintaining a friendly, human model. *Playing the Building,* while clearly an ode to what Byrne calls "Victorian Steam-Punk technology,"[63] harnesses this idea of today' artist as a catalyst, the creator of a system, the inventor of a world.

By all accounts, Byrne's production of *Playing the Building* at Färgfabriken was a success. In an interview, with Creative Time director Anne Pasternak, the artist writes "It became a kind of social apparatus as well as being an installation. It became a shared communal experience – which was very moving for me to witness."[64] Clearly, the democratizing element of this larger-than-life musical instrument was one of its most important elements. And the main reason the building-sized musical instrument was so democratic was that it was virtually impossible to make music comparable to any traditional genre on it, no matter who you were – it just made *cool sounds.* And anyone – *anyone* – could make those cool sounds. You couldn't mess up.

Let's return a moment to Jacques Attali's paradigm of the four musical ages: ritual, representation, repetition and composition, and listen more closely to his theory that subversive noise in each of these phases predicts the structure of the next phase (and of the coming political economy):

---

[62] Ibid. Due to internet censorship in many countries, the number of people we actually *can* interact with might be much smaller than this.
[63] Anne Pasternak, "Interview with David Byrne," Creative Time, May 2008,
<http://creativetime.org/programs/archive/2008/byrne/interview.html> (accessed July 23, 2008).
[64] Ibid.

A network can be destroyed by noises that attack and
transform it, if the codes in place are unable to normalize and
repress them. Although the new order is not contained in the
structure of the old, it is nonetheless not a product of chance.
It is created by the substitution of new differences for the old
differences. Noise is the source of these mutations in the
structuring codes. For despite the death it contains, noise
carries order within itself; it carries new information. This
may seem strange. But noise does in fact create a meaning:
first, because the interruption of a message signifies the
interdiction of the transmitted meaning, signifies censorship
and rarity; and second, because the very absence of meaning
in pure noise or in the meaningless repetition of a message, by
unchanneling auditory sensations, *frees the listener's imagination*.
The absence of meaning is in this case the presence of all
meanings, absolute ambiguity, a construction outside
meaning. The presence of noise makes sense, makes meaning.
It makes possible the creation of a new order on another level
of organization, of a new code in another network.[65]
[emphasis mine]

Let's apply this thinking to *Playing the Building*. It seems obvious that current musical
codes were unable to normalize and repress the sounds coming out of the Battery Maritime
Building. Many visitors tried, without success, to make coded musical sounds out of the
instrument: techno, rock, hip-hop. No matter how they played, the building refused to
follow their command. It made its own insistent noises, noises that refused to conform to
musical norms. These noises had their own structure, their own coding, but it was not
spelled out and it because it was new it was formed within each listener's imagination. In
other words, each listener created her own level of organization, her own code for the piece
– because the human brain organizes and creates codes in the face of chaos (i.e., noise).
That's what brains do, and we might take a moment to remember Richard Schechner's
definition of play as "the improvisational imposition of order, a way of making order out of
disorder."[66] This process of improvising order out of uncoded noises for *fun* sounds
remarkably like Attali's prediction of the next age of music, which he called Composition:

Finally, we can envision one last network, beyond exchange,
in which music could be lived as composition, in other words,
in which it would be performed for the musician's own
enjoyment, as self-communication, with no other goal than
his own pleasure, as something fundamentally outside all

[65] Jacques Attali, *Noise: The Political Economy of Music* (Minneapolis: University of Minnesota Press, 1977), 33.
[66] Richard Schechner, *Performance Theory* (London and New York: Routledge Classics, 2003), 104.

communication, as self-transcendence, a solitary, egotistical, noncommercial act... Thus composition proposes a radical social model, one in which the body is treated as capable not only of production and consumption, and even of entering into relations with others, but also of autonomous pleasure. This network differs from all those preceding it; this capacity for personal transcendence is excluded from the other musical networks.[67]

This sounds an awful lot like *Playing the Building*, which is a kind of non-coded noncommercial music performed by ordinary people for nothing other than self-enjoyment. Byrne's piece responds to the challenge of humanizing collaborative work by harnessing collective artistry, while also allowing Byrne the pleasure of creating the entire situation.

What is this sense of pleasure Byrne gets from creating this collective work? Why give away the keys to the castle? The most obvious answer is: it's a kick to watch someone, particularly someone who might be afraid of their musical abilities (or feared lack thereof) play with an interactive system, gain confidence and interest, and lose themselves making creative and musical sounds. But it's also incredibly rewarding to create a world larger than oneself. Rather than making hundreds upon hundreds of possibly arbitrary musical choices, one creates a world of possibilities, each with its own textures, emotions, and groove. It's like building a set of wind chimes rather than writing a solo for them. The final reward comes in watching the system play out; listening to navigations of the sonic world, listening for wonderful surprises. It's experimental music, in the best possible sense: Cage listening for sounds the way he hunted for mushrooms.

Hearing the creative impulses of ordinary people playing sonically, especially in concert with others, can inspire us. Particularly when freed from the need to imitate a culturally specified norm, users find themselves exploring a close to level playing field in which sheer sensory wonder takes center stage. McLuhan wrote:

The amateur can afford to lose. The professional tends to classify and to specialize, to accept uncritically the groundrules of the environment. The groundrules proved by the mass response of his colleagues serve as a pervasive environment of which he is contentedly unaware. The "expert" is the man who stays put.[68]

---

[67] Attali, 32.
[68] McLuhan, *The Medium is the Massage,* 93.

Call it beginner's mind or the clarity of McLuhan's amateur – as an artist and composer, I find these interactions to be rich sources for new ideas. The more people playing, the better. The more ideas, the better. Art and music are contagious. As John Cage wrote:

> (Art's a way we have for throwing out ideas – ones we've
> picked up in or out of our heads. What's marvelous is that as
> we throw them out – these ideas – they generate others, ones
> that weren't even in our heads to begin with.)[69]

Interactivity

Just what is interactivity anyway? The word 'interactive' has been bandied about so much that it's come to seem almost meaningless. What can we make of it? It might help to look at definitions from several times and places, in order to discover what feels most essential about the concept.

The Oxford English Dictionary gives the following definitions for the word 'interactive':

> 1. Reciprocally active; acting upon or influencing each other.
>
> 2. Pertaining to or being a computer or other electronic
> device that allows a two-way flow of information between it
> and a user, responding immediately to the latter's input.[70]

Of note is the emphasis on *mutually influential* communication of information. Whether the communication is between two humans, two machines, or a combination of both, each party's reactions influence the other. This rules out, at least for our purposes, one-way machine execution of simple commands.

Or does it? The study of cybernetics – that is, interactive communication among humans and machines – was pioneered by the mathematician and philosopher Norbert Wiener in the 1940s and 1950s. Wiener sought to model human-machine communication on human-human communication, and emphasized the importance of cognition and memory as

---

[69] John Cage, "Diary: Audience 1966," in *A Year From Monday* (Middletown, CT: Wesleyan University Press, 1967), 51.

[70] "interactive, a.," *The Oxford English Dictionary,* 2nd. ed. (Oxford: Clarendon Press, 1989). *OED Online* (Oxford: Oxford University Press), 13 April 2006.

well as sensory input for feedback. He believed that even control messages (instructions) were fundamentally two-way in nature: whether I am communicating *with* another entity or simply controlling it, I am still sending *and* receiving messages. There is still two-way communication going on.[71] Though we might say that the binary communication of a machine's compliance is severely lacking in resolution (1-bit, on or off), it still exists as a message to the user: yes or no. It's better – much better – than silence.

In his 1964 book *Understanding Media,* Marshall McLuhan developed the concepts of hot and cool media, terms which will be useful to our discussion.[72] 'Hot' media saturate a single sense in high resolution; they involve the audience without requiring much participation, and they provide an insular experience by taking the audience inside themselves through that single sense. Cinema is most often quoted as being a hot media, but radio, photography and lectures also provide good examples. 'Cool' media, on the other hand, are generally multi-sensory at much lower resolution, thus requiring the audience to 'fill in the blanks'. McLuhan described television, comics and seminars all as 'cool,' arguing that television's low resolution and ever-changing pixels required much more work on the part of the viewer than the photographic resolution of film. Though this idea has been particularly contested even by those who value McLuhan's basic concept, it may be easier to understand if we look to the relatively low resolution of early video at the time that he was writing.

Like the Chinese philosophical concepts of yin and yang, hot and cool can be spoken of as relative terms. Therefore, television might be thought of as 'cool' in relation to cinema, but 'hot' in relation to comic books. Though when discussing interactivity we may disagree about what actually constitutes hot and cool media, the idea of a continuum between the two provides an easy framework for describing the kinds of messages being sent in both directions, as shorthand for the level of participation required.

In his 2001 book *The Language of New Media*, Lev Manovich offers yet another definition of interactivity – and then almost immediately dismantles it:

---

[71] Norbert Wiener, "Cybernetics in History," in *Multimedia: From Wagner to Virtual Reality,* ed. Randall Packer and Ken Jordan (New York and London: W.W. Norton, 2001), 49.
[72] Marshall McLuhan, "Media Hot and Cold," in *Understanding Media* (Cambridge, MA: MIT Press, 1994), 22-40.

> New Media is interactive. In contrast to old media where the order of presentation is fixed, the user can now interact with a media object. In the process of interaction the user can choose which elements to display or which paths to follow, thus generating a unique work. In this way the user becomes the co-author of the work.[73]

Manovich then immediately questions whether 'interactive media' are truly interactive by noting that traditional media often require far more psychological collaboration – visually imagining the landscape described in a novel, for instance, or filling in narrative details between cuts in a cinema montage – than 'interactive media', which all too often strip us of our creative imaginings by limiting us to "[following] pre-programmed, pre-existing associations"[74] in which our freedom consists only of determining the order in which we follow them, sort of like having free roam of a jail. "Put differently," he writes, "… we are asked to mistake the structure of somebody else's mind for our own."[75] In short, he complains that interactive media are often all too 'hot', to use McLuhan's term, not requiring the participation of 'colder' traditional media.

For artists creating interactive work, there is indeed a real danger of engaging the audience in a kind of false creativity, of giving the audience a tour of one's own mind rather than truly giving them freedom to collaborate. But Manovich's discussion of interactivity, which is based on cinema, centers on a sort of non-linear romp through a hyper-linked, narrative world. His definition, proved or disproved, can't encompass the sorts of non-narrative works that live on the continuum between art and instrument. We need a more open characterization of interactivity than his if we are to theorize participatory sound works.

And we find it in artist David Rokeby's theory of interactivity, which offers more room to roam. In his 1995 article, "Transforming Mirrors: Subjectivity and Control in Interactive Media," Rokeby writes:

> A technology is interactive to the degree that it reflects the consequences of our actions or decisions back to us. It follows that an interactive technology is a medium through which we communicate with ourselves – a mirror. The

---

[73] Lev Manovich, *The Language of New Media* (Cambridge, MA and London: MIT Press, 2001), 55.
[74] Ibid., 61.
[75] Ibid.

medium not only reflects back, but also *refracts* what is given; what is returned is ourselves, transformed and processed. To the degree that the technology transforms our image in the act or reflection, it provides us with a sense of the relation between this self and the experienced world. This is analogous to our relationship with the universe. Newton's First Law, stating that 'for every action there is an equal and opposite reaction,' implies that everything is a mirror. We discover our 'selves' in the mirror of the universe.[76]

Rokeby's definition implies not only communication and collaboration with another (be they person or machine) but also communication and collaboration with oneself – a relationship which is at the heart of art and music-making. Rokeby goes on to say:

One might take the extreme position that a significant interaction between an artwork and a spectator cannot be said to have taken place unless both the spectator *and* the artwork are in some way permanently changed or enriched by the exchange.[77]

Clearly, Rokeby is not of the camp that sees control messages or simple execution of commands as a truly interactive enterprise. He is interested in interactive, rather than simply reactive, work. He further classifies interactive work into four models, which we might find useful: the 'navigable structure', the 'creative medium', the 'transforming mirror', and the 'automaton'.[78]

Rokeby describes the 'navigable structure' as a kind of virtual world that the audience is free to explore.[79] Video games are often constructed out of these sorts of worlds. It is just this kind of structure that Manovich focuses on in his discussions of interactivity, using as his example Jeffrey Shaw's work *The Legible City*.[80] This piece invites the participant to bicycle through a strange land made of letters and words on a stationary bicycle set up in front of a projection screen. As one navigates the fixed city map, one explores the terrain – but there are only a set number of places to go. *The Legible City* is well known for its early integration of physical activity and virtual exploration.

---

[76] David Rokeby, "Transforming Mirrors: Subjectivity and Control in Interactive Media," in *Critical Issues in Electronic Media,* ed. Simon Penny (Albany, NY: State University of New York Press, 1995), 133.
[77] Ibid., 137.
[78] Ibid., 138.
[79] Ibid., 138-143.
[80] Jeffrey Shaw, *The Legible City,* <http://www.jeffrey-shaw.net/html_main/show_work.php3?record_id=83> (accessed March 6, 2009).
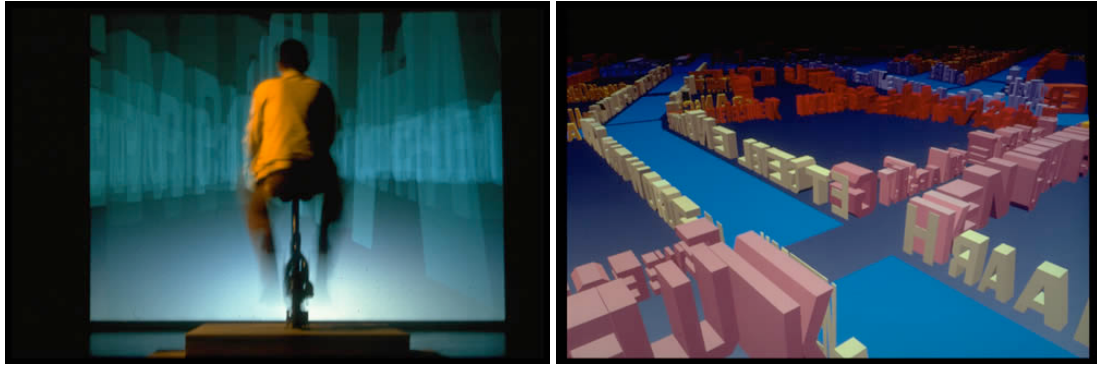
Figure 2.3. Jeffrey Shaw, *Legible City* (1989).

For now, we can think of the 'creative medium'[81] as a piece in which, as artist Myron Krueger put it, "the goal of [the interaction] is to communicate the pleasure of aesthetic creation."[82] *Playing the Building* is a good example of this model. Actually making the sounds and exploring the keyboard is one of the main rewards of the work.

The 'transforming mirror' model uses the idea of a mirror more explicitly, using limited feedback as an echo of the self's initial impulse:[83]

> While the unmediated feedback of exact mirroring produces
> the closed system of self-absorption (the reflection of the self
> is reabsorbed), transformed reflections are a dialogue between
> the self and the world beyond. The echo operates like a
> wayward loop of consciousness through which one's image of
> one's self and one's relationship to the world can be
> examined, questioned, and transformed.[84]

In other words, exact mirroring is two-way communication, but it's a two-way communication that gives the user no new information (except, perhaps, that an instruction has been carried out). In contrast, the transformed image interacts with our original self-image to create what Rokeby terms a "stereoscopic"[85] sense of depth, comparable to the three-dimensional image we see when resolving the separate images that our eyes take in. We might refer to interactive works that require this sort of cognitive and psychological collaboration as 'cool.' Of course, a participant's familiarity with a work affects the depth of their collaboration and hence the hotness or coolness of the experience. *Playing the Building*

---

[81] Ibid., 143-145.
[82] Myron W. Krueger, *Artificial Reality II* (Reading, MA: Addison-Wesley, 1991), 48.
[83] Rokeby, 145-151.
[84] Ibid., 146.
[85] Ibid., 147.

is exploratory and requires some work on the part of the player, so we might characterize it as 'cool' for most participants; David Byrne, however, may by now be so familiar with its workings that it simply serves as an instrument that he can control, providing high-resolution reactivity.

Finally, some artists create what Rokeby calls 'automata': artworks that are meant to function independently and to make their own way through their environment, of which the participant is only one element. Though well outside the bounds of this thesis, such projects are pursued vigorously today in the realm of robotics, including a fair amount of work on musical robotics. We might also consider Mark Hansen and Ben Rubin's *Listening Post*[86] as a form of automata, though not one endowed with a personality in the way that robots do.

Figure 2.4. Mark Hansen and Ben Rubin, *Listening Post* (2003).

This work, which flashes text fragments from thousands of internet chat rooms and bulletin boards onto LED displays gives voice to the zeitgeist of the internet through a speech synthesizer which speaks and sings the thoughts, desires and rants of the denizens of

[86] Mark Hansen and Ben Rubin, *Listening Post* (2002), <http://www.earstudio.com/projects/listeningpost.html> (accessed August 8, 2008).

chat rooms. The synthesized voice, often in counterpoint with ambient synthesized chords, anthropomorphizes this sampling of voices and makes us feel as if we are eavesdropping on a single entity: ourselves, our collective nervous system.

Let's return to David Byrne's work, *Playing the Building*. What might we make of it, given the theories of interactivity we've just discussed? A first question might be: who is interacting with whom? We can identify four major components: the player, the organ, the building, and the listener. The player is sending control signals *through* the organ to the building, but because he doesn't know exactly what sounds to expect, the feedback he receives from the building itself – the sighs, the clatters, the drones – act as messages back to him, messages rich in meanings: they carry not only technical meanings (i.e., this key controls that wind sound over there, and you have to depress it a while to make a sound), but also emotional meanings (a loud sudden clatter right behind you could be scary, or a feeling of power as you hear yourself transformed, your sounding body suddenly expanded to 9,000 square feet.) This feedback might be classified as 'cool' – it requires intense scrutiny and listening awareness on the part of the player to understand and fit into her conception of the instrument. Finally, the piece as a whole might fit into a number of David Rokeby's models. Particularly since the keys produce different sounds, coming from different places, and the timing of each is unclear, one does feel a sense of exploration of new territory. As mentioned, *Playing the Building* is easily categorized as a 'creative medium,' for the aesthetic appreciation of its sounds is one of its most obvious rewards. But I believe the piece may best be understood as a 'transforming mirror' which transforms our few hesitating fingers on the keyboard into a rich and haunting sonic double – our mirror image, our metamorphosis. We feel our own power translated into sonic space.

In interactive art, technology mediates the transfer of power from the artist to the audience, who may henceforth be more accurately described as players. Nevertheless, technology's mediation of artistic authority has the potential to obscure, rather than to eliminate, the artist's power. Artists can and do use players as aesthetic or conceptual elements rather than collaborators (just think of the Lettriste takeover of Notre Dame).

Cultural critic Sarah Boxer gave a user's-eye view of what this can feel like in her review of

the 2005 Boston Cyberarts Festival:

> Interactive art is irritating… Problem No. 1: potty-mouthed machines… Problem No. 2: too much ritual, too little time… problem No. 3: ungraciousness. Machines make no bones about their own flaws, but are unbending about yours.
>
> This is closely related to problem No. 4: moral superiority. Consider "Applause" by Jeff Lieberman, Josh Lifton, David Merrill and Hayes Raffle. You stoop to enter a curtained booth. (Already you're in the weak position). There's a movie screen divided into three parts, and in front of each is a microphone. Clap vigorously into one of the microphones and the movie screen in front of it comes to life, playing its movie. Stop clapping and the action grinds to a halt.
>
> Now, wouldn't it be great if you could get all three screens going at once? You can! Just run from mike to mike, clapping in front of all three. Now they're all going! Uh-oh. It's Hitler giving a speech. And there you are clapping like crazy, you idiot.[87]

As art, this piece makes you think. However, what Boxer terms moral superiority

might more neutrally be read as the artists using their audience as artistic material rather

than as collaborators. Not so different, really, from Kaprow's assertion that "a group of

inactive people in the space of a Happening is just dead space."[88] Interestingly, this piece

seems to privilege the non-playing audience by using the player to make its point. It might

also be thought of as an unpleasant 'transforming mirror'.

In the same review, Boxer enthuses about *Visceral Cinema: Chien,*[89] an interactive

work by artist Scott Snibbe which invites players to interact with one of the key images of

Salvador Dalí and Luis Buñuel's experimental 1929 film *Un Chien Andalou*: a man straining to

pull a heavy piano with a rope. This film image is projected onto a screen. As people walk

between the projector and the screen, their shadows affect the video: moving between the

piano and the man forces the man to strain harder; overlapping their shadows with the man's

causes his body, and eventually the entire screen, to dissolve into a swarm of ants (another

key image from the film). In this interactive work, Snibbe enlists the audience as

---

[87] Sarah Boxer, "Art That Puts You in the Picture, Like It or Not," *New York Times on the Web,* 27 April 2005, <http://www.nytimes.com/2005/04/27/arts/design/27cybe.html?_r=1&oref=slogin> (accessed April 5, 2006).
[88] Allan Kaprow, *Assemblage, Environments & Happenings* (New York: Harry N. Abrams, Inc., 1966), 196.
[89] Scott Snibbe, Home Page, 23 March 2006. <http://snibbe.com/scott/visceral_cinema/chien/index.html>. 23 March 2006.

collaborators, inviting them to play with his images and allowing them the full experience of the conceptual idea. "Hooray," wrote Boxer. "Here's a machine that is not your enemy or your superior."[90] People *like* to play with this piece.
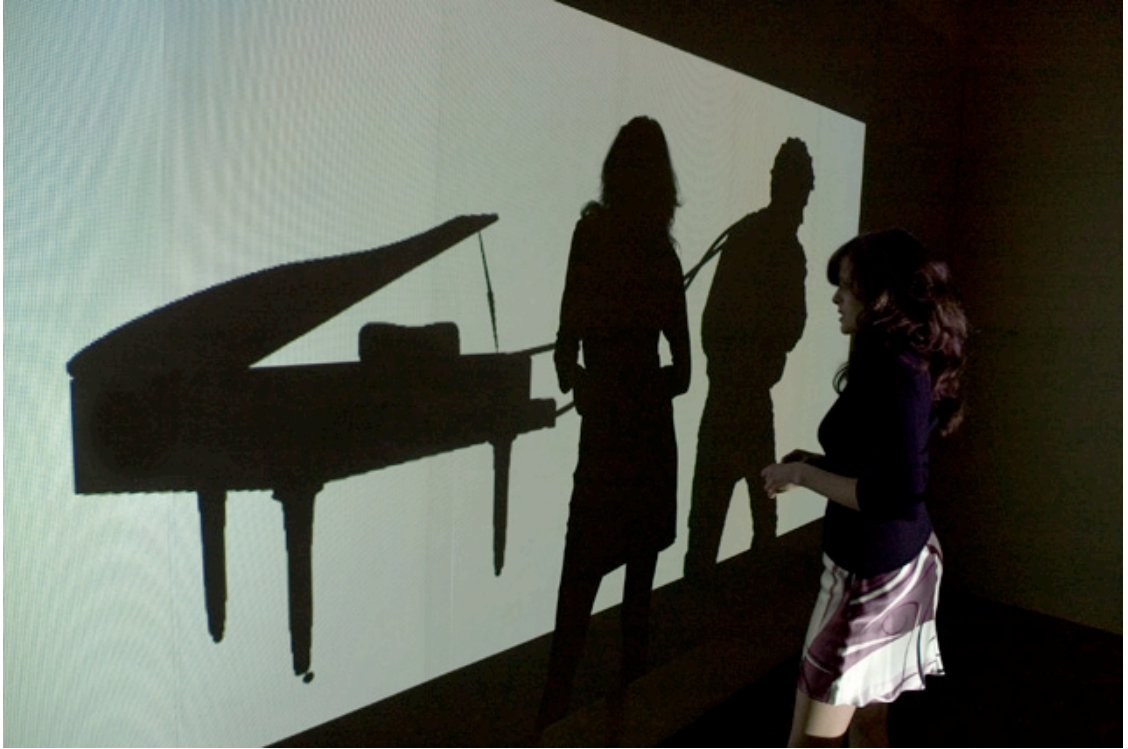
Figure 2.5. Scott Snibbe, *Visceral Cinema: Chien* (2005).

One strategy to alchemize audience into players is to emotionalize the interface in some way. One early example of this strategy is *CYSP 1* (cybernetic-spatiodynamic), a 1956 collaboration between Nicolas Schöffer, Pierre Henry, and the Philips Company. *CYSP 1* was an early robot. Darkness, silence, and the color blue provoked its activity; light, noise and the color red calmed it down. Art historian Söke Dinkla describes *CYSP 1* as "timid"[91] – one might also describe it as nocturnal or nervous. What's important, however, is that the machine can be described in human terms at all. This is made possible by the way it reacts to stimulation in recognizably human terms: stimulation to color, light and sound in clusters that makes emotional sense to most of us. If *CYSP 1* was provoked by a cluster of factors

---

[90] Boxer.
[91] Söke Dinkla, "From Participation to Interaction: Toward the Origins of Interactive Art," in *Clicking In: Hot Links to a Digital Culture,* ed. Lynn Hershman Leeson (Seattle: Bay Press, 1996), 283.

that seemed random – for example, when exposed to darkness, whistles, and the color yellow – it would be much more difficult for users to identify with it, and thus to project the interactive dialogue into a more emotional realm. Thus we can see that emotional design impacts the message flow of interactive work in both directions: not only do entropic messages from machine to human do little to stimulate interest, people are not likely to be interested in communicating with a machine that seems to respond only to received messages that are entropic.

As discussed earlier, Norbert Wiener sought to model human-machine communication on human-human connection. I would like to focus attention on one particular idea Wiener had, an idea that has particular implications for two distinctly different approaches to interaction:

> Messages are themselves a form of pattern and organization. Indeed, it is possible to treat sets of messages as having an entropy like sets of states of the external world. Just as entropy is a measure of disorganization, the information carried by a set of messages is a measure of organization. In fact, it is possible to interpret the information carried by a message as essentially the negative of its entropy, and the negative logarithm of its probability. That is, the more probable the message, the less information it gives. Clichés, for example, are less illuminating than great poems."[92]

This makes sense. Surprises are always more illuminating than the expected. The banal is considered to be so because it has been so in the past. Still, it presents us with a conundrum: within an interactive experience, entropy and predictability might create the same result. Imagine a player waving her hand close to the surface of an interactive sound sculpture, activating a photocell sensor that triggers a sound: let's say, the hoot of an owl. The player is startled and pleased. What happens next?

Scenario 1: the player waves her hand close to the surface again, and hears the same sound repeated exactly. She waves her hand again, further, harder, slower, faster, and the sound continues to repeat, unchanged. She amuses herself with this for about thirty seconds, then moves on. There is no entropy and complete predictability. If there are multiple surfaces for her to explore, each resulting in a different sound, this approach could be

---

[92] Wiener, 50.

likened to a simple version of Rokeby's 'navigable structure'. The messages she is receiving bear only the most simplistic relation to the messages she's sending.

Scenario 2: the player waves her hand close to the surface again and hears the sound of traffic. She waves her hand again, further, harder, slower, faster, and hears several more sounds at approximately the same volume, seeming to have nothing to do with one another. It's fun, at first, but ultimately a bit boring. There is nothing to figure out, no reward. There is complete entropy and no predictability. There is no mirror double sounding back at her here – simply a stranger each time.

Scenario 3: the player waves her hand close to the surface again, and hears the sound of rain. She repeats the gesture and hears a man whispering "I remember walking in the forest at night when I was a boy." What happens now is crucial: if she is able to form a meaningful connection between these sonic results, she will perceive the piece as a rich and satisfying 'navigable structure,' one that she wishes to explore. (If not, she will experience the piece as entropic, as in Scenario 2). If the information she receives lies somewhere between complete entropy and complete predictability (that is, between noise without signal, and signal without noise), then the work will engage the psychological and cognitive collaboration which McLuhan and Manovich discussed. This approach is closest to Rokeby's 'navigable structure' model but it might also be thought of as a transforming mirror if there seems to be a meaningful relationship between her gestures and the sensory responses she receives. Let's call this approach 'interactive juxtaposition.'

Scenario 4: the user waves her hand close to the surface again, more slowly this time, and hears the hoot of the owl, lower, quieter. She sweeps her hand across the surface and the owl's hoot is loud and triumphant. By changing her gestural input, she is able to manipulate the sound of the owl's hoot. Although this approach does not engage the user's sense of emotional narrative by creating conceptual connections between disparate responses, the high resolution of its singular response allows the user to collaborate physically and aesthetically with the work. Her communication is now analog rather than binary, with the increased sophistication afforded by the higher resolution. Rather than having only a single possibility (as in our first scenario), a set number of arbitrary possibilities that bear no

relationship to her messages (as in our second scenario), or a set number of rich possibilities (as in our third scenario), this situation presents her with thousands of possibilities, though the differences among them might be subtle. She might even be unable to create exactly the same response twice. In this case, there is very little entropy and some, but not too much, predictability. This approach is probably best described as Rokeby's 'creative medium' but we might also think of it as a transforming mirror, *if* the feedback she receives is cool; if it requires some pondering and exploration on her part. We will refer to this approach as 'instrumental resolution'.

I'd like to propose that approaches 3 and 4, interactive juxtaposition and instrumental resolution, describe a continuum between a piece of interactive art and a musical instrument. When the primary point of a work is to engage the participant in an emotional narrative or intellectual discourse through interactive juxtaposition, we might say that the artist retains the ultimate responsibility for the piece. When the primary point of a work is what the participant actually *does* with it, we might say that the artist has built an instrument to engage the creativity of players. Some pieces do a little of both, for instance *Playing the Building*. This continuum is important to keep in mind when creating interactive sound works because it may determine the level to which another mode of participation is possible: the mode of listening.

Modes of Participation

Byrne's piece actually invited participants to partake of two distinctly different experiences. The experience of *playing* the organ differed markedly from the experience of *listening* to the space. To begin with, playing the organ required a certain level of commitment. You had to wait patiently in a line of up to 100 people for an hour or more while listening to the sounds but unable to physically explore the space. Then, when it was finally your turn to step up to the keyboard, you tried out the thoughtfully labeled white and black keys to hear their sounds. Through a process of experimentation and sonic feedback, you played the building as though it were an instrument. This gave an immediately wonderful sensation of sonic power, but due to the popularity of the piece, you only had a few minutes

to spend at the keyboard before it was the next person's turn. It was a magical, but frustratingly short, experience.

Most of the writing about *Playing the Building* has focused, of course, on this very experience of playing the building. But another, equally rewarding mode of participation was at work – the mode of exploring and listening. To explore and listen to *Playing the Building* required much less patience (not to mention time). You could arrive at the building and simply walk in (after signing a waiver), and immediately become immersed in the experience. There was a greater variety of options for listening than for sounding: lying in one place and listening to the spatiality of the sounds, letting them take your imagination away; walking around the perimeter of the space, investigating the mechanical contraptions that created the sounds; and of course, watching other people play the organ, to get a sense of how everything worked. By detaching yourself from the work as 'instrument' and remaining open to it simply as 'experience' you could have a completely different but equally rewarding encounter with the work. One might even characterize the instrument-playing experience of the work as phenomenological, and the listening and exploring experience as narrative or emotional. This multiplicity of participatory modes was a real strength of *Playing the Building*, because it rewarded various levels of commitment and allowed people to choose how to interact with the work.

Well-designed modes of participation take a number of issues into account. The first, addressed above, is *time*. How much time will it take for someone to play with a piece? In the case of *Playing the Building*, it could take a half-hour or even an hour to play the organ. But someone with just ten minutes could still come to the building and have a rewarding experience.

The second issue is the issue of visibility, or in this case, audibility (or conversely, level of anonymity). Most people want to look – or sound – good in public. If they are not used to the idea that they can make sounds that need not conform to current musical codes, they may have what amounts to stage fright. *Playing the Building* allowed those who might be afraid of playing the organ in front of other people to have a meaningful experience without exposing themselves.

Third is the issue of skills, and how difficult a commitment is perceived to be. What skills does the work assume you already have? In the case of *Playing the Building,* Byrne decided to use the familiar interface of a keyboard. On the surface, this might have seemed to be a problematic choice: although many people *are* familiar with a traditional keyboard and its organization of white and black keys, perhaps an equal number might be intimidated by it, feeling that 'they don't know how to play the piano.'

Figure 2.6. David Byrne, keyboard interface of *Playing the Building* (2008).

Though it may be true that some people shied away from playing the organ because they were intimidated by the interface, it's also true that the use of such a traditional interface for such noisy and unexpected results completely subverted the expectation of the player, gleefully disrupting the status quo. Many sound works also use skills not associated with music, such as dancing, walking or game-playing, to create the sonic experience. Christina Kubisch, whose work is investigated later in this essay, has created many pieces in which people compose their own soundscapes through the paths they walk through amplified electromagnetic fields.

A final issue to consider is the richness of experience. Public sound works must be simple enough to understand in a reasonably short amount of time, yet be complex enough to hold the player's – and listener's – interest for a sustained period of time. Byrne's work

clearly satisfies on both counts; if anything, players are left wanting more time with the instrument, and many people spent hours in the space listening to and exploring the sounds.

There are no right or wrong ways to deal with these issues. There are good reasons to require a participant to spend hours with a work, and good reasons to create pieces which don't consciously call attention to themselves at all. Many artists provide only a single mode through which the audience might experience the piece; others provide several. What's most important is not the number of modes possible, but how well designed they are for the audience and for the work. As with *Playing the Building,* participatory modes in sonic art pieces might be roughly categorized as either sounding or listening, though these two categories are not at all mutually exclusive. We've discussed sounding already; let's delve into the issue of listening a bit more. How is listening different from sounding? Can it be considered a creative activity, and if so, how might public sound works be arranged in order to facilitate the mode of creative listening?

Listening

First of all, it's important to clarify the difference between hearing and listening. Hearing is the physiological process by which vibrations in the air are funneled into our ear canals and converted into nerve impulses sent to our brains. Listening is the process by which this brain activity is made conscious. Listening demands our attention. Thus, we may hear sounds without ever listening to them, as when we tune out background noises like a highway or ocean waves. We can also listen to sounds that we don't physically hear, for instance, when we listen to a tune repeating over and over again in our head.

We might therefore distinguish between listening to exterior and interior sounds. Of course, it is possible to listen to both at the same time: improvisers are always doing so. Pauline Oliveros, a composer who has spent half a century developing a listening practice, also emphasizes an awareness of the *breadth* of listening. She writes, "Focal attention, like a lens, produces clear detail limited to the object of attention. Global attention is diffuse and continually expanding to take in the whole of the space/time continuum of sound."[93] Interior

---

[93] Pauline Oliveros, *Deep Listening: A Composer's Sound Practice* (Lincoln, NE: iUniverse, 2005), 13.

and exterior, focal and global: artists who want to create a rich listening experience need to keep these listening dimensions in mind (See Fig. 2.7 below). How can we use these ideas to create a listening experience in which listening is, literally, a 'create'-ive activity rather than a passive occurrence?
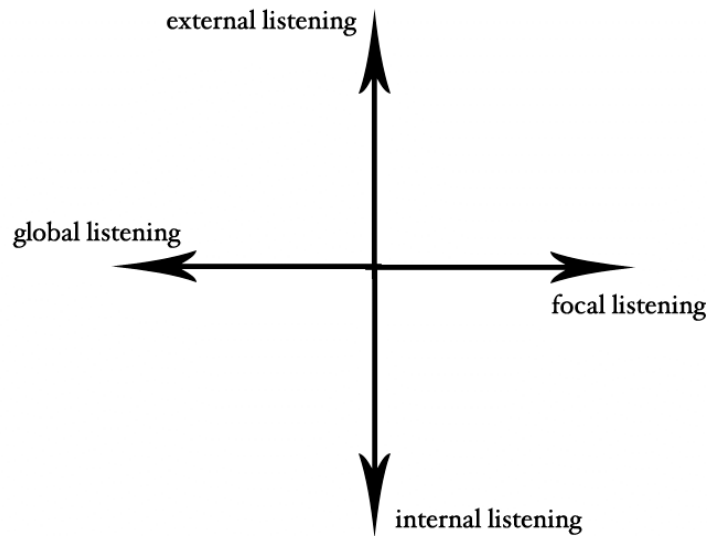
Figure 2.7. Dimensions of listening.

In modern western music, a movement towards the composer as listener came about simultaneously through the development of aleatoric music, particularly by John Cage, and the development of musique concrète, particularly by Pierre Schaeffer and Pierre Henry. Cage's use of chance operations meant that no one, least of all himself, knew what any particular performance might sound like; this is why he referred to himself as an experimental composer, as discussed in the last chapter. Similarly, though more privately, Schaeffer and Henry often cut up, slowed down, and otherwise processed tape-recorded sounds, then listened to hear what the results might be. In his 2007 book, *Background Noise: Perspectives on Sound Art,* artist and critic Brandon LaBelle compares the experimental approach of the founders of musique concrète to the contemporaneous electronic music studios in Germany:

> Established in 1951 under the directorship of Herbert Eimert, the Cologne studios developed an electronic music

("Elektronische Musik") by exploring the possibilities opened up by early recording technologies and computers based on synthesized sound... Whereas musique concrete "begins with a prepared sound material, which is molded into its final form by a process of experimentation, trial and error, perhaps following unexpected paths to goals that were never foreseen initially, electronic music [at the Cologne Studios] was composed like traditional music, first being conceived in the mind of the composer, then written down, and finally realized in sound."[94]

The paradigm of the composer as listener, while certainly not the standard, has become pervasive; electronic musicians, in particular, experiment with all kinds of sounds before releasing their music to the public. And it could be argued that even more traditional composers hear music in their heads and simply notate it. In a sense, every composer is a listener. That much seems clear.

What about reversing things: how about the listener as composer?

First of all, we might think about the ways in which listening can function as a creative activity. One of the primary ways in which listening functions as a creative activity is in the deciphering and ordering of the world's noise into meaningful sound. Anthropologist Steven Feld has written at length about the importance of water sounds to the sonic and musical life of the Kaluli people of the Bosavi rainforest in Papua New Guinea. "Kaluli compose their songs by creeks or waterfalls," he writes, "singing with and to them."[95] Indeed, a submersion into broadband noise activates our auditory imagination, freeing us from the obligation to listen focally and allowing us to hear any and all possible musics within the whole. Similarly, in writing about musical hallucinations, neurologist Oliver Sacks hypothesizes that some of them are "[attempts of] the brain to impose order upon disorder."[96] Sacks writes specifically about the musical hallucinations of one of his patients, Dr. Leo Rangell:

"[He] speculated that this overactivity of auditory brain pathways might at first be based on external rhythms of wind, traffic, or humming motors or on internal rhythms of breath or heartbeat – and that 'the mind then converts these to

---

[94] Brandon LaBelle, *Background Noise* (New York: Continuum, 2006), 28.
[95] Steven Feld, "The Sound World of Bosavi," The Acoustic Ecology Institute, 2001, <http://www.acousticecology.org/edu/educurrbosavi.html> (accessed August 10, 2008).
[96] Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (New York: Knopf, 2007), 63-64.

music or song, establishing control over it. Passivity is overcome by activity.'"[97]

In other words, as mentioned in the last chapter, humans have an instinctive urge to create order out of chaos, to arrange things, to aestheticize the world.

What about imagined sounds? There is some evidence that, neurologically speaking, imagined sounds are just as 'real' as exterior sounds; that is, they activate our brain's neurological pathways in the same ways as physical sounds.[98] People also hear sounds and music in their dreams. Trained musicians, especially, can often hear music with almost perfect clarity in their heads; conductors may rehearse symphonies in their heads and composers often hear and develop music in their imaginations. The most common imagined sounds of all are probably voices: people will imagine an argument, or rehearse a speech, or replay something a lover told them over and over again inside their minds. Anyone who has ever tried to meditate can tell you that our minds are full of chatter.

Listeners, then, may listen to both internal and external sounds, and auditory imagination may spring out of external listening as a way of organizing the noise of the world into melody and rhythm. In order to get at how these ideas might contribute to the idea of 'listener as composer' I'd like to take a look and listen to the work of two artists: Yoko Ono and Pauline Oliveros.

Artist and musician Yoko Ono is well known for her text instruction pieces, which she leaves to the audience to interpret. Her book *Grapefruit,* originally self-published in 1964 in a limited edition of 500, collects many of these works, including fifty pieces under the heading of "Music." Ono was loosely affiliated with Fluxus, and no doubt influenced and was influenced by its artists (and indirectly, John Cage). But her earliest event score, *Secret Piece* (1953), written when she was just a 22-year-old student at Sarah Lawrence College, prefigured the 'event pieces' of the 1960s by many years. Ono had tried unsuccessfully to notate birdsong, and came up with *Secret Piece* as a compositional solution.[99]

---

[97] Sacks, 84.
[98] Sacks, 74-78 and 240-241.
[99] Edward M. Gomez, "Music of the Mind from the Voice of Raw Soul," in Alexandra Munroe, *Yes Yoko Ono* (New York: Japan Society, 2000), 232.
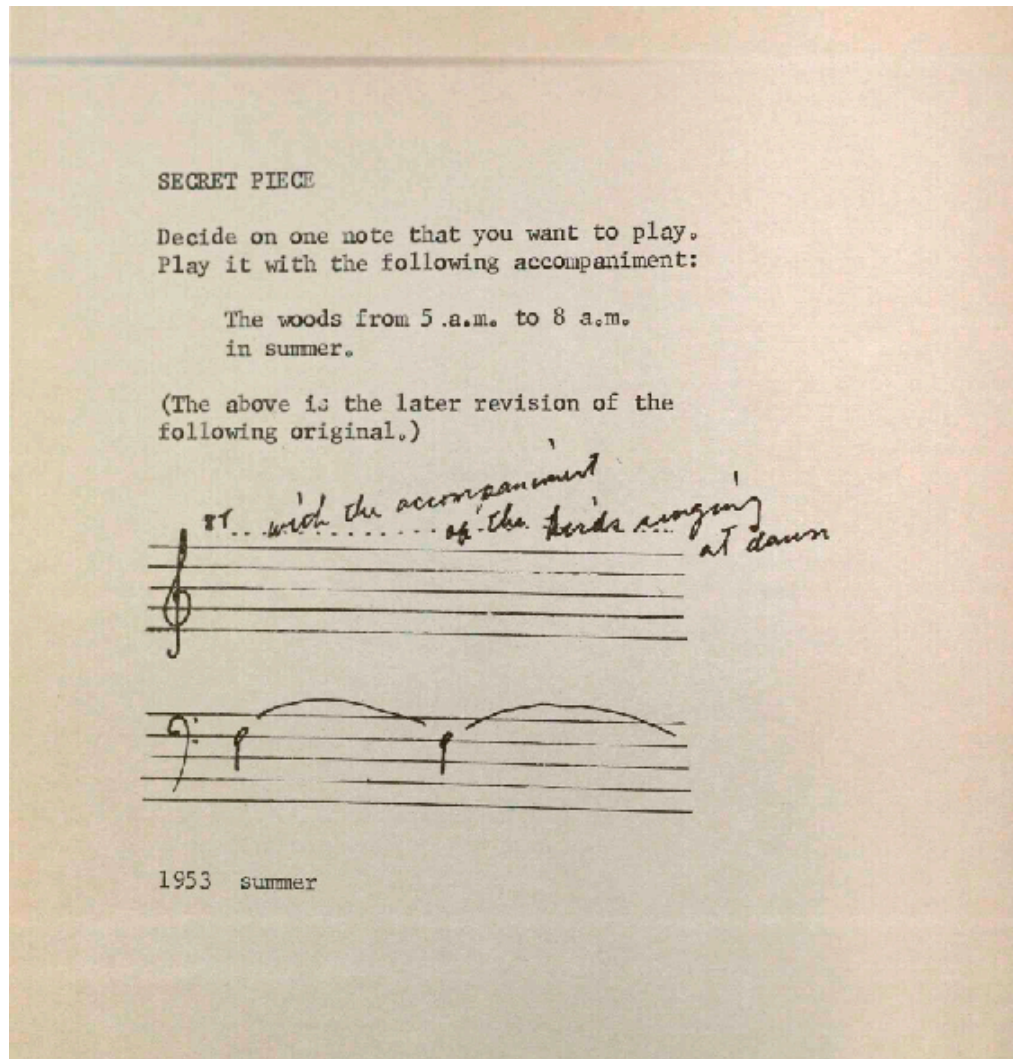
Figure 2.8. Yoko Ono, *Secret Piece* (1953).

Rather than notate the complexity of birdsong, Ono calls upon the sounds themselves, asking performers to immerse themselves in their physical surroundings – or to imagine doing so. This use of the imagination as site was to become central to Ono's work.

Some of Ono's scores are fairly straightforward in nature, calling upon a literal use of the auditory (and visual) imagination; others extend the work of the imagination to create wonderfully impossible situations. Many have compared these pieces to Zen *koan*, spiritual riddles meant to crack open the logical mind, or *haiku*, short stylized poems of imagery and simple events. Like *4'33"* and the Fluxus Events, Ono's instruction pieces simplify and concentrate one's attention on a simple event: in this case, an event occurring in one's own imagination.

CLOCK PIECE

Listen to the clock strokes.
Make exact repetitions in your head
after they stop.

1963 autumn[100]

BELL PIECE

Listen to a bell for an hour.
Diminish the sound to piano
by ringing it over in your head.
Diminish the sound to pianissimo
by ringing it over in your dream.
Diminish the sound poco a poco
troppo pianissimo by forgetting.

Try other sounds
                    i.e., mother's voice
                           baby cry
                           husband's hysterics

1963 autumn[101]

DRINKING PIECE FOR ORCHESTRA

Imagine letting a goldfish swim across
the sky.
Let it swim from the West to the East.
Drink a liter of water.
Imagine letting a goldfish swim across
the sky.
Let it swim from the East to the West.

1963 spring[102]

Ono felt instructional pieces offered the artist a chance to create much more

wonderful possibilities than were possible on the physical plane. In a 1966 essay, she summed

up her interest in working with the imagination as both material and venue:

> The only sound that exists to me is the sound of the mind.
> My works are only to induce music of the mind in people...
>
> ... In your head, for instance ... a sunset can go on for days.
> You can eat up all the clouds in the sky. You can assemble a
> painting with a person in the North Pole over a phone, like
> playing chess. The painting method derives from as far back

---

[100] Ono, "Clock Piece," in *Grapefruit: A Book of Instruction and Drawings by Yoko Ono* (New York: Simon & Schuster, 2000), unnumbered.
[101] Ono, "Bell Piece," in *Grapefruit*.
[102] Ono, "Drinking Piece for Orchestra," in *Grapefruit*.

as the time of the Second World War when we had no food
to eat, and my brother and I exchanged menus in the air.[103]

Ono has no interest in actually manifesting her creations in physical sound waves. For her, the world of the imagination offers unfettered freedom and wonderment. Composer Pauline Oliveros, on the other hand, has spent much of her career creating pieces for auditory listening, imagining, *and* sounding by human beings. In 1971, she published a seminal collection of scores entitled *Sonic Meditations*. Like Ono's work, these pieces are in the form of text instructions. All of them require that players listen to sounds inside and outside of them, and then make sounds in response. For instance:

TEACH YOURSELF TO FLY

Dedicated to Amelia Earhart

Any number of persons sit in a circle facing the center.
Illuminate the space with dim blue light. Begin by simply
observing your own breathing. Always be an observer.
Gradually allow your breathing to become audible. Then
gradually introduce your voice. Allow your vocal cords to
vibrate in any mode which occurs naturally. Allow the
intensity of vibrations to increase very slowly. Continue as
long as possible, naturally, and until all others are quiet,
always observing your own breath cycle.

Variation: translate voice to an instrument.[104]

In this piece, Oliveros explicitly situates the performers as listeners, asking them not to make sounds from their musical ideas but rather to listen to the sounds which naturally arise. That which is listened to and arises becomes the composition. Later pieces are more explicit in their call for sonic imagination. Interestingly, Oliveros also distinguishes between imagined and remembered sounds in her writings, though it's hard to know where one could draw the line between these. A 1994 work asks players to recognize the difference:

OLD SOUND, NEW SOUND, BORROWED SOUND
BLUE, FOR VOICES (1994)
by Pauline Oliveros

Old sound – A sound that you remember from a long time
ago.

---

[103] Ono, "To the Wesleyan People," in *Grapefruit*.
[104] Pauline Oliveros, "Teach Yourself to Fly," in *Sonic Meditations* (Baltimore: Smith Publications, 1974).

New sound – A sound that you have never made before.

Borrowed sound – A sound that you borrow from someone else.

Blue sound – A sound that is blue for you.

First listen inwardly to find your sound to be expressed vocally. Voice each kind of sound – old, new, borrowed, blue – from one to three times within a time frame of about five minutes. Pace yourself by listening to every one and everything. Find a time for each of your sounds. Voice your sound just before, just after or together with some other person's sound. The piece is finished when everyone has used all of his or her sounds not more than three times each.[105]

There are a number of cues in this piece requiring participants to listen both inwardly and outwardly, both globally and focally. Obviously, in order to come up with an old sound, a new sound, and a blue sound, auditory memory and imagination are required. But the borrowed sound also requires you to listen carefully to other players. The score explicitly calls on the player to "listen to every one and everything," as well as to "time your sound just before, just after or together with some other person's sound." These instructions ensure that each player will reach a healthy balance between attention to interior and exterior sounds, awareness of the global soundscape and attention to particular sounds. Unlike Yoko Ono, who wants her listeners to become composers by taking an inventive ride within their own imaginations, Oliveros wants her listeners to become composers by sounding a healthy balance between inside and outside, what we might refer to as a balance between dreaming and waking, imagination and awareness.

Exploring

And what does David Byrne want? Earlier, we discussed sounding as being primarily a creative and phenomenological process. How might we describe the listening experience of *Playing the Building*? I would argue that it is in the *listening* to the noises of Byrne's work that the audience finds the greatest sense of place, of narrative and memory and emotion, although the player is obviously forming a sense of place as well. While the player is focused on learning how to sound the keyboard and the building, the listener is walking around,

---

[105] Pauline Oliveros, "Old Sound, New Sound, Borrowed Sound, Blue, For Voices," in *Deep Listening: A Composer's Sound Practice* (Lincoln, NE: Deep Listening Publications, 2005), 45.

hearing how the building resonates, feeling startled by unexpected sounds, and essentially, making a place out of a space as dozens of others around her do the same. The sounder is experimenting; the listener is exploring. How does this sense of exploration create a meaningful place out of empty space?

Exploration is a prerequisite for place-making; it is, I think, another form of play; conversely, play creates place. Huizinga wrote that play "proceeds within its own proper boundaries of time and space,"[106] and oftentimes the play takes the form of exploring the space to create these very boundaries. By playing within a particular space, we consecrate it as place. I have already written about the physical, kinetic, social, emotional, and aesthetic cues that allow us to domesticate space as place, all of which interact with one another. How did these cues interact with the exploring listener in Byrne's piece?

The Battery Maritime Building, in which Byrne set up the installation, certainly functioned as public space for most visitors. The peeling paint, holes in the walls, and general aura of neglect signaled that it was forbidden territory, that you were not supposed to be there. Signing a waiver upon entry strengthened this feeling of subversion, which worked to make the senses more alert, to open one's eyes and ears. There was a sense of solidarity with other visitors to begin with, a feeling that everyone was embarking on an adventure together. Normal adult roles were discarded.
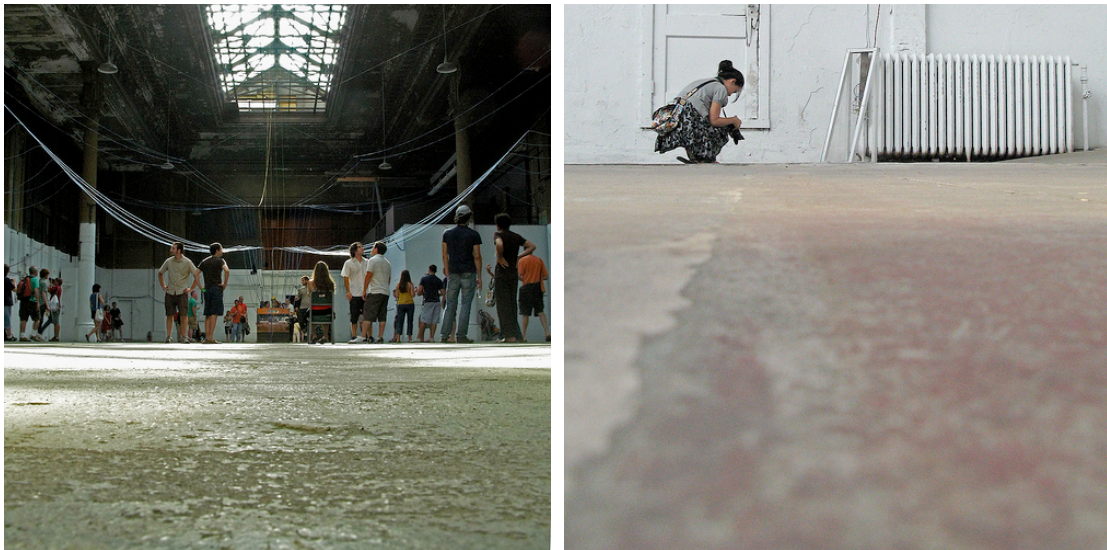
Figure 2.9. David Byrne, *Playing the Building* (2008). Audience listens and explores.

---

[106] Johan Huizinga, *Homo Ludens* (Boston: Beacon Press, 1955), 13.

As with any kind of play, there was a kind of shared experience that marked this time and this place as different, that consecrated this as a place of play. There was a relationship that the people in the space had which changed their relationship to the place as well as to one another; the place became marked by their relationship. This relationship was particularly acute for those waiting with anticipation to play the instrument. There was an almost dramatic arch to the experience of arriving at this decrepit hall, walking up the narrow stairs, waiting, waiting, waiting in line, and finally arriving at the apotheosis of sonic power – for a couple of minutes.

The sense of adventure upon entry and the anticipation of waiting in line to play the organ signaled that play was about to happen, but perhaps the most important factor contributing to a burgeoning sense of place was the sheer physicality of the installation. People were, after all, playing the actual building. The sounds you heard were its architecture, sounded; you got a sense that listening could be another way to understand the same architecture that we see with our eyes and explore with our bodies. Of course, we do this all the time when we listen to sounds; subtle qualities we hear tell us about the space within which the sound was sounded, but *Playing the Building* took listeners to a more conscious awareness of understanding their physical surroundings aurally. Over time, listening to the installation's sounds again and again gave you a good sense – just by listening – of how the building was constructed: where the heavy girders were, where the pipes lived, how they all connected to one another. You could sonically familiarize yourself with the room, map it in your mind, and thus gain a sense of place. And as all of the listeners walked through the space, stopping occasionally to listen to interesting sounds, they created a collective choreography, a patterns of paths, which also became part of their inner map. This inner map played an important role in the process of listeners thinking of the room as a place, or network of places.

And this network was not merely individual. The kinetic and the social overlapped in Byrne's installation. The kinetic – the network of paths that listeners individually took through the space – was closely tied to the social because one of the primary ways people

choose to move through the space is to follow the choreography of others, to form one's own network of paths from those of others. Few people entirely forge their own path. This was particularly true with *Playing the Building,* as people continually moved to locations where they noticed other people listening to an interesting sound.

When people make a place out of a space, of course, they are creating order from chaos; they are organizing their sensory experience of a place and re-mapping these experiences to transform an unknown space into an aesthetically pleasing place. The sounders of *Playing the Building* confronted an unknown instrument and tried to make 'sense' of it by playing it in a particular way; they were able to materially change the aesthetics of the place (at least temporarily). Listeners, on the other hand, were forced to create an aesthetic experience for themselves through the act of perception rather than through explicit sonic gesture. Though in this case complicated by kinetic exploration, socialization and architecture, this process still functioned very much like the 'listening as composing' which we discussed earlier in the work of John Cage, Yoko Ono, and Pauline Oliveros. In his important book, *The Tuning of the World,* composer R. Murray Schafer exhorted readers to hear the world around them as if it were a symphony.[107] This kind of listening as composition empowers listening as a creative act. By listening creatively to the sounds made in *Playing the Building,* listeners created one-of-a-kind imaginative soundtracks located in a place which had become meaningful to them through their listening explorations.

Memory and emotion play enormous roles in the process of place-making. Our emotions are usually tied to our memories and associations. Not only our immediate memories of a current event (what will mark this space as a place even if we never enter it again), but memories that we carry with us into the unknown space. We might distinguish three types of memory: individual memory and association, historical memory and association, and mythic memory and symbolism. These memories might be triggered by sound, which along with smell is extraordinarily effective at calling up what Proust referred to as involuntary memory, but in the case of *Playing the Building,* they are also called forward by visual and intellectual information, such as the condition of the space (peeling paint,

---

[107] R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester, VT: Destiny Books, 1977/1994), 5.

industrial neglect), its physical location (perched on New York Harbor, in lower Manhattan, close to Wall Street), and its history (an abandoned ferry terminal).

Visitors to *Playing the Building* might have had individual associations coloring their experience of the space, perhaps a childhood trip they took on a ferry, or a studio they worked in for fifteen years that offered a similar feeling of industrial decay. The latter – association with a specific place – might well have created a very particular sense of place by creating a kind of spatiotemporal palimpsest, two mental maps laid one over the other, of the old place (the studio) and the new place (the Battery Maritime Building), a kind of internal collage of place. Of course, visitors may also have had individual memories related *directly* to that particular place; in that case, instead of making place from space, we might say that they are instead re-making place, transforming their old perception of a place into a new one. It's possible, for instance, that folks who took the ferry in the 1930s might visit the installation today. No doubt their perception of the piece would be strongly colored by that memory.

Historical memory also affects one's perception of space. Many visitors to *Playing the Building* were made aware, through Creative Time's literature or the press, of the Battery Maritime Building's history. And, of course, most of them would already have had a strong sense of New York's general history: the fact that Manhattan is an island, its subsequent relationship to the waters that surround it, its industrial infrastructure, and so on. History can be a spur to the imagination: just imagine the ghosts of hundreds of Brooklyn-bound passengers gathered in the hall – where might they have been standing? Drinking coffee? Playing cards? Might the sounds wafting through the building in 2008 have been pent-up sounds left behind by the ferry and its passengers? There is no doubt that the history of a space and its relationship to its city interacts with the imagination to play a large role in the way people perceive and prioritize place.

The final sort of memory we might discuss is mythic, or archetypal memory; that is, symbolism. Though probably the least conscious of memories, these may contribute more than we know to our sense of place. In the mythology of many cultures, water represents the underworld, death, the unconscious. The lighthouse, the crow's nest, is the last refuge, a

place to find safety. The Battery Maritime Building, perched on the water, used to see hundreds of people a day take shelter in its girders and then leave and return again in a never-ending ritual. Might we conceive of it, at least subconsciously, as an abandoned nest of sorts, where the ghostly cries and clattering of the building itself could be heard?[108] The installation's sounds were certainly ghostly, both in terms of content (whistling, clattering, rumbling) and form (often seeming to occur randomly and spontaneously, surprising the listener). The symbolic associations we attach to a space color the kind of place we make out of it as much as any of the more self-evident ways in which we do so. Memories and narratives come attached to emotions, conscious or subconscious, and emotions are perhaps the most powerful form of place-making

These different ways of making and re-making place – the physical, the kinetic, the social, the aesthetic, and the emotional – are of course intertwined and interdependent. They form a kind of network, each affecting the others, determining how any individual creates a sense of place. For example, the physical characteristics of a space clearly determine the kinetic possibilities, affect the social relations, determine the aesthetic potential, and influence which memories are resonated in any individual person. Likewise, the emotions brought up by memories may determine the ways that people move through a space or aestheticize it. And as mentioned earlier, the kinetic and the social are often bound up with one another, certainly in *Playing the Building*. Some of the ways we carve place out of space are more conscious than others. We are usually consciously aware of phenomenological elements, such as how things sound, where architectural elements get in our way, and how we are able to move around a space. Other elements, such as the associations and emotions we bring to a space, are more interior. The tension between these two sorts of attention might be characterized as constantly shifting between the poles of waking and dreaming. Waking is a phenomenological state; dreaming a narrative one. The remainder of my dissertation explore these states in much the same way as a listener explores them; as a kind of oscillation from one to the other. They cannot exist without one another – no one lives without telling themselves stories in an interior, emotional world – and no one

---

[108] This idea of the Battery Maritime Building as abandoned nest was strongly inspired by Gaston Bachelard's writings. See Gaston Bachelard, trans. Maria Jolas, *The Poetics of Space* (Boston: Beacon Press, 1994).

lives without paying attention to the sights and sounds around them, ducking out of harm's way. In order to make ourselves at home in the world, to make places out of spaces, we must explore our surroundings, all the while oscillating between these two stations of waking and dreaming. This very oscillation keeps us alive and balanced.

The following two chapters focus on how public sound artists can enable their audiences to walk through sound, place and space. Chapter 3 will explore the idea of cinematic listening and physical cinema by considering a genre in which the solipsistic technology of mobile listening is converted into an instrument of reconnection, in which a sonic walk through space is experienced cinematically, with headphones providing the soundtrack and real life providing the 'image'. And Chapter 4 will eavesdrop on a history of sonic navigation to hear the resonances among Christina Kubisch's *Electrical Walks*, the Australian Aboriginal songlines, Hildegard Westerkamp's sound walks, Erik Satie's perambulations through Paris and Gustav Mahler's liberatory nature walks. Between the two, a short interlude will explore some of the implications of this most elementary mode of travel: why, in this day and age, do we and should we walk?

Chapter 3: Like It Was a Movie: Janet Cardiff's *Her Long Black Hair*

1. Introduction

The Aesthetic Prosthetic and the City-Screen

Wherever you look in modern culture, you will see people listening to mobile music, often using headphones. They might be looking wistfully out the rain-soaked window of a train, or purposefully bopping their head in time to music as they strut down the street, or singing at the top of their lungs as they cruise down the highway. It's impossible to ignore this phenomenon: since the 1930s (and more intensively, since the 1970s) mobile audio has prioritized the auditory in a way that revolutionizes the relationship many people have with their surroundings.

On the surface, it seems that mobile audio serves to disconnect listeners from their surroundings. And indeed, this is often the case. Sociologist Fran Tonkiss has described the iPod as a technological extension of social deafness. "Social deafness," she writes, "offers one kind of urban freedom – the lonely liberty of knowing that nobody is listening, no one likely to speak. In rendering technical what otherwise is simply learned, the mobile technologies of the personal stereo or telephone realize this logic of separation and of indifference perfectly. They reverse the modern intent of the concert hall or public address system as means of organizing a collective 'culture of listening.' [Thompson 2002]. Immersed in a private soundscape, engaged in another interactive scene, you do not have to be in the city as a shared perceptual or social space."[109] There's no doubt that many if not most people turn to mobile audio to tune out their surroundings and engage in a more controllable and potentially pleasurable sonic realm.

At the same time, many listeners report intense aesthetic experiences that come about as a result of their sonic travels – experiences which actually leave them feeling more connected than ever to their physical, if not their social, surroundings. Whether listening to melancholy, slow music while driving through the rain, or bouncy techno during a vigorous

---

[109] Fran Tonkiss, "Aural Postcards: Sound, Memory and the City" in *The Auditory Culture Reader*, ed. Michael Bull and Les Back (Oxford: Berg, 2003), 304-305

run through the city, many people are apt to choose music at least partially based on its relationship to their physical surroundings. We might think of the mobile audio device, then, as a sort of emotional and aesthetic prosthetic capable of extending and transforming the listener's surroundings into a kind of movie,[110] what Jean-Paul Thibaud has dubbed the "city-screen."[111]

Physical Cinema and the Cinematic Lull

'Physical cinema' is a common term for this aestheticization; the material world becomes a quasi-cinematic image synchronized to the mobile soundtrack. How does this work? Why does the visual world submit so easily to the power of sound?

Though largely ignored by our conscious selves, sound holds a great deal of power over us, for the reasons mentioned earlier: first, that we lack the ability to block out sounds, having no earlids, and second, that sound is literally physical, vibrating our bodies. We are powerless in its wake. Not only can we not block our ears; we can't stop our bodies from vibrating. To obey is to listen. To listen is to submit.[112] In fact, the word *obey* comes from the Latin root *oboedire,* from *ob-* (toward) + *-oedire* (akin to *audire,* to hear).[113] Mobile listening provides a way for listeners to resist submission, to create their own space, their own sonic agenda, to empower themselves against a city flexing its sonic power against their wishes.

A city drained of sound is a city drained of power. Tonkiss writes about this eloquently: "As in the cinema when the sound tape doesn't come in and the reel unwinds silently, there is a thinness, a lightness, a kind of estrangement about seeing without sound. It offers surface without depth, appearance without resonance."[114] This quality makes the sound-drained city particularly susceptible to taking on the qualities of whatever sound might mediate it – not unlike the way so-called 'silent film' was malleable to its omnipresent musical accompaniment.

---

[110] Iain Chambers, "The Aural Walk," in *Audio Culture: Readings in Modern Music,* ed. Christoph Cox and Daniel Warner (New York and London: Continuum, 2004), 100.
[111] Jean-Paul Thibaud, "The Sonic Composition of the City," in *The Auditory Culture Reader*, 336-337.
[112] Bill Viola, "The Sound of One Line Scanning," in *Sound By Artists*, ed. Dan Lander and Micah Lexier (Toronto: Art Metropole, 1990), 39.
[113] "obey." Merriam-Webster Online Dictionary. 2008. ,http://www.merriam-webster.com/dictionary/obey> (2 Feb 2008).
[114] Tonkiss, 304.

Early filmmakers knew all about this. Sergei Eisenstein mourned the passing of silent film, lamenting that images beefed up with sound were harder to push around in the editing room, less aesthetic.[115] Alberto Cavalcanti, Rudolf Arnheim and Béla Balázs lamented the loss of the homogeneity of images in 'silent' film, a homogeneity accentuated by the ongoing musical accompaniment. Balázs wrote:

> Sound differentiates visible things, silence brings them closer to each other and makes them less dissimilar. Every painting shows this happy harmony, the hidden common language of mute things conversing with each other, recognizing each others' shapes, and entering into relations with each other in a composition common to them all. This was a great advantage the silent film had over the sound film. For its silence was not mute; it was given a voice in the background music, and the landscapes and men and the objects surrounding them were shown on the screen against this common musical background. This made them speak a common silent language and we could feel their irrational conversation in the music which was common to them all.[116]

Mobile soundtracks dictate the mood and aesthetics of our visual surroundings no less than music dominates the mood and aesthetics of silent film or MTV. This transformation of our surroundings into one big music video is easily read as narcissistic, an amplification of the listener's identity, a colonization of the outside world around the listener's desires. In some ways, it fulfills Guy Debord's worst nightmare, in which, as he explains in his seminal text, *The Society of The Spectacle*: "life is presented as an immense accumulation of spectacles. Everything that was directly lived has receded into a representation."[117] In other words, technological mediation blocks all direct communication. Certainly, living one's life constantly mediated by a self-chosen soundtrack reeks of this kind of spectacle.

However, this aestheticization might also be read as transcendent, as a way of allowing the listener to explore the city as a flâneur, reveling in sonic, visual and narrative synchronicity, and reframing the city as a repository of wonder. Listeners may use the 'aesthetic prosthetic' to engage with their surroundings more than they ever did without it –

---

[115] Sergei Eisenstein, V.I. Pudovkin and G.V. Alexandrov, "A Statement," in *Film Sound: Theory and Practice*, ed. Elizabeth Weis and John Belton (New York: Columbia University Press, 1985), 83-85.
[116] Béla Balázs, "Theory of the Film: Sound," in *Film Sound, Theory and Practice,* 118.
[117] Guy Debord, *Society of the Spectacle,* trans. Ken Knabb (London: Rebel Press, 2006), 7.

going out of their way to wander the streets looking for adventure as they listen to their walkmans, ipods and car stereos. In such cases, the ephemerality of such experiences makes them all the more valuable. You can't rewind life – these aesthetic experiences are one of a kind.

Whether understood as narcissistic spectacle or imaginative adventure, this sonic aestheticization is an essentially individual process in which the listener becomes lost in the experience; the intimacy of headphones and the sealed-off bubble of the automobile ensure that this is primarily a personal, not a communal experience. I refer to it as 'the cinematic lull,' evoking the idea of a lullaby, a hypnotic sonic experience that puts the listener into a kind of solitary dream state. This state was prized by early filmmakers. In 1929, René Clair wrote:

> [The screen] has conquered the world of voices, but it has lost the world of dreams. I have observed people leaving the cinema after seeing a talking film. They might have been leaving a music hall, for they showed no sign of the delightful numbness which used to overcome us after a passage through the silent land of pure images. They talked and laughed, and hummed the tunes they had just heard. *They had not lost their sense of reality*.[118]

Artists and composers might play with this idea of cinematic lull, as filmmakers always have, either engaging it wholeheartedly or subverting it in order to shock the listener into present awareness.

The Possibilities

It is somewhat astonishing to find ourselves living in a culture in which this sort of sonic dislocation is so common. Many people are as comfortable switching between different auditory states as they are changing in and out of clothes. The familiarity of cinematic listening offers unparalleled opportunities for artists and composers to engage listeners in creative, participatory experiences through public sound art practice. Not only are ordinary people comfortable slipping in and out of mediated auditory environments, they often own their own equipment and can simply download an artist's sound work over the internet.

---

[118] René Clair, "The Art of Sound," in *Film Sound: Theory and Practice,* 94.

Artists and composers might stage site-specific sonic interventions anywhere they'd like – the Egyptian pyramids? the listener's bedroom? MoMA? – without need for permission or validation – and what's more, the pieces are hypothetically permanent, albeit permanently in flux with the changing world. This liberates artists politically (no need to work within the gallery/museum context), economically (creating the work can cost practically nothing) and creatively (the possibilities are basically endless).

Although site-specific audio works were pioneered by a handful of well-known artists, including Max Neuhaus, Janet Cardiff and Christina Kubisch, I believe there is room for artists of all aesthetic persuasions to work in this genre, and that site-specific audio work might become a locus of interesting audio art in the coming years. A look at film sound theory in relation to site-specific audio works has helped me to develop a framework for thinking about how and why artists and composers might extend public sound art practice by exploring the ideas of cinematic listening and physical cinema.

2. Why, What and How: The Mechanics of Physical Cinema

The Resonance of Memory

Working with sound allows us to work closely with memory; the emotional and associational responses to music and sound seem to be hardwired into our brains.[119] Since hearing is never as literal as vision, noises work better than visuals to suggest atmosphere; we need hear only a tiny bit of a sound and suddenly we are again lost in a summer thunderstorm, or listening to a long-ago lover's unintelligible whispers. As Cavalcanti wrote, "Pictures are clear and specific, noises are vague... that is why noise is so useful. It speaks directly to the emotions."[120]

As I wrote in the introductory chapter, sound resonates our memories, activating seemingly unrelated fragments of association and emotion like so many sympathetic strings forming a complex neural web. The juxtaposition of sounds can set off a Proustian explosion inside our minds, scattering narrative fragments that demand reconciliation, which emerges

---

[119] Oliver Sacks, letter to author, 12 December 2007.
[120] Alberto Cavalcanti, "Sound in Films," in *Film Sound: Theory and Practice,* 109.

from our brains, Rashoman-like, in the form of narrative.[121] This narrative need not be linear – indeed, it may well be a general feeling, a mood, a premonition. Although each of these memory-catalyzed narratives is necessarily unique, commonalities will almost always exist between listeners' experiences. These commonalities are related to shared memories – which might be cultural, national, or even archetypal – and contribute to a sense of connection among listeners. And of course the artist, too, communicates through her aesthetic choices: not only the significant meaning of the sounds themselves (the content), but also their juxtaposition (context) and composition (form). In following an individual path generally laid out by the artist's own associational thread, the listener forms a kind of emotional bond with the artist as well as with other listeners. In this way, an artist creating this kind of sound work can at least partially escape the narcissistic alienation of the mobile auditory experience and create a sense of social connection. By sonically stirring perception and memory through sounds, artists and composers can catalyze narrative and call listeners into personal but collaborative creative experiences.

The Dreaming-Waking Push-Pull

Although the traditional use of the 'aesthetic prosthetic' tempts listeners into a cinematic lull by replacing the environment's soundtrack with another, artists might instead consider collaborating or improvising with environmental sound instead of overpowering it. Siting one's work in the 'real world' provides a whole palette of meaningful sounds, images, smells, and so on for artists to interact with. By working with existing sensory fields rather than blotting them out, we can access a new realm of interesting relationships.

One effective strategy is to shift the listener's experience between the cinematic lull and a kind of hyper-sensory awareness, in order to sonically 'frame' her immediate surroundings and seduce her into engaging with it directly. We might think of this as a push-pull between the dreaming and waking states we've discussed, in which the listener, lost in a dream or narrative, occasionally 'wakes up' and remembers who she is: a person with her own identity and history, inside a human body, listening to a mobile audio device in a particular

---

[121] Akira Kurosawa's 1950 film *Rashoman* explores the individuality and subjectivity of truth through the attempts of four witnesses to a crime to explain, from their viewpoint, what happened.

place. By blurring the lines between past, present and future, mediated and real, internal and external, the artist leads the listener into a hyper-awareness of her sensory environment. Anytime the listener is not on auto-pilot, she is creatively engaged. Oftentimes, this hyper-awareness and sense of engagement with the environment is maintained even after the listener is finished with the piece. George Bures Miller, Janet Cardiff's artistic collaborator and husband, refers to her sound walks as "MSG for the senses."[122]

How, specifically, can artists manipulate this push-pull between the dreaming and waking states, between the cinematic lull and a hyper-sensory awareness? A look at some of the core concepts of film sound theory sheds some light on the relationships among sound, image and narrative in cinema, and provides a good bouncing off point for some tactics artists might use when creating cinematic site-specific sound art.

Directing Perception

Sounds dictate how we look at the world; they shape our perceptions. Filmmakers have long known this and used it effectively with their soundtracks. Early Soviet filmmaker Vsevolod Pudovkin wrote convincingly about the use of asynchronous sound to mirror human perception:

> For example, in actual life you, the reader, may suddenly hear a cry for help; you see only the window; then you look out and at first see nothing but the moving traffic. But you do not hear the sound natural to those cars and buses; instead you hear still only the cry that first startled you. At last you find with your eyes the point from which the sound came; there is a crowd, and someone is lifting the injured man, who is now quiet. But, now watching the man, you become aware of the din of traffic passing, and in the midst of this noise there gradually grows the piercing signal of the ambulance. At this your attention is caught by the clothes of the injured man: his suit is like that of your brother, who, you now recall, was due to visit you at two o'clock. In the tremendous tension that follows, the anxiety and uncertainty whether this possibly dying man may not indeed be your brother himself, all sound ceases and there exists for your perceptions total silence. Can it be two o'clock? You look at the clock and at the same time

---

[122] Mirjam Schaub, *Janet Cardiff: The Walk Book*, ed. Thyssen-Bornemisza Art Contemporary, Vienna, in collaboration with Public Art Fund, New York (Vienna: Thyssen-Bornemisza Art Contemporary, 2006), 24.

> you hear its ticking. This is the first synchronized moment of
> an image and its caused sound since first you heard the cry.[123]

It's not difficult to imagine all of the above existing as a sound collage over a static shot of a busy street – or even a sketch. The sounds tell us what to pay attention to, mirroring the main character's perceptions.

One of the most exciting possibilities of site-specific sound art involves extending this idea of using sound to *mirror* perceptions to the idea of using sound to actually *direct* people's perceptions of the world around them, defining what part of their reality becomes the 'city-screen.' I attempt this in the first minute of my sound walk, *Almost Grand*.[124] As I was mapping the piece, I became intrigued by an abandoned construction site with a small triangular hole cut out of its fence. I resolved to direct the listener's attention to this hole, to tempt them into looking in, to pique their curiosity – and so, just after listeners round a corner and approach the site, they hear an unexpected sound: a rooster crowing from within the site (I attempted to position the sound at an accurate part of the stereo field in order to simulate this). At the first staging of this piece, about thirty people turned up to experience the walk together. I was gratified to see that almost all of them immediately turned to the cut-out hole on cue. The film had come to life.

The Palimpsest

A film theorist might characterize the unmediated sounds of the environment as *diegetic* (sound that has a source in the 'film's' story world), *onscreen* (sound with a source we can see), *external* (sound that people in the story world can hear), and *simultaneous* (sound that is happening in the present moment). The highly aestheticized 'music video' soundtrack might be characterized simply as *nondiegetic* (sound without a source in the story world) – and by that definition *offscreen*, neither external nor internal (since no one but the listener can hear it), and timeless (since it's not diegetic). Nondiegetic sound and music privilege the listener, impose mood on the scene, and transform his surroundings into a spectacle. Instead

---

[123] V.I. Pudovkin, "Asynchronism as a Principle of Sound Film," in *Film Sound: Theory and Practice,* ed. Elizabeth Weis and John Belton (New York: Columbia University Press, 1985), 87.
[124] Betsey Biggs, *Park Bench Cinema: Almost Grand,* 2007. Conflux Festival, Brooklyn, New York, <http://www.betseybiggs.org/work/almostgrand.html> (accessed March 1, 2009).

of integrating with the environment they comment upon it, pulling the listener into the story world, into spectacle, into a state of cinematic lull. These are only two out of many diegetic possibilities; filmmakers spend a great deal of time editing sound and picture to play with diegesis.

Artists wishing to create cinematic soundtracks obviously cannot edit 'picture'; the surrounding visual world already exists and is completely unpredictable.[125] Likewise, although most movies craft soundtracks almost completely artificially synchronized (or *fused*) with sounds recorded asynchronously, it would be almost impossible to synchronize pre-recorded sound to match the real world (although I will present two workarounds below). Practically the only tool at our disposal, in fact, is asynchronous offscreen sound. Asynchronous offscreen sound – that is, sound with no visible source – may seem humble, but in fact it is a uniquely powerful device. It offers what Janet Cardiff describes as a "porthole through time and space"[126] which allows the listener to effortlessly and immediately transcend the limits of time and space by creating an entirely new diegetic world in the listener's imagination. I'd like to extend this metaphor, however; rather than a porthole, which implies a single location in time and space, I prefer to think of asynchronous sound editing as allowing the listener to wander through a palimpsest composed of multiple layers of space and time.

These time warps (for example, listening to sounds from long ago, flashing forward to an even that hasn't happened yet, reenacting the artist's experience as she stood in the very same spot a year ago) and spatial fractures (for example, hearing sounds that are clearly from another place altogether, or that are being replayed from a place in which the listener stood a few minutes ago) are rarely straightforward, even if they're meant to be; more often, the listener is left wondering whether the sounds and stories come from the past, the present, the future, or some kind of parallel universe. This ambiguity sets up a state of confusion which pushes the listener out of the cinematic lull and towards hyper-awareness. Perhaps, as Mirjam Schaub points out in *Janet Cardiff: The Walk Book,* the act of synchronizing multiple layers of time and space also leads the listener to pay attention to his 'real' surroundings in an

---

[125] This might be provocatively addressed through site-specific theatrical intervention, but clearly the real world will always provide its own surprises.
[126] Schaub, 5.

effort to reassure himself that his body, his reality, still exists.[127] At any rate, the act of listening puts us squarely in the present moment, neurologically speaking.[128] Music and ecstasy are both experienced in the now. And so the listener finds himself constantly oscillating between the dreaming and waking states, between then and now, between there and here. When during this oscillation layers of the spatiotemporal palimpsest line up with here and now like moiré patterns, the listener experiences transformative moments of synchronicity.

Artist Janet Cardiff is a master of this technique. In her sound walks you feel as though the stars are aligning themselves. Cardiff's 2004 sound walk *Her Long Black Hair,*[129] commissioned by New York's Public Art Fund and set in New York's Central Park, begins with a description of her surroundings: "It's just after a rain. The streets are still wet but I think it's stopped for a while. It's loud here, isn't it? When you're in a city like New York you have to think about all the sounds as if they're a symphony. Otherwise you go a bit crazy." Sirens and street sounds from her soundtrack mingle with the sirens and street sounds from outside; the sound of an organ grinder briefly passes.

Figure 3.1. Janet Cardiff, *Her Long Black Hair* (2004). Visitor experiencing work (left) and 1965 photograph seen in her hand (right).

"I have some photographs I want to show you," she confides, and asks the listener to take out a 1965 photograph taken from the listener's current vantage point, as a slightly out-

---

[127] Schaub, 25.
[128] Sacks, 208-213.
[129] Janet Cardiff, *Her Long Black Hair,* 2004. Public Art Fund, New York, NY. <http://www.publicartfund.org/pafweb/projects/05/cardiff/cardiff-05.html> (accessed March 9, 2009).

of-tune brass band plays "New York, New York." Then, as though this world is fading out of reach, the band fades out and she says abruptly: "Put the picture away. I hope it doesn't rain again because I want you to walk with me. I want to show you some other photos. Get up. Go to the right. Walk past the statue. Try to walk to the sound of my footsteps so that we can stay together. And then go down the stairs, all the way to the bottom." As we walk, we hear the sounds of people passing; we're not sure whether they are the people actually passing us or the people who passed Cardiff several years ago when she recorded this. "There's a woman below talking on a cell phone. A woman's taking a picture. It's like we drop below the city here. Right into nature. Turn to the right. There's a man on the bench reading a paper."

We are three minutes into a work which lasts thirty-five minutes, and already we have experienced several layers of the spatiotemporal palimpsest. We are, of course, listening to the sounds of our external environment: sirens, traffic, horses clip-clopping by. Did the organ grinder really walk by, or is that an element from the past/future she is throwing our way? We don't know. As we pull out the black and white photograph and line it up with what we see now, we hear the band playing; it is as if we are inhabiting this space at two times simultaneously. Is this what geographical memory feels like? No sooner have we become comfortable with this juxtaposition than the rug is pulled out from under us. It abruptly fades out, and Cardiff's authoritative voice puts us squarely in the here and now, following the directions she lays out for us. Again, we hear the casual chatter of passersby as well as someone whistling. And Cardiff tells us what she is seeing (or, rather, what she saw in the past): a woman on a cell phone. A woman taking a picture. A man on the bench reading a paper. It's likely that in Central Park, we too will see one of these things before our very eyes. And the layers of the palimpsest will line up. And yes, it does feel like we drop below the city into nature here, and yes, it feels like a conversation. Right here. In the now.

Fusion and the Physical

As mentioned above, it is very difficult to create a synchronous sonic relationship with the city-screen. But there are cases in which it has been done, and done well. The two

ways in which artists have overcome this challenge are (a) the use of altered natural sound, and (b) the use of unknown sound to fill in for ambient sound.

Artist Christina Kubisch, long known for her pioneering sound works inviting the audience to explore sonic situations through the use of electromagnet induction and headphones, has in recent years created a series of walks called *Electrical Walks*[130] based on the ubiquity of electromagnetic frequencies. By walking through the city wearing special headphones which amplify these frequencies, the listener is invited to explore a sonic topography of drones, buzzes and whirs. The experience is one of wonder and exploration, of discovering a layer of magic hiding just beneath the surface of the everyday. The listener becomes explorer and composer at once. And Kubisch is not alone: a spate of recent projects, such as the Swedish *Sonic City,*[131] allow listeners to use the city as a topographical musical interface through real-time mediation of the city's sounds. These works will be discussed at greater length in the final chapter.

Another possibility the artist might consider is the use of unknown sounds to lend physical texture to the city-screen. Two early film theorists, Alberto Cavalcanti and Siegfried Kracauer, recommended the use of unrecognizable, "incognito" sounds[132] to shore up the physicality of the fused sound-image. Kracauer argued that recognizable sounds trigger personal associations in the listener, thus driving his attention away from the moving image, and that the listener's ears were free to soak up sounds that were unrecognizable and less apt to pigeonhole them as being some particular thing or another.[133] In other words, we might think of an incognito sound as more of an adjective and less of a noun.

---

[130] Christina Kubisch, *New York Electrical Walk,* 2006. The Kitchen, New York, NY.
[131] Interactive Institute and Viktoria Institute, *Sonic City* (2002-2004), <http://www.viktoria.se/fal/projects/soniccity> (accessed February 27, 2009).
[132] Cavalcanti, 108-109.
[133] Siegfried Kracauer, "Dialogue and Sound," in *Film Sound: Theory and Practice,* ed. Elizabeth Weis and John Belton (New York: Columbia University Press, 1985), 137-140.

Figure 3.2. Boredoms, *77BOADRUM* (2007).

A recent site-specific performance by the noise band Boredoms illustrates this tactic nicely. One sunny summer afternoon (7/7/07) the band invited 77 drummers to play 77 drum sets arranged in the shape of a giant serpent in Brooklyn, New York's Empire-Fulton Ferry State Park.[134] This free show was well-publicized and the park was filled to capacity several hours before the performance. As a result, the Brooklyn Bridge and many other nearby parks were packed with people who hadn't made it in. I ended up sitting on some rocks facing New York Harbor, listening to the drumming and watching the hypnotic rhythm of the small waves breaking against the shore. Towards the end of the performance, 77 cymbals began to fade and swell together, fusing perfectly with the rhythm of the waves. It felt as if the waves were creating the sound, as if the fade and swell were being drawn out of the waves themselves. An unknown, incognito sound had fused with the city-screen perfectly.

Distortion

Because manipulation often makes a sound less or even unrecognizable, another way to reveal a magical layer of the everyday world is to distort sound. Just as the camera reveals

---

[134] Boredoms, *77BOADRUM,* 7 July 2007. Empire-Fulton Ferry State Park, Brooklyn, NY. <http://www.viva-radio.com/77/Boadrum>

the magic of the world through manipulations such as time-lapse photography, slow motion and close-ups, so too can the manipulation of sound reveal hidden wonders in the world.[135] As anyone who's manipulated sound with tape recorders or computers knows, there are many ways to distort sound; I'll discuss a few of the more significant ways here.

Slowing down a sound slows us down. In *Her Long Black Hair,* Cardiff asks the listener to complete several experiments. At one point, she commands: "Stop. Turn around. Now slowly walk backwards, one foot back and then the other. Very slowly. It feels like you're in a video being rewound in slow motion, doesn't it? [PAUSE]. You can turn back now, and then keep walking." As the listener walks backward, the sound is slowed down, pitched down, and reversed. It does, indeed, feel like being rewound in slow motion, a perceptual change almost like a drug.

Changing the timbre of a sound (through filtering, for example), can imply mediation (a voice coming through a radio, for example, or a telephone or Dictaphone) or a different diegetic space. In the film *American Graffiti,* the same rock and roll songs are played with different spatial characteristics (dry and ambient) to indicate whether the music is diegetic or nondiegetic, for example.[136]

Finally, magnifying sounds through amplification, or what we might call acoustic close-up, magnifies their importance to us, and allows us to direct the listener's visual perception, as mentioned earlier. We might hear the ticking of a bomb, for example, and look around us desperately to see where it is.

All of these changes can drastically shift the layers of the palimpsest. I believe that the narrative and metaphorical implications of distortion offer some very interesting possibilities to the sound artist working with physical cinema.

Rhythm and Structure

> Rhythm turns listeners into participants, makes listening
> active and motoric, and synchronizes the brains and minds
> (and, since emotion is always intertwined with music, the

---

[135] Although this idea was first explored in depth by Pierre Schaeffer beginning in the 1950s, filmmaker Jean Epstein wrote excitedly about the idea in the 1940s, comparing it to slow-motion and time-lapse cinematography. See Jean Epstein, "Slow Motion Sound" in *Film Sound: Theory and Practice,* ed. Elizabeth Weis and John Belton (New York: Columbia University Press, 1985), 143-144.
[136] David Bordwell and Kristin Thompson, *Film Art*, Eighth Edition (New York: McGraw-Hill, 2006), 270.

"hearts") of all who participate. It is very difficult to remain
detached, to resist being drawn into the rhythm of chanting
or dancing.[137]

— Oliver Sacks, *Musicophilia: Tales of Music and the Brain*

As you walk through Janet Cardiff's *Her Long Black Hair,* you are literally following in

the footsteps – 1, 2, 1, 2 – of the artist; her steps are audible and you follow along. In

Christina Kubisch's *Electrical Walks,* you are instead left to create your own walking rhythm,

but the rhythm you create (through your steps and the patterning in your brain) becomes the

musical backbone of a piece that you yourself compose; you yourself are the DJ of this

electromagnetic drone techno, creating the mix through your route and your speed as you

walk through the city.

Another way to think about rhythm is through the interplay of visual and sonic

rhythms. The sound artist might try to synchronize with the existing visual and sonic

rhythms of the city, or to subvert them – but by creating some kind of identifiable

relationship among these rhythms, she deepens the listener's involvement in the work.

Finally, the overall structure of the piece can be thought of as a sort of macrorhythm,

just as we might discuss harmonic rhythm in music. As with any work of art, overall structure

lends a conceptual meaning to the work. Think about the dense sounds of *Apocalypse Now* as

compared to the sparse soundtrack of Robert Bresson's *A Man Escaped.* And in walking

pieces, the walk structures the entire narrative of the piece. This is certainly true of *Her Long*

Black Hair, which somewhat abstractly follows the route of 'the woman with the long black

hair,' whose photographs accompany the walk; we are not only entering a palimpsest of

dozens of layers, but are following (purportedly) in the exact footsteps of not only Cardiff

but of the woman with the long black hair (who may or may not have even existed). In a

diary entry made during the piece, Cardiff writes about the formal considerations of

structuring the walk:

George and I spent many days walking in the park, finding a
route that winds both sideways as well as up and down and
underground. Both the physicality and contrast are always
important for a walk. Just as drawing needs variety and

---

[137] Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (New York: Knopf, 2007), 244-245.

texture, a walk needs small spaces, big spaces, quiet and noisy parts.[138]

Later in *The Walk Book,* Mirjam Schaub suggests a fascinating relationship between topography and narrative when she quotes Leslie Stephen in relation to Cardiff's work:

> The walks are the unobtrusive connecting thread of other memories, and yet each walk is a little drama itself, with a definite plot with episodes and catastrophes, according to the requirements of Aristotle; and it is naturally interwoven with all the thoughts, the friendships, and the interests that form the staple of ordinary life.[139]

If Allan Kaprow expanded formal considerations from painting outward to Assemblage, Environment and Happening, Cardiff is expanding it about as far as it can go: to the outside world.

Language and Relationship

Human beings prioritize the human voice above all other auditory input. There are some pretty obvious evolutionary reasons for this, of course, but it is also why silent filmmakers feared the coming of sound. 'Sound film' made them nervous; 'talkies' terrified them. As a result, early film theorists came up with some fascinating ideas for nuancing the human voice, hoping to steer cinema away from filmed theater. In his essay, "Dialogue and Sound," Siegfried Kracauer lays out several intriguing options.[140] Artists might include banal language, such as passersby chatting, or language that is clearly not understood, whether it is distant, muffled, in a foreign language, or simply nonsense. They might weave together scraps of sound in what Kracauer called a 'word carpet'.[141] Or they might take advantage of commentary, as Cavalcanti felt was the way forward.[142]

Or, of course, they might speak to us directly, forgoing a personal relationship. Indeed, this direct relationship is at the core of Janet Cardiff's sound walks.[143] By walking alongside us, speaking with us, implicating us in her world, insinuating herself in ours, and

---

[138] Schaub, 33.
[139] Leslie Stephen, "The Praise of Walking in the Pleasures of Walking," quoted in Schaub, 80.
[140] Kracauer, 130-135.
[141] Ibid. Kracauer attributes this idea to British filmmaker John Grierson and his concept of a word 'chorus'.
[142] Cavalcanti, 102.
[143] Schaub's *Janet Cardiff: The Walk Book* undertakes an extensive and valuable analysis of Cardiff's use of language. See Schaub, 131-183.

directing our every move, Cardiff pointedly finesses her way into a relationship with us which is at once dominant and nurturing, never seriously considering that we will not obey her every command. I am less interested here in analyzing this very important component of her practice – her own *Walk Book* does so eloquently – than in thinking through the implications of such direct language in light of my ideas about memory, resonance, narrative, content and form. For this kind of direct talk pushes the listener towards a conscious awareness of the present and away from the cinematic lull – often explicitly asking the listener to pay attention to his surroundings. It also implicates the listener as a subject in whatever ambiguous narrative exists – and makes sure that the listener is a player, not an audience. Once again, a step away from the cinematic lull.

Finally, Cardiff regularly appeals to the listener's intellect by posing philosophical questions, often followed by a casual gesture, such as a sneeze, which subverts the discursive formality. Artists planning a site-specific work might do well to examine the overt strategies that Cardiff employs in order to outline her relationship with the listener, because there will always be a relationship between artist and listener; the only questions are what kind of relationship is it, and how consciously has it been created?

3. The Future of Physical Cinema

Future Exploration

The genre of site-specific audio work has only begun to be tapped. This chapter has proposed several artistic considerations, but there are many other promising avenues to explore. For example, we might look into the idea of reenactment and how it relates to the palimpsest, the interaction between soundtrack and the listener's auditory imagination, and the social aspects of physical cinema. By making work which considers deeply the relationships among soundtrack, environment, artist, listener and palimpsest, I believe that sound artists might transform public space into a site for a guerilla physical cinema which supports a diverse range of artistic goals.

Walking: An Interlude

Walking is Simple

> Over and over, you're falling. And then catching yourself from falling. And this is how you can be walking and falling at the same time.
> — Laurie Anderson, "Walking & Falling"[144]

Walking is simple. Not everyone has the ability, leisure, or freedom to walk at will, but most people on the planet do it out of both necessity and desire. Children learn to walk at about a year of age, and if you watch them you can see walking for what it really is: a series of tumbles, barely caught: continually averted disaster. Why do small children – babies, really – do this to themselves? Because they want to expand their horizons. They are tired of being in the same place, tired of the nearly two-dimensional life they lead crawling around on the floor, eager to leave their home place and explore the exciting, unfamiliar space that surrounds them. Walking is how we explore the world.

In her encyclopedic book, *Wanderlust: A History of Walking,* Rebecca Solnit compares the tiny falls that comprise walking to the biblical Fall from Eden[145] – that needing to know just a little bit more, that looking for freedom outside the heaven of home, that yearning for space outside the claustrophobia of place. The human drive to extend oneself. Edmund Husserl, commonly acknowledged as the founder of phenomenology, writes that at any given point our bodies constitute an 'absolute here', and that a sense of place is created out of the relationship between our senses (i.e., our body) and the objects occupying what he calls our 'near-sphere'. Walking, he argues, first unites ourselves, our disparate body parts, our tumbling torsos and alternating limbs, and *that* unity as we move enables us to continually think of our bodies, despite their motion, as null, as 'absolute here,' and thus to create a continuity between near-place and distant-space[146] – in other words, enables us to make place out of space.

---

[144] Laurie Anderson, "Walking & Falling," on *Big Science* (Burbank: Warner Brothers, 1982).
[145] Rebecca Solnit, *Wanderlust: A History of Walking* (New York: Penguin, 2000), 33.
[146] Edward S. Casey, *The Fate of Place: A Philosophical History* (Berkeley: University of California Press, 1997), 215-228.

Walking is Complicated

> Doing nothing is hard to do. It's best done by disguising it as
> doing something, and the something closest to doing nothing
> is walking.
> — Rebecca Solnit, *Wanderlust*[147]

Walking is exploring. Walking is territorializing. Walking is escape. Walking is thinking. Walking is mapping. Walking is sounding. Walking is listening. Walking is looking. Walking is counting. Walking is language. Walking is reading. Walking is storytelling. Walking is reenactment. Walking is performance. Walking is improvisation. Walking is religion. Walking is forgetting oneself. Walking is remembering. Walking is drifting. Walking is troublemaking. Walking is imagining. Walking is surveillance. Walking is hunting. Walking is accomplishment. Walking is marching. Walking is pilgrimage. Walking is penance. Walking is meditation. Walking is art. Walking is music. Walking is killing time. Walking is slowing down. Walking is a way of being together. Walking is a way of being alone.

Walking is complicated. It's complicated precisely because it's so simple. Because walking is, as Solnit says, "the something closest to nothing," it is capable of being inscribed with all sorts of different meanings. In fact, walking meditation, in which one attempts to concentrate solely on the experience of walking and nothing else, is incredibly difficult to do without the mind wandering off and doing something else at the same time. We like to walk and chew gum at the same time. There's almost always an ulterior motive, a palimpsest, mapped onto our walking. We might therefore say that, as with listening, walking places you squarely in the middle of the waking/dreaming continuum. Absolute phenomenological awareness – paying attention to all bodily and sensory cues – would be the waking pole of this continuum, and losing one's bearings while lost in a daydream might represent the opposite pole. Most walkers, like most listeners, spend their lives seesawing back and forth between the two.

---

[147] Solnit, 5.

Chapter 4: Sonic Navigation and Electric Songlines:

Five Walks through Sound, Space and Time, and Back Again

Setting Off

Walking *is* complicated. And that's what makes it so interesting. We are all walking sets of ears – as well as eyes, noses, mouths, feet, swinging arms, prickling skin. We are embodied in the world, and we move around in it, making sound and listening despite ourselves. How can artists and composers make use of some of the roles that walking takes on? Where do sound, movement, space and time intersect? The history of walking offers endless jumping off points for sound walks (we might take Kaluli paths of song and memory, Walter Benjamin's sonic fragments, Martin Luther King's steady march to freedom, among others, as beginning points), but these will have to dwell along the road not taken; a complete investigation is beyond the scope of this dissertation. In the last chapter, we examined some of the ways that sound and memory can function to create narrative sound walks with an emphasis on dreaming. This chapter will focus on waking awareness, upon the intersections among phenomenological inquiry, sonic creativity, and musical language. I'll introduce Christina Kubisch's *New York Electrical Walk* (2006), then eavesdrop on four more walks through sound, space and time – the Aboriginal Songlines, Hildegard Westerkamp's acoustic ecology soundwalks, Erik Satie's daily perambulations to Paris and back, and Gustav Mahler's liberatory mountain escapes – as a way to listen to *New York Electrical Walk* from several perspectives, and perhaps explore how artists might employ these ideas of sonic walking in future practice. I hope this chapter will give you a few ideas for making something from (almost) nothing.

2006. New York City. Walking as Improvisation

> The accompanying map guides the visitor to particular
> destinations in Chelsea, providing a chance to explore the
> city by sound rather than sight. The route indicated on the
> map is only a guideline. Please feel free to explore wherever
> you choose. Some of the sounds indicated on the map may

> not be present at all times, and there are always new ones to discover.
>
> Be aware: use of the headphones is not harmful; but please be careful as some sound sources can be very loud. In addition, please use caution when crossing roads.[148]
> -- Christina Kubisch, *New York Electrical Walk* exhibition map

I pull out my credit card and give it to the man behind the desk, who promptly sticks it into a plastic card file and hands me a heavy and unwieldy pair of headphones, apparatus for Christina Kubisch's sound art piece, *New York Electrical Walk*. They are enormous. "Be careful," he says. "Don't turn them up too loud." I put them on and as I descend down the creaky stairs to the Chelsea streets below, an ungodly drone rises from the space between my ears.

Fig 4.1. Christina Kubisch, *Electrical Walk,* Mexico City, Mexico (2008).

Christina Kubisch is a German artist and composer who has been creating sound art with electromagnetic fields (among other things) since the 1970s. The headphones she's

---

[148] Christina Kubisch, *New York Electrical Walk* exhibition map. New York: The Kitchen, 2006.

provided amplify the electromagnetic fields emanating from electrical devices; a city like New York is dense with these fields and saturated with sound. Her *Electrical Walks* series invites the public to walk through cities wearing these special headphones, composing personal soundtracks as they walk through the buzzes and drones permeating the city's electrical grid, turning the city itself into a sonic interface. The piece has been presented in cities throughout the world, and in 2006 it was presented at the Kitchen in New York City.

As I walk the streets of Chelsea, I hear drifting fields of static, pulsing electronics, chords of hums and drones. The sounds teeter on the border of signification: sci-fi, old-fashioned radio, static, walking on the moon, spy missions. That the sounds are not perfect, clean digital bits, that they are imperfect and unsteady, only makes them more appealing. I find myself navigating sonically instead of visually: walking towards sounds that grow louder as I approach, paying little attention to the way things look and lots of attention to the way they sound. Sometimes I move back and forth rhythmically, to musical effect. There is a performative aspect to this, of course; I don't conform to the visual norms of people walking somewhere purposefully nor those drifting by taking photographs and looking at things that interest them. In fact, the most interesting sounds are often to be found in the blandest visual garb: a traffic light controller box, a security gate, a subway grate. I also find myself walking in rhythm to the pulsing, and hearing the electronic drones in rhythm with my four-to-the-floor walking when there is no audible pulse in the headphones. I feel invincible, as if I am holding the key to a secret and magical universe, as if I have grown a sixth sense. And of course, I have. The headphones function as an even more literal prosthetic than the iPod. Like infrared goggles, they give me supernormal powers and allow me to uncover a previously invisible and inaudible layer of reality. A palimpsest of neither space nor time, but rather of sense, or spectrum. By walking my own path through the sounds of this spectrum, I am creating a world. You might say I am singing a world to life.

In the Beginning. Australia. Walking as Creation.

> The Ancients sang their way all over the world. They sang the rivers and ranges, salt-pans and sand dunes. They hunted, ate, made love, danced, killed: wherever their tracks led they left a trail of music.
>
> They wrapped the whole world in a web of song; and at last, when the Earth was sung, they felt tired. Again in their limbs they felt the frozen immobility of Ages. Some sank into the ground where they stood. Some crawled into caves. Some crept away to their 'Eternal Homes', to the ancestral waterholes that bore them.
>
> All of them went 'back in'.[149]

In 1986, Bruce Chatwin published his bestselling book, *The Songlines.* A weaving together of anthropology, fiction, and semi-scholarly conjecture, the work centered around a stunning idea, one that Chatwin extrapolated from his travels among the Aboriginal people of Australia and applied to the world at large: that the world could be looked at, or rather listened to, as an interconnected web of songs, that we sounded our world into existence by walking through it. In the twenty years that have passed, anthropologists and the Aboriginal people themselves have dismissed Chatwin's writing as a simplistic projection of his own dreams and utopian fantasies onto a secretive world he knew little about – but it is hard to dispute the poetry of his ideas.

In Chatwin's account, Aboriginals believe that the world, once sung into existence by the Ancients during the Dreamtime, must continually be sung into existence in order to recreate it. Instead of owning fixed plots of land, the people own songlines: physical paths, and the songs that are sung to recreate these paths. These songs are their deeds, giving them right of way through the land – more important in the desert than owning the land itself. The songs, and their accompanying rights of way, are traded with neighbors in the same way as shells, feathers and sacred objects, ensuring peaceful coexistence. The melody of a song tells the singer the contours of the land it refers to, but is also recognizable across thousands of miles of pathway.[150] "In theory, at least," writes Chatwin, "the whole of Australia could be read as a musical score. There was hardly a rock or creek in the country that could not or had

---

[149] Bruce Chatwin, *The Songlines* (New York: Viking Penguin, 1987), 72-73.
[150] Ibid., 107-108.

not been sung. One should perhaps visualise the Songlines as a spaghetti of Iliads and Odysseys, writhing this way and that, in which every 'episode' was readable in terms of geology... By singing the world into existence ... the Ancestors had been poets in the original sense of poesis, meaning 'creation'. No Aboriginal could conceive that the created world was in any way imperfect. His religious life had a single aim: to keep the land the way it was and should be. The man who went 'Walkabout' was making a ritual journey. He trod in the footsteps of his ancestors. He sang the Ancestor's stanzas without changing a word or note – and so recreated the Creation."[151]

Nicolas Roeg's 1971 film, *Walkabout*,[152] portrays the unlikely desert meeting between an Aboriginal youth on walkabout and two stranded middle-class children, a young boy and his teenaged sister, whose father has committed suicide and left them to wander in the bush. The film's soundtrack is remarkable in its portrayal of the sonic palimpsest, often collapsing space and time. About half an hour into the film, after the oasis they've found has disastrously run out of water, the girl sleeps while the young boy carelessly hums and whistles, imitating first an airplane and then the wind blowing through the grass, until she shushes him to sleep too. As he lies down, we hear an incredible mélange of sounds: the buzzing drone of insects, warbling shortwave signals, bird squawks, squeaks of doors, distorted and indistinct voices, and distinctly threatening footsteps. Beneath these sounds we see their sleeping bodies, their rapidly drying oasis miniscule in the red sands of the desert, a reptile's skeleton, a bird flapping its wings unsteadily, one lizard eating another, the trees shivering in the wind, a pile of fruit, the flick of a lizard's tongue, the boy carelessly letting a bramble fall from his hand. As he does so the sounds slow and stop, and the boy sees a figure in the distance: it is the Aboriginal youth, hunting.

---

[151] Ibid., 14-15.
[152] *Walkabout*, DVD, directed by Nicolas Roeg. (1971, Criterion Collection, 1998).

Fig. 4.2. *Walkabout,* dir. Nicolas Roeg (1971).

It is as if the songline has come to life; as if, too, it is only while they sleep, while their conscious mind is turned off, that they can hear these transmissions. It's no accident that the soundtrack incorporates the sounds of transmission throughout (and in fact, this sound sequence and several others from the film are taken from Karlheinz Stockhausen's *Hymnen*). Radio transmission collapses both time and space in the same way as the songlines might, and the girl is never without the portable radio she has saved from their father's car,

which transmits both the incongruous sounds of the westernized world (collapsed space) and music of the past (collapsed time) to an extremely foreign environment.

Hearing and singing along with the songlines are like tuning into a transmission, a transmission fixed in space. The process of walkabout might be thought of as a process of sensitizing and tuning in to the right frequency: the frequency of the land. Only when the sister and brother are able to let go of their conscious minds and attachment to the sounds of another time and place are they able to hear the buzz and drone of the song of the land. Only by sleeping can they wake up to this song. Throughout the film, we see that the younger brother quickly learns to sensitize himself to his new environment. He is able to communicate with the Aboriginal boy through hand gestures and shared emotion. But with few exceptions, the sister is unwilling to attempt to tune in to her new reality. She obstinately carries the radio and its transmissions from the other side of the continent with her. The Aboriginal boy, on the other hand, becomes so sensitized and tuned in that the *schizophonia*[153] of contemporary civilization (primarily manifest in the girls' behavior upon reaching the abandoned farm) kills him.

Radio is often thought of as a collapse of time and space – and indeed, it often functions this way – but transmission can also be fused with place to create 'electric songlines'. Like radio, the songline requires a sensitivity to learn and understand and sing it; it exists as an additional sonic layer to the palimpsest, a layer accessible only through tuning. The electromagnetic frequencies in *New York Electrical Walk* can be thought of as a kind of *a priori* local transmission. The work's sense of permanence – as long as the security gate functions, it will continue to emit the same electromagnetic frequencies – establishes a precise relationship between sound and space. As we walk through the streets with Kubisch's headphones, we walk through sound as if it were a space. Instead of following a temporal narrative we are creating one through our own movements; the piece becomes a kind of graphical score through which we walk and sound. Songline works are resolutely atemporal; one must be allowed to turn back. If we think back to Janet Cardiff's work, on

---

[153] *Schizophonia* is R. Murray Schafer's term for the modern disconnect between sound and its source, humans and nature. See R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester, VT: Destiny Books, 1994), 90.

the other hand, we see that it occupies a specific temporal narrative trajectory. It's important to do her walk in the right order.

If we can establish a permanent link between sound and landscape, we might say that singing and walking the songline is reenactment, even pilgrimage. By singing and walking in the footsteps of others, we reclaim space as our own. As we walk through Kubisch's electric songlines, we create (and re-create) a sense of place. We might compare tuning into electric songlines and creating one's own trajectory through them to the idea of the listener as composer, creating sonic and kinetic senses of place simultaneously. You might say that we sing the space to life.

How might artists and composers conjure the specter of songlines in public sound work? First and foremost, we must marry sound to place. This can be achieved in four ways:

> (a) *Process* or *amplify* existing sonic or other data
> (b) *Transmit* radio or other audio super-locally
> (c) *Embed* speakers or live performers in the environment
> (d) *Map* locative data to sound in an absolute way

Several projects have attempted to *process* environmental sound and transmit it back to the user more musically. *Sonic City* (2002-2004), a Swedish collaboration between the Interactive Institute and the Viktoria Institute, created a wearable interface which turned urban mobility into musical gesture.[154] By studying people's movements, the project's designers were able to map different responses to different paths by changing the filtering and processing of the city's noises. The recent – and much more accessible – iPhone application *FutureSound* (2008)[155] includes algorithms by several composers, including Scanner and David Toop, which transform the iPhone's microphone input into musical sound. This idea holds a lot of potential, but the large gulf between *FutureSound*'s sonic input and musical output makes it difficult to determine the relationship between landscape and sound. The algorithms used in the application (and there are several of them to choose from) all

---

[154] Interactive Institute and Viktoria Institute, *Sonic City* (2002-2004),
<http://www.viktoria.se/fal/projects/soniccity> (accessed February 27, 2009).
[155] Royal College of Art, *FutureSound*, 2008,
<http://www.rca.ac.uk/Default.aspx?ContentID=504177&GroupID=504175&CategoryID=36538>, (accessed March 6, 2009).

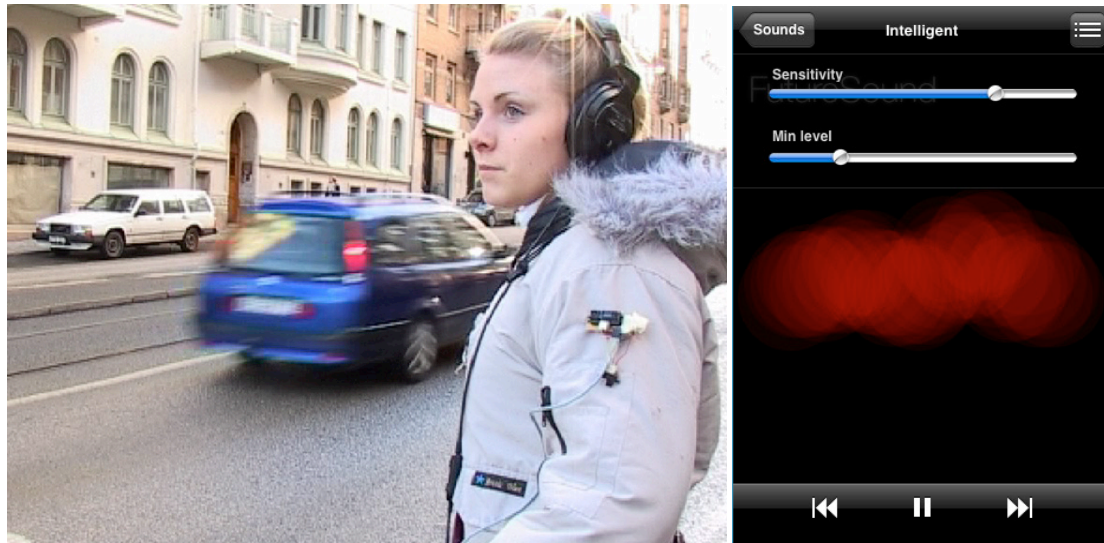transform the sound into a kind of interesting musical stew bearing only a passing resemblance to its original source.

Fig. 4.3. Interactive Institute and Viktoria Institute, *Sonic City* (2002-2004, left). Royal College of Art, *FutureSound* screenshot (2008, right).

The *Electrical Walk* series both *amplifies* existing data and *transmits* audio for the audience to walk through. Audio transmission has often been used to create 'electric songlines'; one intriguing example has been the ongoing project *Microradio Sound Walk* by transmission arts nonprofit Free103Point9.[156] This work asks several artists to transmit audio at the same frequency in spatially disparate locations, then invites the audience to wander through the area; the strength of the competing signals grows and fades according to the walker's distance from each of the spots of transmission. *Microradio Sound Walk* has been presented in locations as diverse as Wave Farm in upstate New York and Warsaw's Center for Contemporary Art in Ujazdowski Castle. *Microradio Sound Walk* is in many ways similar to Christina Kubisch's early electromagnetic works, which placed audio cables in graphical formations and then gave audience members magnetic induction cubes, and later special headphones, to amplify the frequencies running through the wires. By wandering through

---

[156] Free103Point9, Projects, <http://www.free103point9.org/transmissionprojects> (accessed March 6, 2009).

this environment, audience members composed soundtracks, much as they compose in the *Electrical Walk* series.[157]

Fig. 4.4. Christina Kubisch exhibitions: *Magnetic Forest* (1991, Kyoto, left) and *Der Vogelbaum* (1987/2000, Rüsselsheim, Germany, right).

Electrical Walks, in fact, grew out of Kubisch's frustration with the ever-louder electromagnetic interference with these works. By treating noise as signal, she framed this interference, turning it into a fascinating work that centers upon the environment, rather than the artist, as a source of sonic interest.

The most well-known work to use the idea of *embedded* sound is undoubtedly Max Neuhaus's seminal work, *Times Square,* an invisible sound installation emanating from a subway grating on a traffic triangle near Broadway and 46th Street. The artist describes the piece:

> The work is an invisible, unmarked block of sound at the north end of the island. Its sonority, a rich harmonic sound texture resembling the after ring of large bells, is an impossibility within its context. Many who pass through it, however, can dismiss it as an unusual machinery sound from below ground.
>
> For those who find and accept the sound's impossibility, though, the island becomes a different place, separate, but including its surroundings. These people, having no way of

---

[157] Christina Kubisch, *Klang Raum Licht Zeit: Works from 1980 to 2000* (Heidelberg: Kehrer, 2000),

knowing that it has been deliberately made, usually claim the
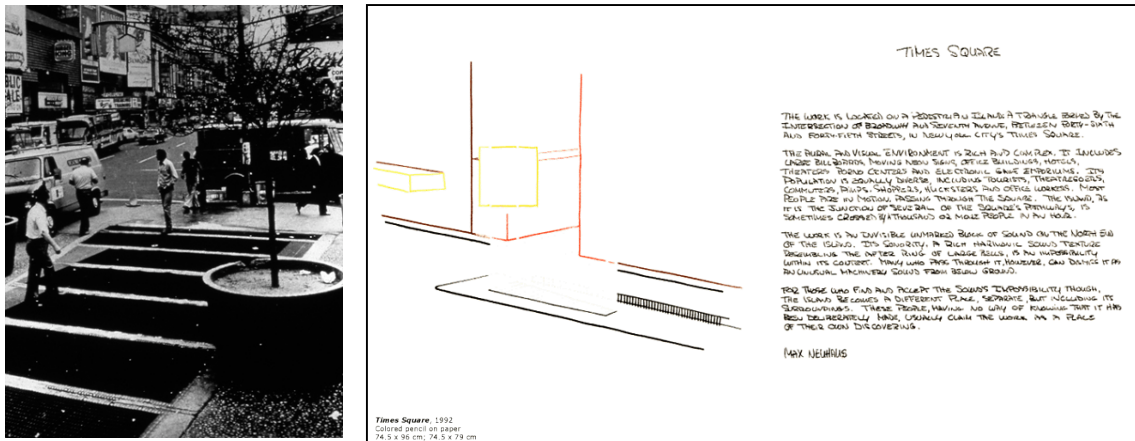work as a place of their own discovering.[158]

Figure 4.5. Max Neuhaus, *Times Square* (1977, New York, left) and *Times Square* drawing (1992, right).

Neuhaus was a pioneer of the idea of sound in space as an art practice. In 1974, he
wrote, "Traditionally, composers have placed the elements of a composition in time. One
idea which I am interested in is locating them, instead, in space, and letting the listener
place them in his own time."[159] And indeed, much of Neuhaus's oeuvre, from his early piece
Listening in which he led large groups of people on aural walks through lower Manhattan, to
his transmission-based driving tours, to his most recent pieces creating 'fields of sound'
strives to do just this.

Locative media, which *maps* digital media onto physical space through locational
data, is a new and promising avenue for would-be songline creators. By linking locational
data (through the use of GPS) to sound (or sonic processing), we can create lasting links
between landscape and sound. There have been several recent projects exploring this
possibility; one of the most developed is the *Tactical Sound Garden*. Its creator, artist Mark
Shepard, writes:

> The Tactical Sound Garden [TSG] Toolkit is an open source
> software platform for cultivating public "sound gardens" in
> contemporary cities...

[158] Max Neuhaus, *Times Square* drawing, <http://www.diacenter.org/ltproj/neuhaus/neuhaus-timessquare-top.gif>.
Accessed 24 February 2009.
[159] Max Neuhaus, "Program Notes: York University, Toronto (1974)" in *Max Neuhaus: Sound Works, Volume I:
Inscription* (Ostfildern-Stuttgart: Cantz, 1994), 34.

The TSG Toolkit enables anyone living within dense 802.11 wireless (WiFi) "hot zones" to install a virtual "sound garden" for public use. Using a WiFi enabled mobile device (PDA, laptop, mobile phone), participants "plant" sounds (or "prune" those planted by others) within a positional audio environment. These plantings are mapped onto the coordinates of a physical location by a 3D audio engine common to gaming environments - overlaying a publicly constructed soundscape onto a specific urban space. Wearing headphones connected to a WiFi enabled device, participants drift though virtual sound gardens as they move throughout the city.

... Where the presence of WiFi access nodes is minimal, gardens simply consist of plantings along a sidewalk. Where a local density of nodes exists, gardens potentially take the scale of a neighborhood. In cities where wireless networks are pervasive, gardens potentially extend throughout the entire city.

Fig. 4.6. Mark Shepard, *Tactical Sound Garden* concept diagram (2006).

Tactical Sound Garden is different in one important way from the other projects discussed in this chapter: it relies upon its users to provide content as well as performance. The listener becomes not just improviser but creator and gardener as well as explorer. Shepard writes about the *TSG* in the context of shared iPod playlists and social networking,

as a way for the mobile listener to engage with, rather than retreat from, real people and real places. He writes, "The project attempts to spatialize this practice in the context of everyday urban environments as a means to transform passive mobile listeners into active participants in shaping the sonic topography of urban public space."[160]

No matter the technical means, by providing a set of possibilities for sonic navigation, songlines (electric or otherwise), provide us with a map, a symbolic layer we can place over the experiential and physical layer of space. By mapping, we create a sense of place; placemaking is creation. Songlines, then, are a map of Genesis: a way of falling into place, and then recreating that journey. And doing it again. And again. And again.

1973. Vancouver, Canada. Walking as Mapping.

> And, sitting in the darkness of my moving cell, I recognized, echoing in my tired brain, all the characteristic sounds of a town I'd loved, and of a certain hour of the day which I had always particularly enjoyed. The shouts of newspaper-boys in the already languid air, the last calls of birds in the public garden, the cries of sandwich-vendors, the screech of trams at the steep corners of the upper town, and that faint rustling overhead as darkness sifted down upon the harbour.
> — Albert Camus, *L'Étranger*[161]

It's eleven a.m. in Vancouver, raining lightly. Hildegard Westerkamp a German woman in her twenties, wanders slowly along the edge of the harbor, Nagra tape recorder strapped to her body, microphone aimed at the sounds of the raindrops hitting the lapping waves, a distant ferry motor, birds screeching far away. She walks right up to the edge of the water, nudging the microphone closer, investigating its timbre, its pitches and rhythms, then jumps back, shocked by a loud ship's horn; she smiles. She scribbles a note about her location and its sounds, then continues slowly along her way. She will spend all day aurally exploring and mapping the sounds of the city.

Fast forward to today. Westerkamp has been a leading voice in the acoustic ecology movement for more than thirty-five years, ever since she joined R. Murray Schafer and his

[160] Mark Shepard, *The Tactical Sound Garden,* in *Leonardo Electronic Almanac, Locative Media Gallery,* <http://leoalmanac.org/GALLERY/locative/tsg/index.htm2http://leoalmanac.org/GALLERY/locative/tsg/index.htm," (accessed February 25, 2009).
[161] Albert Camus, quoted in Schafer, 180.

colleagues at Simon Fraser University's World Soundscape Project in creating the WSP's first big project: *Vancouver Soundscape* (1973),[162] a double LP which included a substantial text. Schafer, in pioneering the idea of acoustic ecology, wrote that by learning to appreciate the *soundscape* around us (a term he invented), we might learn to create acoustic environments that nurture us, rather than noisy environments which exhaust us. Though Schafer is sometimes criticized as overly polemic in his categorization of 'good' and 'bad' sounds, his ideas have had broad impact. Acoustic ecology, pioneered by Schafer and explored in depth in his important book *The Tuning of the World*, has catalyzed a wide range of interdisciplinary activity, from aural histories to soundscape compositions to music education and of course, acoustic design.

Fig. 4.7. World Soundscape Project, *The Vancouver Soundscape* album cover (1973, left); Hildegard Westerkamp (right).

In *The Tuning of the World,* Schafer clearly delineates the difference between a listening walk and a soundwalk: "A listening walk and a soundwalk," he writes, "are not quite the same thing... A listening walk is simply a walk with a concentration on listening... The soundwalk is an exploration of the soundscape of a given area using a score as a guide. The

---

[162] World Soundscape Project, Document No. 5, *The Vancouver Soundscape,* (Vancouver: Simon Fraser University, 1973).

score consists of a map, drawing the listener's attention to unusual sounds and ambiences to be heard along the way... When the soundwalker is instructed to listen to the soundscape, he is audience; when he is asked to participate with it, he becomes composer-performer. In one soundwalk a student asked participants to enter a store and to tap the tops of all tinned goods, thus turning the grocery store into a Caribbean steel band. In another, participants were asked to compare the pitches of drainpipes on a city street; in another, to sing tunes around the different harmonics of neon lights."[163]

This notion of an acoustic ecology soundwalk is probably the first thing most people think of when the term 'sound walk' is mentioned (if they've ever heard the phrase at all). Schafer equates a score with a map: both consist of a set of instructions for carving out a sonic sense of place from both time and space. At the end of the book which accompanies *Vancouver Soundscape,* a soundwalk is offered to the listener. It begins with the following steps:

> Take a Hastings or Victoria bus in downtown Vancouver as far as Main Street. As you deposit your fare, notice the different sounds made by the various coins. Ask the driver to call out Main Street. If you are fortunate, you will encounter a truly professional driver who has his street-calling technique developed to a bardic form. En route, close your eyes and listen to the environment around you. How many languages are being spoken? What sound patterns occur at each stop?
>
> 1) Disembark at Main Street and walk north towards the waterfront. Note how the traffic noise changes on the way and at what point you are re-united with the sound of your footsteps.
>
> 2) At the corner of Main and Alexander, stop and listen to the hum of the Western Electric neon light. Can you find its predominant pitch by humming with it?[164]

---

[163] Schafer, 212-213.
[164] World Soundscape Project, 71.

Fig. 4.8. "A Vancouver Soundwalk," from *The Vancouver Soundscape*.

The soundwalk asks us to perform both listening and sounding, though the sounding is always in the service of listening. By asking us to pay attention to and even to make specific sounds, the score/map reminds us of sounds we may not otherwise have noticed. By humming the pitch of the neon light, we embody the sound, feel our connection with the neon, its light and its sound. We are in every sense reading a map, reenacting the walk of one who has gone before. But all maps eventually end, and as always we are left to find our own way, our own sounds. The map is, in a sense, a set of training wheels.

A map can also be defined as a set of choices. We might draw a map of our hometown which includes the tallest trees, our favorite restaurants, the houses of our friends, or in this case, sounds that have brought us pleasure. In her book of essays on electro-acoustic music, *Sounding Art,* Katharine Norman describes map not as territory, but rather as that part of the territory that has passed through the map-maker's filter.[165] Because maps are the results of these filters, they reveal as much or more about the map-maker than they do about the territory. Maps always have an agenda, conscious or not. A map of the world made in the United States will show it occupying the center of the world. A map of my neighborhood restaurants will probably leave out the spot that left me sick for two days. The resolution of a map is much, much lower than real life, and things get left out – that's its purpose, after all. Otherwise, the map would become equal to the territory and hence redundant; a quandary which Jorge Luis Borges wrote about in his wonderful short short story, "On Exactitude in Science,"[166] which describes a map so big that it occupies its entire empire itself. Too much information is just as limiting as not enough.

Maps represent possibility, yawning space that calls out for explorers to create place. Maps feel like play, because they allow us to temporarily drop our usual humdrum, well-memorized identities and imagine another world, create order from entropy. They are symbolic representations of how someone conquered space to create place. They stimulate the imagination. It's hard to look at a map without imagining what's there, without imagining *oneself* there. When we do, in fact, light out for the territory, map in hand, we superimpose a symbolic space over a real one, creating a palimpsest of time and place. We reenact someone else's journey at the same time as we create our own sense of place, and we try to line these moiré patterns up with the sensory input we receive from our eyes, ears, nose, mouth, skin. If the map is one we are familiar with, it may additionally release torrents of memories – another layer. Norman describes looking at a London Underground 'tube' map and immediately recalling errands to purchase "semi-transparent manuscript paper," "dreary oboe lessons," "the ghastly bedsit in Finsbury Park," a "sunny school trip to the

---

[165] Katharine Norman, *Sounding Art* (Aldershot, UK: Ashgate, 2004), 62.
[166] Jorge Luis Borges, "On Exactitude in Science," *The Maker* (1960), in *Collected Fictions,* trans. Andrew Hurley (New York: Viking, 1998), 325.

Natural History Museum."[167] As time goes by, territories change and even disappear, while the maps stay the same inside our minds. Before we know it, we are once again tearing holes in the temporal and spatial fabric of our lives. When Baron Haussmann knocked down and remade Paris in the 19th century, he left behind the geography of memory: a million interior maps of Paris that were suddenly useless.

But hang on: wake up! We're treading dangerously close to the idea of dreaming and the resonance of memory explored in the last chapter. Back to the sounds of right now, right here. That's what this chapter is about.

New York Electrical Walk included a map along with Kubisch's special headphones, a map explicitly presented as an educational exercise, as training wheels. The map's route traveled a several-block radius surrounding the Kitchen, which is located in Manhattan's Chelsea neighborhood. Kubisch structured her map as a loop around the neighborhood, with 22 sonic stops marked off and explained. Like R. Murray Schafer's soundwalks, the map is structured as an active exercise with specific instructions.

The visual design of pathways with dots representing stops implies a kind of sight-seeing (sound-listening) tour in which the stops are all-important and the time spent walking between them is incidental. The experience of the piece is not at all like this, but is rather a kind of sonic drift in which features of the soundscape gradually emerge and are subsumed. "What constitutes a kind of significant point or singularity in sound is so different from [that singularity] in visual and physical geography," says Christoph Cox, who has curated the *Electrical Walks*. "It draws the coordinates of a place in a very different way."[168] Because sound is intrinsically in motion, bouncing off walls and cliffs and floors, vibrating everything in its path, it can almost never be perceived as occupying fixed points in space in the same way that, say, a chair can. Sound depends upon space and occupies space, but is much fuzzier than visual information when it comes to actually defining space.

---

[167] Norman, 64-65.
[168] Christoph Cox, Interview with author (February 12, 2009).

The Kitchen

Christina Kubisch:
New York Electrical Walk

September 9–October 14, 2006

Christina Kubisch's *New York Electrical Walk* enables a new experience of New York City. Visitors can explore New York's streets and buildings with special magnetic headphones that reveal the sounds of electrical currents that are normally imperceptible. The headphones, designed and built by the artist, detect sound emitted by electro-magnetic fields generated by lighting systems, electronic security systems, electrical power sources, wireless communication systems, surveillance cameras, computers, mobile phones and other devices and systems.

Describing the physical principles at work in the piece, Kubisch explains: "Every current in an electrical conductor—for example a wire or cable—generates an electromagnetic field. These currents can be like the signals running through loudspeaker cables, or they can come from electrical activity in the infrastructures of buildings or cities. The magnetic component of these fields is picked up by the sensor coils in the headphones. And, after amplification, these signals are made audible by little speaker systems in the headphones. So if there's an electromagnetic field (say, an underground cable) and another one nearby (say, the headphones), the fields pick up each other. The sound jumps through the air from one to the other."

The accompanying map guides the visitor to particular destinations in Chelsea, providing a chance to explore the city by sound, rather than sight. The route indicated on the map is only a guideline. Please feel free to explore wherever you choose. Some of the sounds indicated on the map may not be present at all times, and there are always new ones to discover.

Be aware: use of the headphones is not harmful; but please be careful as some sound sources can be very loud. In addition, please use caution when crossing roads.

This project is part of *Invisible Geographies: New Sound Art from Germany*, an exhibition curated by Christoph Cox featuring Jens Brand, Christina Kubisch, Stefan Rummel, and Jan-Peter E.R. Sonntag. Using the invisible networks of sound waves and electromagnetic signals that circulate around us, the four installations in the exhibition trace the physical topography of the audible world to produce alternative maps of our surroundings.

Exhibition Hours: Tue-Fri, 12-6pm; Sat 11-6pm

Invisible Geographies is made possible with support from the ifa - Institut für Auslandsbeziehungen, Stuttgart e.V. and with public funds from the New York State Council on the Arts, a state agency.
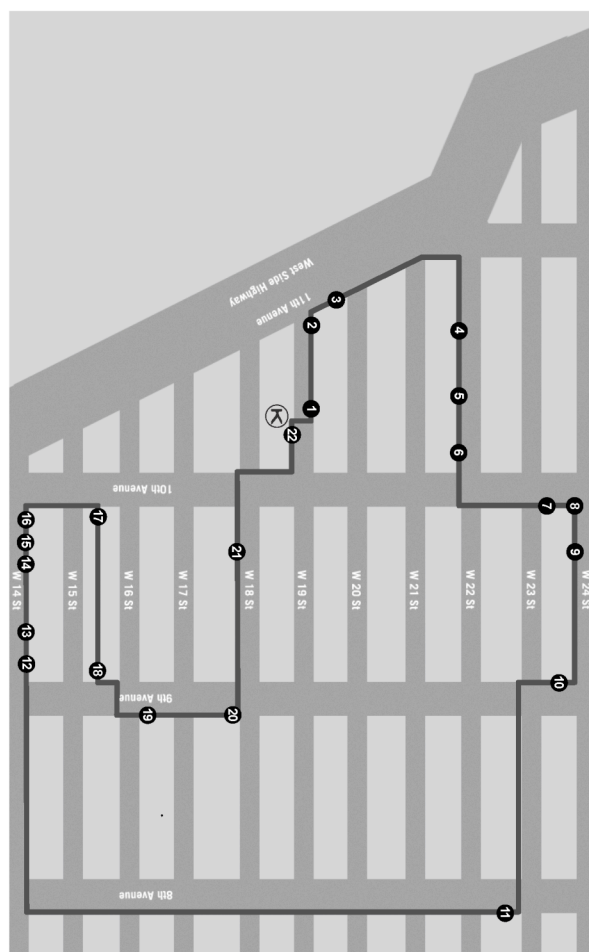
1   Construction site outside The Kitchen
Walk left out of The Kitchen towards the end of 19th Street. Search for signals around the construction sounds.

2   Corner of 19th St. and 11th Ave.
Stop on the corner to listen. Turn your head from side to side. Notice that, in the city, corners are particularly active sound areas.

3   Women's Prison
Walk along the side of 11th Ave. slowly and then stand out front of the building on the corner of 20th St. and 11th Ave.

4   Balenciaga
Walk along the outside wall of the store located on 22nd St. between 10th and 11th Ave., and pause at the entrance to hear their security system.

5   Comme des Garçons
Step inside the silver tunnel to listen.

6   Time Warner Cable Company Building
Walk slowly up to this building on the corner of 22nd St. and 10th Ave., noticing the change in noise when you pass under the bridge. Explore the sounds coming from behind the brick wall.

7   Chase Bank
Stop at the entrance of Chase Bank, on the corner of 23rd St. and 10th Ave., then walk along the windows on the 10th Ave. side to listen to Chase's security system.

8   Post Office
Go inside the post office located next to Chase Bank and walk to the left. Stand next to the stamp machine and listen with your head close to the scrolling LED ticker.

9   24th Street
Walk slowly along 24th St. towards 9th Ave. Listen to the fields of sound in and around the 440/450/460 entrance canopy.

10   London Terrace Liquor Shop
Pause in front of this store on 9th Ave. between 23rd and 24th St. to listen to the neon light in the window.

11   Subway Station & Ride
Sit on the bench next to the water fountain in the center of the market. Stop at the glass windows that overlook the bakers at Amy's Bread, across from Frank's Fine Meats. Before exiting the market on to 9th Ave., stop by the elevators across from the flower shop.

In the station, walk along the row of ticket vending machines. Put your head close to the scrolling LED tickers and to the screens. While waiting for the train, explore the sounds of the station, listening closely when trains arrive and depart. During the ride, notice the sonic rhythm generated when the train moves. Exit the subway using the 14th Street NW exit.

12-16   14th Street Security System Row
Listen to the variety of sounds emitted by the security systems at Alexander McQueen, La Perla, DDCLAB, Stella McCartney, and Jeffrey. Walk slowly from one store to the other to hear a combination of sounds.

17-18   Chelsea Market
Enter Chelsea Market located on 15th St. and 10th Ave. Notice the change in sound level once you are inside. Explore the variety of sounds in the market, particularly the television monitors and ATMs throughout.

19   Maritime Hotel Building
Walk slowly along the exterior of the Maritime Hotel located on 9th Ave. between 16th and 17th St.

20   Tanara Dry Cleaners
Stop outside of the store on the corner of 18th St. and 9th Ave. to listen to the variety of sounds produced by the laundry machines.

21   Verizon Building
Walk slowly along the exterior brick wall of the Verizon building located on 18th St. between 9th and 10th Ave., listening for sounds coming from within.

22   Outside of The Kitchen
Before entering The Kitchen, pause by the black door to the left of the entrance. Step inside to the doorway to explore the sounds, turning your head from side to side.

Fig. 4.9. Christina Kubisch, *New York Electrical Walk* exhibition map.

In fact, spatial data is generally better represented by visuals, temporal data by sound. How, then, can we create a map of sound, which by its very nature resonates space *and* changes over time? Any visual map is a temporal snapshot. Everything changes: not only the territory, but what we value in the territory. We, the mapmakers, change from moment to moment. How can we portray both the spatiality and the temporality of sound with a map? This is a quandary without easy answers, but we might look to past examples of sonic maps for inspiration. These fall into two broad categories: visual, or graphical maps which represent sound, and sonic maps, maps actually *made* out of sound, which exist as sonic streams.

The booklet that accompanied the WSP's first big project, *The Vancouver Soundscape,* is ambitious in scope and revealing as cartography. In addition to the soundwalk map which I have mentioned, it contains nearly thirty graphical maps plotting everything from the saturation of local radio stations to the pitches of telephone ringback sounds in various telephone exchanges to the location and directionality of the area's foghorns. The authors discuss the importance of *keynotes* (sounds so endemic to a place that they're not noticed, such as rain), *signals* (sounds which are foregrounded to provide potentially emergency information, such as sirens) and *soundmarks* (sounds which most people notice and enjoy in the soundscape). The book begins with nearly twenty pages of *earwitness* accounts of Vancouver throughout history, from an indigenous Squamish prayer to the journals of early explorers to newspaper reports from the 19th century to memoirs of the early 20th century by interviewees. These texts, too, might be considered a map of the region — perhaps in and of themselves, but certainly taken as a whole — containing information about the sounds of Vancouver throughout time and space. They give us information about which sounds might be considered keynotes (the deep silence of the birdless forests, the low whistle through the pines, the sound of the ocean against the mountains), signals (sleigh bells on horses, train whistles) and soundmarks (the Princess of Vancouver steam whistle, the Holy Rosary bells).
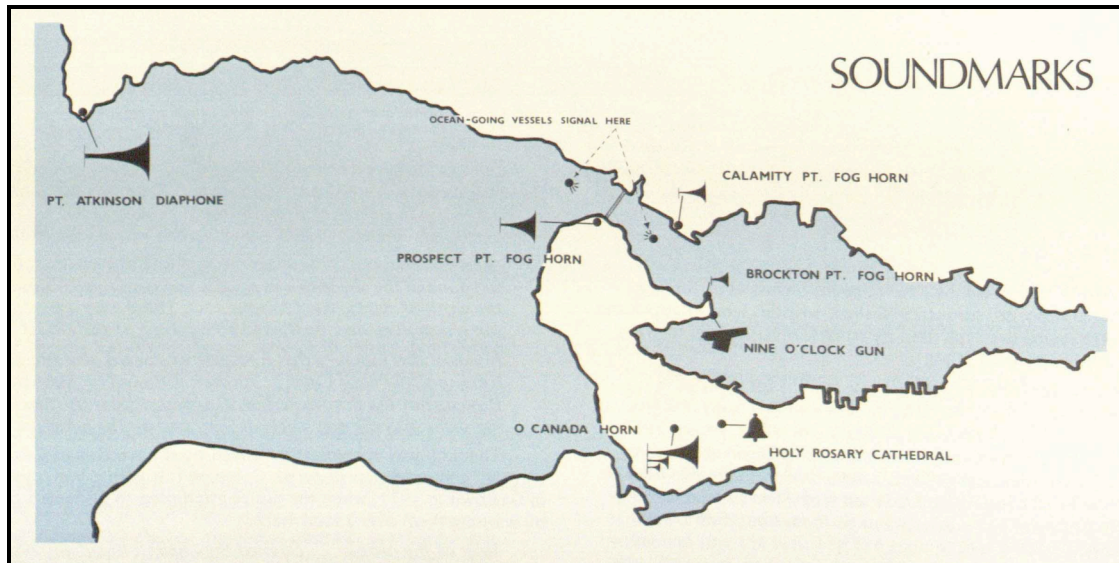
Fig. 4.10. Map of Vancouver soundmarks, included in *The Vancouver Soundscape*.

One interesting map in *Vancouver Soundscapes* attempts to show both the spatial and temporal data of the foghorns that might be heard from Stanley Park, near Lumberman's Arch (particularly in the foggy fall and winter).[169] This map maroons the musical notation of each foghorn's approximate pitch and duration in a sea of wavy lines, corresponding roughly to its placement in both space and time (though space is quite abstracted, since it is portrayed on a vertical axis similar to a system of staves). Musical notation itself might be seen as the map to a piece of music; certainly, the notation sitting there is not music – it needs a performance, a human exploration, to bring it to life.
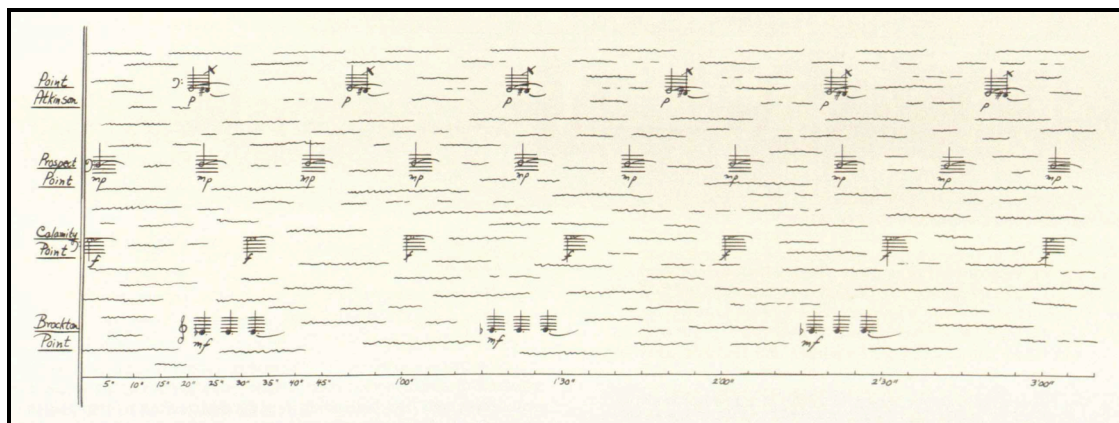

Fig. 4.11. Map of foghorn pitches in Vancouver Harbour, included in *The Vancouver Soundscape*.

---

[169] World Soundscape Project, 33.

Another map, entitled "Isobel Map of Stanley Park" plots the ambient noise levels of Vancouver's largest city park in topographical detail. One can immediately see zones of relative quiet (40 dBA) and much louder areas near the bridge (70 dBA, which is the level at which hearing loss may occur with too much exposure). It's easy to see that looking at these maps tells us much more about the WSP and its interests than it even tells us about the mapped area itself.
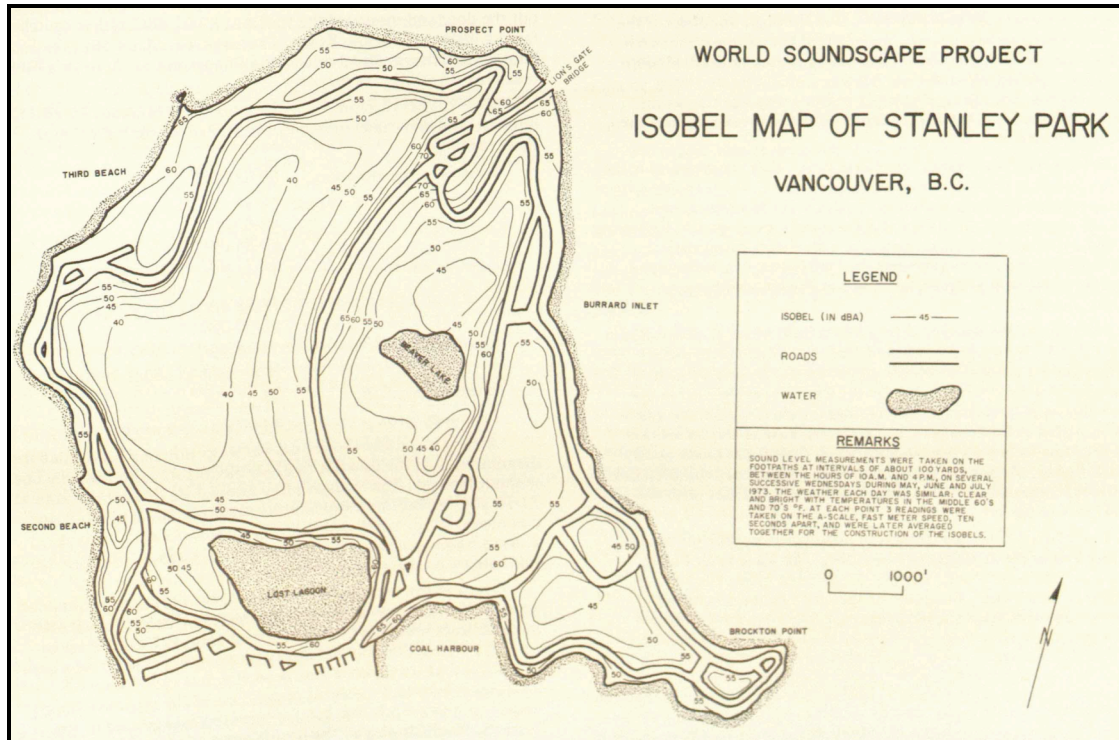
Fig. 4.12. Map of sound levels in Stanley Park, Vancouver, included in *The Vancouver Soundscape*.

Might there be another way to include both spatial and temporal information in a map? What about making a map out of sound itself? In *Sounding Art,* Norman describes a scene from the Krzysztof Kieslowski film, *The Double Life of Véronique*. Véronique receives a cassette tape in the mail from a secret admirer. Listening to the tape over and over again with headphones, she is able to make out clues to its space and time. By listening to the cassette and learning to recognize the sounds, she is able to track down a café at the train station where the man who has been haunting her sits, waiting for her to find him. That

cassette – a simple strand of tape inscribed with magnetic impressions – becomes a map of place inscribed in sonic time; not too different, in fact, from an Aboriginal songline. [170]

Maps are often thought of as simply plotting physical space (and less often, time), but they can plot anything: the mysterious, miniscule landscape of DNA, the sorrows of a lifetime, great plans for the future. A thousand map-makers, a thousand maps. Everyone perceives their surroundings slightly differently and represents them in a slightly different symbolic way. And that goes for sonic surroundings, too.

> Soundscapes, no less than landscapes, are not just physical exteriors, spatially surrounding or apart from human activity. Soundscapes are perceived and interpreted by human actors who attend to them as a way of making their place in and through the world. Soundscapes are invested with significance by those whose bodies and lives resonate with them in social time and space. Like landscapes, they are as much psychical as physical phenomena, as much cultural constructs as material ones. [171]

One could map a soundwalk into the imagination – and Hildegard Westerkamp has done just that, several times. In her three decades of leadership in the acoustic ecology and soundscape composition worlds, she has expanded both map and territory, making her soundwalks a journey into her own psyche as well as through physical space and time. Pieces like *Talking Rain*, *A Walk in the City*, *Kits Beach Soundwalk*, and the works on *Into India* provide passage from physical to symbolic space (and sometimes back again). Like a lot of music (which is also a map of sorts), she begins by making us familiar in one place, then sending us on a journey somewhere else.

Kits Beach Soundwalk begins in an unsurprising location for Westerkamp: a calm, windless day on a Vancouver beach. Westerkamp narrates the situation for the listener, bringing other senses in as well, particularly feel:

> It's slightly overcast and very mild for January. It's absolutely wind-still. The ocean is flat, just a bit rippled in places. Ducks are quietly floating on the water. I'm standing among some large rocks full of barnacles and seaweed. The water moves calmly, through crevices. The barnacles put out their fingers

---

[170] Those interested in sonic maps should not miss Annea Lockwood's works *A Sound Map of the Hudson River* (New York: Lovely Music, 1982) and *A Sound Map of the Danube* (New York: Lovely Music, 2005).
[171] Steven Feld, "A Rainforest Acoustemology," in *The Auditory Culture Reader*, ed. Michael Bull and Les Back (Oxford: Berg, 2003), 226.

to feed on the water. The tiny clicking sounds that you hear
are the meeting of the water and the barnacles. It trickles and
clicks and sucks and…[172]

Everything that Westerkamp has stated so far is self-evident. But the barnacle sounds are quiet, and not readily audible until attention is called to them. Once she has begun talking about them, her language becomes more poetic: "trickles and clicks and sucks." We're taking a left turn here, to a more poetic place. And then she begins to play with the listener's perceptions and trust. "I could shock you or fool you by saying that the soundscape is *this* loud. [turns up signal]. But it is more like *this*. [turns signal back down]." The map-maker always gets to play God, and this is no less true for a sonic map than for a visual one. And if God wants to make a map of the small, bright sounds and not the loud, low-frequency ones, she can:

"Suddenly the background sound of the city seems louder
again. It interferes with my listening. It occupies all acoustic
space and I can't hear the barnacles in all their tininess. It
seems too much effort to filter the city out… Luckily we have
band-pass filters and equalizers. We can just go into the
studio and get rid of the city. Pretend it's not there. Pretend
we are somewhere far, far away."[173]

And just like that, we *are* in that faraway place, a place that perhaps exists only between Westerkamp's ears, liminal, floating between the physical world of the Kits Beach barnacles and the psychic world of Westerkamp's dreams. "I often hear these tiny sounds in my dreams," she says. "Those are the healing dreams." And she slowly describes four of them, dreams about ancient women and biting and singing and tiny bullets and Xenakis and even Mozart sparkling away. We are given plenty of time between stories to inhabit this world ourselves, to make it our own as we follow along her sonic path. "As soon as I make space to hear sounds like this, or to dream them, then I feel the strength to face the city again," she says, "or even to be playful with it. Play with the monster. Then I can face the monster." And the low frequencies suddenly, almost shockingly, warble back in, made unsteady in the studio, much louder than remembered.

---

[172] Hildegard Westerkamp, *Kits Beach Soundwalk*. On *Transformations* (Montreal: Empreintes DIGITALes, 1996).
[173] Westerkamp, *Kits Beach Soundwalk*.

Throughout the process of following Westerkamp's sonic map, a path that takes us from the alleged here and now of the beach to the faraway reaches of her psyche, we are reenacting her experience. How might this compare to our experience with Kubisch's *New York Electrical Walk*? Westerkamp's piece might be thought of as reenactment and Kubisch's as exploration. What is the relationship between these two? We might think of reenactment and exploration as opposite poles of dreaming and waking, but in fact we are all on individual journeys through this territory; maps, whether made of lines or sounds, only guide us. By following Westerkamp's map, we create our own psychic place from a territory of tinkling barnacles and another person's dreams. By following Kubisch's map, we create a map of a place that may never be heard by us again, but which will remain in our psychic system, our memory. The maps we create – whether they are graphical or sonic – are a way of marking territory, a way of remembering things.

1903. Paris, France. Walking as Rhythm and Repetition.

> Before writing a work, I walk around it several times,
> accompanied by myself.
> — Erik Satie, preface to *Aperçus désagréable* (1912)[174]

It's 2:30 in the morning, and a cold drizzle splashes through the gutters. Erik Satie walks heavily through the cobblestoned Paris streets, a hammer stuffed into the pocket of his velvet suit in case of trouble. Themes from the cabaret songs he's been playing all night at *Le Chat Noir* repeat endlessly in his head juxtaposed with fragments of old piano pieces and the steady rhythm of his feet over the cobblestones: left, right. Left. Right. It's a long walk back to Arcueil, the industrial suburb where he lives: six miles, but he's used to it. He has been walking this route, two hours each way, day and night for years, wearing the same identical velvet suits, scribbling musical ideas into his notebook under the street lamps, coming home alone to his shabby apartment each night. It's his rhythm and his ritual.

Satie's famous quote – "Before writing a work, I walk around it several times, accompanied by myself" – is often used to reference his exploration of stasis as a way of

---

[174] Erik Satie, note to his 1912 *Aperçus désagréables,* quoted in *A Mammal's Notebook: Collected Writings of Erik Satie,* ed. Ornella Volta, trans. Antony Melville (London: Atlas Press, 1996), 190.

approaching music from many different angles. And it's undeniable that his harmonic stasis and repetitions are analogous to walking around a series of chords or a melody and hearing it from several different directions. But what if we also took him at his word? What if in the process of composing he literally walked around a piece several times, accompanied by himself? Satie was known to write out his musical ideas at night, on foot, and it seems likely to me that the repetition of his walks and the cabaret tunes circling through his head contributed to his explorations of ritual, repetition, boredom and stasis. He did, in fact, walk nearly four hours a day for much of the last twenty-five years of his life, from the grubby environs of Arcueil to the cafés and cabarets of Montparnasse and Montmartre and back again late at night. This route was a ritual for him, a ritual which acquired great depth over the years and became an integral part of his compositional process. Satie generally came up with his basic musical ideas on his night walks from Paris to Arcueil, stopping under the street-lamps to jot down phrases in his notebook. In the mornings, he walked more leisurely to Paris, stopping at cafés along the way to carefully notate his pieces in elegant calligraphy. It seems plausible that the quote above could be literal; that Satie walked home with cabaret songs and concert music and melodies he was working on stuck in his head. By internally looping them in his head to the rhythmic context of his walking, Satie (who almost never composed at a piano) may have rehearsed all kinds of different harmonizations, trying out different contexts for the panoply of musical phrases circling round his head, all to his steady and insistent footsteps.

It's clear that repetition and ritual were part of Satie's musical DNA long before he moved to Arcueil. *Vexations*, written in 1893, asks the performer to repeat the same one-minute sequence 840 times. There is some speculation that he may in fact have suffered from Obsessive Compulsive Disorder or Asperger's Syndrome; certainly his obsession with esoteric cults, his matching velvet suits and handkerchiefs, and his meticulously cataloged drawings of imaginary buildings reveal an eccentric who was consumed with order, form and symmetry. Rather than argue that Satie's walks created a fascination with repetition and ritual, I propose that his move to Arcueil was a result of that fascination, allowing him to

incorporate an even larger ritual in his life, one that acted as a macrocosmic ordering of his life, and upon which he relied for his compositional process.

The more often a phrase is repeated, the more musical power it gains. Play a phrase once, and it's fleeting. Play it 3 times and it's a pattern. Play it 36 times and it's a structure. Play it 840 times and it becomes a sonic space with some permanence; we might almost call it a soundmark. The longer a phrase is repeated, the more time there is to listen to it closely, to hear its minute variations. In this, Satie prophesied Morton Feldman. By employing repetition, I believe Satie hoped to achieve a kind of stasis that would allow music to escape time and narrative trajectory, and represent a kind of permanent now.

As Satie walked, he would have created a rhythmic context within his walking. This happens to all of us. Whether we are hearing "Left! Left! Left Right Left!" in our brains, or gently waltzing "One two three" down the street, our bodies and minds nearly automatically organize rhythmic information into patterns. He may even have changed meter with a single decision, a single step, turning on a dime from duple to triple or back again. Juxtaposed against this rhythmic context would have been tunes: melodies from the cabaret songs he played for so long, melodies from his own piano works, melodies from other concert music, melodies made up on the spot. Satie had been listening to cabaret and music-hall music his entire life, as his father and stepmother wrote and published light music. He himself looked down on it, referring to it as "stupid and dirty"[175] but his music is full of cabaret quotations. We might imagine Satie as retreating daily to a walking musical workshop in his head, looping and reharmonizing melodies over and over. His works might be heard as finessed transcriptions of his walks themselves.

In John Supko's unpublished dissertation, *Points and Lines,* he analyzes two of Satie's pieces from a cinematic point of view. He writes that Satie used talea, or isorhythms, to create a kind of frame, a constantly moving 'now' in his music, and that the 'images' which then take place, are temporally juxtaposed against this steadily moving world.[176] I like this idea a lot, but I propose that instead of thinking of the talea as frames, we might think of them as walking footsteps, as emblematic of life's steady journey as a rhythmic context for

[175] Robert Orledge, *Satie the Composer* (Cambridge: Cambridge University Press, 1990), 7.
[176] John Supko, "Points and Lines" (Ph.D. diss., Princeton University, 2009), 173-177.

the coming and going of the various 'images' of our life. This resonates with the last chapter's idea of physical cinema, of course; whether the talea are frames or steps, they serve as containers against which narrative spontaneity can be highlighted. Many of Satie's pieces function in this programmatic, almost synaesthetic way, most explicitly 1914's *Sports et Divertissements*.

If we combine these ideas: repetition as stasis, quotation, and rhythmic context as cinematic or walking structure, we can think of Satie's music as not necessarily *existing* in space, but rather as *unfolding* in space. Like the Cubist painters he adored, Satie wanted to explore music from different angles. His compositional walking process allowed him to equate music with place, to walk around his melodies with all the time in the world; after all, he walked four hours a day. By orchestrating his walking process complete, rather than excerpting the highlights, I believe he discovered a way to allow the listener to reenact his own experience of walking around a series of chords – spryly, or with melancholy, or with wit. We might even extend this walking metaphor to what Supko terms his 'jump cuts' or 'mosaic' technique.[177] Walking in cities is unique in that one's visual sphere is limited. Often there are tall buildings above, and the street is narrow. Unlike, say, climbing a mountain, city walking offers few narrative arcs, but rather environments that can completely change quite suddenly. Satie's technique of juxtaposing disparate material abruptly is not unlike the experience of turning the corner in a city and entering a completely different environment. The 'images' may be completely different, but the rhythmic context, the footsteps, often stay the same. Again, this seems to me to be a way of making audible to the listener what Satie himself may have experienced in his musical mind during these walks: jump cuts, rhythmic loops, passing images.

Many of these ideas can be heard in 1903's *Trois morceaux en forme de poire,* which seems to walk through a kind of cloud of musical memories, a series of borrowed and reharmonized looping motifs from his older works and his cabaret songs. In the first movement, for instance, one can almost hear Satie walking through the *Gnossiennes* as if they were a space to be explored. Although *Trois morceaux* seemed to offer Satie a new direction,

---

[177] Supko, 104-117.

it was to be many years until its ideas reached fruition; his 1898 move to Arcueil and subsequent studies at the Scholar Cantorum (at the age of 41!) had tipped him into a creative crisis which lasted for many years, broken only by this piece and a few other short works. Perhaps he needed the depth of repetition and ritual to build up his new compositional method, as well as the confidence gained from his studies. Later works, such as 1916's *Parade*, show a much greater mastery of quotation, reharmonization, and juxtaposition, as well as a fascination with mirror structure, as if one was walking backwards through the same route to arrive at the beginning point.

Kubisch's *Electrical Walk* series manifests the kind of musical stasis Satie might have dreamt of, music married to space rather than time, and ideas of repetition, ritual and rhythm (though certainly not quotation) are prominent in her work. The electromagnetic waves are embedded in the environment, so a walker traveling the same route daily, as Satie did, would more or less hear the same looped repetitions in the same places. Her piece allows the audience to explore it at their own tempo, within their own rhythmic context. By marrying a personal rhythmic context based on movement (for instance staying still, walking briskly in duple meter, or strolling gently in three) with the buzzes and drones of the electromagnetic waves, the listener becomes a partner in perceiving and creating a musical work.

Satie's ideas of repetition also seem uniquely suited to the *Electrical Walks,* many of whose sounds are rhythmic and repetitive in themselves. In fact, some of the repetitions are so persuasive in their loops that they affect the listener's rhythmic context by determining the speed of the listener's steps. Between these looped rhythms and the rhythmic context of the walk, the listener balances ostinatos and meter while changing the sonic landscape through her navigation of the city streets through the beeps, drones and pulses of the electromagnetic waves. She explores.

How else might sound artists think about these ideas of rhythm, ritual and repetition? One might think about the idea of reenacting not only one's walk (as with the sound maps we've explored) but also one's own sonic process. In the first section of this chapter we investigated ways of detaching music from time and marrying it to place, thereby

giving the listener a sonic playground to explore at will simply through walking. In other words, creating a sonic map through which to walk. But what would it sound like to reenact our own sonic thoughts onto the spaces where we, as artists, regularly walk?

We might also start thinking about the rhythmic context of walking. Everyone carries this internal structure of rhythm with them, though perhaps unconsciously, and it can be powerfully harnessed as a sonic or musical component, just as existing sounds in the soundscape can become part of a headphone soundtrack. In Janet Cardiff's work, for instance, this sense of rhythmic walking is largely ignored but then surfaces at odd moments, for instance when a small child begins singing a counting nursery rhyme in your ear.[178] She also thinks about the larger rhythm of walking. "One thing I try to do," she writes, "is to slow the walker down, so that it becomes the speed of a thinking walker. If I want to create a bit of tension I increase the speed of the gait."[179] This use of the rhythm of walking seems oddly ignored in sound art, and might be quite fruitful; for instance, we might use GPS data to map a listener's path, and embed each block with static blocks of repeated loops, mapped in tempo by pedometer to the listener's stride.

1908. Toblach, Italy. Walking as Forgetting.

> Whither shall I go? I go, I wander to the mountains,
> I seek rest for my lonely heart!
> I wander to my homeland, my home!
> I will never roam afar.
> My heart is quiet and awaits its hour!
> Everywhere the dear earth blossoms in spring and becomes green
> Anew! The blue horizon shines everywhere and eternally
> Eternally... eternally...[180]
> — Gustav Mahler, final lyrics of *Das Lied von der Erde*

It's barely dawn, and the world is about to lighten. Gustav Mahler awakes, puts on his shoes and suspenders and woolen hat, and tiptoes out of his house. In the blue light he can hear the low calls of night birds, distant cowbells, the wind through the pines. The sounds of the night. He has a lot on his mind: his failing heart, a symphony to write,

---

[178] Janet Cardiff, *Münster Walk,* 1997. Münster, Germany. Audio available on Schaub, *The Walk Book* CD, Track 2.
[179] Schaub, 74.
[180] Gustav Mahler, lyrics to *Der Abschied,* in *Das Lied von der Erde,* quoted in Constantin Floros, *Gustav Mahler: The Symphonies* (1985), trans. Vernon Wicker (Portland, OR: Amadeus Press, 1993), 263.

telegrams to send regarding his move to New York, difficulties with his wife, and worst of all, the grief surrounding the death of his four-year-old daughter. But right now he doesn't want to think about any of that. He wants to walk through the silence and listen to sound clarified by space; he wants to lose himself in liberatory sound.

Mahler, well known for his walking, walked to forget. He didn't like to just stroll – he liked to go on long, physical walks up mountains. He liked to tire himself out. It was in these moments of completely losing himself to sound, to land, that he found the inspiration for his music. "Mahler," writes Donald Mitchell, "walked not only on his feet but also with his ears... a walk for this wholly extraordinary man was as much a sonorous experience as a matter of physical locomotion."[181] In several essays, Mitchell persuasively argues not only that Mahler's walking always found its way into his music – virtually all of his symphonies employ a march at some point – but that increasingly, the rhythms of his marches are halted by free, unmetered, natural sound: birdsong, cowbells, and wind, freed from the bars of ordinary musical time.[182] These sounds, progressively less bound to their musical contexts, might in fact be heard as moments of liberation that Mahler experienced from the burden of his identity. For Mahler's identity issues weighed heavily on him. "I am thrice homeless," he once stated. "As a native of Bohemia in Austria, as an Austrian among Germans, and as a Jew throughout the world. Everywhere an intruder, never welcomed."[183] When he wandered through the forest he was neither Bohemian nor Austrian nor German, neither Jew nor Gentile, neither intruder nor at home. He was simply a pair of ears, a set of legs. A bird call. The plunk of a stone.

This dialectic between the metered march and the unmetered cry, the cultured and the natural, plays out in all of his works. Mitchell writes that Mahler moved from the symbolic use of mimesis in his early works to a more literal use of mimesis in later works. His attraction to the nocturnal soundscape is particularly noteworthy – the awakening from night which begins the First Symphony, the watery sounds, night birds and cowbells of the

---

[181] Donald Mitchell, "Mahler and Nature: Landscape into Music (1985)" in *Discovering Mahler: Writings on Mahler, 1955-2005* (Woodbridge, UK: Beydell Press, 2007), 479.
[182] For instance, Donald Mitchell, "Mahler on the Move: His Seventh Symphony" and "Mahler and Nature: Landscape into Music (1985)", both in *Discovering Mahler: Writings on Mahler, 1955-2005* (Woodbridge, UK: Beydell Press, 2007), 394-410 and 477-489.
[183] Donald Mitchell, *Gustav Mahler: The Early Years* (London: Rockliff, 1958), 2.

Seventh, and especially *Der Abschied,* the final movement of his remarkable *Das Lied von der Erde (Songs of the Earth).* Nighttime is potent as a symbol of losing oneself, because we forget ourselves when we sleep. And the night is filled with a deep silence and clarity. Night walks may have felt like the ultimate liberation to Mahler.

Walking was so important to him that during the terrible summer of 1907, after losing both his position at the Vienna Opera and much worse, his beloved daughter Maria to scarlet fever, the news from his doctor that he had heart trouble and should not exercise at all, was not only personally but creatively debilitating to him. In two letters to his friend Bruno Walter, Mahler wrote:

> For years I had been used to persistent and vigorous exercise. To wander around in mountains and forests, and to carry away my sketches from them in a kind of insolent robbery. I went to the desk only as a peasant goes to the barn: to give form to my sketches. Moreover, spiritual indispositions retreated after a hearty march (especially uphill). - Now I am supposed to avoid every exertion, monitor myself constantly, not walk much...

> [and in the next letter]:

> ... But I can only come to myself and become conscious of myself here in solitude. - For ever since that panic terror I felt that time, I have tried to do nothing other than to look away and avert my ears. - If I am to find the way back to my self, then I must give myself up to the horrors of loneliness.... But, without here trying to explain or describe to you something for which there are perhaps no words at all, I shall only tell you that quite simply at a stroke I lost all the clarity and reassurance that I ever achieved; and that I stood vis-à-vis de rien [face to face with nothing] and now at the end of a life I must learn to walk and stand as a beginner... And as regards my "work," it is also somewhat depressing first to have to unlearn things. I can't work at a desk. For my inner activity I need outer activity... An ordinary moderate march gives me such quickening of pulse and anxiety that *I never achieve the goal of walking: to forget one's body*... I confess - superficial though it seems - this is the greatest calamity that has ever befallen me. I must absolutely begin a new life - and in that I am also a complete beginner.[184] [emphasis mine].

'*The goal of walking: to forget one's body*.' And perhaps the rest of oneself? In late 1907 or early 1908, an admirer sent Mahler a book of translated T'ang Dynasty poems, *Die chinesische*

---

[184] Gustav Mahler, quoted in Steven Hefling, *Das Lied von der Erde* (Cambridge: Cambridge University Press, 2000), 33-34.

Flöte (The Chinese Flute), in which the grief-stricken composer immersed himself.[185] This volume formed the basis of his next work, *Das Lied von der Erde (Songs of the Earth),* an orchestral song cycle based on poems by Li Bai, Qian Qi, Meng Haoran and Wang Wei. These poets, though their texts had been unrecognizably filtered through generations of translations, expressed a sense of liberation through their wanderings that Mahler had been approaching in his music. Li Bai and Wang Wei, in particular, are regarded as two of China's founding Zen poets. In this context, Mahler's affinity for their work is especially apt. His description of himself as an 'absolute beginner' needing to 'give [himself] up to the horrors of loneliness' in the letter quoted above is strikingly similar to the Zen principles of 'beginner's mind' and sitting zazen meditation. One of the main principles of zazen is being willing to sit alone and confront oneself without distractions, and the well-known Zen teacher Shunryu Suzuki famously wrote, "In the beginner's mind there are many possibilities, in the expert's there are few."[186]

Das Lied von der Erde famously ends with a beautiful, drawn out, unresolved chord which seems to have abandoned meter and the idea of a goal completely. It is as if Mahler has completely surrendered to a sound more beautiful than anything he has known, to a feeling of timeless liberation. It's an abandonment of the march.

Music, then, was essentially escapist for both Mahler and Satie, though in different ways. We might say that where Satie retreated inside his musical imagination, Mahler looked outside himself, to nature as escape. City walks, which tend to come in blocks, have a more homogenous narrative topography than nature walks, which include climactic climbs, sudden obstacles (streams, rocks, mountains) and twists and turns along the way. In his work, Mahler orchestrates extraordinary liberatory moments that suddenly come upon him in these twists and turns, whereas Satie orchestrates the hypnotic rhythm, magic and loneliness of the walks themselves, escaping monotony by going straight through boredom to fascination. Mahler retreats outside himself to get somewhere internal: the liberatory moment. Satie retreats inside himself as he journeys to an outer goal: Arcueil or Montmartre.

---

[185] Stuart Feder, *Gustav Mahler: A Life in Crisis* (New Haven: Yale University Press, 2004), 144-145.
[186] Shunryu Suzuki, *Zen Mind, Beginner's Mind* (Boston and London: Shambhala, 2006), 1.

In the *Electrical Walks,* Christina Kubisch walks a middle path between these two poles. We've discussed the ways in which, like Satie, the listener navigates his personal rhythmic context with the repetitions of the looped sounds, and of course, he does so in an urban context with diminished narrative range. At the same time, the listener constantly hunts for magical, liberatory sounds in which to lose himself. When an electrical ostinato or deep drone appears in the soundscape, the listener finds himself almost magnetically pulled toward it, drawn by the sounds themselves, not what they represent. And he stops walking to surrender to this sound. The dichotomy between sounds as simple sonic forms and sounds as associational to their sources has long been a source of debate in the world of electro-acoustic music: Pierre Schaeffer and other pioneers of *musique concrète* argued for the abstraction of the *objet sonore*[187] while acoustic ecologists argued that the disassociation of sounds from their sources (Schafer's *schizophonia*[188]) was emblematic of the disassociation of humans from their natural worlds and to be avoided at all costs. Like Satie and Mahler, Kubisch is less interested in what these sounds represent than in presenting them as sonic territory for a playful and walking listener to explore.

2006. New York City. Walking as Improvisation

And so we return to New York City, to the *Electrical Walks'* droning and buzzing. At the liberatory moment when we shed Kubisch's educational map and embark on our own journey, we are setting off on terra incognita, moving from reenactment to exploration, creating our own map as we walk. This idea of drifting through the city according to passing desire has a long history, from the late 19th century figure of the flâneur,[189] aimlessly strolling the streets of Paris, through the surrealists of the early- and mid-20th century whose geographical meanderings were largely driven by sexual desire and the liberation of the subconscious,[190] to the *dérives,* or drifts, of Guy Debord and the Situationist movement of

---

[187] Pierre Schaeffer, "Acousmatics," in *Audio Culture: Readings in Modern Music,* ed. Christoph Cox and Daniel Warner (New York and London: Continuum, 2004), 76-81.
[188] Schafer, 90.
[189] Edmund White, *The Flâneur: A Stroll Through the Paradoxes of Paris* (New York: Bloomsbury, 2001).
[190] Merlin Coverley, *Psychogeography* (Harpenden, UK: Pocket Essentials, 2006), 72-77.

the 1950s and 60s.[191] What makes Kubisch's piece different is that we are acting on sonic or musical desires, desires that are completely inaudible to others on the street. It is as if we are drifting through a parallel, more musical and playful world.

But is it really a drift? Might we not be creating structures on the fly, organizing these musical loops and rhythms into phrases that form a coherent whole – improvising? If we are to think of our drifts through these sonic spaces as improvisations, we must determine what the musical grammar is. Michel de Certeau, in his essay, "Walking in the City," describes walking as language:

> The act of walking is to the urban system what the speech act is to language or to the statements uttered. At the most elementary level, it has a triple "enunciative" function: it is a process of *appropriation* of the topographical system on the part of the pedestrian (just as the speaker appropriates and takes on the language); it is a spatial acting-out of the place (just as the speech act is an acoustic acting-out of language); and it implies *relations* among differentiated positions, that is, among pragmatic "contracts" in the form of movements (just as verbal enunciation is an "allocution," "posits another opposite" the speaker and puts contracts between interlocutors into action). It thus seems possible to give a preliminary definition of walking as a space of enunciation.[192]

How might we compare walking to musical language in the context of the *Electrical Walks*? The question of whether we, as listener and walker in Kubisch's piece, are creating sound is koan-like. If a tree falls in the forest and no one is there, does it make a sound? Electromagnetic waves exist but are inaudible to human ears – as are waves of other spectra. Therefore, these waves do not exist as sound, per se; without the headphones, they are not audible. It's arguable, then, that we are in fact creating sound as we walk; that we are enunciating the sonic possibilities that lie latent, waiting for someone to discover and amplify them. We are appropriating the topographies of the spaces we pass through, making them our own 'places' as we map them sonically. This implies, of course, that we are also acoustically acting-out the potentialities of the space as we explore and map it, that we give the electromagnetic spectrum sonic expression. The topography that we explore, however, is

---

[191] Guy Debord, "Theory of the Dérive (1958)," in *Situationist International Anthology*, ed. Ken Knabb (Berkeley: Bureau of Public Secrets, 2006), 62-66.
[192] Michel de Certeau, "Walking in the City," in *The Practice of Everyday Life* (Berkeley, CA: University of California Press, 1984), 97-98.

interesting in its potentials and limitations; we walk among possibilities and obstructions that are simultaneously spatial *and* musical. If we hear a really interesting loop across the street, for example, but there is no crosswalk, we are limited by space but not sound. On the other hand, if we can venture across a crosswalk only to find an empty, bland soundscape on the other side, we are limited by sound, rather than space. Our spatial and sonic experiences shape one another. Finally, our movements, and the musical structure we build, will likely be influenced by the relationships that the sounds we activate have with one another, not simply with their own intrinsic musical qualities. By juxtaposing spatial language with musical language we create a new set of moiré patterns with which to improvise.

New York Electrical Walk allows the listener to marry spatial and sonic exploration in ways that encompass each of the walkers we've discussed. Like Mahler, we search for liberatory sounds to take us outside ourselves and immerse ourselves outside of rhythm when we stop suddenly in surprise. Like Satie, we walk in a sea of rhythmic and repeated electronic loops which change according to the rhythm and placement of our steps. These surprisingly musical sounds are embedded and mapped both mentally and sonically, as with the soundwalks of Hildegard Westerkamp. And by walking the territory and creating our own sonic maps through exploration and experimentation, we trace personally meaningful songlines, like the Aboriginal people of Australia. Through the spatio-sonic choices we make, we might well build up an improvisational style within the context of these walks, a grammar of preferred sounds and movements: darting between the highly percussive looped rhythms of security gates, for example, or submerging oneself unmovingly in a traffic light's drone.

Sounding, listening and walking are all embodied ways of experiencing the world. If we want to use sound to develop human relationships within public space, walking is an elemental way to do it. By playing with the ideas mentioned in this chapter – sound as space, mapping, ritual, repetition and rhythm, and sound as liberation – artists and composers can remind the public just how pleasurable and valuable embodied experience can be, by inviting them to reconnect their inner and outer, their dreaming and waking, selves in real space.

Epilogue

This essay has focused on strategies for creating interesting and engaging sound art projects taking place in public space. It's becoming increasingly clear that the ecology of our planet is imbalanced: we consume far more than we create, and we are disconnected from our environment. This is not only true of our physical ecology (outer world), but of our creative ecology (inner world) and social ecology (both inner and outer worlds). Through an emphasis on participation, play, accessibility and re-engagement with public space, I believe that public sound art works might play a small role in reconnecting people with these worlds. The three strategies I've suggested – physical interaction, cinematic listening, and sonic navigation – rely on both sounding and listening as ways of doing this.

My own creative work uses music, sound, video, performance and installation to explore ideas of reenactment, participation, creativity and the relationships among sound, image and place. I do this by reenacting heightened experiences I have had. I collect scraps of sound and image, narrative fragments of my everyday life, and arrange them in ways that are abstract yet evocative. By slowing down, clarifying, and reworking these fragments, I try to recreate the feelings of the experience in highly abstract ways that resonate with the memory and emotions of the audience. By oscillating between waking and dreaming states, I try to give my audience a sense that they can find resonant narrative and aesthetic moments every day in the ordinary world.

The essay, then, was written primarily for myself, as a way to tease out some of the ways that this oscillation between waking and dreaming might work, and to work out some of the artistic strategies that have made other projects successful. I would be delighted if any of these ideas inspired other people's projects. Please let me know if they do.

Eleven Dreams in Red Hook

by Betsey Biggs

Eleven Dreams in Red Hook is a cinematic soundtrack for real life, part of a series called Park Bench Cinema. The Park Bench Cinema series aims to use mobile audio technology to reconnect people with their surroundings through synaesthesia, phenomenology and memory.

Every Saturday in September 2008, I set up a kiosk near the corner of Beard & Otsego Streets in Red Hook, Brooklyn, close to the farmer's market and the Red Hook Ball Fields, and across from the new IKEA. Over the course of a month, dozens of people approached the kiosk and checked out maps and iPod shuffles containing eleven soundtracks corresponding to locations on the map. The walk through the neighborhood took about an hour and a half. As listeners explored the neighborhood, suspended between cinematic fantasy and hyper-awareness, they were encouraged to discover their own mysterious, surprising and funny revelations.

The walk is downloadable on the project's website and can be listened to independently. Please see <http://www.betseybiggs.org/11dreamsinredhook>.

Eleven Dreams in Red Hook
1. i dreamed we were with everyone who ever stood on this street
2. i dreamed i found some holes in the sky
3. i dreamed we were breaking out
4. i dreamed we were buried by the deep blue sea
5. i dreamed you walked the plank
6. i dreamed i was stuck inside a wind-up toy
7. i dreamed the sky was crackling
8. i dreamed markita was making snow angels in heaven
9. i dreamed we were lost in the schoolbus jungle
10. i dreamed the ghost factory was cheering
11. i dreamed you found the time that land forgot

About Red Hook

Cobblestone and green weeds. Red red bricks. The decay of time. The industrial ghost. Broccoli and beans and sunflowers grown. The statue of liberty. The Houses and the Back. The B61. Futbol, futbol, pupusas, huaraches. Basketball, baseball, the light streaming in. Water, water, everywhere (but not a drop to drink).

A Few Notes and Fragments

My primary idea in creating this piece was to express the imaginative musical responses I had to particular places – the way they looked, the way they sounded, and the stories they told. The piece therefore explores the reenactment of my creative process.

Like some kind of latter day John Dewey, I wandered the neighborhood looking for aesthetic and narrative appeal, for forgotten spaces and unruly noises to play with. Red Hook's very identity is one of forgotten spaces and unruly noises. And in that sense, it was the perfect place to stage a work that hopes to frame these small moments of wonder.

I wanted to create a work that came to life only with the active participation of the audience. I wanted to encourage people to explore, to listen to their worlds musically, to have the same sense of wonder that I did wandering around the neighborhood. The piece requires a commitment to the 'rules of the game', and to letting go of the rules of regular life for a couple of hours.

The audio itself is simply a sonic map. The piece does not exist without the walker and the images and sounds he meets along the way. The piece exists only in the experience, just as a piece of music exists only in performance. And so the listener takes the headphone audio and uses it as a map to create his own particular, unrepeatable experience which may be similar, but will never be exactly the same, as the experience of others. This experience requires the listener to create an aesthetic whole from several fragments (headphone audio,

real world sounds, real world images, etc): thus, the listener becomes the composer. And the neighborhood itself becomes the interface he plays.

Each piece starts with my whispered voice against a background of crickets (recorded in one of the schoolbus lots along the walk's path). It suggests a kind of solidarity, a way of inviting the listener into my world, and therefore a kind of dream.

The macro structure of the piece oscillates between essentially narrative and essentially phenomenological ways of sounding and listening in response to place, creating textural variety and a swing between dreaming and waking that blurs the line between both. Within each piece, too, there are moments when I jolt the listener out of a dream by surprising him with loud sounds, which might seem real (sudden speeding car passing by) or dreamlike (the hiphop jumble spilling out of the graffiti lot). This wakes the listener up and reminds them: hey, I'm awake! And I'm listening!

Quite a few of the pieces introduce a kind of Ivesian overload: too many sounds designed to overwhelm the listener until he gives up and achieves what we might call a Mahlerian sense of liberation, a giving up of control.

Some of these pieces look back to the history of the neighborhood and try to sonify it; some set up imaginative musical transformations of the sounds; some set up imaginative narrative transformations of the sounds; and some are attempts to create a musical counterpoint to the visual images of the real world.

About half the people who did the walk were familiar with the neighborhood, and about half weren't. I think the feel of the place, though, strikes a nerve in New York; it's a place full of character and history that is facing gentrification and a smoothing out of its beautiful rough edges, its 'forgotten corners and unruly noises'.

There's also a performative aspect to this work; I love the idea of dozens of people wandering the streets wearing headphones, staring up at towers, looking at graffiti, peering through a hole in the fence. I hope it might give permission to others to do the same.

I've done another sound walk ("Almost Grand") in which groups of people walked together. I'd like to try that again; I think there's a sense of social solidarity that was missing from this piece; the solidarity of play and also shared emotion, as with seeing a film in a theater instead of on DVD.

This work is ultimately a collection of songlines, and therefore maps. Since I've written that maps say more about the mapmaker than the territory, what does that say about me as an artist? Chiefly that I have an affinity for narrative and history, and the layers of memory; and secondly, that my imagination tends to the formal and synaesthetic, that I enjoy mapping sound to image; and finally, that I value diversity over homogeneity in both form and content. Eleven Dreams in Red Hook ultimately says far more about me than it does about Red Hook. As with Satie's repetitions and reharmonizations, this work is a reenactment of my creative process, of a real place filtered through my musical imagination.

Eleven Dreams in Red Hook ends in a dream, a kind of Mahlerian liberation from everything, an ambient beauty untethered to meter (or to the teeming life spilling out from the breaks in the fence). May it always be so.

Bibliography

Ackerman, Diane. *A Natural History of the Senses*. New York: Vintage Books, 1990.

Anderson, Laurie. "Walking & Falling." On *Big Science*. Burbank: Warner Brothers, 1982.

"A/RES/44/25. Convention on the Rights of the Child." The United Nations.
    http://www.un.org/documents/ga/res/44/a44r025.htm (accessed March 7, 2009).

Arnheim, Rudolf. "A New Laocoön: Artistic Composites and the Talking Film." In *Film Sound: Theory and Practice*, edited by Elizabeth Weis and John Belton, 112-115. New York: Columbia University Press, 1985.

Attali, Jacques. *Noise: The Political Economy of Music.* Minneapolis: University of Minnesota Press, 1977.

Bachelard, Gaston. *The Poetics of Space*, translated by Maria Jolas. Boston: Beacon Press, 1994.

Balázs, Béla. "Theory of the Film: Sound." In *Film Sound: Theory and Practice*, edited by Elizabeth Weis and John Belton, 116-125. New York: Columbia University Press, 1985.

Biggs, Betsey. *Park Bench Cinema: Almost Grand*. 2007. Conflux Festival. Brooklyn, New York. <http://www.betseybiggs.org/work/almostgrand.html> (accessed March 1, 2009).

Bordwell, David and Kristin Thompson. *Film Art*. Eighth Edition. New York: McGraw-Hill, 2006.

Borges, Jorge Luis. "On Exactitude in Science." In *The Maker* (1960). In *Collected Fictions*, translated by Andrew Hurley, 325. New York: Viking, 1998.

Boxer, Sarah. "Art That Puts You in the Picture, Like It or Not." *New York Times on the Web*, April 27, 2005.
    <http://www.nytimes.com/2005/04/27/arts/design/27cybe.html?_r=1&oref=slogin> (accessed April 5, 2006).

Breton, André. "Artificial Hells. Inauguration of the '1921 Dada Season'," translated by Matthew S. Witkovsky. *October* 105 (2003): 137-144.

Bruinsma, Max. "Notes of a Listener." In *Sound by Artists*, edited by Dan Lander and Micah Lexier, 88-96. Toronto: Art Metropole/Walter Phillips Gallery, 1990.

Bull, Michael. *Sounding Out The City*. Oxford: Berg, 2000.

Byrne, David. "Playing The Building" [Weblog entry.] DavidByrne.com. August 2005.
<http://www.davidbyrne.com/art/art_projects/playing_the_building/about/db_orig_es
say.php> (accessed July 23, 2008).

Cage, John. "Diary: Audience 1966." In *A Year From Monday,* 50-51. Middletown, CT:
Wesleyan University Press, 1967.

Cage, John. "Experimental Music." In *Silence,* 7-11. Middletown, CT: Wesleyan University
Press, 1973.

Cardiff, Janet. *Her Long Black Hair*. 2004. Public Art Fund. New York, NY.
<http://www.publicartfund.org/pafweb/projects/05/cardiff/cardiff-05.html> (accessed
February 12, 2007).

Casey, Edward S. *The Fate of Place: A Philosophical History*. Berkeley: University of California
Press, 1997.

Cavalcanti, Alberto. "Sound in Films." In *Film Sound: Theory and Practice*, edited by Elizabeth
Weis and John Belton, 98-111. New York: Columbia University Press, 1985.

Chambers, Iain. "The Aural Walk." In *Audio Culture: Readings in Modern Music,* edited by
Christoph Cox and Daniel Warner, 98-101. New York and London: Continuum,
2004.

Chatwin, Bruce. *The Songlines.* New York: Viking Penguin, 1987.

Clair, Rene. "The Art of Sound." In *Film Sound: Theory and Practice*, edited by Elizabeth Weis
and John Belton, 92-95. New York: Columbia University Press, 1985.

Clapp, Susannah. *With Chatwin: Portrait of a Writer.* London: Jonathan Cape, 1997.

Coverley, Merlin. *Psychogeography*. Harpenden, UK: Pocket Essentials, 2006.

Cox, Christoph. Interview with author. February 12, 2009.

Cox, Christoph. "Invisible Cities: An Interview with Christina Kubisch." *Cabinet Magazine,*
Issue 21, "Electricity," Spring 2006.
<http://www.christinakubisch.de/pdf/Kubisch_Interview.pdf> (accessed February 13,
2009).

de Certeau, Michel. "Walking in the City." In *The Practice of Everyday Life,* 91-110. Berkeley, CA: University of California Press, 1984.

Debord, Guy. "Introduction to a Critique of Urban Geography (1955)." In *Situationist International Anthology*, edited by Ken Knabb, 8-12. Berkeley: Bureau of Public Secrets, 2006.

Debord, Guy. *Society of the Spectacle*, translated by Ken Knabb. London: Rebel Press, 2006.

Debord, Guy. "Theory of the Dérive (1958)." In *Situationist International Anthology*, edited by Ken Knabb, 62-66. Berkeley: Bureau of Public Secrets, 2006.

Dewey, John. *Art as Experience*. New York: Penguin, 1934, reprinted 2005.

Dinkla, Söke. "From Participation to Interaction: Toward the Origins of Interactive Art." In *Clicking In: Hot Links to a Digital Culture*, edited by Lynn Hershman Leeson, 279-290. Seattle: Bay Press, 1996.

Edelman, Gerald and Giulio Tononi. *A Universe of Consciousness: How Memory Becomes Imagination*. New York: Basic Books, 2000.

Eisenstein, Sergei, V.I. Pudovkin, and G.V. Alexandrov. "A Statement." In *Film Sound: Theory and Practice*, edited by Elizabeth Weis and John Belton, 83-85. New York: Columbia University Press, 1985.

Epstein, Jean. "Slow-Motion Sound." In *Film Sound: Theory and Practice*, edited by Elizabeth Weis and John Belton, 143-144. New York: Columbia University Press, 1985.

Feder, Stuart. *Gustav Mahler: A Life in Crisis*. New Haven: Yale University Press, 2004.

Feld, Steven. "A Rainforest Acoustemology." In *The Auditory Culture Reader*, edited by Michael Bull and Les Back, 223-239. Oxford: Berg, 2003.

Feld, Steven. "The Sound World of Bosavi." The Acoustic Ecology Institute. 2001. <http://www.acousticecology.org/edu/educurrbosavi.html>, (accessed August 10, 2008).

Finkelpearl, Tom. *Dialogues in Public Art*. Cambridge, MA: The MIT Press, 2000.

Floros, Constantin. *Gustav Mahler: The Symphonies,* translated by Vernon Wicker. Portland, OR: Amadeus Press, 1993.

Ford, Simon. *The Situationist International: A User's Guide.* London: Black Dog Publishing, 2005.

Foster, Hal, Rosalind Krauss, Yve-Alain Bois and Benjamin H. D. Buchloh, "1955a: Nonwestern avant-gardes," 373-378. In *Art Since 1900: Modernism, Antimodernism, Postmodernism.* New York: Thames & Hudson, 2004.

Godfrey, Tony. *Conceptual Art.* London: Phaidon, 1998.

Gomez, Edward M. "Music of the Mind from the Voice of Raw Soul." In *Yes Yoko Ono*, edited by Alexandra Munroe, 231-237. New York: Japan Society, 2000.

"Half of Global Population Will Live in Cities by End of this Year, Predicts U.N.," UN News Centre, February 26, 2008. <http://www.un.org/apps/news/story.asp?NewsID=25762&Cr=population&Cr1> (accessed March 2, 2009).

Hansen, Mark and Ben Rubin. *Listening Post* (2002). <http://www.earstudio.com/projects/listeningpost.html> (accessed August 8, 2008).

Hefling, Steven. *Das Lied von der Erde.* Cambridge, UK: Cambridge University Press, 2000.

Higgins, Hannah. *Fluxus Experience.* Berkeley: University of California Press, 2002.

Huizinga, Johan. *Homo Ludens: A Study of the Play-Element in Culture.* Boston: The Beacon Press, 1955.

Hulten, Pontus, edited by *Marcel Duchamp: Work and Life.* Cambridge, MA: MIT Press, 1993.

Interactive Institute and Viktoria Institute. *Sonic City* (2002-2004), http://www.viktoria.se/fal/projects/soniccity> (accessed February 27 2009).

"Internet Usage Statistics." Internet World Stats. <http://www.internetworldstats.com/stats.htm> (accessed August 7, 2008).

Jacobs, Jane. *The Death and Life of Great American Cities.* New York: Vintage Books, 1992.

Kahn, Douglas. *Noise, Water, Meat: A History of Sound in the Arts.* Cambridge, MA: MIT Press, 1999.

Kaprow, Allan. *Assemblage, Environments & Happenings.* New York: Harry N. Abrams, Inc., 1966.

Kaprow. Allan. "Happenings in the New York Scene (1961)." In *Essays on the Blurring of Art and Life*, edited by Jeff Kelley, 15-26. Berkeley: University of California Press, 2003.

Kaprow. Allan. "The Education of the Un-Artist, Part I (1971)." In *Essays on the Blurring of Art and Life*, edited by Jeff Kelley, 97-109. Berkeley: University of California Press, 2003.

Kaprow. Allan. "The Education of the Un-Artist, Part II (1972)." In *Essays on the Blurring of Art and Life*, edited by Jeff Kelley, 110-126. Berkeley: University of California Press, 2003.

Kelley, Jeff. "Introduction." In Allan Kaprow, *Essays on the Blurring of Art and Life*, edited by Jeff Kelley, xi-xxvi. Berkeley: University of California Press, 2003.

Kirby, Michael and Richard Schechner. "An Interview with John Cage." In *Happenings and Other Acts*, edited by Mariellen R. Sandford, 51-71. Abingdon, UK: Routledge, 1995.

Kracauer, Siegfried. "Dialogue and Sound." In *Film Sound: Theory and Practice*, edited by Elizabeth Weis and John Belton, 126-142. New York: Columbia University Press, 1985.

Krueger, Myron W. *Artificial Reality II*. Reading, MA: Addison-Wesley, 1991.

Kubisch, Christina. *Klang Raum Licht Zeit: Works from 1980 to 2000*. Heidelberg : Kehrer, 2000.

Kubisch, Christina. *New York Electrical Walk*, in "Sonic Geographies," curated by Christoph Cox. New York: The Kitchen, 2006.

Kwon, Miwon. *One Place After Another: Site-Specificity and Locational Identity*. Cambridge, MA: The MIT Press, 2002.

L'Engle, Madeleine. *A Wrinkle In Time*. New York: Dell, 1962.

LaBelle, Brandon. *Background Noise: Perspectives on Sound Art*. New York: Continuum, 2006.

LaBelle, Brandon and Steve Roden, editors. *Site of Sound: Of Architecture and the Ear*. Los Angeles: Errant Bodies Press, 1999.

Lefebvre, Henri. *Critique of Everyday Life, Vol. 1*. Translated by John Moore. New York and London: Verso, 1991.

Licht, Alan. *Sound Art: Beyond Music, Between Categories*. New York: Rizzoli, 2007.

Low, Setha and Neil Smith. *The Politics of Public Space*. New York: Routledge, 2006.

Manovich, Lev. *The Language of New Media*. Cambridge, MA: MIT Press, 2001.

Martin, J.V., Jan Strijbosch, Raoul Vaneigem, and René Viénej, "Response to a
Questionnaire from the Center for Socio-Experimental Art (1964)." In *Situationist
International Anthology*, edited by Ken Knabb, 183-188. Berkeley: Bureau of Public
Secrets, 2006.

Matthews, John A. and David T. Herbert. *Geography: A Very Short Introduction*. Oxford:
Oxford University Press, 2008.

McGraith, Donal. "Anti-Copyright and Cassette Culture." *Sound by Artists*, edited by Dan
Lander and Micah Lexier, 73-87. Toronto: Art Metropole/Walter Phillips Gallery,
1990.

McLuhan, Marshall. "Media Hot and Cold." In *Understanding Media,* 22-40. Cambridge, MA:
MIT Press, 1994.

McLuhan, Marshall. *The Medium is the Massage: An Inventory of Effects*. New York: Bantam
Books, 1967.

Mitchell, Donald. *Discovering Mahler: Writings on Mahler, 1955-2005.* Woodbridge, UK:
Beydell Press, 2007.

Mitchell, Donald. *Gustav Mahler: The Early Years.* London: Rockliff, 1958.

"Moore's Law: Made Real by Intel Innovation." Intel. April 13, 2006.
<http://www.intel.com/technology/silicon/mooreslaw> (accessed April 13, 2006).

Mumma, Gordon, A. Kaprow, J. Tenney, C. Wolff, A. Curran, and M. Amacher. "Cage's
Influence: A Panel Discussion." In *Writings Through John Cage's Music, Poetry and Art*,
edited by David Bernstein and Christopher Hatch, 167-189. Chicago: University of
Chicago Press, 2001.

Nachmanovitch, Stephen. *Free Play: Improvisation in Life and Art.* New York: Jeremy P.
Tarcher/Penguin, 1990.

Neuhaus, Max. *Times Square* drawing. *Dia Center for Art.*
<http://www.diacenter.org/ltproj/neuhaus/neuhaus-timessquare-top.gif> (accessed
February 24, 2009).

Neuhaus, Max. "Program Notes: York University, Toronto (1974)." In *Max Neuhaus: Sound Works, Volume I: Inscription,* 34. Ostfildern-Stuttgart: Cantz, 1994.

Norman, Katharine. *Sounding Art*. Aldershot, UK: Ashgate, 2004.

Northwestern University Department of Slavic Languages and Literatures, "Plays: Agit-Drama, Annenkov's "The Storming of the Winter Palace," http://max.mmlc.northwestern.edu/~mdenner/Drama/plays/agit/agit1.html (accessed March 7, 2009).

Oliveros, Pauline. *Deep Listening : A Composer's Sound Practice*. Lincoln, NE: iUniverse, 2005.

Oliveros, Pauline. "Teach Yourself to Fly." In *Sonic Meditations*. Baltimore: Smith Publications, 1974.

Ono, Yoko. *Grapefruit: A Book of Instruction and Drawings by Yoko Ono*. New York: Simon & Schuster, 2000.

Orledge, Robert. *Satie the Composer*. Cambridge: Cambridge University Press, 1990.

Packer, Randall and Ken Jordan, ed. *Multimedia: From Wagner to Virtual Reality*. New York and London: W.W. Norton, 2001

Pasternak, Anne. "Interview with David Byrne." Creative Time. May 2008. <http://creativetime.org/programs/archive/2008/byrne/interview.html> (accessed July 23, 2008).

Pudovkin, V.I. "Asynchronism as a Principle of Sound Film." In *Film Sound: Theory and Practice*, edited by Elizabeth Weis and John Belton, 86-91. New York: Columbia University Press, 1985.

Rokeby, David. "Transforming Mirrors: Subjectivity and Control in Interactive Media." In *Critical Issues in Electronic Media*, edited by Simon Penny, 133-158. Albany, NY: State University of New York Press, 1995.

Royal College of Art, "FutureSound." 2008. <http://www.rca.ac.uk/Default.aspx?ContentID=504177&GroupID=504175&CategoryID=36538> (accessed March 6, 2009).

Sacks, Oliver. *Musicophilia: Tales of Music and the Brain*. New York: Knopf, 2007.

Sacks, Oliver. Letter to author. December 12, 2007.

Satie, Erik. Note to *Aperçus désagréables* (1912). Quoted in *A Mammal's Notebook: Collected Writings of Erik Satie*, edited by Ornella Volta, translated by Antony Melville, 190. London: Atlas Press, 1996.

Schaeffer, Pierre. "Acousmatics." In *Audio Culture: Readings in Modern Music*, edited by Christoph Cox and Daniel Warner, 76-81. New York and London: Continuum, 2004.

Schafer, R. Murray. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, VT: Destiny Books, 1994.

Schaub, Mirjam. *Janet Cardiff: the Walk Book*, edited by Thyssen-Bornemisza Art Contemporary, Vienna, in collaboration with Public Art Fund, New York. Vienna: Thyssen-Bornemisza Art Contemporary, 2005.

Schechner, Richard. *Performance Theory*. London and New York: Routledge Classics, 2003.

Serra, Richard. "'Tilted Arc' Destroyed." *Art in America* 77, no. 5 (May 1989): 34-47.

Seth, Vikram. *Three Chinese Poets.* London: Faber & Faber, 1992.

Shaw, Jeffrey. *The Legible City*. <http://www.jeffrey-shaw.net/html_main/show_work.php3?record_id=83> (accessed March 6, 2009).

Shepard, Mark. *Tactical Sound Garden*. Leonardo Electronic Almanac, Locative Media Gallery. <http://leoalmanac.org/GALLERY/locative/tsg/index.htm2http://leoalmanac.org/GALLERY/locative/tsg/index.htm> (accessed February 25, 2009).

Snibbe, Scott. *Visceral Cinema: Chien*. <http://snibbe.com/scott/visceral_cinema/chien/index.html> (accessed March 23, 2006).

Solnit, Rebecca. *Wanderlust: A History of Walking.* New York: Penguin, 2000.

Supko, John. "Points and Lines." Ph.D. diss., Princeton University, 2009.

Suzuki, Shunryu. *Zen Mind, Beginner's Mind*. Boston and London: Shambhala, 2006.

Thibaud, Jean-Paul. "The Sonic Composition of the City." In *The Auditory Culture Reader*, edited by Michael Bull and Les Back, 329-341. Oxford: Berg, 2003.

Tiessen, Matthew. "Accepting Invitations: Desire Lines as Earthly Offerings." In *Rhizomes 15: Deleuze and Guattari's Ecophilosophy*, edited by Dianne Chisholm, Winter 2007. <http://www.rhizomes.net/issue15/tiessen.html> (accessed March 13, 2009).

Tomkins, Calvin. *Off The Wall: A Portrait of Robert Rauschenberg*. New York: Picador, 1980, reprinted 2005.

Tonkiss, Fran. "Aural Postcards: Sound, Memory and the City." In *The Auditory Culture Reader*, edited by Michael Bull and Les Back, 303-309. Oxford: Berg, 2003.

Tuan, Yi-Fu. *Space and Place: The Perspective of Experience.* Minneapolis: University of Minnesota Press, 1977.

United Nations, "Convention on the Rights of the Child," United Nations. <http://www.un.org/documents/ga/res/44/a44r025.htm> (accessed March 2, 2009).

Viola, Bill. "The Sound of One Line Scanning." In *Sound By Artists*, edited by Dan Lander and Micah Lexier, 39-54. Toronto: Art Metropole/Walter Phillips Gallery, 1990.

Walkabout, DVD. Directed by Nicolas Roeg. 1971. Criterion Collection, 1998.

Weis, Elizabeth and John Belton, editors. *Film Sound: Theory and Practice*. New York: Columbia University Press, 1985.

Westerkamp, Hildegard. *Kits Beach Soundwalk*. On *Transformations*. Montreal: Empreintes DIGITALes, 1996.

White, Edmund. *The Flâneur: A Stroll Through the Paradoxes of Paris*. New York: Bloomsbury, 2001.

Whitwell, Giselle E. "Life Before Birth: Prenatal Sound and Music." APPPAH Homepage, http://www.birthpsychology.com/lifebefore/sound1.html (accessed January 18, 2006).

Wiener, Norbert. "Cybernetics in History." In *Multimedia: From Wagner to Virtual Reality*, edited by Randall Packer and Ken Jordan, 47-54. New York and London: W.W. Norton, 2001.

World Soundscape Project. *Document No. 5, The Vancouver Soundscape*. Vancouver: Simon Fraser University, 1973.