DEVELOPING THE NEW ZEALAND SOUNDMAP:

An exploration of soundmap practice, site listening, locative media and the sound environment

By Richard Benjamin Keys

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ABSTRACT

This text is an exegesis written in accompaniment to the development of the New Zealand Soundmap. The origin and development of soundmap practice and the emergence and development of related environmental sound practices are detailed. The exegesis concludes with an exposition of the development of the New Zealand Soundmap itself.

Soundmap practice emerged from the sonic explorations of the World Soundscape Project, who coming out of Simon Fraser University of Burnaby, British Columbia, Canada, pioneered the first soundmaps in the early 1970's.

From its origins soundmap practice has spread and developed into its current form as a new media practice. This thesis deals with the development of a regional web-based soundmap for New Zealand.

Various discursive strains from media studies, sonic arts, and phenomenological philosophy are woven together to explain the impetus, and value of soundmap practice and related environmental sound practices such as soundwalks and site-listening. The thesis ends with a critical analysis of successes and failures of the project towards its stated goal: to facilitate awareness of an engagement with the local sound environment.

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INTRODUCTION

The initiative to develop a New Zealand soundmap arose from my interest in field recording and environmental sound practices, coupled with a long-standing interest in new media technologies. I regard regionally specific online soundmaps as a viable means of encouraging and promoting field recording and related practices in the local community, and as a means of archiving and recording our local sound environment and aural culture. From its initial conception as a Wellington specific endeavor, to its expansion into the New Zealand Soundmap, the project has evolved to its current point of development, which sees it being actively used by a small, but growing, enthusiastic community of users.

This exegesis is an accompaniment to the construction and establishment of the New Zealand Soundmap itself and it details the research that informed the development of the project. This extends from the basic themes and concepts that are central to understanding the impetus behind the endeavor, to the development of the practice itself; from the early aural documents constructed by the World Soundscape Project (which would later become the Acoustic Ecology movement) to the development of the contemporary online soundmap format. Various important related practices such as sound walking and audio walks are also dealt with in some detail. The later chapters articulate the various design decisions I made and the strategies that I have employed – and continue to explore – in order to construct the soundmap and promote it to a wider audience.

1. THE SOUND ENVIRONMENT AND SENSORY RATIOS

The Sound Environment

We are surrounded by a world of sound, we inhabit it, and it inhabits us, from our heartbeat, to our verbosity, from birdsong, to traffic noise. Sound is one of the fundamental elements of our environment and our experience as human beings, as both listeners and sound makers, sound and its motifs and movements are central to our experience of the world.[1]

> *"From mountaintops to city streets, lakesides, to sidewalks, glaciers to small villages, the soundscape is that which exists and which we are a part, as noisemakers, as listeners, as participants. It locates us within an audacity that is extremely proximate – under our feet and at our fingertips – while expanding out to engage the distant and far away, from birdcalls from above to winds whistling from remote horizons. The soundscape is all sounds that flow and get carried along in the full body of the sound spectrum, from above, and below audibility, as pure energy, molecular movement, in fractions of sonority that integrate through a reciprocal inter-subjectivity human experience with the earthly whole."*[2]

Sound and its perception are fundamental to the process of subjection from hearing our mother's heart beating to the recognition of voice and naming as we are called into subjective being. Sound plays a similarly important role on an inter-subjective level as shared acoustic experience, aural cues and associations interweave to create social assemblages and collectivities (acoustic community as Schafer termed it). The church bell, the national anthem, rites of passage, ritual songs, pop music, and advertising jingles, Thomas Turino's Music as Social Life explores this notion paying specific emphasis to the role played by music in the process of the formation of self and society.[3] He emphasizes music's role as central to personal and social integration into a collective whole, through listening and spectatorship, through participation and performance, through consumption as recorded commodity in post-industrial society.[4] These musical modes of sonic experience are central to our aural life as sound makers and listeners, though I would suggest that music itself can be understood within a broader context as part of the sound environment or the soundscape as R Murray Schafer et al have termed it [5]: in which key features of the aural environment (soundmarks as Schafer terms them) whether they be birdsong, or the chiming of a nearby clock tower, the vocal calls of vendors at market, or the call to prayer so present in the Islamic world, play just as significant a role. Schafer stated that in rural Christian Europe of yesteryear community boundaries used to be defined by the audible range of the local church bell[6] . As he puts it these are community sounds, which are unique to a given locality, or "possess qualities which make them specifically regarded or noticed by people in the local community"[7] . These sounds, I would suggest, play just as an important role in our aural life as does music, in fact music itself can be understood as a kind of soundmark, an acoustic feature of the wider sonic environment, whose song extends beyond the realms of intentionality that defines the "music" of humanity.

1 "The New Zealand Sound map", http://www.soundmap.co.nz
2 LaBelle, Brandon, Background Noise, New York: Continuum. 2006, 201-202
3 Turino, Thomas, Music as Social Life. Chicago: Chicago University Press. 2008, 1
4 Ibid, 23-65
5 Schafer, R. Murray, The Soundscape. Rochester, Vermont: Destiny Books. 1977
6 Ibid, 54
7 Ibid, 274

As human beings we participate in the world via a dance of mutual reciprocity, in the words of Merleau-Ponty:

> *"My existence as subjectivity (i.e. consciousness) is merely one with my existence as a body and with the existence of the world, and because the subject that I am, when taken concretely, is inseparable from this body and this world."* [8]

Whilst the materiality of sound is characterized as much by disappearance as it is by appearance, its affective power is no less than that which is spatially and temporally more persistent. Indeed our ears are always open to the world and it to us, as our calls are heard, by others and echoed back to us. In this sense, the ear itself is one of many sensory pathways whereby we enter into and intermingle with our environment, in this sense the soundscape is not so much a distinct world unto itself but a certain perception of the environment at large revealed via a specific sensory modality or medium of engagement. As Tim Ingold puts it:

> *"Sound, in my view, is neither mental nor material, but a phenomenon of experience – that is, of our immersion in, and commingling with, the world in which we find ourselves."* [9]

In this sense, sound and its perception are something fundamental to our selves, the world at large and their meeting and intermingling, a key aspect of our experience as humans. The study of the sound environment then, can tell us as much about ourselves as it can about the world we inhabit.

Sensory Ratios, The Great Divide, and Perceptual Coherence

Many theorists, researchers, artists and otherwise have expressed concern over what has come to be seen as the "dominance of the visual" as the primary sensory logic of modernity, to the point that our other sensory modalities are being de-emphasized as means of perceiving and participating in the world. From De Certeau's rather dramatic claim that "our society is characterized by a cancerous growth of vision"[10] , to Bull's suggestion that a visual epistemology characterizes contemporary social thought,[11] this commonly reoccurring notion of the dominance of the visual in modernity sees listening and sound relegated to a secondary position, reducing the significance of listening and the experience of sound to an attributable role.[12]

The cause of this imbalance of the senses is typically conveyed as emerging from an intersection of various ontological, linguistic and techno-social processes that have seen the eyes privileged over the ear as a means of perceiving the world. Theorists dating back to Marshall McLuhan, who

8 Merleau-Ponty, Maurice, Phenomenology of Perception. London and New York: Routledge, 1945, 408
9 Ingold, Tim, "Against Soundscape" in Sound and the Environment in Artistic Practice, ed. Angus Carlyle. Paris: Double Entendre, 2007, 10
10 De Certeau, The Practice of Everyday Life, Berkeley, CA: University of California Press, 1988
11 Bull, Michael. 'The world according to sound: Investigating the world of walkman users'. New Media and Society, 3 (2): 2001, 194
12 Metz, Christian, and Gurrieri, Georgia, Aural Objects, excerpt Yale French Studies, No. 60, Cinema/Sound, 1980, 68-69

located the root of this imbalance in the emergence of the written word, have often emphasized the formative role that language and other "media technologies" have played in this process[13] , and much ink has been shed about the relationship between the written word, and the primacy of the visual. The film theorist Christian Metz claims:

> *"there is a kind of primitive substantialism which is profoundly rooted in our culture… which distinguishes fairly rigidly the primary qualities that determine the list of objects (substances) and the secondary qualities which correspond to attributes applicable to these objects. This conception is reflected in the entire Western philosophic tradition beginning with notions put forth by Descartes and Spinoza. It is also clear that this 'world view' has something to do with the subject-predicate structure particularly prevalent in Indo-European languages. For us, the primary qualities are in general visual and tactile. Tactile, because touch is traditionally the very criteria of materiality. Visual because the identification processes necessary to present-day life and to production techniques rely on the eye above all the other senses."* [14]

Johnathan Sterne in The Audible Past, makes the assertion that this privilege given to sight does not necessarily reflect the reality of our day-to-day perception, but rather stems from the inability of language to meaningfully describe the complexities and nuances of sound.[15] As Hollerwegger puts it:

> *"The ubiquity of explicit references to vision in our language is often pointed out. After all, how can we develop a better informed view on listening if we do not even have an aural equivalent for that word?"*[16]

Sterne's answer to this is particularly interesting, in that his response is to suggest that the evolution of aural practices[17] , such as those dealt with in this enquiry, developed for precisely this reason, as a way to articulate aural perceptions and understandings that language finds itself unable to convey. [18]

There is a certain binary dialectic that dominates so much of the discourse in this area, termed the "great divide" by Sterne, which harkens back to the work of McLuhan and his predecessors in which an idealized acoustic space was hypothesized in opposition to visual space with a set of contrasting values and attributes associated to each side of this divide.[19] As an extension of this underlying divide assertions are often made such as: "vision is concerned with the exterior, hearing with interiors, vision is about intellect, hearing about affect, vision tends toward objectivity, hearing toward subjectivity and so on."[20]

Ultimately this type of thinking seems to be fundamentally reductive and reactionary. It presents the senses in conflict or opposition as distinct perceptual apparatus that frame and define our perceptions of the world at large both individually and socially. This view is problematic to say the least as not only does it promote an either/or, zero-sum mentality, but also it obscures the interaction and intermingling of the different sensory channels as part of an integrated perceptual process.

13 McLuhan, Marshall, Visual and Acoustic Space excerpt from Audio Culture, eds. Christopher Cox and David Warner, New York: Continuum, 2006, 68
14 Metz, Christian, and Gurrieri, Georgia, Aural Objects, excerpt Yale French Studies, No. 60, Cinema/Sound, 1980, 68-69
15 Sterne, Johnathan, The Audible Past: Cultural Origins of Sound Reproduction, Durham & London: Duke University Press, 105
16 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 35
17 Sonic Arts as an example.
18 Sterne, Johnathan, The Audible Past: Cultural Origins of Sound Reproduction, Durham & London: Duke University Press 94
19 Ibid, pg. 15
20 Erlmann, Veit, Reason and Resonance; A History of Modern Aurality, New York: Zone Books, 2010, pg. 14

In Sterne's terms the great divide:

> *"posits history as something that happens between the senses. As a culture moves from the dominance of one sense to that of another, it changes. The audiovisual litany renders the history of the senses as a zero-sum game, where the dominance of one sense by necessity leads to the decline of another sense"* [21]

Ingold warns those working with sound related matters and materials to not repeat the mistake made by "art historians and other students of visual culture who write books about the history of seeing that are entirely about the contemplation of images…Their conceit is to imagine that the eyes are not so much organs of observation as instruments of playback, lodged in the image rather than the body of the observer."[22] He goes on to emphasize the inseparability & trans-sensorial nature of the senses relative to the embodied nature of perception, whereby he articulates sound and light not as objects perceived by the senses, but rather "a phenomenon of experience – that is, of our immersion in, and commingling with, the world in which we find ourselves."[23]

As the seminal sonic artist Max Neuhaus rather succinctly puts it: "outside of language, the question of one eye or ear being superior to the other is a false one."[24]

If as Sterne argues the imbalance in question stems not from our day to day perceptions, but rather from an over-abundance of discourse focusing exclusively on visual culture, and is further hindered by certain inadequacies of language to explain aural phenomena then the question becomes squarely orientated around how to best create and promote aural practices, whereby aural culture can be heard, reflected upon and engaged to the same degree and depth as we have seen with the visual. Such approaches must also attempt to avoid the pitfalls that Ingold suggests have befallen the study of visual culture. Rather than merely inverting this discrepancy and solely privilege the ear, such practices should endeavor to correct the imbalance, and promote a coherency of the senses through listening.

21 Sterne, Johnathan, The Audible Past: Cultural Origins of Sound Reproduction, Durham & London: Duke University Press, pg 15
22 Ingold, Tim, "Against Soundscape" in Sound and the Environment in Artistic Practice, ed. Angus Carlyle. Paris: Double Entendre, 2007, 10
23 Ibid, 11
24 Neuhaus, Max, 'Sound Design'. http://www.max-neuhaus.info/soundworks/vectors/invention/sounddesign/Sound_Design.pdf. originally published in Zeitgleich, Triton, Vienna, 1994

2. ACOUSTIC ECOLOGY, SCHIZOPHONIA & THE ROLE OF TECHNOLOGY IN SOUNDSCAPE STUDIES

One group of composers and researchers to respond to these concerns was The World Soundscape Project (now known as the Forum for Acoustic Ecology), which was founded in the early 1970's by a group of researchers headed by R. Murray Schafer at Simon Fraser University, Burnaby, British Columbia.

> *"The World Soundscape Project aimed to raise consciousness on the effects of sound on the human condition by analyzing and collating environmental sound through recordings, information databases, community surveys, work-shops, artistic and musical work, and research projects."*[25]

In such a way the World Soundscape Project provided a vocabulary of both concepts and methods/techniques for this emerging area of enquiry. The founding text of the movement was R. Murray Schafer's The Tuning of the World[26] in which the basic theoretical suppositions of the movement were laid out.

The primary "intention behind the World Soundscape Project was based on capturing environmental sound in all its breadth and diversity across the globe, preserving important soundmarks and gaining insight into people's understanding and awareness of acoustic environments."[27] This began with a detailed study of the groups immediate surrounds, which was published as The Vancouver Soundscape[28] , followed by a broader piece exploring the diverse soundscapes of Canada at large, before expanding their horizons even further, as they explored myriad villages across Europe [29], armed with open ears and recording equipment. The focus through this process was on the recording, and documenting of these diverse soundscapes paying particular emphasis to key soundmarks, which can be understood as sound's of particular socio-geographic importance, community sounds[30] in Schafer's terminology.

Through this process the World Soundscape Project amassed an archive of soundscape recordings, which it saw to be of central importance both in terms of documenting and preserving global aural culture (something which Schafer and the World Soundscape Project, thought to be under threat by the effects of urbanization and technology) and in cultivating awareness of the soundscape at large.

The work of Schafer and his associates was formative in establishing both the discourse and methods of this emerging area of study.

25 LaBelle, Brandon, Background Noise. New York: Continuum. 2006, 201
26 Which was later re-published under the name The Soundscape.
27 Ibid, 204
28 Soundscape Vancouver, http://www.sfu.ca/~truax/vanscape.html
29 European Sound Diary and Five Village Soundscapes, http://www.sfu.ca/~truax/wsp.html
30 Schafer, R. Murray, The Soundscape. Rochester, Vermont: Destiny Books. 1977, 274

> *"What acoustic ecology lends to a history of sound art is a social, musical, and ontological register, for in proposing sound as a category for bureaucratic consideration, sociological study, and environmental concerns and design, acoustic ecology raises the bar on auditory understanding and its relational nature. Schafer's belief in the power of sound to either harm or uplift an individual, as a marker for environmental health or damage, and as a necessary medium of the construction of the built environment, raises sound and aural culture into the center of attention while adding a refined vocabulary for pursuing and refining understanding of the materiality of sound and its impact."*[31]

Whilst it laid a theoretical and practical foundation, which gave other practitioners within this emerging area a discursive framework to build on, it seems that many of the critical assumptions that Schafer and company made in establishing a basis for their methods have also been passed on, remaining largely unquestioned by many practitioners and have become limitations to further exploration and understanding within this area of interest.

There is a certain romanticism inherent in Acoustic Ecology, expressed in a negative sense, through some of its aforementioned central concepts, such as the lo-fi sound environment, Schafer's treatment of "noise" and the notion of schizophonia, in Schafer's words:

> *"The Greek prefix schizo means split, separated; and phone is Greek for voice. Schizophonia refers to the split between an original sound and its electroacoustic transmission or reproduction… Originally all sounds were originals. They only occurred at one time in one place only. Sounds were then indissolubly tied to the mechanisms that produced them… Since the invention of electroacoustical equipment for the transmission and storage of sound, any sound, no matter how tiny, can be blown up and shot around the world, or packaged on tape or record and packaged for the generations of the future."*[32]

Herein we see a yearning for a mythological un-mediated soundscape "the Ursound", as Brandon LaBelle terms it.[33] Within such a framework Schafer posits a pristine, untouched hi fidelity soundscape, present as a global reality before the onset of industrialization and urbanization, which he believed undermined this pristine soundscape leaving in its place a fragmented schizophonic and noise ridden world of sound. Whilst Schafer's perspective can be understood functionally as a validation of his methods and as a basis for the political and ecological message that is central to the movement, it is nevertheless inherently problematic, in that it reduces and avoids important questions and ambiguities concerning technology as a mediating force in society and the related processes of socio-technological change, not to mention the critical and aesthetic engagement of the industrial and urban aspects of the contemporary soundscape. In this way Schafer's Acoustic Ecology puts forward an overly simplistic understanding of such concerns, which does little to establish a meaningful and insightful framework for engaging and understanding technology and urbanity as they relate to the sound environment and its critical and aesthetic engagement.

This issue is highlighted by the contradiction between Schafer's somewhat neo-luddite perspective and the inherent reliance of Acoustic Ecology on the electro-acoustic technologies of the day, as microphones, magnetic tape, and radio were fundamental technologies to this movement and its methods. As LaBelle puts it:

31 LaBelle, Brandon, Background Noise. New York: Continuum. 2006, 203
32 Schafer, R. Murray, The Soundscape. Rochester, Vermont: Destiny Books. 1977, 90
33 Ibid, 204

"Acoustic Ecology creates its own mythology around the use of audio recording and its technologies, even while trying to get past it: microphones, audio tapes, headphones, radio broadcasts, speakers, and amplification systems function as magical tools for tapping the buried unconscious inside environmental sound, locating its message by partially hallucinating in front of the acoustic mirror of its recording. Thus, through acoustic ecology we might discover not only the environmental and communicational pathways of sonority but also how such pathways are bought forward through levels of mediating technology and imagination."[34]

Whilst these ambiguities seem somewhat unaddressed in Schafer's work, these concerns were evidently not lost on his colleague Barry Truax. Truax' emphasis in terms of soundscape studies is "communicational" in its approach, his central interest is with the communicational relationships and interactions present within the sound environment, the interplay between subject/s and their environment as they come to constitute and define each other. His approach (and that of those who followed him, Hildegard Westerkamp for example) thus moves away from Schafer's model and its limitations towards a perspective that places greater emphasis on subjective and inter-subjective interaction and engagement with the sound environment, and with the technological processes at play within that environment.[35]

In his central written work, Acoustic Communication [36], Truax devotes a portion of the book exclusively to technological concerns. Moving away from the "zero-sum" exposition of technology so present in Acoustic Ecology which stems from Schafer's work, Truax suggests that the problem at hand regarding technology is not so much inherent to technology itself, but rather stems from our relationship to technology. He critiques our status-quo usage, and relationship with technology, and goes on to suggest the importance of creative alternatives, which may reconfigure or at least represent steps towards reformulating this relationship in a manner that is productive and furthering of humanistic values. In his words:

"Most people probably do not realize the extent to which conventional uses of technology in the media influence common perceptions, standards, and expectations. Only the experience of alternatives throws such norms into perspective, and if for no other reason, alternatives serve a valuable purpose. The problem, however, is to distinguish the merely new (and with technology, everything seems new) from what is truly original. My own criterion is that what is most valuable is what changes the way we think about things, the way we perceive the world – in short our patterns of communication."[37]

In such a way Truax seeks to reframe the question concerning technology from Schafer's "zero-sum" scenario towards one in which the question is not so much whether technology is inherently productive or limiting, but moreover how can we engage with and relate to technological forms in a manner that is genuinely furthering, which opens up new possibilities of experience and new means of perceiving and engaging the world we inhabit.

34 Ibid, 205
35 Ibid, 203
36 Truax, Barry, Acoustic Communication, Westport, Connecticut: Ablex, 2001
37 Ibid, 218

Technology, Schizophonia, and Mediated Listening

Truax' progressive interpretation of this fundamental question concerning technology seems far more productive as a working assumption for practitioners in the field of soundscape studies and related disciplines, who ultimately are heavily indebted to and reliant on the technology of the day, than the romanticism of Schafer. Without such a reductive bias to limit their engagement with the technological forms that surround them, the question becomes more about how to engage with the technological forms of the day in a creative and productive manner. As Hollerwegger puts it:

"While schizophonia describes an essential aspect of sound reproduction, the term has in my opinion also nurtured idealizations of a "natural" soundscape, where technology is primarily seen as a disturbance. Such romanticized views ignore the fact that negative effects on the sound environment generally result from a certain use of technology rather than being inherent to technology itself."[38]

Schizophonia then can more productively and practically be conceived of as an effect of a certain engagement, relationship to, and use of a given technology rather than anything inherent in the technological form in question, or technological processes at large. In such a way the notion of "schizophonia" becomes reframed in a productive way, challenging the artist and/or scholar, towards experimentation and enquiry, and the elaboration of new modes of relating to and interacting with technology. Indeed, both Heidegger himself in his famous The Question Concerning Technology[39] , and Marshall McLuhan[40] have suggested that it is the role of the artist (and I would suggest the scholar) to reveal the nature of our relationship with technology.

Nevertheless, "the consumption of technologically mediated sound…represents a significant mode of being in the world"[41] and is thus an important area of enquiry for anyone seeking to understand and engage the contemporary sound environment, or study contemporary aural culture in whatever form.

From early phonography when sound was first split from its source to the instantaneity and modularity of sound as digital information within the contemporary digital world, the technologies of sound reproduction have undergone tremendous transformation within the last century. Phonography saw sound split from its source (decontextualized from the "live performance" in the case of music) the resulting recordings distributed across time and space (Schafer's schizophonia again) in commodity form.

"The phonograph allowed the auditor, not just the performer, to control music as an individual… the convenience of the phonograph allowed music to become a casual thing. Pre-phonographic performance was usually bound to a public venue… For most people under the sway of the phonograph, music could become both entertainment and part of the background noise of everyday life." [42]

With electro-acoustic technologies, sound and its means of reproduction were transformed even further.

38 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 28
39 Heidegger, Martin, The Question Concerning Technology excerpt from Basic Writings, New York: Harper Perennial, 2008, 304
40 McLuhan, Marshall, Understanding Media: The Extensions of Man. London : Routledge & Kegan Paul, 1964, 65
41 Bull, Michael, Sound Moves: iPod Culture and Urban Experience. London & New York: Routledge, 2007, 7
42 Rothenbuhler, Eric W. and Durham Peters, John, Defining Phonography: An Experiment in Theory, excerpt from The Music Quarterly, Vol. 81, No. 2, Oxford University Press, 1997, 244

"The electroacoustic process changes the ground rules for acoustic behavior, first of all, by changing the form of the sound's energy from physical and mechanical to electrical, and second, by adding energy to it. The resultant audio signal, representing patterns of voltage in time, takes on characteristics of electricity, for instance, the ability to travel with the speed of light, nearly a million times faster than sound! Moreover, the adding of energy to the signal produces a new sense of the term "amplification," one that allows the actual physical magnitude to increase beyond its original level by nearly any amount."[43]

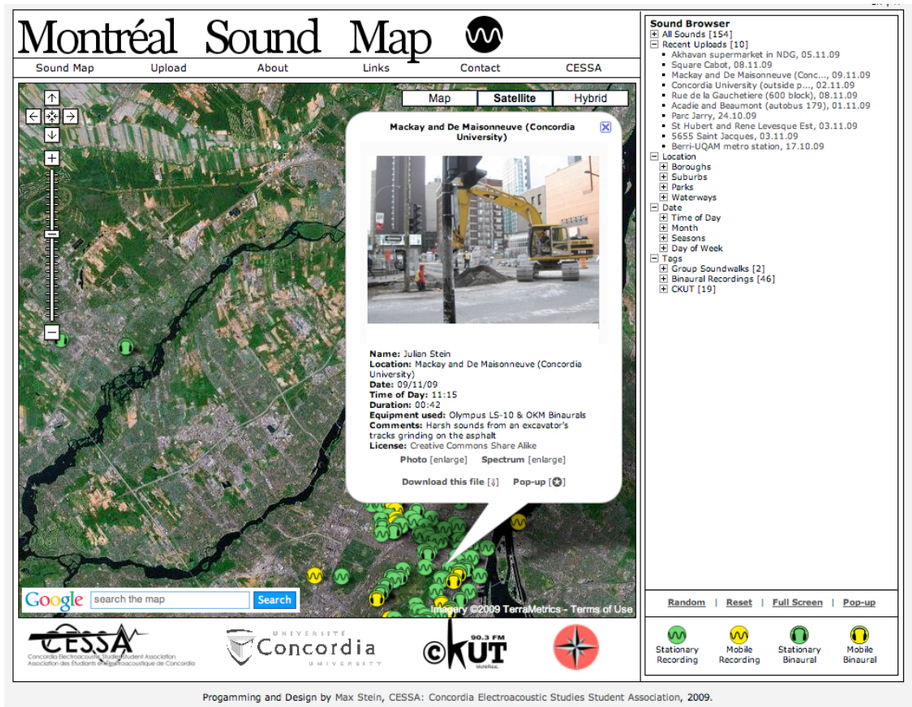
Sound was now unbound by its physical/mechanical limitations, the radio would see it broadcast almost instantaneously across space, barely audible sounds could be amplified to gigantic proportions. Electroacoustic technologies also opened up possibilities for the manipulation and creation of sound, as the tape manipulations of the classical avant-garde, (Pierre Schafer et al) and the emergence of sound synthesis technologies illustrate. In such a way electroacoustic technologies extended, and built on the effects generated by the aforementioned mechanical process of sound reproduction.

"Tympanic and electroacoustic sound reproduction effectively result in a separation of sound from its source in temporal, spatial, and energetic terms… Together these two principles have defined the two characteristic listening situations of the modern age: listening to recordings (vinyl, tape, CDs, etc.) and to transmissions (telephone, radio, digital streams) of sound." [44]

The latest wave of audio technologies, are part of a fundamental transformation in terms of our means of communication, and reproduction. The elaboration of digital technologies on mass, has seen much of culture digitized, transcoded into sequences of numbers, which are inherently reproducible, and modular. For example the digitization of both sound reproduction and our communication systems, gave rise to online file sharing/piracy, a practice fundamentally intertwined with the ability to reproduce (or more correctly produce exact duplicate/s) of digital information, and transmit this information effectively instantaneously, through digital communication networks. Hollerweger suggests that the primary effects of digitization on sound, have been its enhanced reproducibility, "increased mobilization and individuation of technologically mediated listening, as is evident in the popularity of portable digital music players"[45] , non-linear data access, and the flexible organization of sound in databases.

This process of technological mediation of listening and our experience of sound, has heralded two particularly significant developments; the "increased mobilization and individuation of aural experience,"[46] and in the process the sound environment we inhabit has been fundamentally transformed, and how we engage with it has become similarly changed. The context we now inhabit in this globalized, digital world is our point of engagement with these concerns, and given this context, the question becomes how can we engage, with contemporary tools, and technologies to facilitate an engagement with, and an understanding of our shared aural culture?

43 Truax, Barry, Acoustic Communication, Westport, Connecticut: Ablex, 2001, 124
44 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 50
45 Ibid, 51
46 Ibid, 52



Montreal Sound Map[47]

3 - THE SOUNDMAP

The contemporary soundmap represents a fusion of Acoustic Ecology practice with locative media technology. On a rudimentary level it is essentially a database of audio recordings of a particular geographic area, made by members of the local community, which have then been superimposed or "tagged" onto a virtual map. In this way it can be understood as an extension of the archives of soundscape recordings curated by the Word Soundscape Project but recontextualized employing contemporary new media technologies. The contemporary soundmap can be used as a means to facilitate both the production of recordings by a wider community, and to allow for distribution and ease of access to the recorded material, via the interface of a web based map. The typical online soundmap features an embedded map, tagged with a body of recordings made by a self appointed group of users. There is often some limited scope for user interaction with the database of recordings and other users (comments etc), and the ability to provide some degree of supplementary material in support of the recording. Some examples of this basic soundmap format include the Montreal Sound Map[48] (as featured above) and Soundseeker New York.[49]

47 "Montreal Sound Map", http://www.montrealsoundmap.com/?lang=en
48 Ibid
49 "Soundseeker New York", http://fm.hunter.cuny.edu/nysae/nysoundmap/soundseeker.html

The Vancouver Soundscape by the World Soundscape Project[50]

Influences & Origins

One of the central practices of the Acoustic Ecology[51] movement in its early days was the construction of detailed archives of field recordings from a given geographic area; examples include The Vancouver Soundscape[52] & the Soundscapes of Canada[53], which were subsequently broadcast via radio. In LaBelle's words:

> *"The Soundscapes of Canada, a radio series broadcast as part of the CBC Ideas radio series, was initiated and recorded by Bruce Davis and Peter Huse and consisted of recordings made across Canada, highlighting local accents, regional characteristics, and diverse sound fields."*[54]

These soundmaps collated recordings of various soundmarks, which were identified as significant by the phonographer in question. In this instance these soundmarks ranged from harbor ambiances, to music recorded from various areas around Vancouver city, to New Years Eve festivities.[55] In many ways these endeavors by the Simon Fraser based Acoustic Ecology group can be seen as a direct predecessor to the contemporary practice of the online soundmap. The methods used to elaborate the archive in question (a group of specialists on one hand, and a self selected body of users/participants on the other) and disseminate the material (broadcast via radio in the case of the former, and distributed and accessed via the internet on the other), may differ but in essence the practice and intention is much the same. The primary difference being that the practice has been recontextualized into a 'contemporary' socio-technological form.

Another important predecessor to contemporary soundmap practice is the work of the New Zealand/American sonic artist Annea Lockwood, who has spent a significant part of her career charting the sonic nuances of river bodies around the globe. Her "soundmaps" of these waterways which number among them the Danube[56], the Hudson[57] and other culturally significant rivers around the globe provide highly detailed and nuanced records of the aural life of these rivers. Lockwood brings these rivers to life for the listener with the precision and artistry of a skilled composer. Lockwood's work focuses on charting in detail a singular geographical feature; the river in question, and recording the sonic nuances of its passage. Through focusing and emphasizing such micro-perceptions, she brings these sound environments to life in a powerfully evocative manner.

The Contemporary Soundmap

The main point of difference between these previous forms of soundmap practice and the contemporary "online" version, stems from the technological structure of digital media itself. Contemporary online soundmaps allow for users to: produce recordings, upload them, and tag them to specific locations, whilst listeners can engage with the extended collection of recordings made by other participants. In effect this can be seen to mirror the dual logic whereby we as subjects participate within the soundscape at large, as both noisemakers and as listeners[58]. Indeed as Voeglin points out, this dual logic is grounded in a interactivity, reciprocity and material immediacy with the environment, as listening and sound production become one in the same:

> *"The aesthetic subject in sound is defined by this fact of interaction with the auditory world. He is placed in the midst of its materiality, complicit with its production. The sounds of his footsteps are part of the auditory city he produces in his movements through it."* [59]

This is a move away from the previous forms of soundmap practice in which a specialist practitioner (artist/composer) selects certain sonic features from a given location, given their own aesthetic and ideological values. Often these specialists will designate their recordings as important features or soundmarks, either through their own discernment, or through some sort of ethnographic engagement with the locals of the area. These recordings often employ a predefined methodology, and are finally presented via a public radio broadcast, as an album/CD release, or as an installation, to then be engaged by the listener. Within such a framework there is a defined demarcation between

50 World Soundscape Project, The Vancouver Soundscape, Vancouver, Simon Fraser University, 1978
51 Known at the time as the World Soundscape Project
52 World Soundscape Project, The Vancouver Soundscape, Vancouver, Simon Fraser University, 1978
53 World Soundscape Project, The Soundscapes of Canada, Vancouver, Simon Fraser University, 1974
54 LaBelle, Brandon, Background Noise. New York: Continuum. 2006, 204

55 World Soundscape Project, The Vancouver Soundscape, Vancouver: Simon Fraser University, 1978
56 Lockwood, Annea, A Sound Map of the Danube, Lovely Music, 2008
57 Lockwood, Annea, A Sound Map of the Hudson, Lovely Music, 1989
58 LaBelle, Brandon, Background Noise. New York: Continuum. 2006, 201
59 Voeglin, Salome, Listening to Noise and Silence. New York: Continuum. 2010, 5

the composer of the sound materials, and the listener/s. Here there is a danger that the soundmap in question will reflect certain aesthetic and theoretic imperatives of the composer, (privileged perspectives) rather than engage with the soundscape as it is experienced and understood by its inhabitants.

Web-based soundmaps, on the other hand, are constructed by non-specialists who typically speaking are inhabitants of the environment or region being represented. The participatory logic inherent in the technological infrastructure of the platform allows for multiple listenings, or multiple perspectives within the sound environment to be communicated. Rather than the recordings in question being made by an lone individual or specific group of individuals, working from a certain theoretical and methodological stand point, the participants of a regional soundmap are made up of a diffuse group of individuals from the particular location being represented. These users will represent a wider variety, of interests, perspectives, aesthetic sensibilities, and will thus record and compose their recordings informed by such diverse factors. What results is in many ways more genuinely representative of the regional soundscape, its aural culture and its inhabitants than a similar body orchestrated by a singular individual. Furthermore, the multiplistic logic outlined above mirrors on some level our fundamental phenomenological engagement with the sound environment itself, as on a basic acoustic level there can be no singular listening, or singular privileged acoustic perspective of the environment. Instead the unique combination of the physical acoustics of the environment and the physiology and psychology of the listener, see that each sonic-event or object finds our ears as a unique sonic-experience. This can achieve a complex coloration of sound as it is expressed through the environment with all its material nuances, colliding with our similarly unique physiology and psychology to elaborate something unique and ultimately personal. In Voegelin's words:

> *"Listening cannot contemplate the object phenomenon heard separate from its audition because the object does not precede listening. Rather, the auditory is generated in the listening practice: in listening I am in sound, there can be no gap between the heard and hearing, I either hear it or I don't, and what I perceive is what I hear. I can perceive a distance but this is a heard distance. The distance is what I hear here, not over there. It does not signal a separation of objects or events but is the separation as perceived phenomenon."* [60]

At its best the online soundmap can be seen to allow for the multiplicity and personal nature of the listening experience, as users, record and upload "soundmarks" with relevance to them personally, given their own phenomenological experience of space and place, rather than using a predefined theoretic and aesthetic framework. It should be emphasized that in this sense one of the primary aspects of the soundmap beyond merely being a database of soundscape recordings (which is significant in itself), is through facilitating a process of listening-recording-listening, whereby one is brought into greater intimacy with the soundscape one inhabits. As Hildegard Westerkamp puts it: "Once you record your ear shifts tremendously […] Just as looking through a camera you see the world differently, when you begin to record you hear the world differently."[61] This process, which begins, and ends with listening, can facilitate an immersion and an engagement with the soundscape, which can then be shared and communicated to others though the recordings that are produced by this process.

60 Ibid
61 Westerkamp, Hildegard , http://coomaraswamy.blogspot.co.nz/2011_10_01_archive.html, 2011

The Soundmap; Discontinuity & Schizophonia

Despite the advantages of this type of platform, most online soundmaps seem to produce a discontinuous body of recordings, produced by a discontinuous group of users. In engaging with a soundmap of an unfamiliar locale, one is left listening to a series of dislocated aural snapshots that often do not often seem to cohere into something that gives a more engaged sense of space and place. This effect can be understood as schizophonic, in the sense that on a basic level it stems from the de-contextualization of sound materials from their original environmental context, (and the various layers of strata sociological/environmental etc that constitute it) via a process of technological abstraction and mediation. Rather than considering this effect to be inherent in technological process per se (ala Schafer)[62] , it seems more productive to view it as a problem of the interface and infrastructure of a given technology or medium and the social practices by which we engage with such technologies. Drawing on Truax' lead regarding alternative uses of technology to facilitate new understandings[63] and new perceptions, one of the central questions of my research has been looking at ways to overcome this schizophonic effect relative to the practices of soundmapping.

Possible Steps Forward

Over the past decade numerous experimental models have emerged, which extend the typical soundmap format via a number of primary means. One avenue has been to extend the existing online soundmap format by focusing on the relationship between the archived recordings featured in the database. Sound Database[64] for examples allows the user to create "mixes" of recordings featured on the database, whilst SoundTransit[65] allows users to set a certain trajectory between recordings. This trajectory defines a compositional form and progression as the audio player follows the trajectory set by the user, and cross-fades the recordings into each other, resulting in a soundscape composition of sorts.

Others have focused on re-engaging the specific environment spatially and materially, employing mobile media technologies either to facilitate the immediate recording and uploading of material to the soundmap in the case of the LocusSonus Project[66] and UrbanRemix[67] . The use of augmented reality practices is also increasingly common, in cases such as Hear & There[68] , Tactical Sound Garden[69] , & Urban Tapestries[70] as a means of tagging recordings to specific geo-spatial locations, which are then accessed on site with those with the requisite mobile hardware and software. In the case of the latter group of platforms, the web-based interface has been done away with entirely and the experience and means of engagement with the recordings becomes bound entirely to the intersection of site and requisite mobile technology.

62 Schafer, R. Murray, The Soundscape. Rochester, Vermont: Destiny Books. 1977, 90
63 Truax, Barry, Acoustic Communication, Westport, Connecticut: Ablex, 2001: 218
64 "Sound Database", http://www.petercusack.org/
65 "SoundTransit", http://turbulence.org/soundtransit/search/sounds.php
66 "LocusSonus Project", http://locusonus.org/
67 "UrbanRemix", http://urbanremix.gatech.edu/
68 "Hear & There", http://smg.media.mit.edu/projects/HearAndThere/
69 "Tactical Sound Garden", http://www.tacticalsoundgarden.net/
70 "Urban Tapestries", http://urbantapestries.net/

These examples all follow different avenues to emphasize and explore "the social dimension of technologically mediated listening"[71] and the relationship of this to the experience of space and place.

4. MOBILE LISTENING TECHNOLOGIES, SITE LISTENING PRACTICES, AND AUDIO WALKS

Mobile Listening Technologies

The emergence and development of mobile listening technologies has seen a movement towards increased mobilization, individualization and privatization of the listening experience. Hosokawa[72] outlines a historical progression "from living together (in the immediate sound environment) and making music together to listening to music together (through sound technology) and eventually listening to music alone with the birth of the portable music player."[73]

From earlier mobile listening devices such as the transistor radio and the boom box that promoted a portable yet social listening experience there has been a move towards an increasing individualization or personalization of the mobile listening experience. The Walkman and subsequently the Discman saw the listener close himself/herself off from the collective dimension of the listening experience (encompassing both shared mediated listening and the shared experience of the immediate sound environment) into a private sonic interior. This immersion within a private, personally constructed and technologically mediated soundscape has been compounded further with the emergence and universal popularity of the iPod and other portable digital devices. These devices allow the user to effectively carry their entire record collection in their pocket[74]. No longer is the user inhibited by a limited number of possible musical selections:

> *"The iPod expands the options available to users for customizing music to mood and environment. It is rare for iPod users to resort to switching off their machines for lack of appropriate music, unlike the world of Walkman users, where no music is often preferred to the 'wrong' music."*[75]

Increasingly the user of the portable music device spends significant periods of their day plugged

71 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 160
72 Hosokawa, Shuhei, "The Walkman Effect", Popular Music, 4 (1984), 165-168
73 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 130
74 Ibid, 132
75 Bull, Michael, Sound Moves: iPod culture and urban experience, New York: Routledge, 2007, 127

into their iPod, listening to it via headphones on the go, via the car stereo, or through their hi-fi system at home, "thus giving users unprecedented ability to weave the disparate threads of the day into one seamless and continuous soundtrack."[76] Indeed the mobile music player has become one of the central technologies of contemporary urbanism. Though the personal empowerment that it brings comes at a cost: "the price of technologically mediated empowerment is privatization"[77], and as Hollerweger points out this privatization of the listening experience has taken effect both on a level of content and on a level of the medium. "Compared to earlier technologies, the personal mobile music player has further privatized both listening (through headphone than loudspeakers) as well as what is being listened to (personal music collections rather than public broadcasts).[78]" As a result the contemporary listening subject has become increasingly closed of to the sound environment, the sonic commons if you will, enclosed in a private sonic interior. The results of this range from social disassociation, to fatal accident in the all to common case of the iPod listener struck by a car whilst crossing a road, without the vitally necessary sonic information provided by listening to ones environment.

Site Listening and Soundwalking

In response to such schizophonic concerns (discussed in the previous chapter), various artists, and composers practicing within this area have employed a range of site-specific practices to direct the listener's attention to the sound environment at a given location or to specific features or "soundmarks" within the sound environment. One of the methods in question uses pre-defined listening cues, via text, maps, or on site via site-specific iconographic images, plaques and sculptural installations. Another employs guided sound walks where the artist's themselves lead a group of listeners through a given environment, providing listening cues to direct attention to certain features within the sound environment.

The work of Peter Ablinger is an interesting case in point; in his Weiss/Weisslich series Ablinger has employed a wide range of methods to direct the audience members attention to the soundenvironment. His piece Weiss/Weisslich 35 employed a number of plaques distributed around Vienna, which provided textual listening cues:

> *"The timbre of the lime tree is created by the breaking of the wind in the leaves; the darker sound of the ivy, on the other hand, is due to its leaves grazing each other."*[79]

In this instance the plaques directed the listeners attention to a specific feature or soundmark within the immediate sound environment as Ablinger puts it: "the piece consists of signs in public space on which one reads short descriptions of the actual acoustic situation, the location where the sign is set up. Similar to signs that refer to a botanical particularity of a nearby tree, the signs of this piece describe simple objective facts of the acoustic vicinity."[80] Whilst in the case of Weiss/Weisslich

76 Ibid, 128
77 Sterne, Johnathan, The Audible Past: Cultural Origins of Sound Reproduction, Durham & London: Duke University Press, 2003, 52
78 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 131
79 "Weiss/Weisslich 35, Schilderungen", last modified 1 Decemeber 2009, http://ablinger.mur.at/docu09.html
80 Ibid

10[81] the textual cues were more general designating a location/sound environment at large rather than specific features within:

> "10a : cloister with fountain-house, Lilienfeld, Austria
> 10b : free-way tunnel, Plabutsch, Austria
> 10c : ravine, Burgau, Austria
> 10d : whitehorn wood, Hiddensee, Germany"[82]

Weiss/Weisslich 29b by Peter Ablinger[83]

Another interesting method employed by Ablinger within this series as featured in Weiss/Weisslich 29b[84], is his use of chairs arranged in a manner that resembles seating in a concert hall, situated outside at a given location. "Here the apparatus of the concert hall itself is invoked (ostensibly minimally, yet almost absurdly) and transported in order to instantiate anywhere the kind of listening the concert hall normally suggests."[85] In such a way this piece employs the seats symbolically to reference a certain mode of listening associated with concert performance whilst instead of drawing attention to a would be orchestra, the piece leaves the audience to experience the un-mediated sound environment from this "privileged" listening position.

Another key site-listening practice that has proved to be increasingly popular since its inception is that of soundwalking. Soundwalking is essentially an intentional walk through a given location, with the participant's attention directed towards listening to and engaging with the sound environment. As Hildegard Westerkamp puts it:

> *"A soundwalk is any excursion whose main purpose is listening to the environment. It is exposing our ears to every sound around us no matter where we are. We may be at home, we may be walking across a downtown street, through a park, along the beach… Wherever we go we will give our ears priority.'*[86]

81 "Weiss/Weisslich 10", last modified 31 July 2002, http://ablinger.mur.at/ww10.html
82 Ibid
83 "Weiss/Weisslich 29", last modified 19 August 2007, http://ablinger.mur.at/docu01.html
84 Ibid
85 Barrett, G. Douglas, "Between Noise and Language: The Sound Installations and Music of Peter Ablinger", Mosaic 42.4 (2009): 148-164
86 "Soundwalking," in Autumn Leaves: Sound in the Environment and Artistic Practice, ed. 49-54, , Paris: Double Entendre, 49

Soundwalking has its origins in the experiments of the Fluxus artist Philip Corner [87], who as early as 1966 began to guide groups of people on walks in New York city directing them to listen to the city as if it were a concert. The renowned sonic artist Max Neuhaus also started leading similar walks later in the same year:

> *"The first performance was for a small group of invited friends. I asked them to meet me on the corner of Avenue D and West 14th Street in Manhattan. I rubber stamped LISTEN on each person's hand and began walking with them down 14th Street towards the East River. At that point the street bisects a power plant and, as I had noticed previously, one can hear some spectacularly massive rumbling. We continued, crossing the highway and walking alongside the sound of its tire wash down river for a few blocks, re-crossing over a pedestrian bridge, passing through the Puerto Rican street life of the lower east side to my studio where I performed some percussion pieces for them."* [88]

Since these early experiments soundwalking has becoming an increasingly common and popular practice "at the periphery of experimental music, architecture, cultural geography, sociology, natural history, urban design, and other disciplines."[89] Essentially the basic form of the practice has remained much the same since its inception,[90] as in part the effectiveness and beauty of soundwalking as a listening practice relies in its unmediated simplicity.

Audio Walks

One specific practice of interest that has emerged from sound walk practice and related concerns is the audio walk. Audio walks essentially integrate mobile listening technologies with sound walking and site-listening practices in an attempt to repurpose the same technological forms that have seen an increased disassociation from the sound environment towards facilitating a reengagement with the sound environment.

> *"Various sound artists have addressed this desire to connect technologically mediated listening to the environment within which it occurs. In their works, mobility becomes an integral part of the listening experience rather than a mere by-product of a hectic lifestyle."* [91]

As opposed to the un-mediated immediacy of the sound walk, the audio walk actively engages with technologies of listening and their mediating effects. In doing so it acknowledges and creatively explores the technological dimension to listening that is so much a part of our everyday lives, and by extension part of the contemporary sound environment in itself. The methods and specific technologies employed within such a context range from the simple in the case of Janet Cardiff's use of the Discman and headphones,[92] to the more elaborate including the use of GPS and computer processing of live audio material from the given environment. Such practices employ a range

87 Both the Situationists and Fluxus had explored various "walking practices" orientated around navigating urban space with a emphasis on aesthetic perception and creative interaction with the environment.
88 Neuhaus, Max, "Listen", In Sound By Artists, ed Dan Lander & Micah Lexier. Banff: Walter Phillips Gallery, 1990, 63
89 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 92
90 Though variations on them theme have emerged.
91 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 135
92 Ibid, 137

of techniques to create an interplay between the imposed audio material and the environment as it is experienced visually. This interplay ranges from the use of narrative devices such as verbal narration and a strong semantic dimension to the sounds employed, to more technologically elaborate approaches in which environmental sound is recorded and processed live.[93]

Her Long Black Hair by Janet Cardiff and George Bures Miller[94]

The work of Janet Cardiff is a interesting case in point as whilst its is technologically rather simple, her engaging use of narrative and semantic associations between the audio material and the environment see her works considered as master pieces within the field.

> *"The audio walks of Janet Cardiff, which she partly produces in collaboration with Georges Bures Miller, are often considered master pieces of site-specific narrative. Instead of tracking the user's location by means of technology, the integration of location and sound in these works is simply achieved by instructing the listener to play a certain track on a mobile music player in a specific location. This reduces the required technology to a minimum, which makes less distractions and certainly contributes to the impact of Cardiff's walks."*[95]

93 Ibid, 137
94 Janet Cardiff and George Bures Miller, http://www.cardiffmiller.com/artworks/walks/longhair.html
95 Ibid, 137

This overlaying of audio material into the visual (and tactile) environment creates both a synchrony but also a certain tension between what is seen and heard.

> *"Reality becomes infiltrated by virtuality. We cannot immediately assign what we hear to the outside world or the world inside the headphones. This inability produces alarmingly, rapid synesthetic effects. It colonizes our unconscious and uses acoustic hooks to engage the whole of our current perception. This is part of what makes Cardiff's walks so fascinating: our attention is guided and modified by what we hear and this influences what we expect to see."*[96]

Audio walk practices and related techniques share certain key elements with soundmap practice in that they endeavor to employ technological means to direct the listeners attention to the sound environment. Both practices also engage with the intersection between the technologically mediated sound environment and the un-mediated sound environment. Whilst the affective power of sound walks lie in their un-mediated immediacy, audio walks and soundmap practice work rather with the intersection and intermingling of the technological and the environmental. They creatively engage with and employ the ubiquitous listening technologies of the day, repurposing them to direct the listener's attention to the sound environment that is so often obscured by the same technologies. In the New Zealand Soundmap project I have attempted to draw on audio walk techniques and locative media technologies to provide a technologically facilitated site-listening experience, which we explore in the following chapters.

5. AUGMENTED REALITY AND THE SOUND ENVIRONMENT

Extending the more generalized critique presented in the first chapter regarding our visual socio-technological bias, Frauke Behrendt has made the observation that "most locative media[97] applications and the discourses surrounding them, are heavily biased towards visual, textual, and often map based interactions."[98] She flags the prevalence of terms such as see and screen in much of the discourse surrounding these practices, and the primarily visual orientation of the practices and technologies themselves.[99] Her assertion similar to the one put forward in the opening chapter of our enquiry, is that "this visual focus needs to be balanced by a multi-sensory approach."[100] Interestingly, in contrast to this perspective Lev Manovich in his rather important early work on augmented space; The Poetics of Augmented Space: Learning for Prada, cites the work of Janet

96 Schaub, Mirjam, Janet Cardiff: The Walk Book, Walther Konig, Koln, 2005, 16
97 This critique can be extended to Augmented/Hybrid/Mixed Reality practices in general.
98 Behrendt, Frauke, "The Sound of Locative Media." Convergence Vol 18 (3), 2012, 283
99 Ibid, 283
100 Ibid, 283

Cardiff as a form of proto-augmented reality. His assertion being that her audio walks engender the same sort of augmentation, that often far more technologically elaborate practices attempt to do, in terms of constructing an augmented space/reality experience.[101]

> *"In my view her 'walks' represent the best realization of augmented space paradigm so far – even though Cardiff does not use any sophisticated computer, networking, and projection technologies. Cardiff's 'walks' show the aesthetic potential of overlaying a new information space over a physical space. The power of these 'walks' lies in the interactions between the two spaces - between vision and hearing (what the user is seeing and what she is hearing), and between present and past (the time of user's walk versus the audio narration which any media recording belongs to some undefined time in the past)."* [102]

As Manovich states the essential elements of the experience stem from the interaction and intermingling of virtual and physical spaces. In Cardiff's "walks" the imposed layer of audio material plays off the environment, as it is perceived visually, as well as extraneous sounds that managed to penetrate the relative aural insulation provided by the headphones and Cardiff's soundtrack, whilst affecting a temporal dilation of time, as past and present collapse into each other and intermingle. It is this antagonism between and integration of these diffuse elements; sound and vision, the past and the present that creates the sense of augmented space. A hybrid space replete with novel perceptions and experiential possibilities is generated beyond its constituent parts.[103]

Sonic Approaches to Augmented Reality

In the text The Sound of Locative Media cited above, Behrendt draws on the work of the collaborative duo known as Bluebrain who developed a smart phone application called the National Mall, which draws on many of the central elements of the audio walks of practitioners such as Cardiff et al, and integrates them alongside the "traditional" tools of contemporary locative media (smartphones, GPS etc) into a form of augmented space practice. "Users are invited to download the app, and then walk around an outdoor park are in Washington DC, and, depending on their location, they can hear specific composed sounds and music that the musicians behind the project have "attached" to these locations."[104]

The duo behind the project coming from a musical background, and identifying as musicians regardless of the obviously interdisciplinary nature of their practice, frame their National Mall project as a "location-aware" album, in their words:

> *"The app is the work itself, designed to play exclusively within the physical boundaries of the national mall in Washington DC, this is a sonic "choose your own adventure". An album that does not progress in a linear manner, but rather, evolved based on the user's chosen walking path and pace, utilizing the devices built in GPS capabilities. Musical swells, arrangement shifts, rhythms and melodies all change in accordance with the listener's chosen route within the miles of landscape."*[105]

101 Manovich, Lev, "The Poetics of Augmented Space: Learning for Prada." , accessed Nov 1, 2012, http://www.manovich.net/DOCS/Augmented_200.doc, 6
102 Ibid, 6-7
103 Ibid
104 Behrendt, Frauke, "The Sound of Locative Media." Convergence Vol 18 (3), 2012, 285
105 Bluebrain, "The National Mall by Bluebrain: The first location-aware album." accessed Nov 1, 2012, http://vimeo.com/24250620

Concept diagram, Tactical Sound Garden Toolkit[106]

Of particular interest to this enquiry due to its close relationship to soundmap practice, is the Tactical Sound Garden project, which is an "open source software platform for cultivating public sound gardens within contemporary cities."[107] Essentially the platform allows interested parties to set up a public "sound garden" on a localized WIFI network, which then allows members of the public with the requisite technology (any WIFI enabled mobile device: laptop, mobile phones, smartphones, tablets etc.) to "plant" recordings at a specific location, for other participants to listen to. The locations are defined by the geographic limits of the WIFI network in question. In such a way this project can be seen to attempt to counteract the "privatizing" effect on public space by the use of personal, portable music devices. The Tactical Sound Garden platform or "toolkit" as the creators refer to it "seeks to reintroduce a form of active participation in the articulation of public space."[108]

Due to its participatory, open source nature, which allows Tactical Sound Garden to be installed in different socio-geographic contexts, the project represents a particularly interesting step forward in terms of such practices. Tactical Sound Garden can be seen as more than simply an "update" or recapitulation of pre-existing audio walk practices, via contemporary technologies, as arguably projects such as the National Mall can be seen to be[109]. Rather Tactical Sound Garden engages with the technological infrastructure of the network technologies and mobile devices it employs to open

106 "Tactical Sound Garden", accessed Nov 1, 2012, http://www.tacticalsoundgarden.net
107 Ibid
108 Ibid
109 The participatory element of National Mall, works on a level of employing meta-data produced by a users movements through the space, to modulate the pre-defined music/sound. In this case "music" is employed rather than environmental sound, or spoken word elements etc. Hence the creators term "a location aware album".

up creative potentials in terms of how the public engage with space, as both individuals and socially as a community. The public is able to engage in projects such as this, not just as an "audience" or "listeners" but as "composers" or "sonic artists" in their own right. This methodology harkens back to Barry Truax' statement regarding the appropriation of the technologies of the day towards creative ends, using them to highlight problems inherent in our relationship to said technological forms, opening up further possibilities for their use[110]. In the creators words;

> *"The TSG toolkit supports the creation of shared social spaces within which people collaborate on the cultivation of sonic environments. The Toolkit builds on the practice of "playlist sharing"… to articulate new terrain for social interaction in contemporary cities. 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."*

The Tactical Sound Garden can be seen to operate along similar lines to contemporary online soundmaps in the sense that it appropriates new media technologies and techniques towards facilitating an engagement with the sound environment. Whilst both employ new media technologies, the online soundmap exists more explicitly within virtual-space, a cartographic representation of space situated on the internet, whilst the Tactical Sound Garden occupies a hybrid space, as virtuality and materiality intermingle to create something beyond either elements alone. This reengagement with the material environment is something we have endeavored to integrate as an extension of the typical online soundmap format, within the New Zealand Soundmap project.

6. DEVELOPING A NEW ZEALAND SOUNDMAP: TOWARDS A LOCAL LISTENING COMMUNITY AND THE INTEGRATION OF AUGMENTED REALITY INTO SOUNDMAP PRACTICE

Localized Listening: A Regional Soundmap

The initial endeavor to create the New Zealand Soundmap[111] grew out of an interest in the potentials of soundmap practice as a means of encouraging and developing awareness of and engagement with the sound environment that we inhabit as New Zealanders.

Whilst web-based soundmaps exist for many diverse locales around the world their full significance and value is grounded in the lived experience of the local sound environment that they represent. As well as constituting an archive of recordings to be listened to by geographically dispersed individuals these soundmaps exist to encourage and facilitate local individuals to engage in site-listening and field recording practices which are ultimately grounded in a phenomenological engagement with the immediate environment. The soundmap in this context exists both as a platform to present and display the recordings made by local individuals engaged in these areas of practice and as a means for the individuals in question to engage with (via listening to recordings, commenting and discussing recordings and approaches etc.) the recordings made by other parties. In this way the regional soundmap creates a platform that works towards facilitating and encouraging a wider community engagement with our aural culture, and the sound environment we inhabit on a local level. The New Zealand Soundmap is a community resource, devoted to documenting and celebrating our local aural culture.

Listen, Record, Listen

The engagement with a soundmap is ultimately grounded in the experience of listening. Its very existence is a call to listen. By recording the everyday sound environment and drawing attention to it as being worthy of our aural attention in the same way one would listen to a piece of music, it serves as an invitation to listen, opening up new vistas of sonic perception to those with open ears.

From an initial engagement with the platform the individual is confronted with a body of recordings, some familiar, some alien, depending on their location, degree of aural literacy, and listening orientation. For those that connect with the listening experience that the soundmap and its constitutive recordings provide, it suggests the possibility of extending this listening experience into the everyday life of the listener and ultimately given the inclination and required technological mobility, extends a invitation to record, to share ones own aural perceptions with a wider audience.

Field Recording is essentially one of the central practices that such soundmaps promote and is in itself a listening practice of importance, as it is predicated on "extended periods of directed listening"[112] , which are then mediated by the creative use of a recording device to construct a representation or documentation of the initial object/moment of listening. Various practitioners and theoreticians in such areas, from Pauline Oliveros[113] , to R. Murray Schafer[114] have suggested that field recording practice can help to cultivate aural awareness in the listener. In the words of Hildegard Westerkamp:

> *"Once you record, your ear shifts tremendously […] just as looking through a camera you see the world differently, when you begin to record you hear the world differently."* [115]

Again in Westerkamp's sentiment we see this emphasis of the transformative nature of the process of aestheticization inherent to recording, in which the everyday is raised to the level of the sublime. Whilst, with a more pragmatic emphasis Hollerweger suggests that much of the importance of field

110 Truax, Barry, Acoustic Communication, Westport, Connecticut, 2001, 218
111 http://www.soundmap.co.nz

112 Hollerweger, Florian, The Revolution is Hear! Sound Art, the Everyday and Aural Awareness, Unpublished doctoral dissertation, Queen's University, Belfast, Ireland, 2011, 100
113 Oliveros, Pauline, Deep Listening: A Composers Sound Practice. New York: iUniverse, 2005, 28
114 Schafer, R. Murray, The Soundscape: Our Sonic Environment and the Tuning of the World. Rochester, VT: Destiny Books, 1994, 208
115 "Kits Beach Sound walk an Aural Meditation", http://www.bcliving.ca/entertainment/kits-beach-soundwalk-an-aural-meditation

recording comes from the fact that it "implicitly makes the recordist comply with the rules of listening, including silence on one's own behalf and a respect towards the sounding environment."[116]

Once the listener begins to actively participate in making recordings and sharing them with other listeners, the process feeds back into itself, the listener enters into an active role as a recordist or phonographer, a composer working with the materials of the given environment, and then returns to a more passive or receptive listening, in turn offering up their own aural perceptions as recorded materials for others to listen to and be inspired by.

A Local Listening Community

The ultimate goal of soundmaps such as the New Zealand Soundmap then is to foster a listening community actively engaged in listening and recording practices. The basis of such a community is fundamentally grounded in and stems from the occupation of a shared geography, a shared place and space, a shared sound environment, which is familiar to the collectivity of users as the ground of their own everyday sonic experience.

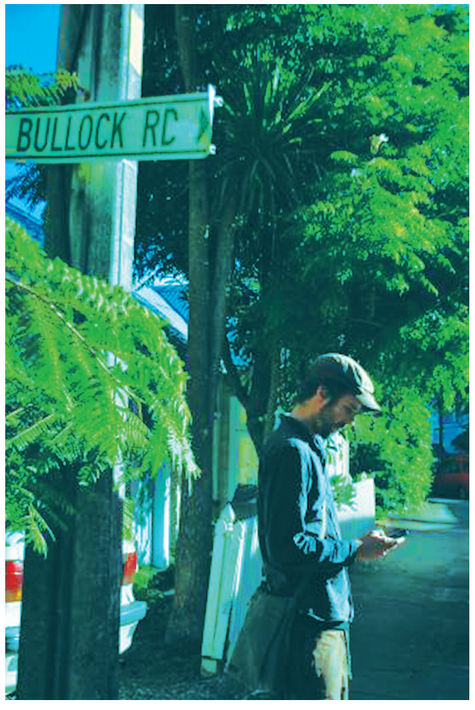
Whether it is the idiosyncratic songs of our native birds, the hum of cicadas in summer, or familiar sounds of the cultural sphere, certain soundmarks are familiar to all New Zealanders. This sonic landscape forms the basis of and the potential for a listening community based around the celebration of and participation in our regional sound environment. As Brandon LaBelle suggests;

> *"the momentary connection found in an arc of sound is equally a spatial formation whose temporary appearance requires occupation, as a continual project. This is our place is also potentially, this is our community. The dynamic of auditory knowledge provides then a key opportunity for moving through the contemporary by creating spaces that belong to no single public and yet which impart a feeling for intimacy."* [117]

In a sense the development of a regional soundmap can be seen as representative of this project: the formation of a listening community. It serves to bring awareness to (using contemporary technological means) that which is already inherent and fundamental, our common aural heritage as New Zealanders. Ideally, the hope is that the New Zealand Soundmap can function as a community resource, connecting individuals through shared listening experiences.

116 "Kits Beach Sound walk an Aural Meditation", http://www.bcliving.ca/entertainment/kits-beach-soundwalk-an-aural-meditation
117 LaBelle, Brandon, Acoustic Territories; Sound Culture and Everyday Life. New York: Continuum, 2011, 17

Integrating Augmented Reality Technology into Soundmap Practice



As part of the New Zealand Soundmap project we[118] are experimenting with the integration of Augmented Reality technology into a soundmap context. Essentially the aim here is to explore ways to reengage with the materiality of the environment that is being represented by the soundmap. Drawing influence from projects such as the Tactical Sound Garden, as discussed in the previous chapter, we have employed mobile based Augmented Reality as a means of facilitating a site-listening experience for participants. The same body of recordings that is accessible via the online soundmap (tagged to a virtual cartographic rendering of the environment in question) is also tagged via GPS to the corresponding locations within the material environment. Participants are then able to access the recorded material on-site [119] via the requisite application[120] on their mobile phones.

The impetus here is to creatively overcome the aforementioned schizophonic effect that comes from the abstraction of the sound material from its original environmental context via recording, and its representation via the online soundmap. The integration of augmented reality in this sense is an attempt to move away from the "pure virtuality" of the online soundmap, to reengage with the material dimension on which the processes of listening and recording that are inherent to practice are predicated. This "reengagement" though should not be understood as an attempt to return to an unmediated experience of the sound environment but rather, as a creative engagement with the difference produced between the technologically imposed sound material and the given features of the environment themselves. Again it is this interplay between the imposed sound recording and the environment itself - in the production of a hybrid/mixed space - that forms one of the central aspects of the audio walk as personified by the work of Janet Cardiff[121] et al. The ubiquitous mobile technologies of the day are employed here to facilitate this site-specific listening experience, both practically due to relative universality of use and their integration with GPS and the internet at large and conceptually as such devices so often serve to distract oneself from engagement with the unmediated environment, rather than facilitate a deeper engagement with it. This harkens back to Barry Truax' notion that was touched upon in the introductory chapter regarding the importance of alternative, creative uses of technologies in terms of suggesting different possibilities for use, and promoting critical reflection on how said technologies are conventionally employed.[122]

Participants of the NZSM can engage with the possibilities opened up by the integration of

118 We refers to myself as curator and lead designer, the other designers and programmers that have helped on the project, and those that have participated as recordists/phonographers and listeners.
119 Within a certain radius of the GPS point that the recording in question is tagged too.
120 We have used the Layar Augmented Reality Browser for these purposes.
121 Schaub, Mirjam, Janet Cardiff: The Walk Book, Walther Konig, Koln, 2005, 16
122 Truax, Barry, Acoustic Communication, Westport, Connecticut, 2001, pg. 217-218

mobile-based site listening, to create associations between the imposed recorded material and the environment. This could take the form of imposing entirely "foreign" sound materials into a certain environment to draw association to certain features (whether they be sonic or semiotic) present within the environment itself, the addition of further sound material to a field recording taken from the environment in order to construct a "soundscape composition" to be listened to on-site, or listening cues designed to direct the aural attention of the participant to certain sound-materials present within the environment.

Dual Listening Modes

The archive of recordings that constitutes the NZSM can be accessed for listening purposes via the "traditional" web based interface or by the mobile augmented reality interface. Both provide a unique listening experience.

1. Remote Listening – When the recordings are accessed from a remote (or removed) location via the web based interface a "reduced listening" of a sort is experienced, whereby the sound material removed from its location and the context provided by the environment is engaged on a primarily sonic level. Without being able to associate the specific sounds heard with specific environmental features (as experienced visually etc.) the listening experience is focused on the sound in itself, facilitating an engagement with the sound objects present in the recording that is often missed when the listener is able to associate what is heard with what is seen.

2. Site Listening – The site listening experience provided by the mobile augmented reality interface on the other hand works with this associative/semantic aspect of the listening experience. By imposing recorded sound material into a location, associations can be drawn in ways that draw emphasis to certain acoustic or semantic aspects within the sound environment. Whilst as aforementioned the intersection of the virtual and material aspects creates a hybrid space, which is constructed through a play of difference between the virtual and the material. The imposed audio material is contrasted with the acoustic and visual elements present in the environment at a given time. Recorded and raw, un-mediated environmental sound merge together, or stand in stark opposition[123] , associations are made between imposed audio material and visual elements present in the environment at the moment of playback. The temporal dimension is significant here as recordings may feature sonic elements that are not just location specific, but temporarily specific to certain times of the day, or specific seasons in the case of wildlife etc.

These dual listening modes should ideally facilitate different means of engagement with the soundmap and the archive that constitutes it, as well as providing different listening experiences, and means of engaging with the sound environment for the listening participant.

123 When recordings are played back in the location they were made the results can often be complementary, in the sense that the same sonic qualities are present in the environment as in the recording, or contrasting as due to temporal differences/changes in the environment the recording and the raw sound material stand in opposition rather than cohering in a obvious fashion.

7. THE NEW ZEALAND SOUNDMAP PROJECT: CONCLUSIONS

Establishing the New Zealand Soundmap

As my initial research term closes, the New Zealand Soundmap is up and running and being used by the public. It is actively used by a small but enthusiastic number of contributors, who have populated it with recorded material from around the country. The material reflects a wide variety of environments and socio-geographic contexts, as well as the more idiosyncratic listening orientation of the individual phonographers themselves. Birdsong, is bookended with Stainer Black-Five's recordings of the seismic shudders of the Christchurch Earthquake[124], and urban sounds are represented as rural ambiences. On this basic level the project has thus far been a success, in that it is actively being used by a body of participants, each with their own focus in terms of the soundmarks that they have recorded.

The next phase for the New Zealand Soundmap project is promotion to a wider public. Opportunities are being pursued with various related institutional bodies from SOUNZ[125] to the Audio Foundation[126] who have expressed their interest and support for the project, whilst myself and other parties involved in the project are looking to facilitate workshops and soundwalks on a localized level orientated towards helping cultivate a "listening community," as was discussed in the previous chapter.

The value of the project in the long term will ultimately be demonstrated by the degree to which the map manages to self sustain and grow, to change and develop of its own accord as a community project, its ability to go beyond established practitioners of such sonic concerns and be engaged with by a wider public. Towards these ends facilitating public events such as field recording workshops and group sound walks is of utmost importance. As mentioned in the last chapter, the online soundmap is not an end unto itself, but rather a means to try to expose such practices and concerns to a wider public, outside of the usual group of specialists that take interest in them. Towards these ends, public events that encourage such practices and build interest in these practices through practical experience and face-to-face interaction are invaluable.

Technological Accessibility & Mobility

One of the key factors to engaging a wider public with such a project is technological accessibility. The barrier to participation, in terms of requisite technology, must be as low as possible. Essentially, this is one of the main values of using contemporary ubiquitous technological forms as the basis for the project. By using a web-based soundmap, which operates along lines familiar to many

124 "Christchurch aftershock recording", http://www.soundmap.co.nz/node/52
125 "SOUNZ – Centre for New Zealand Music", http://sounz.org.nz/
126 "Audio Foundation", http://audiofoundation.org.nz/

New Zealanders[127], and given the commonplace use of the necessary hardware to access the site such as a computer, laptops, smart phones, and literacy skills acquired through using similar software and web based interfaces such as Google maps and social media websites, it manages to be accessible to participants at least in the capacity of listeners.

The main barrier to the layperson in terms of engagement with the soundmap comes with recording. The central problem here being that typically speaking the ability to record is tied to having ownership or access to a portable recording device of some description. Such portable recording devices, or field recording devices, are specialist pieces of equipment and due to their price-tag and somewhat singular use are outside of the immediate grasp of the non-specialist, who isn't already invested to some degree in related practices and field of particularly inquiry that the soundmap showcases. Recording via a smartphones built in microphone, or with an additional microphone plugged into the smartphone, are other options that could make this process more accessible to the general public.

One possible solution that I would like to pursue in the future for the project is the construction of a standalone smart phone application that facilitates not just site-listening, which is currently achieved via a third party augmented reality program, but the recording, uploading and geo-tagging of recordings as per the website. The generic nature of the third party platform that is currently being used (Layar[128]) is problematic in that whilst it facilitates site listening to a basic level, its level of integration with the New Zealand Soundmap website and its archive of recordings is limited. The interface, in line with Behrendt's aforementioned critique of such technologies,[129] emphasizes the visual and by extension is primarily orientated towards facilitating visual augmentations of the environment. A purpose built stand-alone application, could resolve many of the issues presented by using such a generic augmented reality interface.

With a custom made application the participant would only need to make the recording within the requisite application, and it would be geo-tagged to their location, and uploaded upon being saved. In such a way it would reduce the barrier to making and uploading recordings significantly. This is of the utmost importance, not just in making the soundmap more accessible to participants from the general public, but also for facilitating the ease of recording for participants to the point that they can easily record whatever soundmarks happen to pique their interest as they are encountered. As a phonographer myself, countless times I have come across an interesting sonic phenomenon, whilst my field recorder is stowed in the drawer at home. In most cases the sonic phenomenon is fleeting and non-reoccurring, or in others the distance to the location prohibits the phonographer returning easily. By contrast, I carry my smartphone on my person most of the time, as one would imagine many New Zealanders increasingly do. To be able to make and upload recordings quickly and easily via such a ubiquitous technological forms would lower the barrier to engagement significantly. This could be seen to be an extension of the digitization of the soundmap form, as it developed into its current online web-based form, from its origins as a curated body of recording made by "expert" practitioners, wielding expensive and inaccessible equipment. Through this process it has developed into an increasingly accessible form. As the technologies and literacy required to engage with soundmap practice as a phonographer, have become more accessible to the wider public.

127 Due to its essential similarity to a generic Google Map, which are often tagged with photos of the locations in question. In such a way, a sound map is familiar but privileges a different sensory mode, and means of representation.

128 "Layar", http://www.layar.com

129 Behrendt, Frauke, "The Sound of Locative Media." Convergence Vol 18 (3), 2012, 283

In Closing

The New Zealand Soundmap project is an ongoing enterprise, extending from its origins as a research project within an institutional context, to its current use by an expanding community of participants. As indicated, its success and real value will come from the wider public's engagement with it. From its current form we will seek to develop it and promote it in accord with feedback from participants, and promote it to a wider public through the various means outlined above. The experiments with augmented reality technologies do not represent a final or definitive development, but rather the endeavor to continue to develop soundmap practice in line with the latest technological developments in related fields. This is, I maintain, the key to the continued success and relevance of not just the New Zealand Soundmap but soundmap practice in general. It is my hope that the research I have conducted here will be of relevance and value to the community of practitioners engaged in soundmap practice and related activities across the globe. Indeed one of the key avenues for promoting and developing the New Zealand Soundmap will be to network the it with the myriad others from around the globe, and to share the information gained from our various successes and failures with other practitioners in the field.

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