

Te Oro o te Ao

The Resounding of the World

Rachel Mary Shearer

2018

An exegesis submitted to Auckland University of Technology in fulfilment
of the requirements for the degree of Doctor of Philosophy
School of Art and Design

ABSTRACT

criteria of *ibi*—in this context, the intrinsic power of an event that draws a response from an audience, along with *wehi*—the reaction from an audience to this intrinsic power, and *wana*—the aura that occurs during a performance that encompasses both performer and audience, contribute to a series of sound events that aim at evocation or affect rather than interpretable narratives, stories or closed meanings.

The final outcome of this research is realised as a sound installation, an exegesis and a 12” vinyl LP. Together these sound practices form a research-led practice document that demonstrates how and why listening to the earth matters, and proposes a multi-knowledge framework for understanding sound, space and environment.

Nō reira *And so*

Tēnā koutou, tēnā koutou, tēnā tātou katoa *Greetings, greetings, greetings to us all*

Tēnā koutou, tēnā koutou, tēnā tātou katoa *Greetings, greetings, greetings to us all*

This practice-led PhD is a situated Pacific response to international critical dialogues around materiality in the production and analysis of sonic arts. At the core of this project is the problem of what happens when questions asked in contexts of Pākehā knowledge frameworks are also asked within Māori knowledge frameworks. I trace personal genealogical links to Te Aitanga ā Māhaki, Rongowhakaata and Ngāti Kahungunu iwi. Though my life experience and other bloodlines are predominately those of an urban Pākehā (NZ European). The works of Māori Marsden, Te Ahukaramū Charles Royal, Mere Roberts and Carl Mika are important sources in this context, as are linguistic and philosophical discussions with Māori mentors. I engage Pākehā ecologies of Gregory Bateson, Henri Bergson, Gilles Deleuze and Felix Guattari, among others, in conversation with Maori epistemologies, through the framework of whakapapa. In doing so, I bring together different worldviews and listening practices in order to ask what a sonic ecology might perform in the context of the earth and its ecologies.

In considering the role of sonic practices in listening to the earth, multiple knowledge frameworks are sought and activated as processual sound explorations. Forces, intensities and becoming are viewed in relation to how a thinking and questioning being encounters a threshold of sense. Immanence, vital material becomings, and aesthetics of affect are inherent to this critical path. I propose that we think with technology to transform what is known to what could be possible, to access different ways of knowing and remembering.

Tē Oro o te Ao engages listening at the threshold of the audible and the inaudible, encompassing spaces and ideas that surround frequencies. The Māori performative

Table of Contents

Abstract	3
List of figures	7
Attestation of Authorship	9
Acknowledgements	11
Introduction	13
Chapter 1 Te ao Tukupū <i>The Universe</i> Whakapapa, Vital Energies and Ecology	17
Chapter 2 <i>Sound Listening & Affect</i>	23
Chapter 3 <i>Assemblages of Sound, Space, Time & Technology</i>	29
Chapter 4 <i>Local & Granular Listening</i>	39
Chapter 5 <i>Deep Ecologies & Deep Listening</i>	47
Chapter 6 <i>Process & Practice</i> Bringing a Space Into Being	55
Conclusion Te Mutunga	63
References	65
Glossary	77

List of Figures

Figures for Chapter 3

fig. 1. Camille Norment, *Triplight* (2008) Exhibited at Soundings: A Contemporary Score. Museum of Modern Art, New York. Accessed December 2015 <http://www.norment.net/work/objects-installations-ind/triplight/>

Figures for Chapter 4

fig. 2. Colin McCahon. Nelson Hills 3. (1948) “Colin McCahon, Online Catalogue, Nelson Hills 3,” Accessed January 2017 <http://www.mccahon.co.nz/cm000841>

fig. 3. Colin McCahon. Otago Peninsula. (1946). “Colin McCahon, Online Catalogue, Otago Peninsula 1946,” Accessed January 2017, <http://www.mccahon.co.nz/cm001650>

fig. 4. Iannis Xenakis and Le Corbusier. The Philips Pavilion, Brussels World Expo, Brussels, Belgium. (1958) Accessed February 2017 <https://www.pinterest.nz/pin/425519864769509229/>

fig. 5. Iannis Xenakis and Le Corbusier. The Philips Pavilion, World Expo, Brussels, Belgium. (1958) Interior speaker arrangement. “Wikiarquitectura, Philips Pavilion Expo 1958, Data/Photographs,” Accessed February 2017, <https://en.wikiarquitectura.com/building/philips-pavillion-expo-58/>

fig. 6. Iannis Xenakis. Electroacoustic Music (1970) Nonesuch Records. Vinyl 12” LP “Discogs,, Iannis Xenakis, Electro-acoustic music” Accessed March 2017, <https://www.discogs.com/Iannis-Xenakis-Electro-Acoustic-Music/master/557883>

fig. 7. Iannis Xenakis. (1959) Speaker layout for Analogique B. Image from Analogique A: partition d’orchestre, Music Score, Paris, Salabert, (1968), 3. Accessed July 2017, <https://www.granularsynthesis.com/hthesis/xenakis.html>

Figures for Chapter 5

fig. 8. Sonic Meditations - excerpts (1971). Excerpts taken from Pauline Oliveros, *Sonic Meditations*, Urbana III,: Smiths Publication 1974 [1971]

fig. 9. Haines and Hinterding, *Energies*, Vinyl 12” LP. Museum of Contemporary Art Sydney, Australia, (2015), Photographed from Author’s collection.

fig. 10. Sun Valley - Michael Morley, Joyce Hinterding and David Haines, *Black Canyons Performance*, Campbelltown Arts Centre. NSW, Australia (2015). Photo: Christopher John Frape. “Haines and Hinterding, Artworks, *Black Canyons*,” Accessed May 2017, <http://www.haineshinterding.net/2017/04/10/black-canyons/>

Figures for Chapter 6

fig. 11. Penzias and Wilson under The Holmdel horn antennae, Holmdel, NJ, 1962, Photo NASA. Accessed February 2018, https://commons.wikimedia.org/wiki/File:Horn_Antenna-in_Holmdel,_New_Jersey.jpeg

fig. 12. Mia Blake and Rachel Shearer, Live performance of *Erewhon* (2014) Director, Gavin Hipkins. Mangere Arts Centre, Auckland, Aotearoa New Zealand. 2016. Photo: James Pinker

fig. 13 & 14. Rachel Shearer, *Wiririri* Stereo audio, photovoltaic panel, customised electronics 22 mins approx. Variable due to light and heat. Te Uru Gallery, Titirangi, Auckland, Aotearoa New Zealand, 2017. Photo: Rachel Shearer.

fig. 15, 16, 17 & 18. *Te Oro o te Ao* installation in AUT’s Blackbox performance space, December 2017. Photos: Rachel Shearer.

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the aware of any other degree or diploma of a university or other institution of higher learning.

Rachel Shearer

March 6 2018

Acknowledgements

master the tracks with challenging frequencies from the installation into the vinyl LP. format.

Thank you to my family. Ani Rangitunoa, you have been my muse and present throughout this research. My parents, David Shearer, who helped foster my interest in sound, I know you would be extremely proud. Jennifer Shearer, thank you for being a creative, hardworking, loving role model and looking after the children during many of the school holidays. Beloved sisters, nieces and nephew, thank you for your practical and personal support for both me and the children. Thank you to my aunt, Flora Penelope Harrison-Turner who passed away at the end of 2017, and cousins Michael Barry and Richard Forgie. Your work to keep alive and share the documents and stories around our family's whakapapa has allowed me to join in the task. Thank you.

The acknowledgements saved for last are for those that have lived with the entire process daily, at close proximity. A special thanks to my main man Guy Treadgold on whose practical and personal support, and love of experimental sound I am forever grateful. And to our children Sunny and Serge, who have dealt with the whole process with patience and humour, your presence is a constant reminder as to what is truly important.

Ngā mihi nui ki a koutou katoa
Many thanks to you all

Ehara taku toa i te toa takitahi, engari he toa takitini

My achievement is not mine alone, but an achievement contributed by many.

This research has taken shape thanks to the support of others, not least the many artists, thinkers and writers whose work provides the ground on which I have built mine. I am deeply grateful to the School of Art and Design at Auckland University of Technology for the Art and Design PhD scholarship which made this research possible. Mark Jackson and Su Ballard as my supervisors have guided me through the entire process to completion. I am indebted to both of you for your expertise, insight, and patience. This research would not have taken its final shape without your guidance. Thank you Mark for the many hours spent combing through my writing.

Rangitunoa Black, thank you for the conversation that sparked this research and for all the subsequent conversations we have shared. Thank you for your willingness to engage, translate and for your generosity with your thinking. Thank you Cathy Livermore for the expansive kōrero, the insights, guidance and your participation in the sound piece 'Waha'. Hana Pomare and Dr. Valance Smith, thank you for being prepared to help out with translation, advice and random questions. Thank you Judy Darragh for the wide-ranging discussions and listening to me talk through my research issues on our weekly walks up and around Ōwairaka. Your support has been epic. Thank you to colleagues Amanda Yates, Janine Randerson, Nova Paul, Kathy Waghorn, Torben Tilly, and Lisa Reihana, who all at various times have provided timely feedback or prompted insights to further this research.

Thank you to Richard Francis for your design skills and support in helping package the final exegesis and record. Angus McNaughton, thank you for helping

INTRODUCTION

Pounamu Becoming Crystal

Many years ago I met a woman who shares the name of my Māori tipuna, Ani Rangitunoa.¹ After discussing their coincident name, we talked about our shared interest in sound. I described how I made songs that were like textures. In response, she told me about the patupaiarehe whose songs she heard in her dreams. They sounded like *pounamu becoming crystal*.² As she spoke, the sound of *pounamu becoming crystal* resonated in my mind. It sounded like a call to my Māori tipuna, a response that required re-examination of my own relations with te ao Māori and te ao Pākehā. This PhD research project is part of that response, underlined at its most fundamental level with the question: *What are we, you and I?* In te ao Māori, whakapapa provides a ‘conceptual’ or ‘structural’ map to help with an answer. Whakapapa is the “cognitive framework whereby things are known, ordered, stored and transmitted.”³ Among other things, whakapapa is a holistic ‘genealogical’ network within which everything that exists is connected. Māori relations to the universe, and earth within it, are thought of as a complex inter-related family. Non-human sentient beings *and* inanimate things are personified, placing an emphasis on all phenomena as ancestors or relatives. In this way, the material world does not simply make sounds; it gives voice. *If we listen closely to the earth, what might we learn from the interdependencies of its energetic complexes?* The sound of *pounamu becoming crystal* describes a transformation that resonates in materialist theories of immanent energetic processes, informed by the natural sciences. The soundings of *pounamu becoming crystal* are sonic explorations of energetic and informational becomings. When we listen closely, we hear not only different frequencies of vibrations but also the whakapapa of ‘ideas’ and ‘spaces’ resonant with them.

¹ The composer, Rangitunoa Black, is the woman in this story.

² Pounamu is the name for New Zealand jade, also called Greenstone.

³ Mere Roberts, “Revisiting ‘The Natural World of the Māori’” in *Huiā Histories of Māori: Ngā Tābubu Kōrero*. ed.D.Keenan (Wellington, Aotearoa NZ 2012), 46.

This research builds on thirty years of sound-practice. This commitment was rooted in my teenage immersion in a subculture where making and listening to a wide range of experimental music was the focus of my identity. Elam School of Fine Arts followed in 1990, studying with New Zealand’s seminal sound-art practitioner, Philip Dadson, followed by a live-sound engineering apprenticeship in Köln, Germany. Learning the craft of live-sound engineering entailed an investigation into the behavioural features of sound (acoustics) alongside the techniques and technologies employed to manipulate this behaviour. This marked a turning point in my relationship to sound where, rather than thinking of sound as conduit or expressive medium for social experiences, I began to recognise the spatial and sculptural possibilities of acoustic vibrations in themselves. This spatial understanding of sound was further developed through working in audio post-production. There I learnt about cinematic surround-sound design practices and how to re-create ‘real’ soundscapes with digital editing tools.

These different strands of experience were brought together in my Masters of Art and Design research project submitted in 2011, focusing on the making of two public sound installations, one permanently in situ on Auckland’s downtown waterfront. For these site-specific works, the notion of whakapapa became a way to read and ‘tell’ a site. In looking to build on this perspective through PhD research, I questioned how whakapapa as a compositional tool might inform a ‘constructed’ or imagined space. The resulting eight channel surround-sound composition presented as an installation in a ‘black box’ performance space is the result of this research that explores, through listening and whakapapa, how to access different ways of knowing and remembering, within a universe perceived as interconnected. As a component of this exegesis, I have submitted a vinyl recording of that sound installation work. It is a document of and reminder of my final installation, *Tē Oro o te Ao*. Though the recording cannot ‘deliver’ the experience and spatiality of the site installation, it becomes another layer in a whakapapa of becomings in the process of this research, and a ‘work’ with its own situatedness.

Alongside this sonic research practice has been a series of engagements in critical arenas that have provided environments whereby the sound productions are given not just ‘meaning’ but also ethical and political contexts. Such writing practices aims to explore, through this exegesis, the placing of the work itself within a whakapapa. The exegesis structure does not follow that of a conventional doctoral thesis, with initial demarcations of a literature field and methodology, presentation of research findings and then discussion chapters, finalised in a conclusion that highlights an original contribution. There clearly is literature discussed, and the adoption of a broad range of frameworks that offer clarity on the contextual fields explored in my research. I also clearly discuss my research approaches, my methodology and methods, and the specific processes through which this sonic research is accomplished. The thesis as a whole—creative works and critical engagements—concern my underlying question: *What are we, you and I?* This question itself is located, situated, in my biculturalism, my Māori and Pākehā roots. Māori would here invoke whakapapa; Pākehā would invoke genealogy. They may seem proximate, the same even, though they are not. What separates them becomes, in a sense, the question posed here, the one perhaps unanswerable, the one I choose to respond to as sound. The exegesis shuttles, in unsettled fashion, sometimes awkwardly and inconclusively, between Māori ‘ontologies’, ways of living and understanding the world, and Pākehā or ‘Western’ histories of sonic production. I am ‘there’, somewhere in these milieux.

As the exegesis progresses, different critical threads of whakapapa in the making of *Tē Oro o te Ao* emerge. This is the ‘structural’ determinant of the exegetical unfolding, similar to a pepeha, a way of introducing oneself in te ao Māori, that opens with

the most ‘cosmic’ of scales, such as ancestral canoes that bought originary peoples here, and the mountain and river that situate belonging geographically. A pepeha progresses along increasingly specific layers of familial organisation, to conclude with self-reference. In a similar way, this exegesis opens with the ‘cosmetics’ of an energetic Universe, and then progresses through layers of forbears and ‘families’ of practices, before concluding with my situated practice.

In Chapter One, “Te ao Tukupū, The Universe,” energetic and interrelated becomings are considered through Māori epistemologies and Western ‘vitalist’ thinking, with reference to French philosopher Henri Bergson’s critical vitalism and current thinking within contexts of post-anthropocentric and new-materialist philosophies. Ecology is integral to this discussion, referencing British Anthropologist Gregory Bateson’s ‘ecology of the mind’, aiming to establish a critical ground with respect to both Māori epistemologies of a close listening to the earth, and especially Euro-American soundscape practices that engage ecological dimensions. Chapter Two “Sound, Listening & Affect,” explores what sound *is*, within the sciences and philosophies of Western modernity, *and* within traditional Māori perspectives. The pivotal contributions of American composer John Cage and French composer Pierre Schaeffer to the field of experimental sound provide one position. The whakapapa of the cosmos, as detailed by Ngā Puhi tōhunga and philosopher Māori Marsden provide another. These discussions consider how human bodies engage their material worlds through listening and what *affect* means in this process. These multiple discussions work toward establishing understandings of, or positionings on, sonic materialism and ecological listening.

Chapter Three develops further this question of what sound ‘is’ or sound’s becoming in contexts of different fields of creative sound practice. This chapter is especially concerned with exploring the overlapping whakapapa of experimental music, sound art and sound design, within which my overall research engagements may be defined. Māori sound practices, in particular taonga puoro, waiata mōteatea, geo-spatial contexts of oral practices, and karanga are also discussed, to consider contexts and perceptions of creative ‘assemblages of sound, space, technology and time’. The difficult shuttle between these two frames or series of concerns goes to the heart of my research, a desire to read one within the other at the same time as refusing a collapse of essential differences. Time is complex in Māori cultural contexts, something not reducible to a Western introduction of ‘clock-time’. Time is an aspect of Māori creative soundings that equally implies spatial understandings. This Māori consideration of temporality is developed alongside understandings of time in Western philosophical contexts that aim to think temporality in ways other than ‘clock-time’, or time as a series of ‘now’ moments. These cross-cultural discussions of temporality implicate how I recognise or understand fundamental or key developments in the Western sonic arts.

With Chapter Four, I discuss mid-twentieth-century New Zealand classical composer, Douglas Lilburn, in the context of the desire to seek a New Zealand nationalism or independent New Zealand identity founded on Pākehā cultural understandings. I discuss Lilburn’s listening practices as core to his search for a Pākehā musical tradition specific to Aotearoa New Zealand. Lilburn’s methods developed from translating visual landscape cues in his classical composing in the 1950s, to a listening *to* the land in his electroacoustic compositions in the 1970s. The manipulations of time-structures, made possible by the technology and techniques he used in his electroacoustic works were similarly being explored by Iannis Xenakis, in France. Xenakis created ‘clouds of sound’, through mathematics and metaphors of fluctuating energetic processes of the natural world. I thus read *across* Xenakis’s method of ‘granular synthesis’, as the dissection of sound into tiny components

that could then be reassembled into new sonic shapes, *and* a whakapapa of digital processing that allows sound producers, such as myself, to experiment with both mimetic and imaginative sonic structures. This brings a particular local engagement with Lilburn into European contexts of sonic experimentation, as well as resonant engagements with Māori sound making practices. Such shuttling between, at the same time, sharpens my own considerations for understanding the context of my practices.

Chapter Five brings this configuration of sound, earth and energetic processes to a series of established fields of Western listening practice, defined by Deep Ecology, Deep Listening™, and Acoustic Ecology. My aim is to maintain the practice specificities of each of these fields, while recognising the extent to which they have each influenced my practice, as well as being helpful in drawing out my practice to wider fields of engagement. These practices, developed during the 1970s, sought to forge a meaningful unity with the earth in recognition of the West’s technological estrangements. Deep Ecology’s method of intuitive and imaginative listening sought our experiential understandings to be part of a ‘web of relations’. Pauline Oliveros’s Deep Listening™ method aimed to encompass the entire spectrum of perception and imagination, and sought integration with ‘the universe’ through acknowledging the natural *and* the technological. Nature and technology also combine in Acoustic Ecology’s field-recording practices, providing a method for listening-to and questioning our human relations to natural environments through sound. Field recording has provided a basis for a range of approaches to experimental sound making, also employed in the development of works for this research.

This approach to field recording is detailed in Chapter Six, with discussion of the processes and practices of making sounds in assemblages that require technology, technical capabilities, locales and audiences. Chapter Six also discusses the sound installation work composed for examination, *Tē Oro o te Ao*. This work is in four parts, the first of which engages directly with Māori women and sonic rituals of listening to the earth. All parts aim to ask that question I commenced with, concerning *pounamu becoming crystal*, which may equally be a question, perhaps unanswerable, as to myself as Māori and Pākehā.

Perhaps for this reason, my exegesis Conclusion, Te Mutunga, places focus on a close discussion of what biculturalism means for me, for my research and for Aotearoa New Zealand. Te Mutunga thus aims to situate my research practice in political and ethical contexts with respect to a PhD’s supposed outcome of ‘new knowledge’ or ‘original contribution’. These notions suppose that we are all settled on what ‘knowledge’ is or what a ‘self’ is such that a self can be accredited with something original. The thesis, as a whole, aims to unsettle these questions of ‘knowing’ and ‘being-a-self’. It does so through its engagement with Māori understandings. In the Conclusion, I thus summarise key findings and reflect on the ethical and political nature of the research I am doing. In many ways the Conclusion could also be this Introduction, though I expect it would be read differently after having listened to, and read through, the research outcomes of *Tē Oro o te Ao*. There are tensions inherent to broaching the two different cultural life-worlds of Māori and Pākehā, based on the ongoing effects of colonisation in Aotearoa New Zealand. In locating my ‘selves’ in the research process as descendant of both Māori *and* Pākehā, my familiarity with te ao Pākehā is apparent in contrast with what has been ‘diluted’ or lost within my family, regarding my Māoritanga.

Though my personal whakapapa inevitably becomes part of locating myself in te ao Māori, the issues explored in this research are not just personal ones, but are also those of an Aotearoa New Zealand researcher acknowledging the contexts of her

situatedness in considerations of sound in the arts. I came with already established ways of knowing and investigating as an artist working with sound in a predominantly Pākehā context. These ways of knowing that I already possessed, I have sought to expand through asking: *What happens when I seek answers to the same questions in both te ao Māori and te ao Pākehā?* While different understandings of the world and different processes of learning are revealed, there are, at times, recognition and resonance in both, and at other times there is an incommensurability that needs to be acknowledged. *If we listen closely to the earth, what might we learn from the interdependencies of its energetic complexes?*

Te ao Tukupū

The Universe

Whakapapa, Vital Energies & Ecology

Introduction

Chapter One, “Te ao Tukupū,” establishes an ‘energetic’ and interrelating positioning in order to develop an *ontological* disclosure of listening. Whakapapa is introduced as a conceptual, analytic, structural and methodological ‘tool’. Energies that power the processual interrelated paths of whakapapa are considered through Māori epistemologies and Western ‘vitalist’ thinking with a discussion of Henri Bergson’s critical vitalism and current vital thinking in post-anthropocentric and new-materialist philosophies. The chapter concludes with a consideration for how ecology is integral to this conversation, addressing the role of Gregory Bateson’s ‘ecology of the mind’, in establishing a critical ground.

Whakapapa

... to ‘know’ something is to know its whakapapa¹

‘Grounding the signal’ is an electrical engineering term, where the ground or earth is the reference point in an energy circuit from which forces are measured.² Grounding the signal describes a return-path for a current of energy, a direct physical connection to the earth. Grounding the signal helps to reduce interference, clarifying an intended signal. In audio-engineering terms, this interference is called noise, referring to an unwanted signal. If we consider that all matter naturally vibrates in an elastic medium, “even at subatomic level,” as Greg Hainge explains, “it can be argued that all matter

produces sound, whether or not the human ear is capable of perceiving it.”³ Further to this, if we think of ‘ideas’ as immaterial entities, as vibratory extensions of a material realm which, in turn, create further material vibratory responses, Hainge’s proposition that “everything is in noise and noise is in everything” opens my project.⁴ For here, as a listener and as an artist of assemblages of sound, space, technology and time, my project is one of selecting and managing arrangements of signal-to-noise ratios. A signal-to-noise ratio compares the level of a desired signal to the level of background noise. What, though, is designated as desired signal and what is background noise?⁵

The Māori concept of whakapapa is one way to ‘ground the signal’. The particle ‘whaka’ means to cause something to happen, to cause to be. ‘Papa’ describes anything broad or flat and is also an abbreviation of Papatūānuku, the primordial earth mother. Whakapapa, in a literal sense, means to lay out flat or to place in successive layers. Whakapapa provides a method to foreground specific signals from a vast array of signals. Whakapapa is an analytical tool used to understand phenomena and their connections and relationships to other phenomena, locating phenomena in space and time.⁶ It is a method of organising and interpreting knowledge, but it also means to recite in correct order, locating all there is as relating to its immanent ordering. This has been expressed by Roberts and Wills as a “taxonomy of the universe,”⁷ but also by Roberts as a “cognitive framework whereby things are known, ordered, stored and transmitted”⁸, or by Te Maire Tau as the “skeletal framework of epistemology.”⁹ The Māori universe is a genealogical network within which humans are related to non-humans. All things are part of an organic system of relationships that can be traced to primordial parents: Papatūānuku, personification of the earth as primordial mother, and her beloved co-parent of all earthly beings, Ranginui, personification of the sky as primordial father. Non-human and ‘inanimate’ things are referred to as if they are human or super-human. Personifications depict our ‘natural’ world as ancestors or extended family members: “Every living thing that seeks our sustenance from our Earth Mother, is Family. We believe in the ONENESS and not separation”¹⁰ (author’s emphasis).

Learning and repeating whakapapa, as a genealogical sequencing of names, are among key practices of Māori orality. These genealogies include enumerations of biota and environmental phenomena. Allegorical and analogical narratives were integrated into these recitations, without which they did not make sense.¹¹ Human kinship genealogies were fundamental to the social fabric of Māori society, informing status and political alliances. Great care was taken to memorise these genealogies correctly.¹² My family

³ Greg Hainge, *Noise Matters: Towards an Ontology of Noise* (New York & London, 2013), 1.

⁴ Ibid., 2.

⁵ The concept of noise in sound discourse is extensive and multi layered. For further discussion see Jacques Attali, *Noise: The Political Economy of Music* (Minneapolis, 1985) Frances Dyson, *The Tone of Our Times: Sound, Sense, Economy and Ecology* (Cambridge, Ma. & London, England, 2014) Greg Hainge, *Noise Matters: Towards an Ontology of Noise* (New York & London, 2013), David Novak, “Noise” in *Keywords in Sound*, ed. D. Novak and M. Sakakeeny (Durham & London, 2015), Hillel Schwarz, Hillel, *Noise: From Babel to the Big Bang and Beyond* (Cambridge, 2011)

⁶ Roberts & Wills, op.cit., 45.

⁷ Ibid.

⁸ Roberts, “Revisiting “The Natural World of the Māori,” in *Huia Histories of Māori: Ngā Tāhuhu Kōrero*. ed. D. Keenan (Wellington, Aotearoa NZ, 2012), 46.

⁹ Te Maire Tau, “Matauranga Maori as an Epistemology,” in *Histories, Power and Loss: Uses of the Past - A New Zealand Commentary*, ed. Andrew Sharp and Paul McHugh (Wellington, 2001), 68.

¹⁰ Rangimarie Turuki Rose Perc, *Tē Wāke Kamaatu - The Octopus of Great Wisdom*. (Accessed 2017) http://www.natureplaynz.co.nz/pdf/tewheke_roseperc.pdf

¹¹ Bradford Haami. *Putea Whakairo: Maori and the Written Word* (Wellington, 2004), 16.

¹² Haami lists the different forms of genealogical recitation as “kōrero pūtake (whakapapa of origins before the canoe migration), tāhū (single lines of descent), tararere (similar to tāhū but with some names omitted, often because the ancestors were so tapu that their names could not be uttered), whakamore (showing wives’ names in a male line or siblings in order of birth), karapitipiti (show grandparents, siblings, parents and children), kōrero whenua (land based genealogies), whakapapa (all of the above) and whaiwhaiā (genealogies used to inflict harm or to search out connections.)” Ibid. Haami sourced this information from The Māori Purposes Fund Board papers, MS papers 0189, folder 87, Alexander Turnbull Library.

¹ Mere Roberts, and Peter. R. Wills, “Understanding Maori Epistemology: A Scientific Perspective,” in *Tribal Epistemologies: Essays in the Philosophy of Anthropology*, ed. H. Wautischer (Farnham, 1998), 45.

² Here the ‘forces’ referred to are electromotive forces measured in volts.

has a document, dictated by my tipuna, Ani Rangitunoa, who I referenced in the introduction to this project. Ani Rangitunoa lists our direct and wider ancestral links through to the thirteenth-century crew of the Horouta, Tākitimu and Nukutere waka that transported our Māori ancestors to Aotearoa. Reciting such a whakapapa without error was a skill fundamental to Māori ways of knowing and being. That Ani Rangitunoa was able to do this is indicative of a skill that was not just the preserve of tōhunga. This particular whakapapa she recounted was to prove her relationship to specific individuals and specific locales. The ‘path’ that the whakapapa takes can depend on the connections to be foregrounded. Elizabeth DeLoughrey proposes that the situational modalities of whakapapa “suggest Deleuze and Guattari’s rhizomorphous system of relation, based on lateral and multiple ruptures that incorporate connections between all life forms and inanimate matter.”¹³ This connection to the French philosophers Gilles Deleuze and Felix Guattari extends the significance of this form of relations into nonhuman realms. Deleuze and Guattari note the interplay of rhizomatic and arborescent root structures: “[...] tree or root structure [exists] in rhizomes.”¹⁴ Of emphasis here are the performative and contextual aspects of whakapapa, as genealogy.

Whakapapa also take the form of collective inherited histories, narratives of individuals and important events within a group. These histories are recounted as stories, songs, dances or artefacts. In the larger network of whakapapa, there are also genealogies of animals, plants and environmental phenomena, producing a classification system based on the practice of observing relationships between different entities.¹⁵ Tau gives an example of how his iwi, Ngāi Tahu, developed “extensive whakapapa that define and order our weather patterns and other meteorological phenomena.”¹⁶ Such histories or knowledge are remembered and retold by the iwi or hapū through which they have been developed. In this way whakapapa is not just the organisation of information but a performative re-encountering of inherited histories and traditions. As a method for organising sound, whakapapa offers a grounding perspective by which to think ontology, structure, composition and performance. Te Ahukaramū Charles Royal (Ngāti Raukawa, Ngāti Tamaterā, Ngā Puhī), in his discussion of whakapapa as research methodology, explains that whakapapa, at its simplest, is two phenomena coming together to produce a third phenomenon. As we identify the connections of each phenomenon, a map emerges, drawing us out to a wider field, rather than drawing us in to a disconnecting and narrow focus.¹⁷ As the whakapapa pertaining to one particular phenomenon grows, it joins up to already known whakapapa of other groups of phenomena, one ‘piece’ of whakapapa fabric woven into another.

As Royal tells us, “whakapapa as a research methodology urges us to consider relationships.”¹⁸ He provides the analogy of a spider’s web in referring to a collection of recited whakapapa, recorded in written form by Auckland’s Governor George Grey in the mid-nineteenth century. This record is believed to be an accurate rendering of how these whakapapa would have been recited in pre-contact times.¹⁹

In the original manuscript, stories continue seamlessly one from the other and are joined by the use of whakapapa. Therefore,

when one extracts a single story, one has to make a judgement as to the best way in which to sever the story from the fabric of all the stories for the whakapapa that connects them together renders them in a total as some kind of fabric. Perhaps the image of the spider’s web is useful in approximating the experience of isolating just one story from the fabric of a number of stories.²⁰

Ropes, webs, weavings, fabrics, rhizomes, repeated images of tangible connectedness of the material and immaterial *as* whakapapa, emerge in an engagement with Te Ao Māori.

Whakapapa also carries the idea of stratification, with its literal meaning of laying one thing on top of the other. One image given for whakapapa is that of a rope drawn over strata of events in time. Te Here Tangata, The Rope of Humankind, is holding to a rope stretching over past generations to the moment of Creation, and simultaneously into the future.²¹ For Deleuze and Guattari, ‘stratification’ can be considered as an “ongoing rhizomatic process that contributes to a line of emergence or becoming.”²² Thus, as a processual and organisational concept, there are resonances with whakapapa. One of their key philosophical forebears, Friedrich Nietzsche, developed a method of genealogy from which a materialist and historiological ontology of the body emerged, within a world understood as historical process. This unfolding of event, or ‘becoming’, challenges a notion of the world and its history grounded on immutable, fixed, or eternal ‘ideas’.²³ Influenced by the pre-Socratic philosopher, Heraclitus, encountered against the natural sciences of the late nineteenth century, Nietzsche proposed a ‘becoming’ in every moment and in every thing as unique instance of production, a continual *flow* of change as the cosmos.²⁴ Every thing *became* and continues to *become* rather than ever remaining, as essence, in a fixed state of being. Becoming ‘is’ yet constancy of change, movement and co-evolution. Further along this philosophical whakapapa, Mexican-American writer Manuel DeLanda describes a world where “all structures that surround us and form our reality (mountains, animals and plants, human languages, social institutions) are the products of specific historical processes. Piecemeal historical constructions are made from the unfolding interplays of matter and energy.”²⁵ An ontology of becoming implicates a theory of matter that is vitalist and immanent, where each ‘element’ in the world is related to, and in relation with, all the others. The world emerges as connectivity rather than as creation by a transcendent intelligence with a master plan.

Just as my own personal whakapapa connects me to a hybrid of cultures and histories, listened-to through specifically situated perspectives, so too is the theoretical and methodological structure of this project to be understood as connective tissues. As previously stated, if I strip my research questions back to their essence, that is, what I am seeking to understand at a most fundamental level, it is to ask: *What are we, you and I?* To consider whakapapa as a way to answer this question, I am directed to a close listening to the earth. *If we listen closely to the earth, what might we learn from the interdependencies of its energetic complexes?* In looking for ontological and epistemological resonances in Māori world-views, science and post-anthropocentric or new-materialist philosophies, I am mindful of the importance of acknowledging

13 Elizabeth M. DeLoughrey, *Routes and Roots: Navigating Caribbean and Pacific Island Literatures* (Honolulu, 2007), 164.

14 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis, 1987), 15.

15 Haami, op.cit., 16.

16 Tau, op.cit., 66.

17 Te Ahukaramū Charles, “Te ao mārama: A Research Paradigm,” in *He Pukenga Kōrero* 4(1) (1998): 3.

18 Ibid., 3.

19 Ka’ai-Mahuta, Rachel. “The Genesis of Waiata and Haka,” In *Kia Rōnaki: The Māori Performing Arts* (Auckland, 2013), 4. See in reference to Sir George Grey’s *Nga Mabi a Nga Tupuna*, a collection of 500 Māori compositions published in 1853.

20 Royal in Ka’ai Mahuta 2013, 4–5.

21 R.N Himona, “Whakapapa Maori, Structure, Terminology and Usage,” Accessed 25 Jan 2017. <http://maori.com/whakapapa/whakpap2.htm> (2001).

22 Kylie Message, “Stratification,” in *The Deleuze Dictionary Revised Edition*, ed. Adrian Parr (Edinburgh, 2010), 273.

23 Friedrich Nietzsche, *Human, All Too Human: A Book for Free Spirits*, trans. R.J Hollingdale (Cambridge, 1996),

24 ‘But Heraclitus will remain eternally right with his assertion that being is an empty fiction.’ (TT “Reason” 2). Nietzsche quoted in Christoph Cox, *Nietzsche: Naturalism and Interpretation* (Berkeley, 1999), 185.

25 Manuel DeLanda, *A Thousand Years of Non-Linear History* (New York, 1997), 11–12.

incommensurability. Where Nietzsche’s genealogy evaluates and critiques through examining interplays of historical forces and cultural interpretations,²⁶ whakapapa is an overarching world-view. In te ao Māori there is no separation between spiritual and material worlds, in an all-embracing whakapapa of the universe. All things are descended from the spiritual realm of the atua, the ancestors that have ongoing influence over specific domains, so all are interrelated as a family and all are imbued with *mauri*, life-force or energy, that pervades everything that exists.

Vital Energies

Māori vitalism

Mauri is passed down through the genealogies of the atua, to provide life to all phenomena binding the physical and metaphysical. It is not just humans who have mauri. Animals, insects, rocks, mountains, oceans, rivers, trees, thoughts, buildings, artworks and grudges held between people have a mauri. Tūhoe tōhunga, Hohepa Kereopa, described the mauri of a boil up. The mauri is in the entire boil up, he explains. What he calls the individual ‘frequencies’ of the carrots, onions, or meat that make the dish, contribute to the mauri of the boil up: “In the process of bringing all those ingredients together for the boil up you have deleted the mauri of each one, but you have also created a combined mauri for all of them.”²⁷

Ngā Puhi tōhunga, Māori Marsden, explains that mauri is immanent within all creation and describes it as “the life force which generates, regenerates and upholds all creation.”²⁸ He proposes that mauri was originally regarded as an elemental energy derived from the realm of Te Korekore, the ‘Void’, realm of potential becoming, out of which the stuff of the universe was created.²⁹ Mauri is regarded as an attribute of entities to be maintained, nurtured and protected, enabling well-being.³⁰ Such maintenance is an ethical and ecological practice directing human reciprocity with all entities.³¹ It is integral to a culture whose traditions express commitment to environmental well-being.³² Mauri is a living concept and has contemporary applications in environmental protection, as witnessed in response to the October 2011 grounding of the ship, M.V. Rena, and a subsequent oil spill off the east coast of Aotearoa, New Zealand, causing our worst environmental disaster. The Ministry for the Environment’s response was “[...] to restore the mauri of the affected environment to its pre-Rena state,” in developing the Rena Long-Term Environmental Recovery Plan.³³

Vitalism is the theory that the origin and phenomena of life are dependent on a force different to chemical or physical forces. Mauri may be considered as vitalist but the transposition is not straight-forward. With this project, mauri is foregrounded, though Mānuka Hēnare, a Ngā Puhi philosopher of vitalism, emphasises that mauri is expressed within an intricate relationship of metaphysical concepts, of which

mauri is but one. Māori vitalism is to be located in the belief that an immanent life force “imbues and animates all forms and things of the cosmos” from an original life-source.³⁴ Mauri is intertwined in complex ways with four other terms that each possess layers of meaning and resonance, all working together to express a Māori vitalism. One of these, *hau*, is a commonly used word for wind, but is also described as a vital essence different to mauri. Māori Marsden explains that it is a synonym for mauri in certain contexts. Mauri-ora and hau-ora (to be well, healthy) are synonymous when referring to animate beings. Hirini Moko Mead (Ngāti Awa, Ngāti Tūwharetoa, Tūhourangi) describes hau as an invisible aura that every individual possesses, entering a body when an embryo. Residual hau can be ‘left behind’ by a body: warmth in a chair once a person has moved, a footprint, cut hair and fingernails are all said to contain the hau of a person.³⁵ Mauri and hau are intertwined whereas *wairua* is a separate entity. It is a spirit distinct from any physical body and its mauri and hau. It remains intact as a stable identity beyond death and possesses immortal life. According to Mead, wairua begins its existence when the eyes form in a foetus. When people die, their wairua dwell in the underworld forever, though they can be called back for special events through specific ritual.

Two other key concepts that Hēnare includes in a description of Māori vitalism are *mana*, translated as prestige, authority, control, power, influence, status, spiritual power, charisma, and *tapu*. Mana is closely intertwined with tapu, one affecting the other. “The more prestigious the event, person or object, the more it is surrounded by mana and tapu.”³⁶ The entity, person or thing, is not the source of mana but is its channel, as mana is ‘delegated’ by an atua.³⁷ Mana can be inherited and it can also be earnt. It can only be maintained through an individual’s actions and integrity. Tapu designates the sacred or prohibited, restricted, set apart, forbidden or, at times, under atua protection.³⁸ Tapu may designate something of great spiritual value though it can equally designate something ‘contaminating.’

Marsden defines tapu as the sacred state or condition in which a person, place or thing is set aside by dedication to the gods, and thereby removed from profane use. Tapu is a concept intrinsic to knowledge. Ngoi Pewhairangi explains that learning anything Māori involves laws of tapu—genealogies, history, traditional knowledge, carving, preparing flax, in fact, nature itself: “Tapu is something that teaches you to respect the whole of nature, because Māori things involve the whole of nature.”³⁹ Tapu is reinforced by endowment with mana. Hēnare explains: “Translating these words depends on the context in which they are used that clarifies the metaphysical and spiritual intentions of these terms.”⁴⁰ It is important to emphasise that these ‘concepts’ have no simple equivalence to inherited Western notions. Even, or especially, their enumeration or explanation in English is flawed. As I am not fluent in te reo, my translations and understandings are limited. I have ‘lent on’ texts of Hirini Moko Mead and Māori Marsden as guide, alongside the Te Aka Māori English dictionary.⁴¹

26 Nietzsche used this method to question an evolution of morals through investigating the historical origins of the Church and Christian morals. See Friedrich Nietzsche, *The Genealogy of Morals*, trans. Horace.B. Samuels (New York, 2003).

27 Paul Moon, *A Tobunga’s Natural World; Plants, Gardening and Food* (Auckland, 2005), 109–110. A boil up is a Māori recipe, adapted from colonial foods and cooking methods, in which pork and bacon bones are used to make a stock with potato, kumara, green vegetables and dough-boys added.

28 Māori Marsden, *The Woven Universe*, (Otaki, 2003), 44.

29 Ibid., 6.

30 Hirini MokoMead, *Tikanga Māori: Living By Māori Values* (Wellington, 2016), 53.

31 Mera Penchira, Linda T. Smith, Alison Green, & Clive Aspin, “Mouri matters; Contextualising mouri in Māori health discourse,” *AlterNative: An International Journal of Indigenous Peoples* 7(2) (2011): 177–187.

32 Mead op.cit., Marsden op.cit., Moon op.cit.

33 Ministry for the Environment, “Rena Long Term Recovery Environmental Plan,” <http://www.mfc.govt.nz/sites/default/files/rena-long-term-environmental-plan.pdf> (2011), 3.

34 Mānuka Hēnare, “Tapu, Mana, Mauri, Hau, Wairua: A Maori Philosophy of Vitalism and Cosmos.” in *Indigenous Traditions and Ecology: The Interbeing of Cosmology and Community*, ed. J. Grimm, (Cambridge, 2001), 204.

35 Mead, op.cit., 59.

36 John Moorfield. “mana” and “tapu” *Te Aka Māori English Dictionary*, 3rd ed. (Auckland, 2011), John Moorfield. *Te Aka Online Māori Dictionary*. www.maoridictionary.co.nz

37 Marsden, op.cit., 4.

38 Ibid.

39 Ngoi Pēwhairangi, “Learning and Tapu” in *Tē Ao Huriburi*, ed. Michael King (Auckland, 1975), 10.

40 Hēnare, op.cit., 204

41 Mead, op.cit., Marsden, op.cit., Moorfield, op.cit.

Vitalism, energy and esotericism

According to twentieth-century biologist, Ernst Mayr, a history of vitalism can be traced to ancient animist beliefs, as well as eighteenth-century Western physiologists. For these physiologists, vitalism came to be “essentially an anti-movement” against the mechanistic philosophy of the scientific revolution.⁴² Howard Caygill explains this divide as a contestation between physics and biology as determining science.⁴³ To briefly summarise Caygill’s argument, this divide was revealed in Gottfried Leibniz’s proposed *vis viva*, developed in the later half of the eighteenth century, as a living or vital force, in his understanding of how motion is possible. Physics emphasised *vis* or force which Leibniz deemed capable of resisting the tendential stasis of gravity. Biology emphasised *viva* or its living character. This idea eventually developed into the law of conservation, a fundamental concept of physics that states that the total amount of energy remains constant in an isolated or closed system, for example, the Universe as understood. This implies that energy can neither be created nor destroyed, but can be change from one form to another. This concept of energy can be applied equally to the animate and inanimate world. In this way the concept of energy replaced that of a vital or ‘inexplicable’ force. Biology came into line with physics and chemistry.

The conversation around vital forces was far from over though. It continues with Franz Anton Mesmer, whose theories invoked both legitimate science and occultism. Mesmerism was part of a mid-nineteenth century movement that developed into widespread interest in spiritualism. This was further fueled by new ways of conceiving the world offered by new technologies.⁴⁴ Henri Bergson’s critical vitalism found itself at this crossroads of technology and spiritualism. In Justin Sausmann’s examination of Bergson’s vitalism, he attributes Bergson’s huge popularity in the early twentieth century to a general public who were looking for ways to unite science and belief.⁴⁵ Though Bergson was interested in spiritualism—he was the 1913 President of the Society for Psychical Research who investigated psychic phenomena in a scientific manner—his critical vitalism didn’t make any overt spiritual claims. Rather, it was open to interpretation.⁴⁶ Even though a critique of scientific materialism was central to Bergson’s *Creative Evolution*, he did not reject mechanism but rather advocated a science that acknowledges dynamic networks. Bergson’s *elan vital* powered a processual becoming:

At a certain moment, in certain points of space, a visible current has taken rise; this current of life, traversing the bodies it has organised one after another, passing from generation to generation, has become divided amongst species and distributed amongst individuals without losing anything of its force.⁴⁷

As Sausmann concludes, those who wanted to read ‘spirit’ into this force could, and did.

Bergson’s *elan vital* subsequently fell out of fashion until revived by Deleuze in his book, *Bergsonism*, that argued for a re-engagement with his project in relation to developments in molecular biology.⁴⁸ Through Deleuze and subsequent ‘vital’

theories, vitalism has become a metaphor for matter having its own agency. American political theorist Jane Bennett, acknowledges Bergson and Deleuze in her philosophical whakapapa. Bennett’s approach to vital thinking has become particularly influential on artistic practice in the early twenty-first century. Bennett and others who identify matter as agential, position the vital as the dynamic affective character of matter itself. Her vibrant materialism is “neither vitalism nor mechanism”; entities are alive because they have the capacity to “animate, to act, to produce effects dramatic and subtle.”⁴⁹ As Bennett emphasises, vital materialism “[...] is not a spiritual supplement or life force added to the matter said to house it.”⁵⁰ In this ‘metaphorical vitalism’ the divide between the living and non-living is challenged and things become active within a socio-political framework. Bennett critiques the separation of life and matter as causing ecologically devastating practices. She, of course, is not the first to suggest this.

The animism that a personification of nature suggests, is one of those “non-modern modes of thought,” including the Romantic quest for Nature itself, that Bennett references in connection to vital materialism.⁵¹ She limits her investigation, avoiding Indigenous understandings of vitalism because of “risks associated with anthropomorphizing,” being wary of a divination of nature.⁵² Her avoidance of Indigenous philosophies is not uncommon in what American art historian T.J. Demos calls “post-anthropocentric philosophy.” In this context Demos is referencing a series of key thinkers in Western thought who all have coined ‘new’ relationships with nature including: Donna Haraway’s 2008 “naturecultures,” Bruno Latour’s 1993 and 2005 “hybrids,” Karen Barad’s 2007 agential realism, Graham Harman, Levi Bryant and Timothy Morton’s speculative realism and object-oriented ontologies, as well as the earlier complexity theories of Deleuze and Guattari, Elizabeth Grosz, Manuel DeLanda, and Isabelle Stengers. Demos emphasises that this post-anthropocentric thinking: “is not a recent discovery but rather connects—whether intentionally or not—to long-standing Indigenous views of nature as a pluriverse of agents.”⁵³

In Māori ‘epistemology’, theology, astronomy, astrology, meteorology, and geography all overlap so that they are expressive of a singular discipline.⁵⁴ Bruce Biggs (Ngāti Maniapoto) proposes that what is called Māori mythology is allegorical knowledge that encodes ethics, practical and protected knowledge, from those unworthy, due to the nature of tapu that surrounds knowledge. Certain knowledge was only ‘de-codable’ by those who had specific training through a whare wānanga.⁵⁵ A failure of engagement by post-anthropocentric theories with Indigenous understandings, perhaps due to prejudices concerning ‘unscientific’ themes, is misplaced. For example, one could recount a whakapapa related to stones, chosen to contrast with Aristotle’s distinction between the animate and the inanimate with respect to the ‘soul’ as animating principle. For humans, animals, and vegetables there is a soul, but not for inanimate or dead matter, such as stone.⁵⁶

In a version of the whakapapa of kōhatu—rock or stone in all forms—recorded by Pākehā ethnographer Elsdon Best, Tāne, atua of the forest, and Hinetūparimaunga, atua of cliffs and mountains, were the grandparents of rock, stones, ocean reefs, gravel

42 Justin Sausman, “‘It’s Organisms That Die, Not Life’: Henri Bergson, Psychical Research and the Contemporary Uses of Vitalism,” in *The Machine and the Ghost: Technology and Spiritualism in Nineteenth to Twenty-First-Century Art and Culture*, ed. Sas Mays and Neil Matheson (Manchester & New York, 2013).

43 Howard Caygill, “Life and Energy,” *Theory, Culture & Society* 25, no. 6: 19–27.

44 Sausman, op.cit.

45 Ibid.

46 Ibid., 21.

47 Henri Bergson, *Creative Evolution* (Basingstoke, U.K, 2007), 17.

48 Sausman, op.cit. See Deleuze, *Bergsonism*, trans. Hugh Tomlinson & Barbara Habberjam (New York, 1988), 155.

49 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC, 2010), 6.

50 Ibid., xiii.

51 Ibid., xxviii.

52 Ibid., 120.

53 T.J. Demos, *Decolonizing Nature: Contemporary Art and the Politics of Ecology* (Berlin, 2016), 23.

54 Paul Moon, “Discovery Myths of New Zealand: Some Cultural, Historical and Philosophical Perspectives,” *Te Kāharoa* Vol 8 (2015); citing J. Burstein, “Victorian Mythography and the Progress of the Intellect,” in *Victorian Studies*, vol. 18, no. 3, March (1975): 316.

55 Bruce Biggs, “Knowledge as Allegory,” in *Science of Pacific Island Peoples: Education, Language, Patterns & Policy* 4, ed. John Morrison, Paul Geraghty, Linda Crowl (Suva, 1994), 1–11.

56 Mel Chen, *Animacies: Biopolitics, Racial Mattering, and Queer Affect* (Durham & London, 2012), 4.

and sand. Tāne was also the progenitor of Hinemoana, ocean maid, personification of the ocean, who was endlessly attacking Papatūānuku, Earth mother. Rakahore, creator of all rock form, Hinetuakirikiri, personification of rock and gravel, and Hineone, personification of sand, were appointed to protect Papatūānuku from the ceaseless assault by Hinemoana.⁵⁷ Here relationships between water, rock and stone are established as is the role of kōhatu as a protective shield for the land.⁵⁸ Post-anthropocentric and new-materialist philosophies make connections between the sciences and humanities through notions of energy and affect. Indigenous ‘beliefs’ can equally be symbolic or allegorical references to ‘scientific fact’ and the energetic relationships between entities. Affective relations between entities, between humans and non-humans, are fundamental to perceptions of a processual, immanent, vital and connected universe expressed in whakapapa, as it is for a vitalism re-positioned in metaphorical terms as a ‘tool’ of theoretical and social analysis.

Energies, vibrations, forces are all terms engaged by ‘New Age’ movements: a broad arena “characterized by alternative approaches to traditional Western culture, with an interest in spirituality, mysticism, holism, and environmentalism.”⁵⁹ The whakapapa of these practices, as W. J. Hanegraaff affirms, was consolidated during that same era of Victorian occultism that saw Bergson’s critique of scientific mechanism.⁶⁰ Other themes common to New Age movements, such as holism and connectedness, at times co-opt aspects of Indigenous philosophies, and may suggest that, at times, aspects of my creative works or key concerns border with ‘New Age’ territories. To clarify, I do not aim to distance myself from potential contaminations from the ‘supernatural’. A whakapapa of Western forms of knowing are shot through with such contaminations, for the most part unacknowledged nor non-accountable debts to the West’s multiple ‘others’. I find a poetry and narratives worth engaging with beings and their spaces who tremble the very grounds of Western thinking.

As an artist I find this poetic enhances an experiencing and imagining of this world. I acknowledge the existence of subtle energies, as does ‘science’, yet the forms these subtle energies take come down to variabilities of positions, perceptions and interpretations. Definitive pronouncements about beliefs and proofs of metaphysical forms are limiting and limited, especially for this doctoral project. As for mauri — the ubiquitous life force that creates ‘unity in diversity’, that binds the physical and metaphysical together, that demands a reciprocal responsibility between entities to maintain and uphold universal balance — it holds value whether literal or metaphorical force.⁶¹ Whether I believe in the responsibility of reciprocity through sacral concerns for all entities or through an ethical ecology, similar actions are needed.

Ecology

Ecology is a branch of biology that deals with interrelations between organisms and their physical surroundings. Coined in 1866 by geographer Alexander von Humboldt and artist Ernst Haeckel, after von Humboldt’s travels in South America, ecology provides a model for thinking the world as interconnected and interdependent. Tewa scholar Gregory Cajete explains: “Native Science is most akin to what

Western science calls environmental science or ecology.”⁶² Instead of studying things by isolating elements, as in conventional science, networks reveal a greater understanding. Ecological awareness has been growing since the second half of the twentieth century, in response to mounting evidence of a planet in crisis, leading to a field that integrates science, philosophy and ethics. In locating a ‘source’ of ecological crisis, American philosopher Carolyn Merchant identifies a whakapapa of a ‘dualist’ mindset. She identifies the European scientific revolution of the sixteenth and seventeenth centuries that saw profound changes in Western human relations with the earth:

The female earth was central to organic cosmology that was undermined by the Scientific Revolution and the rise of a market-oriented culture in early modern Europe [...] Thus it is not surprising that for sixteenth-century Europeans the root metaphor binding together the self, society and the cosmos was that of an organism. As a projection of the way people experienced daily life, organismic theory emphasized inter-dependence among the parts of the human body, subordination of individual to communal purposes in family, community, and state, and vital life permeating the cosmos to the lowliest stone.⁶³

The mechanistic sciences of Galileo and Newton objectified nature, viewing the earth as inert, separate, and there for the benefit of human use. A mechanistic world was further confirmed by Descartes’s dualistic perspective concerning *res cogitans* and *res extensa*. In further reifications, opposed pairs of concepts, one superior to the other, confirmed the role of humans in the world. Mind is separated from body, spirit from matter, male from female, culture from nature. Women and ‘primitive’ cultures were closer to ‘nature’ and, thereby, inferior to white men. According to Merchant, this dualist mode of thinking has been the dominant influence on Western materiality. Australian philosopher Val Plumwood also identifies patterns of dualistic thinking in destructive attitudes toward nature, creating “logics of colonization.” She characterised dualistic thinking as “an alienated form of differentiation, in which power construes and constructs difference in terms of an inferior and alien realm.”⁶⁴

Pākehā anthropologist Anne Salmond emphasises that this was not the only thinking available during the Enlightenment. Salmond contrasts ‘an order of things’ with ‘an order of relations’.⁶⁵ An ‘order of things’ is exemplified in, for example, Europe’s mid-eighteenth century Classical episteme. A Christian God, transcendent and all knowing, supervenes an order through various social stratifications of the human, the animal, vegetal, to the inert, voiceless earth. In contrast, there were other Western thinkers, in what became a minor tradition, who perceived a different world:

Instead of a static, tiered universe, thinkers including Erasmus, Darwin and many of those involved in the Scottish Enlightenment; Benjamin Franklin in America; the Humboldt brothers in Germany; and Buffon & Diderot in France described the cosmos in terms of dynamic networks of relations, generated by complementary pairings (rather than binary oppositions) between different elements, each necessary for survival. In this

⁵⁷ Elsdon Best, *The Māori* (Wellington, 1924), 163.

⁵⁸ Kahu McClintock, *Tē Mauri Kōtahu* (Master of Philosophy thesis, Massey University, 2003), 6.

⁵⁹ Oxford Dictionaries, s.v. “new age,” accessed September 8, 2017, https://en.oxforddictionaries.com/definition/new_age

⁶⁰ Wouter J. Hanegraaff, *New Age Religion and Western Culture: Esotericism in the Mirror of Secular Thought* (Albany, 1998), 406–410.

⁶¹ Marsden, op.cit., 44, 47, 49.

⁶² Gregory Cajete, *Native Science, Natural Laws of Interdependence* (Santa Fe, 2000), 4.

⁶³ Carolyn Merchant, *Earthcare: Women and the Environment* (New York, 2013), 76.

⁶⁴ Val Plumwood *Feminism and the Mastery of Nature* (New York, 2003), 42.

⁶⁵ Salmond’s reference to ‘order’ and ‘relation’ of things refers to Michel Foucault’s *The Order of Things: An Archeology of the Human Sciences*, trans. A. M. Sheridan Smith (New York, 1972).

‘Order of Relations,’ as we might call it, the characteristic motif is the web, the net or the ‘rhizome’.⁶⁶

Through a whakapapa as ‘order of relations,’ through post-anthropocentric and new-materialist philosophies, through the idea of whakapapa itself and through ecology we find resonating patterns. The framing of ecology in my research acknowledges that perceptions of nature and relations with the earth are inextricable from social, political and economic forces. As Demos explains in his framing of a ‘political ecology’:

Environmental stresses can be both a driver and consequence of injustice and inequality—including poverty, racism, and neocolonial violence. Political ecology recognizes the ways we regard nature, that carry deep implications and often unacknowledged ramifications for how we organize society, assign responsibility for environmental change and assess social impact.⁶⁷

Gregory Bateson also acknowledged the intertwinings of the personal and political through his concepts of the three ecologies of mind, society and environment.⁶⁸ Each system is interconnected and cannot be perceived in isolation: “The unit of survival is organism plus environment. We are learning by bitter experience that the organism which destroys its environment destroys itself.”⁶⁹

Bateson investigates analogies of forms and patterns across diverse fields of thought which he brings together under an epistemology of ecology: “What is the pattern that connects the crab to the lobster and the primrose to the orchid, and all of them to me, and me to you?”⁷⁰ In Bateson’s ‘ecology of the mind,’ the mind is a system composed of multiple material parts, with the arrangement allowing for process and pattern. An often cited example, to illustrate Bateson’s ‘mind,’ is his answer to his self-posed question as to whether a computer thinks. He explains that what thinks is the ‘man’ [sic] *plus* the computer *plus* the environment. There are no lines of separation as the lines are *across* the pathways between the entities through which information is transmitted. The thinking occurs in the relationships between computer, person and the environmental and cultural contexts. “What thinks is the total system...”⁷¹ For Bateson, human knowing is relational, part of an open system, recalling descriptions of whakapapa: “[...] knitted together, or woven, like cloth, and each piece of knowledge is only meaningful or useful because of the other pieces.”⁷²

In Bateson’s work the relationship between entities relies on communication of ‘information.’ This is what he calls “a difference that makes a difference.” Bateson uses Alfred Korzybski’s dictum, “the map is not the territory” to illustrate this concept. This refers to the relationships between a thing (territory) and its representations (map). What is ‘depicted’ on the map are differences, or differential intensities (contours) as differences in surfaces, differences in vegetation, differences in altitude, and so on. Differences are the intensive ‘features’ that become a map. What is ‘communicated’ is a difference that makes or traces a difference. We detect

differences with our senses via light, sound, smell, taste, touch. In a physical realm, effects happen by movements of material forces. In a world of patterns, effects are brought about by the tracing of intensive and immanent differences, rather than physical movements, depicting causal, affective agencies rather than encountering physical effects.⁷³ A “difference that makes a difference” points towards an idea of complexity, in which systems, consisting of interlinked sub-systems, can be effected by an event in one sub-system rippling throughout the whole.

It is a small leap here to ‘art-making’. Travelling within an ecology of art-making alongside these forever transforming questions of affect and agency, I find that to which we are exposed are differences that make a difference. For the soundworks I assemble, the fundamentals of the process are deciding on sounds and their temporal arranging, their intensive contours. I also need to ask ‘why’? What patterns and pathways do I follow? To return to an analogy developed at the commencement to this chapter: What signal might I clarify from a ground of noise? What are the ‘differences’ that warrant attention or pursuit, what effects will these arrangements engender? Through considerations of acoustic ‘form’—the energetic and material—and pattern—affective mappings, and through considerations of their interrelated complexities, I circle back to whakapapa. And if I ask of whakapapa a disclosure of the whys and wherefores of my creative practice, I think of Carl Mika’s translations of the word whakapapa—layering, genealogy and a ‘becoming (moving towards) earth’.⁷⁴

66 Anne Salmond, “Beyond the Binary - Shifting New Zealand’s Mindset,” Inaugural Bishop Reeves Memorial Lecture, (2012).

67 T.J. Demos, op. cit., 7-8.

68 Felix Guattari elaborated on Bateson’s three ecologies. As with Bateson, Guattari understands ecology as not simply concerned with the environment. It is an epistemological system.

69 Bateson, *Steps to an Ecology of Mind* (Chicago, 2000), 491.

70 Bateson, *Mind and Nature: A Necessary Unity* (Cresskill, NJ, 2002), 7.

71 Bateson, *Steps to an Ecology of Mind*, 491.

72 Ibid., 21-22.

73 Ibid., 459-460.

74 Carl Mika, “The Co-Existence of Self and Thing Through Ira,” *Journal of Aesthetics and Phenomenology*, 2(1), (2015): 106.

Sound, Listening & Affect

Introduction

Chapter Two, “Sound, Listening & Affect,” considers what sound *is*. This exploration takes place within the sciences and philosophies of Western modernity, *and* within traditional Māori perspectives. Its questions are: How does a human body engage with its material world through listening? What does *affect* means for this process? These multiple discussions work towards establishing understandings of, or positionings within, sonic materialism and ecological listening.

What is sound?

A response to such a question, of course, depends on who is being asked. According to physics, sound is a moving materialism of energy, generated by a material source from which it spreads as a mechanical wave of pressure and displacement through a surrounding medium. A surrounding medium may be a gas, liquid, solid, or plasma.¹ According to theories of auditory scientists and physicists, sound *comprises* basic audible qualities that temporally extend through a medium. Sound consists of:

1. pitch—the frequency at which it vibrates
2. intensity or loudness
3. duration
4. the medium it travels through

¹ Other moving materialisms of energy are electromagnetic, solar, wind and wave. According to Douglas Kahn, “rhetorical fields of matter and energy are historically predisposed to matter [...]. To assert a moving materialism of energy entails nothing more than a bending of the matter-energy shtick the other way in order to listen to the piezoelectric stress effects.” Douglas Kahn, *Earth Sound Earth Signal: Energies and Earth Magnitude in the Arts* (Los Angeles, 2013), 17.

5. timbre—the character or quality of a sound as distinct from its pitch and intensity.

But what defines a sound’s quality? Is it the particulars of a body from which it originates? The empirical philosopher, John Locke, understood sound as a secondary quality that a body or object possesses.² But sound changes in relation to the medium and space it affects. Its profoundly relational behaviour is accommodated in Casey O’Callaghan’s theory of ‘sonic realism’. O’Callaghan proposes what he calls an “event view” of sound instead of the ‘wave view’ of physics and the ‘property view’ as espoused by Locke.³ An event view of sound describes a medium set into wave-like motion by the movement of a body or interacting bodies uniting several phenomena specific to sound, such as pitch, intensity, duration, timbre, as well as (summarised from O’Callaghan):

- (i) *Transmission*: When sound in one medium passes into another medium, for example, hearing sound being generated from the other side of a wall. Whereas sound events actively produce pressure waves, transmission is an aspect of the original sound production. If transmission causes a new sound then it is called *resonance*. Resonating is a sound event in itself since the resonating object actively produces its own soundings rather than passively transmitting existing sound waves.⁴
- (ii) *Constructive and Destructive Interference*: Otherwise known as ‘phasing effect’. This is when sound waves interfere with one another to either reduce the intensity or loudness (*destructive interference*) or amplify the intensity or loudness (*constructive interference*)⁵
- (iii) *Echoes*: O’Callaghan points out that echoes seem distinct from their primary sound but are not. Echoes are a re-encountering of the same sound. An echo is a collision between the surface and the medium causing the direction of wave propagation to change. The sounding occurs later but it is still within the duration of the sound event. The echo is part of a sound event with distortions of place and time.⁶

In sonic realism, whenever or wherever there is sound, there is a sounding. I am able to agree with O’Callaghan up to a point. O’Callaghan explains that an event view describes the natural occurrence of what sounds are and “entails no mysteries about sounds and sound experience.”⁷ What O’Callaghan’s sound event fails to address are the potential effects and affects of the situated auditory perception of a listener as part of that event. This research project holds that ‘sounding’ is always an interrelated event. Through the energetic potentials of sound *and* a listening body, a relational space is formed out of which new configurations are activated. Such an ‘event’ also coincides with a Deleuzian understanding of event, which stresses the immanence of a milieu of forces, along with a body’s percepts and affects, constituting a plane of creative composition.⁸ The ‘mysteries and possibilities’ of sound, that O’Callaghan seems to exclude with

² Casey O’Callaghan, “Sound and Events,” in *Sounds and Perception: New Philosophical Essays*, ed. Matthew Nudds and Casey O’Callaghan (Oxford & New York, 2009), 26.

³ O’Callaghan, *Sounds: A Philosophical Theory* (New York, 2007), 26–49.

⁴ O’Callaghan, “Sound and Events,” 39–41.

⁵ *Ibid.*, 41–43.

⁶ *Ibid.*, 43–48.

⁷ *Ibid.*, 48.

⁸ Cliff Stagoll, “Event,” in *The Deleuze Dictionary Revised Edition*, ed. Adrian Parr (Edinburgh, 2010), 89–91.

his sonic analysis can be found in the sensing of a listener and through recognition of modalities of listening. In *Sonic Imaginations*, Jonathan Sterne cites Anne Balsamo: “The imagination is performative, it improvises within constraints to produce something new.”⁹ Sterne draws on this performative imagination to describe a sonic imagination as that which holds “sound, mind/perception, imagination and culture all as one.”¹⁰ His definition acknowledges the manifold paths, theories, and cultural understandings that might begin a discussion of how we come to imagine or know sound. Sonic imagination, here, also acknowledges the aesthetic proposition of T.S. Eliot’s ‘Auditory imagination’. Though Eliot was referencing a Modernist approach to poetic criticism, Sterne is comfortable with substituting ‘sonic’ for ‘auditory’: “[...] the feeling for syllable and rhythm, penetrating far below the conscious levels of thought and feeling, invigorating every word; sinking to the most primitive and forgotten ... [It] fuses the old and obliterated and the trite, the current, and the new and suprising, the most ancient and the most civilized mentality.”¹¹ He also cites C. Wright Mills’s ‘sociological imagination’ as interchangeable with sonic imagination: “The capacity to shift from one perspective to another [...] from the most impersonal and remote transformations to the most intimate features of the human self—and see the relations between the two.”¹² Given this history of thought, sonic imagination supports the specific positioning of a listener as critical to the definition of sound.

As I emphasised in Chapter One, traditional Māori beliefs hold that the whole of creation is an interconnected dynamic movement,¹³ wherein sound is part of the whole. The creation of Te Ao Tukupū, the Māori universe, emerges through a sequence of energetic becomings, explained in a cosmogenic genealogical narrative. Details and sequences vary among iwi, but there are strong commonalities across them. Some ascribe to Io,¹⁴ the root cause, as the ultimate origin of all things. Others cite an origin in Te Kore, chaos or the formless void, nothingness, potential. There are more variations but nonetheless there is a general pattern.

I te kore, ki te pō, ki te ao mārama
Out of nothingness, into the night, into the world of light¹⁵

In Māori Marsden’s version of the creation story, learnt in the whare wānanga of Ngā Puhī, Te Kore emerges from Io, the root cause. After eons of successive levels of primeval emptiness, emerges Te Pō, the night in a series of nights: Great nights, long nights, deep nights, intense and dark nights. From Te Pō emerges rhizomatic growth, seeking, expanding becoming Te Hihiri, which Marsden describes as “pure energy [...] manifested as a form of radiation or light and aura that radiates from matter but is especially evident in living things.”¹⁶ Te Hihiri activates Te Mahara, primordial memory. From primordial memory emerges the thinking mind, thought, intellect, consciousness, awareness, Te Hinengaro. Te Hinengaro engenders thought, Te Whakaaro. It is here that sound emerges, Te Whē, described by Marsden as emerging out of this sequence of events to clothe ‘the word’ to create knowledge, Te Wānanga.¹⁷ Te Wānanga can also be translated as discussion, debate and the imparting

of knowledge. Marsden describes the ‘word’ as a thought to which some kind of commitment has been made after the desire for articulation and expression has arisen.

I kahuria te kupu e te whē
The word was clothed by sound¹⁸

Sound emerges in the process of an unfolding universal consciousness which subsequently gives rise to shape, form, time, space and, in turn, the primordial parents of the natural world, Papatūānuku, the earth mother, and Ranginui, the sky father.

Kei a te pō te timatatanga o te waiaatanga mai a te atua.
Ko te ao, ko te ao mārama, ko te ao tūroa.
It was in the night, that the gods sang the world into existence.
From the world of light, into the world of music.¹⁹

This kōrero from Ngāi Tahu kaumātua, Matiaha Tiramōrehu, in 1849 refers to the world the children of Papatūānuku and Ranginui sang into existence.²⁰ These ancestors, after a long period of being restricted in the dark between their parents bodies, forced them apart. The resulting light and space, te ao mārama, allowed them to forge the natural world. The universe is created through the dynamics of relational affects, manifesting and transforming through the forces of movement and sound.²¹ Sound was the extension of thought in the physical world and it wove the spiritual and the material together. In all its forms, music was the voices of the deities.²²

Io - Creator - *Root cause*
Te Kore - *The Void (Chaos)*
Te Kōwhau - *The Abyss*
Te Anu - *The Cold*
Te Pō - *The Night*
Te Mauri - *Life Principle*
Te Pū-Shoot Te Weu-Taproot Te More-Laterals Te Aka-Rhizome Te Rea-Hairroot
Te Rapunga-Seeking Te Whāinga-Pursuit Te Kūkune-Extension Te Pupuke-
Expansion
Te Hihiri - *Energy*
Te Mahara - *Primordial Memory*
Te Hinengaro - *Deep Mind*
Te Whkaaro - *Subconscious wisdom*
Te Whē - *Seed-word (SOUND)*
Te Wananga - *Consciousness achieved wisdom*
Te Atamai - *Shape*
Te Āhua - *Form*
Wā - *Time*
Ātea - *Space*
Ranginui/Papatūānuku - *Heaven/Earth (the Natural World)*

Adapted from Marsden’s genealogy of the cosmos.
Abridged by Royal (not including the various names of Io and Kore, Kōwhao, Anu, Pō)²³

⁹ Jonathan Sterne, “Sonic Imaginations,” in *The Sound Studies Reader*, ed. Jonathan Sterne. (Oxon, New York, 2012), 6.
¹⁰ Ibid.
¹¹ Ibid., 5.
¹² Ibid., 6.
¹³ Michael P. Shirres, *Te Tāngata: The Human Person* (Auckland, 2000), 16.
¹⁴ It has been argued that Io was a concept introduced through Christianity, while others argue that it is an authentic concept and can be identified by its links to ancient Polynesian traditions. For further discussion, see Chapter 5, “Io-matua-kore,” in Shirres, op. cit., 107-121. See also Agathe Thornton, *Birth of the Universe: Te Whanautanga O Te Ao Tukupū* (Auckland, 2004), 212-256.
¹⁵ Shirres, op.cit., 16.
¹⁶ Marsden, op. cit., 60.
¹⁷ Marsden, op. cit., 58.

¹⁸ Te Ahukaramū Charles Royal, *Let the World Speak: Towards Indigenous Epistemology, Monograph Two* (Porirua, 2009), 8.
¹⁹ Te Manaaroa Pirihira Rollo, *Tito Waiata - Tito Pūoro: Extending the Kīngitanga Music Tradition*, PhD thesis, The University of Waikato, (2014), 1.
²⁰ Valance Smith, *Personal Communication*, 2017.
²¹ Cathy Livermore, “Dancing from Te Kore into Te Ao Marama,” in *Te Kaharoa, Special Edition, Ka Haka - Empowering Performance: Māori and Indigenous Performance Studies Symposium*, vol. 9, (2016), 55-63.
²² Hirini Melbourne, in Sarah Shieff, *Talking Music: Conversations with NZ Musicians*, (Auckland, 2002), 141.
²³ Marden, op. cit., 131.

Sound as orality, the ‘voiced, visceral, emotional’²⁴ is key to discussing an ontology of sound in te ao Māori. Pre-European contact, Māori culture was primarily an oral culture where knowledge was preserved and communicated using language and memory aided by mnemonic devices.²⁵ Cultural frameworks were reinforced through a body of oral literature that involved a close listening to the performative nuances of language.²⁶ Haka *-dance*, waiata *-song*, tauparapara *-chant*, karanga *-chant*, poroporoaki *-farewell*, paki waitara *-stories*, whakapapa, whakataukī *-proverbs* and pepeha *-tribal saying* were genres “through which knowledge was retained and learnt by each new generation.”²⁷ Storytelling was an important feature of Māori orality where, according to Ranginui Walker (Te Whakatōhea), Māori myths and traditions are “logically arranged and related systems that fulfil explanatory, integrating, validating, historic and socialisation functions for the people who owned them.”²⁸ These ancient narratives, adapted from Polynesian origins to the New Zealand environment and continue to be influential in the contemporary Māori world, were transmitted both as and through sound. Thought itself relates in a particular way to sound. As American scholar Walter Ong explains, “Sound is the ‘natural habitat’ of language.”²⁹ Spoken words are a modification of a total existential situation, and they are always bodily engaged. Sound emerges from a source that has energy and thus carries power and action. Words and names, a combination of sound and knowing, have power and meaning.

Orality is found in the natural world where nature’s soundings are its ‘voice’. That the natural world has a voice speaks of its sacredness in te ao Māori. As all things possess mauri, living force, each thing has voice. Taonga puoro, the traditional sound instruments of Māori, like te reo Māori, engage sounds and rhythms of nature. Taonga puoro are viewed as devices that channel the voices of the atua who have influences over particular natural domains. As examples, Tawhirimātea, atua of the winds, gives breath to the spinning instrument pūrerehua; Tangaroa, atua of the sea, gives voice to the pūtātara or pūmoana, the conch shell trumpet.³⁰ Pākehā taonga puoro expert, Richard Nunns, describes the sounds of these instruments as “somewhere between the sounds of the natural world and the human voice’: through which the performer enters and joins the soundscapes of nature.”³¹ Taonga puoro are also tools that enable a player to commune with the spiritual realm. In te ao Māori, sound creates a voice that enables communication between thought and expression, between living entities, and between the living, their ancestors and atua, between the realms of the material and the immaterial, between past, present and future.

Whakarongo, whakarongo: Listening to listening

‘How did you know that it used to be bent?’ I asked [...] ‘The tree told me,’ he replied gently. [...] ‘What I mean is not that the tree can talk, or anything like that. But when I say the tree can

tell me things, it’s like it communicates to me what its thinking is. It’s a living thing, and all things that are living are able to tell things about themselves in their own way. You just have to know how to listen and understand. And the more you try to listen to what trees tell you, the better you get at understanding them.”³²

This conversation between Tūhoe tōhunga, Hōhepa Kereopa, and Pākehā historian, Paul Moon, discusses a listening that engages more than the vibrations that human ears are able to register. In te reo Māori, whakarongo is the action of listening, but it also refers to smelling, tasting and perceiving. All of the senses, excluding sight and touch, engage *towards* a sensing of something else. “How would you translate the phrase ‘listening to listening’?”, I ask Rangitūnoa, a first language speaker of te reo Māori. “Whakarongo, whakarongo”, she replied. “No need for ‘ki’³³ in between as whakarongo is always a listening ‘to.’”

A human body encounters sound through hearing and listening. Selective sensory receptors in our ears detect vibrational movements between a specific range. Though sometimes, especially in the case of low frequency vibration, sound can be felt through a body.³⁴ But hearing and listening are more than physically attenuating signals in the range of 20hz to 20khz. Hearing entails positioning and perspective, much like knowing. What we hear depends on how we listen and what we listen for. Signals sound different depending on one’s positioning, physically, culturally, and psychically. “Every sensory register,” French philosopher Jean-Luc Nancy tells us, “thus bears with both its simple nature and its tense, attentive or anxious state: seeing and looking, smelling and sniffing or scenting, tasting and savouring, touching and feeling or palpating, hearing and listening.”³⁵ Even in the assigned passive role of the sensory pair, hearing indicates a mode of understanding, of being informed, knowing the existence of, of being listened to, and being understood. Hearing *becomes* listening through manifold modalities or qualities of attending-to. A fundamental mode of listening is one that attends to the source of a sound, identifying sonic emissions from bodies—people, animals, machines, objects, oceans—that assist in spatially orientating listeners in relation to their surroundings, attending to dangers, safety, or food sources. Listening to identify the ‘cause’ of a sound gives our physical experience context, involving a search for correlations of sounds with bodies.

In contrast, acousmatic listening, a term brought into contemporary usage by *musique concrète* founder and sound theorist, Pierre Schaeffer, is one way to approach “a sound that one hears without seeing its cause.”³⁶ In developing acousmatic listening, Schaeffer engaged Edmund Husserl’s phenomenological reductive techniques. To enact a ‘reduced listening’ practice, Schaeffer argued we need to first focus on the sonic features of sound rather than listening *through* sounds for their associated meanings or origins. An “undetermined” source of sound encouraged the imagination to supplement meanings as a considered and aesthetic position from which to listen. Schaeffer devises a whakapapa for this practice, citing the *akousmatikoi*, the ‘listeners’ or ‘auditors’ who were Pythagorus’s disciples, taught from behind a veil.³⁷ The *akousmatikoi* would focus better on the words of the

24 Jane McRae, *Māori Oral Tradition: He Kōrero Nō Te Ao Tāwhito* (Auckland, 2017), 202.

25 Haami, op.cit., 15. Other mnemonic devices listed by Haami are whakairo (carving), mahi tauira (design and weaving), moko (body tattooing), tohu (physical and metaphysical signs), rākau whakapapa (genealogy stick) and tuhi (physical markings). These transmit in symbolic form information that helps in the retention of oral traditions and history. Carving has become more prominent over the last century.

26 Walter Ong, *Orality and Literacy: 30th Anniversary Edition* (New York, 2012), 12. Ong argues that the use of the term literature will always be haunted by its original etymology that refers to the written word. Oral knowledge was required to prove its relevance in relation to a written knowledge paradigm.

27 Timoti Karetu, “Language and Protocol of the Marae [Meeting Place],” in *Te Ao Huriburi*, ed. Michael King (Auckland, 2011), 28.

28 Ranginui Walker, “The Relevance of Māori Myth and Tradition,” in *Te Ao Huriburi – Aspects of Maoritanga*, 182.

29 Ong, op. cit., 8.

30 Brian Flintloff, *Taonga Pūoro, Singing Treasures: The Musical Instruments of the Māori* (Nelson, 2004).

31 Richard Nunns, in Paul Wolfram, *Voices of the Land: Ngā Reo O Te Whenua* (Documentary New Zealand, 2014). (Accessed 2017) <https://www.nziff.co.nz/im:1106/>

32 Paul Moon, *A Tobunga’s Natural World; Plants, Gardening and Food* (Auckland, 2015), 12.

33 ‘To’ is a motion towards something.

34 Deaf percussionist, Evelyn Glennie, calls hearing a specialised form of touch, as the sensing of vibrating air and the conversion of its patterns into electrical signals can also be done through the sense of touch. See Evelyn Glennie, *The Hearing Essay* (1993).

35 Jean-Luc Nancy, *Listening*, trans. Charlotte Mandell (New York, 2007), 5-6.

36 Pierre Schaeffer, “Acousmatics,” in *Audio Culture: Readings in Modern Music*, ed. Christoph Cox, et al. (New York, 2004), 76.

37 Ibid., 76-77.

teacher by *not* seeing him. There is no record of this *akousmatikoi* experience, but a first-hand account from a Māori *akousmatikoi* was told by Hōhepa Kereopa.

Kereopa recounts learning by acousmatic listening at the ‘Kura of Tamakaimoana’, what he describes as the ‘Māori school of old’. He and other selected students sat in a small cave-like space, where they were required to sit in the dark, silently. The tōhunga, Manuka, would lecture from outside, explaining himself so clearly “that there was never anything to query about.” They sat there in the dark for many hours, “and your breathing would slow down so you could feel or hear anything, any little noise ... and it felt as though the words were actually going through my skin.”³⁸ Another example of Māori acousmatic listening was a story recounted to Richard Nunns. Alice Tairakena (Waikato, Waharoa) as a young girl was taken to a marae near Pirongia for a kawē mate.³⁹ As the visiting group were called onto the marae, she remembered the voice of the kōauau floating out of the bush. At this marae, the custom was for the player not to be seen.⁴⁰

Brian Kane proposes that acousmatic listening is often deployed as “a way of listening to essence, truth, profundity, ineffability, or interiority.”⁴¹ Though, hearing is always contextually specific. Schaeffer’s acousmatic approach is a listening of separation, enabling the listener to explore the effects that technologies create, by increasing the distance between sounding events and listening. In the interrelated world of Kereopa’s listening, however, words seeping through Kereopa’s skin retain an embodied attachment to the traditions and meanings of tōhunga Manuka’s soundings. Even when engaging the time-bending tricks of audio technologies that I fully embrace, no event is isolated when engaging an understanding of the world as interconnected process.

In te ao Māori, peripheral or passive listening was and is often used as a method for oblique learning, especially with children. Ngoi Pēwhairangi (Ngāti Porou) explains that elders would recognise certain qualities in specific young people that would mark them out as potential students. They would not be taught directly but were put in situations where they were able to absorb knowledge: “When you’re asleep on your own, they’re singing waiata or reciting genealogy in the next room. As you’re lying in the dark you absorb everything that is going on.”⁴² Oblique learning would eventually give way to more focused and directed instruction. Oriori were another means of teaching through the peripheral listening of a child. Oriori is a genre of waiata mōteatea (traditional chant) composed for children. They contain ancient history, genealogies and accounts of battles. They might also communicate grievances in the expectation that the child would one day avenge or address the issue. They let a child know her or his place in the world and expectations as prescribed by ancestors.⁴³ The composed oriori would be sung to a child while still in the womb and as a baby. It would continue to be sung at times throughout the child’s life and, with maturity, the oriori’s layers of meaning are revealed, explored and explained. Such a waiata holds for an entire life.⁴⁴

This doctoral research engages a listening that is both a listening to sound-in-itself, to use a term drawn from John Cage, and a charting of genealogies of its associations. Is it possible to listen without an attachment to associations of cultures, histories

or societies? Jean-Luc Nancy proposes that to listen is to always be on the edge of meaning. Meaning consists of a reference or a series of referrals: “From a sign to a thing, from a state of things to a quality, from a subject to another subject or to itself, all simultaneously.”⁴⁵ Listening for meaning is listening for the “shared indexical and iconic associations of all forms of sounded expression.”⁴⁶ Certainly one of the things that initially drew me to experimental sound making or music was the visceral thrill of giving myself *completely* to sound: The initial unexpected rush, and a physical reaction to the forces of sound. Kim Gordon of Sonic Youth describes it as “[...] the loss of myself, the capacity to be *inside* that music [...] the same power and sensation you feel when a wave takes you up and pushes you someplace else.”⁴⁷ These are sounds at their most ‘material’ that express movement or force-in-itself rather than tell a narrative, convey emotion or present an idea. It is a practice of being *in* sound.

When we listen for meaning, we listen *through* sounds. This is the realm of non-cochlear listening advocated by Seth Kim-Cohen, who encourages the listener to listen *about* something rather than *to* something. This constitutes his critique of the sonic arts as fixated on the phenomenological Cagean and Schafferian celebration of sound-in-itself.⁴⁸ I don’t disagree with Kim-Cohen. But there is a tension here. It is important to think *about* sound in the arts, opening up the potential for dimensions of meaning within whatever is heard. What is ultimately heard might not be sound itself, yet sound itself is necessary for the conveyance of what might be heard. Signification and representation do not sufficiently account for sonic practices and what they offer. Hence modal differences in listening point toward differing affective directions. Being simultaneously *in*, *of* and *through* the sound. Before emotions as inscribed cultural responses and associations take effect, a more originary encounter with physical forces happens, that is bodily registered as ‘affect’. Affects precedes and are, thus, ‘outside’ language.

Affect occurs when I involuntarily draw a sharp intake of breath in response to a volume shift and tonal change in the richly layered noise of an *Acid Mothers Temple* performance.⁴⁹ Affect equally occurs in my mundane everyday while I’m engaging minimal attention with the most peripheral listening, in listening to everything but nothing. Understood in the Spinozan sense, through Brian Massumi, affect is a body’s initial reaction to the external, a body’s initial pre-conscious encounter with sensing.⁵⁰ Massumi describes affect as “[...] the passage from one experiential state of the body to another [...] (with body taken in its broadest possible sense to include ‘mental’ or ideal bodies).”⁵¹ It is what happens when we interface with the world around us. It is part of the process of becoming as we constantly and incrementally change over any duration.

When we acknowledge affect we also acknowledge the forces at play in a material world. Sound is one of many forces in an unceasing material flow. This is the language employed by Christoph Cox in explaining sonic materialism in the context

38 Moon, op. cit., 30–31.

39 A kawē mate is a mourning ceremony where relatives of the deceased visit as a group the marae of other communities after a tangihanga (funeral).

40 Richard Nunns, *Tē Ara Puoro: A Journey into the World of Māori Music* (Nelson, 2014), 62.

41 Brian Kane, *Sound Unseen: Acousmatic Sound in Theory and in Practice* (New York, 2014), 9.

42 ‘Ngoi’ Te Kumeroa Ngoingoi Pewhairangi, “Learning and Tapu,” in *Tē Ao Huriburi*, 10.

43 Amster Reedy, in Waka Huia documentary series, *Maori Oriori or Lullabies, Part 1 of 2* (Aotearoa NZ, 2011).

44 Hana Pomare, *Personal communication*, (2017).

45 Nancy, op. cit., 7.

46 David Samuels and Thomas Porcello, “Language,” in *Keywords in Sound*, ed. David Novak and Matt Sakakeeny (Durham & London, 2015), 87.

47 Kim Gordon, *Girl in a Band: A Memoir* (New York, 2015), 146.

48 Seth Kim-Cohen, *In the Blink of an Ear: Toward a Non-Cochlear Sonic Art* (New York, 2009).

49 Acid Mothers Temple are a Japanese psychedelic rock band. Group member, Kawabata Makoto, noted: “Music for me is neither something that I create, nor a form of self-expression. All kinds of sounds exist everywhere around us and my performances solely consist of picking up these sounds, like a radio tuner, and playing them so that people can hear them.” (2000)

50 Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation* (Durham, 2002), 27–28.

51 Brian Massumi, “Translator’s note and Acknowledgement,” in Deleuze and Guattari, *A Thousand Plateaus: Capitalism and Schizophrénia* (London & New York, 2004), xvi.

of the sonic arts.⁵² In this lexicon, after Deleuze, Nietzsche and DeLanda, we return to the sound event (or any material event) as one where something occurs in the interactions of various kinds of forces. Force equates to any capacity to produce change, whether such capacity and what it produces are “physical, psychological, mystical, artistic, philosophical, conceptual, social, economic, legal, etc.”⁵³ Force always exists in a relationship with other forces. All phenomena are expressions and consequences of interactions between forces, with each interaction revealed as an ‘event’. If we understand that sound and the sonic arts are aspects of the transformative processes of our material world, a sonic materialism understands that mind and human ‘symbolic’ life are extensions of matter and such processes. In this ontology, listening and affect are processes of transformation and translation.

As Nigel Thrift explains: “[...] affect is understood as a set of flows moving through the bodies of humans and other beings, not least because bodies are not primarily centred repositories of knowledge—originators—but rather receivers and transmitters, ceaselessly moving messages of various kinds on.”⁵⁴ The listener and artist transform one energy state to another, her body being conductor and transducer, converting variations in physical quantity to electrical signals. As part of this process, affect has the tendency to be inscribed *in* a body. Traces of experience are formed from repetitions, repeated impacts of similar encounters with our material world.⁵⁵ An accumulation of affects is what Spinoza calls ‘affection’. Force or ‘affectus’ or affect is a passage from one state to another, while ‘affectus’ or affection is the state of the affected body.⁵⁶ Affective force can reside in a body as affection over time, forming dispositions or what Pierre Bordieu termed ‘habitus’: The physical embodiment of deeply ingrained habits, skills, and dispositions that result in the cultural capital we possess due to our life experiences.⁵⁷ It is in relation to this that affect can be understood as autonomous.

What is left of an affect once it has been felt? According to Massumi, affect doesn’t belong to the sound or the person listening but retains the resonance of both. The affect is bound to the experiential individuality of the subject. Emotion is the subjective capture of affects and affirms the individuality and interiority of the listening subject. Affect carries an emotional, cultural, individual response while remaining distinct. For Deleuze, affect also manifests within and as a work of art. We might refer to the affect of a painting, a sound assemblage or a piece of writing. The artistic quality of the work may be perceived in its capacity to produce new and unique affects. According to Deleuze, the autonomous remains of affect are preserved in a work of art as a “bloc of sensations.” A bloc of sensations is composed of percepts and affects. Percepts constitute an independent collection of sensations that live beyond their creators. This is *not* the perception of an artist or viewer and it is not the affects on or of either. The bloc of sensations become autonomous, *attached* to the work of art to affect whoever encounters it.⁵⁸

Although the Māori concept of mauri is different from the concept of affect, affects in te ao Māori can be located in the relational processes and exchange of mauri that exist between entities, people and phenomena. I have previously discussed mauri as an active life force that has been passed down through the genealogies of

the atua, providing life to all known phenomena, creating a holistic unity within diversity.⁵⁹ The autonomy of affect can be recognised in that all entities, including a grudge or an artwork, possess their own mauri with which each of our own mauri may interact and exchange. As well as possessing mauri, artworks and performances are experienced and judged ‘aesthetically’ in te ao Māori through the registers of ihi, wehi and wana, which resonate with an understanding of affect. Ihi is a psychic power from a performer or artwork that elicits a positive psychic and emotional response from an audience.⁶⁰ Wehi is a reaction to that power of a performance or artwork, and wana composes reactions and aura created during a performance that encompasses both performers and audience. Wana occurs during an active engagement of both parties and so is not generally attributed to ‘inanimate’ artworks such as a carving or a video, a work that doesn’t possess consciousness to respond.⁶¹ I have been told of artworks though, that might appear ‘inanimate’ yet do respond, for example, portraits and carvings of ancestors whose presence is attached to these works, with wana occurring with those who are able to recognise and engage with them.

Affect is an important concept in acknowledging ethical dimensions to a materialism of sound, where ethos is essentially constitutive of capacities to affect and be affected. In this regard, affect is an ecological dynamic that occurs in relationships between all bodies, rather than considered as a phenomenological relationship between human bodies and their experiences of soundscapes. As Salomé Voegelin explains, materialism acknowledges that the *substance* of objects are temporal processes, independent of human interventions and perceptions, but become real for a listener through singular temporal processes of that listener simultaneously being substance.⁶² For a listener, sound becomes an experiential means, alongside the other senses, the effects of which inevitably create further movements engendering new soundings.

To listen from a position underpinned by a connected, immanent and processual ontology is to listen ecologically. Eric Clarke developed a proposal for ecological listening, as a way to perceive of meaning in music, developed from James J. Gibson’s ecological approach to visual perception, known as Ecological Perception (EP).⁶³ In EP, perceptual learning is a process of seeing the differences in the perceptual field around an individual involving concepts of embodied cognition and autopoeisis. Clarke developed Gibson’s concept of affordance, where an organism perceives objects and events in its environment in terms of the interaction potentials that they afford.⁶⁴ In musical perception, affordance is developed in terms of the “meaning” possibilities that a musical event affords to an individual listener. Though Clarke goes on to propose that several listening strategies are possible for music, including one that sees music as an autonomous object, he crucially recognised “[...] within the framework of ecology, autonomy is therefore an impossible state: organisms and environments are always in a state of mutual dependence.”⁶⁵

A listener multiplies the potentialities of what sound might do with different modes of listening, leading to different affective outcomes. An ecological listening is listening to an interdependent universe, where sounds and our responses are all parts

52 Christoph Cox, “Beyond Representation and Signification: Toward a Sonic Materialism,” in *Journal of Visual Culture* Vol.10, no. 2 (2011): 145-61.

53 Cliff Stagoll, “Force,” in *The Deleuze Dictionary Revised Edition*, ed. Adrian Parr (Edinburgh, 2010), 110.

54 Nigel Thrift, *Non-Representational Theory: Space, Politics, Affect* (Oxon, New York, 2008), 236.

55 Deleuze, *Spinoza: Practical Philosophy*, trans. Robert Hurley (San Francisco, 1988), 49.

56 Ibid., 48-49.

57 Pierre Bordieu, *Outline of a Theory of Practice*, (Cambridge, 2002).

58 Simon O’Sullivan, *Art Encounters Deleuze and Guattari: Thought Beyond Representation* (New York, 2006), 52-56. See also Deleuze and Guattari, *What Is Philosophy?* (New York, 1994), 164.

59 Marsden, op. cit., 95.

60 Tāmari Kruger, “The Qualities of Ihi, Wehi and Wana,” in *Nga Tikanga Tuku Ibo a te Māori, Customary Concepts of the Māori: A source book for Māori Studies students*, ed. Hirini Moko Mead (Wellington, 2004).

61 Nathan Matthews, “The Physicality of Māori Message Transmission: Ko te tinana, he waka tuku korero,” in *Junctures* (2004), 10.

62 Salomé Voegelin, “Ethics of Listening,” in *Journal of Sonic Studies*, 2,1 (2012): 2.

63 Eric Clarke, *Ways of Listening: An Ecological Approach to the Perception of Musical Meaning* (Oxford, 2005). See also James Gibson, *The Ecological Approach to Visual Perception*. (New Jersey & London, 2014).

64 Clarke, op. cit., 36-43.

65 Ibid., 132.

of the processes of matter and its immaterial emissions. It is a listening that engages with sound-in-itself, with ‘what does it do?’ and still traces paths to conceptual, textual, contextual encounters, embracing cultural meanings and representations as components of a rich toolbox always already available to artist and listener. These are listening tools for sense-assemblages of sounds with a musical frame suspended. This project holds that an ecological listening of curiosity and solidarity enhances our connectivity and, subsequently, our reciprocal responsibilities in relation to the systems we inhabit.

Assemblages of Sound

Space, Time & Technology

Introduction

The milieu of this research overlaps the discrete fields of experimental music, sound art and sound design. Issues of time, technology and space work in correlation with selected sound elements. With this chapter, “Assemblages of Sound,” aspects of the whakapapa of these practices are discussed to clarify definitions. Subsequently, Māori sound practices, particularly taonga puoro, waiata mōteatea, the geo-spatial contexts of oral practices, and karanga are engaged. These practices are significant for my research. Key to Māori sound practices are disclosures of temporality, equally implying spatial understandings. Important developments in Western sonic arts can also be understood in relation to the way that they have challenged perceptions of time and space. Our senses disclose our worlding. In Western contexts, sonic arts challenge an often implicit and assumed prioritisation of vision, its dominance being a key agency of Western thinking.

Definitions: Experimental Music, Sound Art, Sound Design

Experimental Music

In the histories of Western aesthetics, music has constituted the discipline or domain most associated with sonic composition, performance and reception. Fundamentally, music is a combination of sounds in which its various attributes are controlled (according to a set of rules) and grouped for effect. Among these attributes pitch is used to arrange melody and harmony, rhythm organises time sequences, with tempo prescribing the speed of composition, and metre divides the sequence into regular units of time. Dynamics refer to variations of volume and intensity, and timbre references the different textures and qualities of sound

that make its voice distinct. All are aspects of sound available for the composer or musician. When discussing the essential qualities of Western music throughout its history, Cox adds to this an ability to arouse emotions and the sounding properties found in materials which he argues have both been fundamental to an idea of music.¹

To emphasise this, Cox references R. Murray Schaefer’s retelling of two Greek origin myths for music. The first story is from the poet Pindar in the fifth century BCE, who recounts how Athena, goddess of war, wisdom and arts, invented the ancient flute called an aulos. After beheading Medusa, Athena was moved by the heartbroken cries of Medusa’s sisters and composed a piece of music on the aulos in sympathetic response. This origin story acknowledges and underlines music’s ability to engage and arouse emotions. The second story acknowledges the discovery of sonic properties in materials. In Homer’s hymn to Hermes, Hermes surmised that the shell of a turtle could be used as an instrument to generate sound.² Expertise as a musician meant knowing the traditions and rules that prescribe how to structure the soundings from materials, and techniques to evoke emotional responses from these soundings.

In contrast to established ideas of what constitutes music, experimental music explores what else music *could* be. The term ‘experimental music’ was used initially in the 1950s by innovators Pierre Schaeffer (who later adopted the term *Recherche Musicale*), and John Cage, who explained: “an experimental action is one the outcome of which is not foreseen.”³ In the Euro-American sound practices of the 1960s, the term came into wider use to help define a loosely identified group of composers innovating within and around the academy. Composer and author, Michael Nyman, used Cage’s definition as a starting point to further identify (mostly male American) composers of that period as distinct from a European avant garde of the time.⁴ The latter constituted composers such as Xenakis, discussed in this exegesis, Pierre Boulez, Luciano Berio, Karlheinz Stockhausen for whom Nyman argues “The identity of a composition is of paramount importance.”⁵ But, as Nyman concedes, “[...] any attempt to classify a phenomenon as unclassifiable and (often) elusive as experimental music must be partial.”⁶

Ultimately the term has a much wider use to describe positions that explore potential sonic outcomes that are in contrast to musical conventions. Jennie Gottschalk’s book *Experimental Music Since 1970*, takes up where Nyman left off and describes five defining features of experimental music. The first reasserts Cage’s original statement that the “act is known but the outcome is unknown.”⁷ The second foregrounds change in that it creates what Christian Wolff calls “[...] a kind of model, an incentive for the notion of change.”⁸ Thirdly, she cites ‘non-subjectivity’ which in this context refers to a listener’s focus on how a sound is behaving in a specific circumstance, as opposed to the decisions or expressivity of its composer. Fourth is a listening where listeners draw from their own lived experiences rather than from their recognition of musical tradition. Lastly, she cites research as a key formulation of experimental music. Since the ‘position’ is experimental, research is

1 Christoph Cox, “Beyond Representation and Signification: Toward a Sonic Materialism,” in *Journal of Visual Culture* 10, 2 (2011): 149.

2 R Murray Schaefer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester, 1994), 6.

3 John Cage, “Composition as Process: II Indeterminacy,” in *Silence: Lecture and Writing by John Cage*, ed. John Cage (Middletown, 1961), 39.

4 Michael Nyman, *Experimental Music; Cage and Beyond* (Cambridge UK, 1999). Nyman’s composers included Morton Feldman, Terry Riley, La Monte Young, Philip Glass, Steve Reich, Christian Wolff, Meredith Monk, John Cale, Gavin Bryars, Toshi Ichihyanagi, Cornelius Cardew, Keith Rowe, among others.

5 Ibid., 9.

6 Ibid., 4.

7 Jennie Gottschalk, *Experimental Music since 1970* (New York & London, 2016), 2.

8 Ibid., 3.

a process or interaction wherein a question can be explored. These are useful and relevant terms, and generally I agree that these are key features of experimental music. But I am also aware that Gottshalk is a trained classical composer who “yearned after a non-fictional music,” subsequently ‘discovering’ it in experimental musics.⁹ Her understanding of experimental music comes from a position that was first embedded in the traditions of Western composition as taught through a tertiary education programme.

Having said that, in Gottshalk’s book she discusses a huge range of artists, with a number drawn from the canon of experimental musicians who were initially trained as composers of Western Classical music, for example American composers David Tudor and David Dunn are discussed under ‘Imitating Nature.’¹⁰ But there are others outside of that tradition with examples such as Japanese musicians Sashiko M, Otomo Yoshihide and Toshimaru Nakamura being discussed in the context of inhabiting the performance space.¹¹ In contrast to Nyman’s history, Gottschalk does include women artists that were conspicuously absent from Nyman’s book, such as Pauline Oliveros or Eliane Radigue who were not mentioned in Nyman’s section on minimalist composition. Both are acknowledged and discussed in Gottshalks book under sections titled ‘The Position of the Listener,’ (Oliveros)¹² and ‘Thresholds of Perception’ (Radigue among other artists).¹³ She also includes other early innovative sound artists, Annea Lockwood and Maryanne Amacher that helps towards balancing out what is often a gendered history. I would also include in this canon of Western experimental musics, American composer Maggi Payne, Japanese artist Yoko Ono, and English composer Daphne Orams - to name a few.

My engagement with experimental music grew from and within a community in the mid to late 1980s in Dunedin where compositional techniques of traditional Western Classical music were unfamiliar. None of us were trained musicians but we certainly would have recognised specific musical structures through listening and imitation. Rather than breaking musical rules, we were making up musical forms with limited expertise. I’m not proposing that this background was in some way more ‘appropriate’ because it was untainted by a compositional education. Though, within certain scenes and stages of experimental music with which I have been involved, this is indeed the perception. This is the notion that an outsider or naive artist is untainted by the constraints of a formal music or art education, thereby possessing, by default, a less ‘affected’ and truer voice. Of course, in my own informal engagements with sound crafting there were plenty of ‘taints’ to be drawn from in different music genres, that ranged from alternative rock music forms, free jazz, popular culture, film sound, experimental musics from the classically trained canon and other musical genre hybrids.

In this location and era, in what also tended to be a gendered environment, though not entirely, I felt my efforts and experiments to be generously supported. For those around me, methodologies of engagement were varied, with some veering towards more structured songs, such as Sandra Bell and Alastair Galbraith. Music groups such as Plagal Grind, that formed around Galbraith’s songwriting also included luminaries with their own experimental song based practices Peter Jeffries and David Mitchell. Touring musicians such as Marie and the Atom from Auckland, (Virginia Were, Sara Westwood and Gill Civil) made a strong impression with their evocative tone poems. Others, like the Dead C, consisting of Michael Morley, Bruce

Russell and Robbie Yeats, used rock song forms to provide a loose structure though which to improvise. According to Morley, the group formed (apart from proximity and friendship) through shared tastes in music established through the discussion of structure and soundings of specific records and artists.

“We have a shared interest in music and sound. We had that before we started playing together. Discussions were about the structure of rock music, what was wrong with it from various perspectives, especially considering our context of New Zealand. Our ideas about music were to see what we could do with our restricted knowledge concerning composition and rock music and marrying this with the knowledge of audio culture that we possessed, and our interpretation of punk rock within this.”¹⁴

For myself, what originally was based in experimenting with rock song structures, turned into trying to locate, through sound, an impression held that was not always necessarily clearly formed. It might be an image, a texture, a feeling, an idea of a physical or aural movement that helps guide decisions throughout a sound-assembling process. The point here is that, and Gottschalk also acknowledges this, there are many forms and approaches to experimental music. A formulation such as ‘research’ becomes a very loose term, where most situations in life could be described as research. For this PhD project though, research parameters for my sound productions have been prescribed by academic contexts and expectations. My approach is inherently different to how I have previously approached work. For the most part, this difference amounts to articulating and contextualising my approaches to assembling sound. This process has its own give-and-take: It is a process that ‘takes away’ in terms of commitments to contextualising research, but also ‘gives’ through the reflective processes of reading and writing about my field.

Sound/Sonic Art

David Dunn describes experimental music as a paradigm that “bifurcated away from the predominantly European nineteenth-century belief that music must express ‘self’ and ‘emotion,’” and instead employ “active creative strategies that emphasize materiality of sound, listening, environment, perception, and socio-political engagement.”¹⁵ Dunn’s description of experimental music’s strategies seem coincident with defined strategies in making sound art, though this is a contested term that I shall elaborate on shortly. What might be termed ‘experimental music’ and what gets referred to as ‘sound art’ was part of a much wider movement through the U.S. and Europe in the 1950s and 1960s, where experimental strategies in music, post-minimalist installation practices and conceptualism in the visual arts all converged. Sound is now a mode of artistic production that is an integral aspect of contemporary art. As with every creative development, there is always a whakapapa, in this case a widely acknowledged pre-history that includes artists such as Marcel Duchamp, and the Futurist, Luigi Russolo, with his Art of Noises manifesto, and intonarumori.¹⁶ Dada experiments, such as Kurt Schwitters’ sound poems, consisted of sonic utterances that

⁹ Ibid., 4.

¹⁰ Ibid., 12-14.

¹¹ Ibid., 208-209.

¹² Ibid., 107.

¹³ Ibid., 23-24.

¹⁴ Michael Morley in *Bomb* magazine, Mixtape: The Dead C, (2010) Accessed February 2018: <https://www.audioculture.co.nz/stories/the-dead-c-why-use-two-chords-when-one-will-do-part-1>

¹⁵ Gottschalk, op. cit., 3.

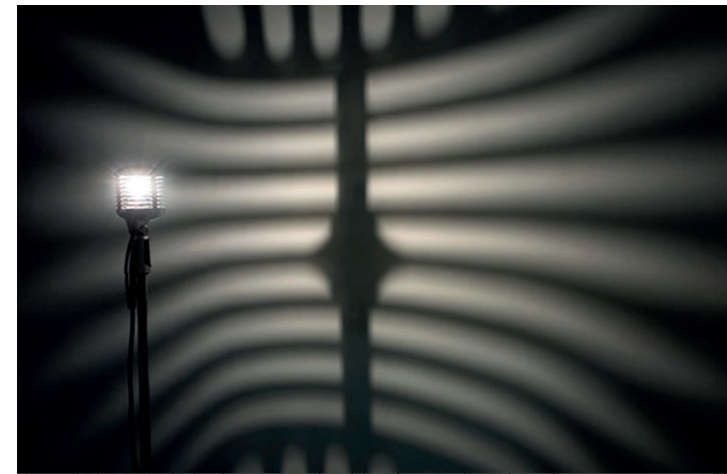
¹⁶ “First of all, musical art looked for the soft and limpid purity of sound. Then it amalgamated different sounds, intent upon caressing the ear with suave harmonies. Nowadays musical art aims at the shrillest, strangest and most dissonant amalgams of sound. Thus we are approaching noise-sound.” See Luigi Russolo, *The Art of Noises*, trans. Robert Filliou (1967), 5. http://www.artype.de/Sammlung/pdf/russolo_noise.pdf

sought to erase the meaning of words, to be followed by the Fluxus movement, among others.¹⁷ These were all part of a range of artistic practices that explored perceptions other than just the visual and new relationships between audience and artworks. In sound art, as in experimental music, there doesn't need to be melody, harmony, structure, musical instruments, musical expertise, or even sound. The difference between experimental music and sound art could be argued that sound art requires space, or is site specific rather than being a "succession of sound events in time."¹⁸ It could equally be argued though, that in some instances, experimental music pieces respond to specific sites through thematics or acoustics, for example Pauline Oliveros' original 'Deep Listening' performance and recordings. These responded to the reverberation of underwater tanks, providing site-specific 'space' to complete the particulars of its assemblage at that time.¹⁹ Many 'sound art' works can be re-installed in different iterations in other galleries and sites. An example here is the 2013 New York Museum of Modern Art 'sound art' exhibition 'Soundings: A Contemporary Score.' Many of the works in this exhibition has been exhibited elsewhere previously.

The term 'sound art' (and its variations, such as Sonic Art) can be loosely used and is often contested. Max Neuhaus, frequently cited as one of its seminal figures, rejected the term.²⁰ Carsten Nicolai, who works with sound in both art and music states: "It is not about media, It is about content."²¹ Caleb Kelly asserts: "I cannot put it strongly enough. There is no such thing as 'sound art'."²² For Kelly, sound is already 'in' contemporary art and the hegemonic status of the visual over the sonic in the arts has already been challenged and overcome, albeit disadvantaged due to difficulties in its containment or control in gallery and museum situations: "To call work 'sound art' is to overly simplify the practices."²³ I agree with Kelly's comment though I have found myself using the term in the same way that an artist whose main expression is 'painting' might refer to themselves as a painter. Perhaps Brandon LaBelle's description of Sound Art "as a practice that harnesses, describes, analyzes, performs and interrogates the condition of sound and the processes by which it operates," brings us closer to a specific description of what might constitute sound art, if we use the term.²⁴

An example of sound art that is *not* experimental music is Camille Norment's installation *Triplight* (2008). It consists of a vintage Shure Model 55 microphone on a stand, the microphone internally lit with a bright light, intermittently flickering, providing a signal radiating from within the microphone, and at the same time creating the semblance of a body through rib-cage like shadows thrown across a dark room. Norment writes that the work "[...] is the silent noise of social realities and the suppressed voice."²⁵ Experimental music might also comply with LaBelle's definition. It too might "harness, describe, analyse, perform and interrogate the condition of sound and the processes by which it operates." To argue for this work as experimental music would be stretching the term so far for it to no longer to be useful. The context is the art gallery. It was included in the exhibition I previously mentioned at the Museum of Modern Art,

in New York, alongside a range of other international works with the curatorial focus of artworks that explored or engaged sound.²⁶ If it was not exhibited in the context of a range of sound-art works, it may have been recognised simply as an 'artwork'. Could it also be called 'Light Art'? As Alan Licht has said, "[...] it is better to honour sound pieces created in a non-time-based, non-programmatic way as being sound art as opposed to music than to simply shoe-horn any sound work into the genre of experimental music [...]."²⁷



Camille Norment *Triplight* 2008

In the same way, it is not useful to describe all experimental sound compositions, performances and recordings as sound art. Just as sound and its behaviour can also find itself overlapping with other 'genres', for example, 'energetic art' as identified by Douglas Kahn.²⁸

Finally, 'Experimental Sound' was the term used in the title of the 2012 publication 'Erewhon Calling; Experimental Sound in New Zealand.' New Zealand writer and musician Bruce Russell outlined the scope of the book to "a. includes 'everything', which b. relates to audible culture, which c. embodies or manifests a pragmatic, exploratory or hypothesis-governed practice, and that d. has been executed in this country."²⁹ As Russell points out, most of the sound practitioners included in the book have started from "some relationship to both of the received traditions of rock music and contemporary art though they may have strayed a fair distance from these."³⁰ Within its pages, Dugal McKinnon, associate professor of composition and sonic arts at the music department at Victoria University, discusses the divide between those inside the academy and those that are outside of it. McKinnon concludes that perhaps this gap can be reduced through the academy "acknowledging expertise that emerges outside academia and isn't expressed in pseudo-scientific dialect, while experimentalists might drop the rock'n'roll pseudo-individuality, and engage with the rigour of composition."³¹

17 See Douglas Kahn, *Noise Water Meat: A History of Sound in the Arts* (Cambridge, Mass., 1999); Alan Licht, *Sound Art: Beyond Music, Between Categories* (New York, 2007); Caleb Kelly, *Sound: Documents of Contemporary Art*, ed. Caleb Kelly (London & Cambridge, 2011).

18 Max Neuhaus, "Conversation with Ulrich Loock," in *Inscription, Max Neubauss, Sound Works, Volume 1*, concept Max Neuhaus and Gregory des Jardins (Ostfildern, 1994), 130.

19 Pauline Oliveros, Stewart Dempster and Panaiotis, *Deep Listening*, CD Album (San Francisco, 1989).

20 Max Neuhaus, in "The Sound of Space," in *Art Review*, vol. 56, (April, 2005): 55.

21 Carsten Nicolai, in "When Does A Sound Become Art" *Art Review*, vol. 56 (April, 2005): 77.

22 Caleb Kelly, *Sound Full: Sound in Contemporary Australian and New Zealand Art*. Catalogue essay (Dunedin, 2013), 11.

23 Ibid., 12.

24 Brandon LaBelle, *Background Noise: Perspectives on Sound Art* (New York, 2006), ix.

25 Camille Norment, "Selected Work," in *Camille Norment Studio* (Accessed 2017).

26 Norment, "Triplight," in *Soundings: A Contemporary Score Soundings: A Contemporary Score*, The Museum of Modern Art, New York, (2013).

27 Alan Licht, "Sound Art: Origins, Development and Ambiguities," *Organised Sound* 14, 1 (2009): 9.

28 Douglas Kahn, *Earth Sound Earth Signal: Energies and Earth Magnitude in the Arts* (Los Angeles, 2013).

29 Bruce Russell, "Over the Range: An Introduction to 'Erewhon Calling.'" In *Erewhon Calling, Experimental Sound in New Zealand*, ed. Bruce Russell (Auckland, 2012), 13.

30 Ibid., 12.

31 Dugal McKinnon, "After the Great Divide, the Little Gully: Miscommunications About Sound," in *Erewhon Calling, Experimental Sound in New Zealand*, 123.

Sound Design

The major research practice for this project resides in a space of overlap between experimental music and sound art, with aspects of sound design as well. Much of the initial generation of sound in my projects comes from a position particular to the experimental music formulations I just discussed. This part of the process is often intuitive and playful; a process I will discuss in more detail in Chapter Six. Even though the work is developed through experimentation in the studio with the generation of live sound, processing and re-recording of recorded material, and live performance, at some stage the development of the work overlaps with skills and practices I recognise as sound design. The term ‘sound design’ is often employed in a range of disciplines, especially in audio post-production in film making, television, theatre, and gaming. Often in sound design, a work is made in response to and in collaboration with the ideas of others, with outcomes consisting of pre-specified goals, defined creatively or commercially. This process occurs throughout my research, and particularly in the crafting, assembling, manipulating of audio elements and in the designing of these toward a specific goal. Instead of an open ended exploration that tends to be a feature of experimental music, sound design is a craft, with specified outcomes in mind. This crafting of sound is not exclusive to sound design, and this process can equally be engaged in sound art, however in my work it plays a particular role in the generation of affective spatial environments that are not necessarily dependant on the gallery.

I acknowledge the relevance and frequently overlapping whakapapa of the terms and practices discussed here. For the purpose of this research though, since I have the opportunity to detail my positions or perspectives, I refer to my practice as ‘assemblages of sound, space, technology and time’. This ‘title’ seems a bit unwieldly so, at times, it is abbreviated to ‘sound assemblages’ or sound productions.

Māori Sound Practices

Taonga Puoro

As with Schafer’s description of the Greek origins of Western music, Māori traditional music acknowledges the emotional through songs and dances, and the sonic properties of matter through Māori traditional instruments, taonga puoro. Taonga puoro were viewed not as musical instruments but as devices that channelled the ‘voices’ of the atua who had influences over particular natural domains and were also “[...] an extension of the human voice – singing, praying, exhorting, signalling, insulting.”³² Taonga puoro expert, Rangiira Hedly, was told by ‘the old people’ she had to listen carefully to the different woods to know which ones would make good instruments.³³ Trees and wood that ‘talk’ were the best. As she explained, ‘talking’ happens with wood, such as Tōtara, that ‘cracked’ while drying in the sun or when burnt. Cracking indicated that it would create an instrument with a good clear voice. Mānuka hisses when it burns and was the wood of preference in making a wind-sounding instrument, like the pūrerehua.³⁴

Papa is the rhythm; Rangi is the melody. From their children the different atua give their voices to groups of instruments. Tawhirimātea, atua of the winds, giving breath to spinning instruments—pūrerehua—the bull roarers, porotiti. From Tangaroa, atua of the seas, are sea-shell instruments, as with pūtātara or pūmoana, the conch shell trumpet. From Tānemāhuta, atua of the forest and all its creatures, come the

ancestors of the many instruments derived from wood and leaves. His daughter, Hine-pū-te-hue, ancestress of gourds, provides the source of many instrument variations on flutes and shakers. Another of Tane’s daughters, Hine-raukatauri, the case moth, chose to live inside her flute and became the goddess of flute music, with her signature melancholic haunting voice.³⁵

All taonga puoro had a purpose beyond performance and entertainment. They assisted healing, hunting, conception and childbirth. They cloaked speech in evocative sounds, or supported performances. Loud instruments, such as the conch shell trumpet pūtātara, the long wooden trumpet pūkaea, or pahū were mostly for social use or signalling. Pahū are drums made from hollow trees, or later at times made from empty kerosene tins. They were used to summon waka transport across rivers, to pass messages from staging-post to staging-post over long distances, as occurred up the Whanganui river and in the Lake Taupō area.³⁶ Taonga puoro were also used for hunting. Bird calling flutes, called karanga manu or kōauau pūtangitangi, were used as hunting lures, as was playing on leaves. Karanga weka lured weka, specifically due to imitating their calls.³⁷

Taonga puoro mimic and incorporate language. Some instruments act as direct conduit for verbal language, as though a ‘megaphone’ to amplify and reinforce the voice, as with insults made through a pūkaea (trumpet).³⁸ Or they may act as a voice modulator, distorting or hiding words, as with the rōria (Jew’s harp) or in singing into the porotiti (a spinning disc).³⁹ But at other times words were contained within the instrumental music. The language components of words may be embedded in a flute or other instrumental sound, by tongueing or moving the mouth, or by familiar rhythms on the pahū (gong).⁴⁰ Because instruments such as kōauau often replicate the human voice, attributes of singing can be found in their performance. These attributes have their particular modulations or modes: There is ihi, essential force, excitement, power, charm; but also wehi, dread, fear, something awesome, a response of awe in reaction to ihi; then wana, to be exciting, thrilling, inspiring, stimulating, moving, rousing; or wairua, spirit, soul, essence, mood; and hotu, to sob pant, sigh. There are two more: tangi, to cry, mourn weep over, to make a sound, sing and the vocal equivalent of wiriwiri, a trembling or vibrato.⁴¹

In some circumstances taonga puoro were used as a conduit for spirit messages, especially in matakite or foretelling. Tōhunga were the ones able to understand the messages. In some contexts, te reo wairua or spirit voice played an important part in the traditional performing of instruments. In particular, sounds made by wind—whistling, moaning, swishing—are acknowledged as messages from the spirit world. Some instruments produce unexpected wind voices, perceived as spirit voices joining in with the song.⁴² Performer Richard Nunns explains that a range of whistling, multiphonic, drone and overtone sounds, forms of irirangi (spirit voice) were aimed for in taonga puoro playing.⁴³ Taonga puoro maker, Brian Flintloff, notes: “[...] in some instruments a third voice emerges, that of the mysterious Wheke, daughter of Raukatauri, who is sometimes heard but never seen.”⁴⁴ Nunns also refers to Wheke through his reading of early twentieth century Pākehā ethnologist Johannes C.

32 Richard Nunns, *Te Ara Puoro: A Journey into the World of Māori Music* (Nelson, 2014).

33 Rangiira Hedly, in Toby Mills, *Taonga Puoro - A Gift of Sound*, DVD documentary, (Auckland, 2007).

34 Otherwise known as a bullroarer: an instrument made of wood, stone or bone attached to a long string.

35 Brian Flintloff, *Taonga Pūoro, Singing Treasures: The Musical Instruments of the Māori* (Nelson, 2004).

36 Nunns, op. cit., 63–64.

37 Flintloff, op. cit., 39.

38 Nunns, op.cit., 55.

39 Ibid.

40 Ibid.

41 Ibid., 45.

42 Flintloff, op. cit., 57.

43 Nunns, op. cit., 58.

44 Flintloff, op. cit., 74.

Anderson, who writes of how the “inarticulate and mysterious sounds” of the forest were the realm of Wheke, daughter of the goddess of flute music, Hineraukatauri.⁴⁵ I have not yet come across any other confirmation or knowledge of this, though recognise that the verb ‘whēke’ means ‘to creak’.

Waiata mōteatea

“All forms of information, sacred and profane, prophetic and factual, historical and emotional were transmitted orally in waiata.”⁴⁶ For Māori, singing was an everyday occurrence, as well as a ritual for special occasions. This is effectively illustrated in a story Amiria Manutahi Stirling recounted: Before her wedding in 1918, she was put in the delicate position of having to choose between wedding dresses. One was offered by her iwi, who had agreed to the arranged marriage, but insisted that she be married in the clothes provided by them. The other dress was offered by her mother-in-law, who was furious at the request that Amiria should choose between dresses.⁴⁷

It’s your choice, Amiria. Which dress will you wear tomorrow?
Your people’s dress, or the dress of your mother-in-law Mihi
and your husband Eruera Kawhia?
Amiria chose the dress of her iwi who all instantly jumped up
and erupted into song:

<i>Koa, koa, koa, hari taku ngakau!</i>	<i>Happy, happy, happy, my heart is glad</i>
<i>Koa, koa, koa, i nga wā kātoa;</i>	<i>Happy, happy, happy, all the time</i>
<i>Mana taku tono, tika taku tono,</i>	<i>I’ve got what I wanted, I was right</i>
<i>Ki tonu au i te koa, koa, koa</i>	<i>So now I’m full of joy!</i>

What today reads like a scene from a staged musical was an unscripted social exchange. A repertoire of waiata would have been known, from which the group could respond. Waiata are grouped into classes and subclasses, according to form and function, each having different poetic and performance skills at play, with different terminology and techniques of composition.⁴⁸ Margaret Orbell explains that the language of waiata was often elaborate, with specialised expressions and complex allusions. Ngāti Porou leader and archiver of waiata mōteatea, Āpirana Ngata, defines the three main types of waiata: mōteatea (traditional chants); oriori (songs composed for children); and waiata tangi (literally weeping waiata) which were laments for the dead, but could be composed to mourn other losses such as land or crops.⁴⁹ A song for a famous person might be sung unmodified by descendants at a funeral, or adapted and passed through to other iwi. Ngata names seven sub-classes for waiata tangi.

Another genre is waiata aroha, which Orbell describes as waiata of love and longing. These were songs composed by women and may take the form of complaints of unrequited love, to declare affections and coax a response, as gossip concerning the poet, complaints to her family’s refusal to let her marry the man she wanted, or

towards a neglectful husband or lover.⁵⁰ Other forms Ngata mentions include ruri (amorous songs), mata (prophetic songs), haka (war dances and rhythmically shouted words), and karakia (ritualistic chants).⁵¹ Orbell also includes waiata whaiāipo (sweetheart waiata), a female compositional genre that comprised witty, flirtatious songs. They were sung mostly for entertainment, though they might also be sung to convey messages. Thousands of waiata and other songs survive as manuscripts in public libraries and in early books and periodicals. These songs were written down by Māori authorities from the 1840s onwards, preserved in most cases by Pākehā scholars. Two leading Māori scholars, Ngata and Pei Te Hurinui Jones, collected a great many in written form, which were published in the multi-volume *Nga Moteatea*. Ngata began the collection, with Jones succeeding him after Ngata’s death, in 1928.

The waiata mōteatea in this collection were sourced from different iwi. Ngata noted that the mōteatea compositions (referencing Sir George Grey’s *Ko nga Moteatea me nga Hakirara o nga Maori* collection, revealing his lack of knowledge concerning the material he collected) could not be properly understood without a profound knowledge of Maori language, history, traditions and cosmogony.⁵² Ngata advised: “All such compositions were constructed either to be recited in the rapid, flowing, high-inflexioned monotone of the priests or to be declaimed in the staccato, harsh, commanding cries of the fugleman and the hair-raising, blood curdling shouts of the massed choruses.”⁵³

Geospatial tools

The stories, songs and sayings of Māori oral practices were and are geospatial techniques for providing historical, social and economic know-how about a lived landscape.⁵⁴ Lynette Carter cites Hauiti Hakopa’s research into constructing GPS mapping of traditional sites based on oral histories as an example that he describes as “the ‘geography of narratives’ that includes oral traditions such as waiata, whakataukī (sayings), and stories.”⁵⁵ She explains that Hakopa suggests that these work together like sets of ‘tools’ and ‘data’ that map a landscape.⁵⁶ Oral literature verifies an iwi’s relationship with its landscape. Songs and stories provide place names, and locate important geographical features, sacred sites, burial grounds, villages and resources that belong to an iwi.⁵⁷ Rhythms and sounds within a composition might reference the features of the lived environment, such as shapes of geological forms, the motion of water bodies or specific sounds of the area. The environment affecting the rhythm and delivery of oral compositions is evident in Rangīira Hedley’s (Ngāti Tūwharetoa) remarks on how different iwi speaking styles were influenced by their specific landscapes. Iwi from mountainous areas speak with varying tones in a singing-like style. Coastal iwi talk loudly or thunderously, like crashing waves, with a tendency to talk over the top of people and things. Iwi who lived in quiet inland places had soft voices.⁵⁸

A current example of sound art/sound design that acknowledges the oral histories of the surrounding whenua are the sound works integrated into the building Te

45 Nunns, op. cit., 56. See Johannes C. Anderson, *Maori Music with its Polynesian Background* (New Plymouth, 1934).

46 Bradford Haami, *Putea Whakairo: Maori and the Written Word* (Wellington, 2004), 16.

47 Anne Salmond, *Amiria, The Life Story of a Māori Woman* (Auckland, 2005), 57.

48 Āpirana Ngata and Pei Te Hurinui Jones, *Nga Moteatea, The Songs Part 1*, ed. Āpirana Ngata, trans. Pei Te Hurinui (Auckland, 2004).

49 Charles Royal points out that Ngata groups all compositions under the book heading ‘Nga Mōteatea’ whereas Pākehā musicologists Mervyn McLean and Margaret Orbell emphasise the term ‘waiata’. Royal further explains that mōteatea is generally used to describe classical Māori chant whereas waiata is a generic term for song and all its variants. Royal also prefers the term mōteatea to the often used waiata when discussing traditional compositions. Te Ahukaramū Charles Royal, *Mōteatea and the Transmission of History* (Ōtaki, 1997).

50 Margaret Orbell, *Waiata: Maori Songs in History, an Anthology*, trans. Margaret Orbell (Auckland, 1991), 2.

51 Ngata and Jones, op.cit., xv.

52 Ibid., xxxvii.

53 Ibid., xxxvii-xxxviii.

54 Lynette Carter, “Singing the Land: Waiata as Spatial and Temporal Markers of Place in the Landscape,” in *Scope: Kaupapa Kai Tabu* 3 (2015).

55 Ibid., 6.

56 Ibid.

57 Ibid., 7.

58 Rangīira Hedley, in Toby Mills, *Taonga Puoro - A Gift of Sound*, op. cit.

Oro, in Glen Innes, Auckland.⁵⁹ The building, opened in 2015, serves as a music and arts centre for youth.⁶⁰ The name Te Oro refers to the resounding low drone created by wind moving over the volcanic crater of nearby Maungarei (Mt. Wellington). The building is designed to reference the sacred grove of karaka trees on nearby Taurere (Mt Taylor), through its “floating geometrised ‘leaf canopy’ atop a series of ‘timber trunks’.”⁶¹ This grove of karaka trees are part of an important local story for mana whenua iwi. Six different compositions, which play through six speaker cones set into the building’s perimeter soffit reinterpret the story of Parehuia, the daughter of chief Titahi, who tended the karaka grove at the pa on nearby Taurere.

The trees grew from seeds, gifted to her as a girl from Turanga, a boy who promised to return and marry her in the first season of their fruiting. Years passed and he did return as he promised. Sadly Parehuia’s father refused Turanga’s request for his daughter and was killed while trying to stop her leaving. Turanga was killed in the Ruahine ranges before they could reach the safety of his home in Patea. Parehuia arrived at Patea and bore his child, living among Turanga’s family until she returned home. She was buried in her karaka grove, remnants of which still remain.⁶² Three of these sound works, developed in collaboration with mana whenua iwi, and produced by Samoan New Zealand musician Matthew Salapu, are compositions by George Kahi of Ngāti Pāoa, Mahu Rawiri of Ngāi Tai Ki Tāmaki and Jerome Cowley of Ngāti Whātua Ōrakei.

Salapu, also known as Anonymouz, created the other three sound works through a series of workshops and collaboration with Glen Innes locals.⁶³ Through field recordings, samples, processing and musical elements, Salapu arranged the recordings chronologically and thematically to the Parehuia narrative. The retelling of the story of Parehuia and her sacred grove of karaka, reinterpreted as experimental soundscapes, continues to acknowledge and reinforce the historical connection that mana whenua iwi have to their ancestor, the site and its surrounding landmarks.

Karanga

Papa and Rangi were wrenched apart. The agony of being separated, screaming out for each other, originates karanga. Hedley narrates that Papa called out for her darling, his tears on her body created another sound, the sound of water, her mourning can be heard in the lull of the trees, the sighing would be kohu, mist.⁶⁴ Karanga is ‘to call’, and is a practice performed by women, well known as an integral element of the pōwhiri ritual. Hinematai McNeill and Sandy Hata describe the call as creating a portal between the living and spiritual worlds. They describe karanga as strengthening through sound this relational portal, thereby reinforcing an intrinsic link between Ranginui and Papatūānuku, mana wahine and mana tāne, connectivity of the Māori universe.⁶⁵ Karanga follows a ritual which includes addresses and greetings between those present along with the people they are representing, paying tribute to the dead, especially those who have died recently, and addressing the purpose of the occasion.

According to McNeill and Hata, the first woman in Maori tradition, Hineahuone, is recalled in the karanga ritual as the first voice on the marae ātea. Hineahuone begat Hinetītama, representing a life force symbolic of the dawn, often referred to as the Dawn Maiden. When she discovered her husband, Tāne, was her father, she fled, horrified, from the world of light to the world of darkness and transformed into Hinenuitēpō. The ‘Great Woman of the Night’, atua of night and death, is the last voice on the marae ātea. This tradition provides the whakapapa for karanga.⁶⁶ Women have power to open the portal to the spirit world. Through this narrative, karanga is associated with birth and death and through karanga that portal between the material and immaterial, link between the living and dead is summoned. The karanga of an expert can be deeply affecting and emotional. Salmond suggests: “The best callers have ethereal but carrying voices, in the words of an informant like a bird, high, light and airy.”⁶⁷ According to Rangitūnoa Black, karanga skills lie in developing intuition for what needs to be said in response to a situation—histories of the land—and to find the right arrangement of words to communicate that.⁶⁸ It is the tone and emotional content of delivery that has the power to create portals of safe passage over thresholds of life and death, calling ancestors to be present amongst their living descendants.

These practices are still performed despite the ravages of colonialism. Karanga is consistently performed in Māori social rituals; waiata in all their forms still exist and continue to be composed. Even though many precious stories and songs are lost, many oral histories have survived. An example can be found in the story of Parehuia and her grove of karaka trees. Another is found in the Treaty of Waitangi claim by the iwi of Te Roroa to prove settlement of their land: “In whaikorero (oratory), whakataukī (proverb) and waiata, the ‘oral map’ of Te Roroa has continued to make meaningful the boundaries of the rohe whenua and domain of tūpuna.”⁶⁹ Much of the knowhow of taonga puoro has been lost due to breaks in the tradition, effected by colonisation. The group Haumanu, led by Hirini Melbourne, led a series of wānanga, hui and workshops around Aotearoa, collecting fragments of knowledge that were stimulated by hearing these instruments again. Richard Nunns writes: “Cumulatively these memories, however uncertain, reveal a pattern, reinforcing one another in their similarities and differences.”⁷⁰ The contemporary playing of these instruments forms sound assemblages that work across time and space. Taonga puoro composer Rob Thorne (Ngāti Tumutumu), uses the metaphor of a new door hinged onto an old door frame. “Revitalisation hinges the new door onto the old door frame, requiring a balanced (managed contradictory) belief that tradition is fixed AND fluid.”⁷¹

Thorne explores this through his observation that the reclamation and revival of taonga puoro has come out of improvisation. “Improvising construction, improvising playing methods and styles, improvising how something should sound according to specific memories of people present and passed.”⁷² Through experimental music techniques Thorne seeks to bridge time and space in the practice of taonga puoro.

59 See <http://www.teoro.org.nz/>

60 The building was designed by architect Lindsay Mackie of Archimedia in collaboration with artists Bernard Makoare, Martin Leung- Wai and Petelo Esekiele.

61 Maungakiekie-Tāmaki Local Board, Auckland Council, 2015, “Our Place.” Accessed December 2017 <http://www.teoro.org.nz/place/>.

62 Hayward Bruce W., Graeme Murdoch and Gordon Maitland, *Volcanoes of Auckland: The essential guide* (Auckland, 2011), 46-47.

63 See <https://www.youtube.com/watch?v=4HW0kqakTo#action=share>

64 Rangiira Hedley in Mills, op.cit.

65 Hinematai McNeill, and Sandy Hata, “Karanga,” in *Kia Rōnaki: The Māori Performing Arts*. (Auckland, 2013), 60.

66 Ibid.

67 Anne Salmond, *Hui: A Study of Māori Ceremonial Gatherings* (Auckland, 1985), 137.

68 Rangitūnoa Black, *Personal communication* (2016).

69 The Waitangi Tribunal Te Roroa Report, WAI 038, (1992), 18. The Treaty of Waitangi is a document signed by the British Crown and various Māori leaders in 1850. It supposedly serves as the country’s founding document. Via The Treaty of Waitangi, Māori seek to redress grievances perpetrated by successive colonial governments who contravened the agreement.

70 Nunns, op. cit., 42.

71 Rob Thorne (2014) “Jumping the Gap: The Distance between Taonga Puoro & Experimental Music.” Accessed January 2018 <http://www.robthorne.co.nz/jumpingthegap/2014/3/18/jumping-the-gap-the-distance-between-taonga-puoro-and-experimental-music>.

72 Ibid.

Time and Space

The inseparable music and oral practices of Māori were extensions of the natural environment and point to a different conception of time. Tradition identifies three time ‘periods’ in the Māori cosmos, from which the present ‘time’ emerged: Te Kore, energy, potential, the void, nothingness; Te Pō, form, the dark, the night, the realm of becoming; and Te Ao mārama, emergence, light and reality, dwelling place of humans. These different temporalisings are perceived as having different qualities, and our present cannot be understood without recognising these other temporalities.⁷³

I ngā wā ō Mua
In the time of the past

Mua is the past but it also means ‘in front’. This proverb points to a past being in front, moving towards a future, contextualising current events through their relations to events and relationships that precede them.⁷⁴ Though this reads as a linear motion it instead relates to a wider notion of time as a spiral movement. Here time is not measured chronologically, but rather time ‘happens’ as the meaning of events and how they relate to one another. Judith Binney explains how, within Māori oral tradition, there is a dialectic between past and present, where a past is reordered and a present reinterpreted.⁷⁵ The cycles of traditions about people, land, and events are dynamic and fluid, not static and fixed.

Toitū he whenua
The Land is permanent
Whatungarongao he tangata
Man disappears.

The future is acknowledged through emphasis on conservation of resources for a following generation. Māori non-linear conceptualisations of time interpose past, present and future events which become difficult to conceptualise as distinct points in time.⁷⁶

Key conjunctures in a whakapapa of sound in Western art practices are attributed to a shift away from perception of ‘clock time’, as Henri Bergson calls it, where time is spatialised as a series of linear discrete moments. Bergson considers time as ‘duration’. Duration appears closer to traditional Māori understandings of time, conceived as “[...] a qualitative process, a continuous flow in which past, present and future permeate one another, forming a continuum.”⁷⁷ One key juncture that challenges clock time with duration is John Cage’s widely referenced and iconic work, *4’33”* (1952). The three movements in *4’33”* measure clock time so as to frame or limit a performance. Yet its ‘performance’ confronts an audience with its sensory responses to an immediate environment. Framed by the social contexts and expectations of a concert hall, an audience is expected to listen politely. Inspired in part by ‘silence’ in Robert Rauschenberg’s white paintings, *4’33”* is a ‘silent’ composition drawing

attention to ubiquitous noises that surround us through its very absence of composed sounds.⁷⁸ As a hugely celebrated work, it is now performed regularly to contemporary audiences who know what to expect. Then, as now, the finitude of the time frame and locale provides a listener an opportunity for engaging sonic imaginings. Listening to the concrete conditions of a locale, time is opened to the indefinite and creative imagination of a listener: “Music is permanent; only listening is intermittment (Thoreau),” noted Cage.⁷⁹

By listening to sound’s performance as temporalising, the perception and nature of time and, subsequently space, become apparent. Cox cites Cage’s influential body of work, as articulating a musical perception of time and space, that is ‘purposeless’ processual becoming.⁸⁰ In 1937, Cage’s *The Future of Music: Credo* announced: “The composer (organizer of sound) will be faced not only with the entire field of sound but also with the entire field of time.”⁸¹ Twenty one years later, in his 1958 *Composition as Process* lectures, he expressed a notion of time as ‘purposeless process’, contrasting it with the ‘time-objects’ of European art music.⁸² Rather than Bergson, it was the Zen teachings of D.T. Suzuki that Cage cited. Suzuki spoke of two qualities of temporalisation: unimpededness and interpenetration. Unimpedeness refers to the understanding of the sacred centeredness of every ‘thing’ and human being in all of space. Interpenetration infers that each thing and human is moving outwards in all directions, penetrating and being penetrated by every other, through time and space: “[...] each and everything in all of time and space is related to each and every other thing in all of time and space.”⁸³

Cage noted: “What I do, I do not wish blamed on Zen, though without my engagement with Zen (attendance at lectures by Alan Watts and D.T. Suzuki, reading of the literature) I doubt whether I would have done what I have done.”⁸⁴ A Zen perception brings together all present moments into the flow of timeless, durational, ongoing awareness. Cage understood that the role of a composer is to be one who draws attention to this purposeless flow. This idea is echoed by Deleuze who brings together Bergson’s duration with Cage’s Zen when he states: “One can [...] conceive of a continuous acoustic flow [...] that traverses the world and that even encompasses silence. A musician is someone who appropriates something from this flow.”⁸⁵ An audience can also access this flow through a particular kind of listening, for example, the listening demanded in *4’33”*. Cage developed other strategies, such as ‘indeterminacy’ and ‘chance’, to investigate how to appropriate something from this flow. But *4’33”* was his reference point when he stated, in 1989: “Not a day goes by without my making use of that piece in my life and in my work. I listen to it every day [...] I don’t sit down to do it; I turn my attention toward it [...] It leads out of the world of art into the whole of life.”⁸⁶

Listening to the temporal unfoldings of sound in an immediate environment was also the strategy engaged in Max Neuhaus’s 1966 work, *Listen*. It transposed *4’33”* from the world of a concert hall into an open world. In *Listen*, an audience gathered

73 Gail Whiteford and Mike Barns, “Te Ao Hurihuri New Zealand’s First Time,” in *Time Use Research in the Social Sciences*, ed. Wendy E. Pentland, Andrew S. Harvey, M. Powell Lawton and Mary Ann McColl (New York, 2002), 212-214.

74 Judith Binney, “Songlines from Aotearoa,” in *Quicksands: Foundational Histories in Australia and Aotearoa New Zealand*, ed. Klaus Neumann, Nicholas Thomas and Hilary Ericksen (Sydney, 1999), 219.

75 Judith Binney, “Māori Oral Narratives, Pākehā Written Texts: Two Forms of Telling History,” in *New Zealand Journal of History*, 21, 2, (1987): 203.

76 Kevin D. Lo and Carla Houkamau, “Exploring the Cultural Origins of Differences in Time Orientation between European New Zealanders and Māori,” *New Zealand Journal of Human Resources Management* 12,3 (Spring, 2012).

77 See Cox, op.cit., for discussion of Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. F.L. Pogson (New York, 2001).

78 “[...] what pushed me into it (4’33”) was not guts but the example of Robert Rauschenberg. His white paintings [...] when I saw those, I said, ‘Oh yes, I must. Otherwise I’m lagging, otherwise music is lagging.’ Cited in John Cage, Roger Shattuck, Alan Gillmor, “Erik Satie: A Conversation,” *Contact: A Journal of Contemporary Music*, 25, (Autumn, 1982): 22.

79 John Cage, “Introduction to Themes and Variations,” in *Audio Culture: Readings in Modern Music*, ed. Christoph Cox and Daniel Warner (New York, 2004), 224.

80 Cox, op.cit.

81 Cage, “The Future of Music Credo,” in *John Cage: An Anthology*, ed Richard Kostelanetz (New York, 1991), 56.

82 Cage, “Composition as Process: II Indeterminacy,” op. cit., 38.

83 Ibid., 47.

84 Kay Larson, *Where the Heart Beats; John Cage, Zen Buddhism and the Inner Life of Artists* (New York, 2012), xv.

85 Deleuze, “Vincennes Session of April 15, 1980, Leibniz Seminar,” *Discourse* 20, 3 (1998): 78.

86 William Duckworth, “Anything I Say Will Be Misunderstood: An Interview with John Cage,” in *John Cage at Seventy-Five*, ed. Richard Fleming and William Duckworth (London & Ontario, 1989), 21-22.

at a prescribed place, each member having his or her hand stamped with the word ‘listen’, and then led on a ‘sound walk’ around a city. *Listen* is an early example of Neuhaus’s practice that heralded a transformation in his compositional relationship with sound. Previously recognised as a practicing musician, Neuhaus described a shift from locating sound elements in time to locating sound elements in space. Neuhaus’s subsequent works were soundings in site-specific contexts, bringing new spatial experiences into being. He preferred to align his sound installation work with the visual arts, explaining that in the same way sculptors define and transform spaces, he creates and transforms spaces by adding sound.⁸⁷

A further key juncture in challenging notions of time and space in contexts of Euro-American music occurred in early 1960s Minimalist music. Sounds that change extremely slowly encouraged listeners (and performers) to lose their sense of chronological time and to enter an indefinite experience of time. The use of sustaining or repeating sounds (drone harmonics) was a feature of La Monte Young’s work, inspired in part by Indian classical music.⁸⁸ His instructional scores, *Composition 1960*, saw #7 consisting of a single two-note chord “to be held for a long time.”⁸⁹ Collaborations with Tony Conrad, John Cale, Marian Zazeela, Angus MacLise and others, as “The Theatre of Eternal Music,” saw semi-improvised explorations of drone harmonics. The works or performances were often of indefinite (and extreme) length, the pieces having no official beginning or end. Even though some minimalist composers used more defined repetitive rhythms or phasing, as in Steve Reich’s work, perceptual bending through sustained focus on slowly transforming limited structures was a consistent strategy. Even within this narrow group of practitioners, there is debate as to the definition of what they do, for example, Philip Glass refers to himself as a composer of music with repetitive structures, rather than as a minimalist composer.⁹⁰

Temporalising and the spatialities it discloses are fundamental cultural dimensions that disclose values and norms. Sound is *of* time and space. For Māori worlding, sound is the voice of a material world, the karanga bridging the realms of the living and dead. Waiata conveys thoughts, feelings and knowledge through generations. The three exemplars from mid-twentieth century Western sound practices mentioned above challenge notions of time and space, questioning assumptions of a linear clock-time perception of the world. Time as continuous flow permeating past, present and future, or a ‘purposeless process’ demands the rethinking of established precepts of Euro-American cultures.

Ocularcentrism and other sensory ways of knowing

The development of Western philosophy cannot be understood, it bears repeating, without attending to its habitual dependence on visual metaphors of one sort or another. From the shadows playing on the wall of Plato’s cave and Augustine’s praise of the divine light to Descartes’ ideas available to a ‘steadfast mental

gaze’ and the Enlightenment’s faith in the data of our senses, the ocularcentric underpinning of our philosophical tradition have been undeniably pervasive. Whether in terms of speculation, observation, or revelatory illumination, Western philosophy has tended to accept without question the traditional sensual hierarchy.⁹¹

Sound practices in the arts challenge the norms of the ocularcentric world-view described by Martin Jay, through practices that shift towards the listener, and engage multiple senses. The aim, as Don Ihde explains, is not to *replace* vision with listening, but to move towards a different understanding of experience.⁹² According to Jay, throughout twentieth-century French thought, there has been a turn away from ocularcentrism through three specific philosophical ‘turns’. The first concerns a ‘detranscendentalisation of perspective’; the second, the ‘recorporealization of the cognitive subject’; and the third, ‘the revalorisation of time over space’.⁹³ As mentioned before, Bergson was one of the early protagonists in this shift as he shifted a focus towards a material understanding of the senses.⁹⁴ Bergson regarded our bodies as ground for all our perceptions, informed by recollections and anticipations, in addition to instantaneous receptions of external stimuli.⁹⁵ Memory, for Bergson, consists of images available for voluntary recall by an intellect, and physically inscribed habits which accumulate within a body through repeated exposure, with no intervening images.⁹⁶ In this process all senses are equally important. Auditory, tactile, gustatory and olfactory ‘memories’ play as vital a role as visual ones.

Bergson prioritised lived action over contemplative understanding based on sight. In this he maintained that the brain is an instrument of action, and not of representation.⁹⁷ To this end we needed to be “[...] sensitive to the vital substratum of concrete lived reality available only to the holistic understanding of the intuition.”⁹⁸ Bergson’s ‘intuition’ is a simple and indivisible experience of sympathy, through which we might perceive the ‘inner being of an object’, to grasp what is unique and ineffable within it, to perceive its mauri, hau, wairua. He explained this as knowing things *absolutely* as opposed to relatively:

[...] philosophers, in spite of their apparent divergencies, agree in making a distinction between two ways of knowing a thing. The first implies going all around it, the second entering it. The first depends on the viewpoint chosen and the symbols employed, while the second is taken from no viewpoint and rests on no symbol. Of the first kind of knowledge we shall say that it stops at the relative, of the second that wherever possible, it attains the absolute.⁹⁹

Intuition is the method that gains the mode of knowing ‘absolutely’. In contrast, analysis is the mode of knowing something relatively. Bergson defined metaphysics as the science that dispenses with symbols to grasp the absolute. Hence metaphysics involves an inversion of habitual modes of thought, the method of which he identified as intuition. Intuition begins with a practice of placing oneself within ‘duration’.

87 William Duckworth, “Interview with William Duckworth,” in *Max Neubauss, Sound Works, Volume I, Inscription* (Ostfildern-Stuttgart, 1994), 42–49.

88 Alexander Keefe, “Lord of the Drone, Pandit Pran Nath and the American Underground,” *Bidoun, Bazaar*, 20 (Spring 2010).

89 *Fondazio Bonotto*, “Artists, La Monte Young,” in *Collezione Fluxus* (Accessed 2017). <http://www.fondazionebonotto.org/it/collection/fluxus/younglamonte/2121.html>

90 Tim Page, “Music in 12 Parts (1993),” in *Writings on Glass: Essays, Interviews, Criticism*, ed. Richard Kostelanetz and Robert Flemming (Berkeley, 1999), 99.

91 Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley, 1993), 187.

92 Don Ihde, *Listening and Voice: Phenomenologies of Sound*. 2nd ed (Albany, 2007).

93 Jay, op. cit., 187.

94 Ibid., 191–192.

95 Ibid., 92–93, referring to Bergson, *Matter and Memory*, trans. N.M. Paul and W.S. Palmer (New York, 1988), 46–47.

96 Ibid., 193.

97 Ibid.

98 Ibid., 194.

99 Bergson, *An Introduction to Metaphysics*, trans. T.E. Hulme (Indianapolis & Cambridge, 1999), 21.

Bergson argued that the reduction of temporality to the numbers of clock time privileged sight, as the sequencing of numbers implied a visual image in space.¹⁰⁰ His insistence on the qualitative irreducibility of experienced time meant that senses other than sight were better at engaging this experience of time. Our mistake, he suggests, is to identify ourselves with external images, rather than with our internal private experience of ‘duration’. Bergson’s opening up of time through duration is paralled with his insistence in the way that all senses make up our experience of the world. In this his argument assemble the two key concepts in this chapter: time and sound.

Perceptions of sound in the arts have been disadvantaged by such an ocular bias. Cox argues that, in aesthetic theories, culture is construed as a system of signs that operates in complex relations of referral to other signs, subjects and objects.¹⁰¹ Cox notes: “The historical distinctions between phenomena and noumena are the distinctions between language and the extra-linguistic, culture and nature, text and matter.”¹⁰² He explains that in Western traditions, because sound is generally perceived as emotional or material, it has been relegated to the noumenal domain of nature and materiality. While human symbolic interaction is unique, in this model nature is mute and excludes knowledge and intelligible discourse: “It thus accords with the deep-seated metaphysics and theology it aims to challenge, joining Platonism, Christianity, and Kantianism in maintaining that, by virtue of some special endowment (soul, spirit, mind, reason, language, etc.), human beings inhabit a privileged ontological position elevated above the natural world.”¹⁰³ Cox counters this with a materialist (sometimes called ‘post-human’) argument that brings together bodies and experience through senses and affect.

This ‘post-human’ argument brings Cox to a description of sonic materialism in the arts. This sonic materialism is based on a Nietzschean and Deleuzean aesthetic theory that is grounded in self-organising, creative and transformative matter. In this universe, consisting of forces without beginning or end, the arts are impulses of nature rather than understood as phenomena and noumena. Here there is no dualist divide between nature and culture, organic and inorganic, art and interpretation. Thus this new approach to Western modes of music and sound, means that we treat artistic productions, sonic or otherwise, not according to questions of meaning or representation, but according to their affective intensities: What they do, how they operate and what they change.¹⁰⁴ Cox then, helps lay a foundation for this project’s assemblage of sound. In proposing sound assemblages of my own, this question, ‘what does it do?’ becomes a useful tool to aid my thinking through making.

The Māori universe has no need to redress an ocularcentric imbalance as does the Pākehā world. Listening, with more than just your ears, is an established way of engaging and knowing the world in te ao Māori. Taonga puoro expert, Rangiira Hedly, described three ways of listening: listening ubiquitously; listening closely; and listening with your eyes.¹⁰⁵ Apirana Ngata said his Pākehā education taught him to absorb knowledge by eye, to learn to associate sound with letters, and to make all calculations in writing.¹⁰⁶ He explained that his Māori education was acquired through the sense of hearing, retained by memory stimulated by not resorting to written

records. In this way the student would acquire “the expression, the intonation, the rhythm, all the graces which reveal the meaning of the composition in its many shades.”¹⁰⁷ Over time, economic circumstances demanded recognition of Pākehā knowledge, “more reading of books, more writing of notes, more dependence on the eye, less on the ear to transmit information to the mind.”¹⁰⁸ Rather than being defined within spatial juxtapositions of text and image, sound exists in a temporal flux in which elements interpenetrate one another. Mediums shape and transform consciousness. The oral word never exists in a simply verbal context as the written word does. Spoken words are always modifications of an existential situation, always bodily engaged. Sound construes a unity of situation.¹⁰⁹ Sound is event, temporalising movement. In my own practice, this understanding of sound and orality also extends out to the practices of listening. Listening to an assemblage of sound is a process of event plus body plus duration. Orality is understood in the sound assemblages of *Te Oro o te Ao*, as not just residing in the transmission of human voice but in the voices of the non-human also.

Following Deleuze, Elizabeth Grosz notes: “Art slows down chaos enough to extract from it something not so much useful as intensifying, a performance, a refrain, an organization of color or movement that eventually, transformed, enables and induces art.”¹¹⁰ Drawing attention to the ‘acoustic flow’ of the auditory real collapses time and space into an experience of duration, where genealogies of pasts and possible futures converge. This intensification is also part of the process of bringing together two world views. I address the efforts of another Aotearoa New Zealand musician to bring these aspects together in the next chapter. This chapter has argued for a recognition of this continuous flow in which past, present and future permeate one another, forming a continuum, as significant for recognising this project’s crossing-over of histories of the sonic arts *and* traditional Māori sound practices.

100 Jay, op. cit., 196. See also Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. F.L. Pogson (Mineola, 2001).

101 Cox, op. cit., 146.

102 Ibid., 147–148.

103 Ibid., 147.

104 On the aesthetics of affect beyond representation, see Simon O’Sullivan, *Art Encounters Deleuze and Guattari: Thought Beyond Representation* (New York, 2006).

105 Dr. John Coulter, *Personal Communication*, (2017).

106 Ngata and Jones, op.cit., xxxiv.

107 Ibid., xxxv.

108 Ibid., xxxvi.

109 Walter Ong, *Orality and Literacy: 30th Anniversary Edition* (New York, 2012), 8.

110 Elizabeth Grosz, *Chaos, Territory, Art: Deleuze and the Framing of the Earth* (New York, 2008), 3.

Local & Granular Listening

Introduction

The New Zealand composer, Douglas Lilburn, searched for a musical tradition specific to New Zealand and initially found it in the rhythms of its landscapes and light. As part of a generation of Pākehā New Zealand artists in the 1930s and 1940s, Lilburn sought to build a cultural life with a unique identity separated from Europe. By the 1960s, through experiments with audio technology in an electronic studio established in 1966 at Victoria University, Wellington, Lilburn’s methods transformed from the translating of visual landscape cues to a listening to the land. Manipulations of time-structure, made possible by the technology and techniques Lilburn employed, were similarly being explored by the Romanian-born, Greek-French composer, Iannis Xenakis, in France. Xenakis created sonic worlds through mathematics, kinetic movement and metaphors of fluctuating energetic processes of the natural world. Through *musique concrète*, specifically realised in the composition, *Concret PH* (1958), Xenakis pioneered a method he came to call ‘granular synthesis’. This involved the cutting down of sound into tiny components that could then be reassembled into new sonic shapes. Subsequent digitisation of this process has led to contemporary tools that allow a sound producer, such as myself, to experiment with both mimetic and imaginative sonic structures, placing a listener within a framework of experience that can reference events simultaneously local, macroscopic and granular.

Search for a Pākehā Landscape

The first known account of Pākehā experience of taonga puoro, the pūkaia or pūtātara—a type of trumpet—is in Abel Tasman’s 1642 journal:

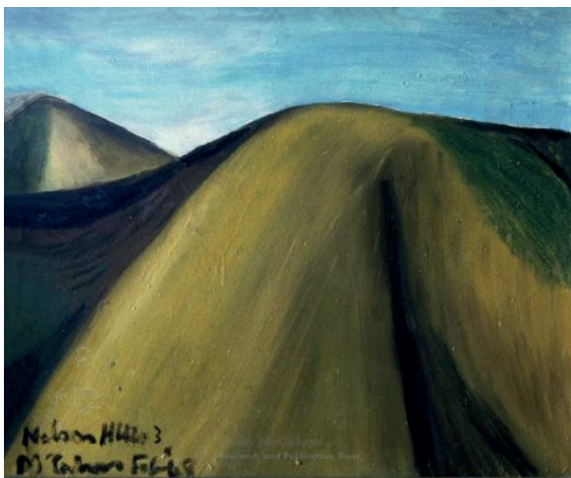
18 Dec 1642: When our men had been on board for the space of about one glass, the men in the two prows began to call out to us in the rough, hollow voice, but we could not understand a word of what they said. We however called out to them in answer, upon which they repeated their cries several times, but came no nearer than a stone shot; they also blew several times on an instrument of which the sound was like that of a Moorish trumpet; we then ordered one of our sailors (who had some knowledge of trumpet-blowing) to play them some tunes in answer. Those on board the Zeehaan ordered their second mate (who had come out to India as a trumpeter and had in the Mauritius been appointed second mate by the council of that fortress and the ships) to do the same; after this had been repeated several times on both sides, and as it was getting more and more dark, those in the native prows at last ceased and paddled off.¹

The exchange did not end well, with Ngāti Tumatakokiri warriors attacking and killing four Dutchmen the following day. It appears both sides misunderstood each other’s trumpeted messages. The pūtātara, used as a war-trumpet in this exchange, was asking, several times to be absolutely sure, if the strangers’ intentions were hostile. The Dutchmen’s response, on an instrument that would have been often used for entertainment, was intended as a friendly one. Instead they were confirming to Māori that their intentions were definitely aggressive.² Three hundred years after this event, poet, Allen Curnow, was commissioned by the New Zealand Department of Internal Affairs to write a poem to commemorate Tasman’s arrival in New Zealand. The poem, *Landfall in Unknown Seas*, was set to music by Douglas Lilburn. This work is considered important in New Zealand’s histories of art, music and literature, it marks a key moment in the nationalist creative movement that took shape in mid-twentieth-century New Zealand. Through literature, painting and music, these artists used New Zealand as subject matter in their conscious cultural distancing from Europe. As Paul Moon explains: “In theory the migration to a nationalist New Zealand art, literature and music relied on forgetting the Old World. However, what did this leave for creative types to draw their inspiration from? The New Zealand landscape was the instinctive choice.”³

In 1942, this New Zealand landscape was not one that acknowledged its recent and on-going colonial legacies, nor did it acknowledge Māori. Unpopulated rural landscapes, usually without endemic vegetation, often with signs of early settlement were features of the ‘Regionalism’ that emerged from Canterbury in the South Island. Colin McCahon’s painted landscapes are central to this era and movement. McCahon claimed inspiration, in part, from writings of New Zealand geologist, Charles A Cotton, in *The Geomorphology of New Zealand*.⁴ This was an illustrated scientific examination of landscape forms and processes: “These diagrams ignored built features, trees, and objects irrelevant to his scientific themes as he attempted to strip the landscape to its geological basis.”⁵ McCahon’s paintings from this era reduced landscape to its morphological contours, to reveal an ‘essence’. The New Zealand poet, James K. Baxter, with whom McCahon shared concerns for depicting universal or spiritual themes within New Zealand

1 Abel Tasman, “Abel Janszoon Tasman’s Journal,” *Project Gutenberg Australia*, ed. J.E Herres, (2006) <http://gutenberg.net.au/ebooks06/0600571h.html#journal>
2 Summary Account of Proceedings, Abel Tasman 370 Seminar (Nelson, 2012), 6. <http://newzealand.nlembassy.org/news/2013/03/abel-tasman-370-seminar-report.html>
3 Paul Moon, *Encounters: The Creation of New Zealand: A History* (Auckland, 2013), 230.
4 Charles A. Cotton, *The Geomorphology of New Zealand* (New York, 1942).
5 Paul Stanley Ward, “Colin McCahon: The Luminary,” (2009). Accessed April 2015, <http://www.nzedge.com/legends/colin-mccahon/>.

landscapes, described them as the “raw vitality and brutal simplification of the whenua.”⁶



Colin McCahon *Nelson Hills 3* (1948)



Colin McCahon *Otago Peninsula* (1946)

Douglas Lilburn

In music, Lilburn was also searching for an indigenous Pākehā voice in the New Zealand landscape. The music traditions of Pākehā New Zealand had, at this stage, emerged from a widespread colonial belief that their own were superior to Māori. An exemplar of this perception comes from the ‘Good Samaritan’, Lady Ann Martin, a teacher at a ‘native’ school for young Māori girls in 1846:

“[...] But their native music, when they chanted their old songs, was harsh and monotonous, and their attempts to follow our hymn-tunes most deplorable. No sooner, however, were the young people in the school taught to read music by the figure system, and trained by regular practices weekly, than we found out the gift of song that was in them.”⁷

A century later, in 1946, the inaugural Cambridge Music School took place, an annual holiday camp held to address a shortage of musical skills in postwar New Zealand. Lilburn presented a music manifesto at the event, arguing for “[the] necessity

of having a music of our own, a living tradition of music created in this country, a music that will satisfy those parts of our being that cannot be satisfied by the music of other nations.”⁸ In a speech titled “A Search for Tradition,” he bemoaned the limitations placed on New Zealand composers due to isolation and a lack of awareness of music outside an English church-based repertoire. He emphasised that the quest for New Zealand’s own musical voice was made more difficult by the lack of an indigenous folk music. Māori music, he claimed, could not be assimilated as a substitute.⁹ Lilburn explained that he had actually heard very little of it, due to living mainly in the South Island. Lilburn notes:

My impressions of [Māori music] are that in its purer state as part of Polynesian culture, it is about as foreign to our own cultural sources as say Javanese or Siberian Folk music [...] Maoris [sic] have shown themselves much more able and willing to absorb our culture than we to absorb theirs.”¹⁰

For Lilburn, engaging with Māori music forms seemed an inauthentic solution to *his* version of a ‘New Zealand expression’ as he had no familiarity with Māori peoples and cultures. He searched for a paradigm within the tradition of European classical music. His understanding of a *national* music lay in his conviction that each environment had its characteristic rhythm: “[...] the patterns of our landscape and seacoasts, the changing of our seasons and the flow of light and colour about us.”¹¹ Lilburn went on to say: “I feel that a musician in this country must develop his awareness of the place he lives in, not attempting a mere imitation of nature in sound, but seeking its inner values, the manifestations of beauty and purpose it shows us from time to time.”¹² Once we locate the rhythms of our ways of living and discover our relationship to an environment, music would be ‘given’ that “will to some extent satisfy that spiritual need I think we all have, that sense of belonging somewhere.”¹³ Just as McCahon’s New Zealand of that time was stripped back to its morphological contours, Lilburn’s music scores were inspired by the visual cues of the contours, rhythms and patterns of local landscapes. The physical and cultural isolation he perceived was the legacy of a Pākehā settler tradition projected onto the landscape.

His first symphony, *Symphony No 1* (1949), drew inspiration from the Port Hills in Christchurch in collaboration with two poets who also responded to that site. Curnow’s poem, *Fantasy on a Hillside*, and Walter D’Arcy Cresswell’s “Sections XIV–XV” of his autobiography, *Present Without Leave*, detailed this environment.

On these hills overlooking the city the air is the driest and sweetest in the world, from the gorse and broom and dry grass of the crater, from the plains with its gardens beneath and that wall of snow. These hills abound in skylarks. They rise a great height in their songs; and if one falls, another ascends in its place, so their singing continues.¹⁴

The landscapes Cresswell describes feature introduced flora and fauna: ‘gorse and broom’, and ‘skylarks’. Introduced species substitute for endemic varieties.

⁶ Ibid.

⁷ Mervyn McLean, *Maori Music* (Auckland, 1996), 297.

⁸ Douglas Lilburn, *A Search for Tradition & a Search for Language* (Wellington, 2011), 21.

⁹ Ibid., 39.

¹⁰ Ibid., 39–40.

¹¹ Ibid., 44.

¹² Ibid., 45.

¹³ Ibid.

¹⁴ Philip Norman, *Douglas Lilburn: His Life and Music* (Christchurch, 2006), 153.

While reading this poem and listening to Lilburn’s symphony, I listen for skylark voices falling and ascending, and weather rolling over these denuded hills and a more distant rugged mountainous landscape, all suggested in various interplays of orchestral instrumentation. Philip Norman’s synoptic overview of this era of Lilburn’s compositions opens by citing Denis Glover’s poem *Letter to Lilburn*: “A Romantic in corsets I once called you [...]”¹⁵ This seems to be a very apt description.

However, this period marks an early stage of Lilburn’s development as an artist. He continued to explore his relationship with Aotearoa New Zealand through his “[...] lifelong search for a musical language that would belong to the New Zealand context.”¹⁶ During what is known as the ‘third phase’ of his career, he began working with electronic music. Following research trips to Europe, the United States and Canada in the early 1960s to investigate this field, in 1966 Lilburn set up the first electronic music studio in Australasia, at Victoria University in Wellington. He no longer composed within the recognised structures of traditional classical music. Instead he focused on developing a ‘musical language of the land’ through electronic musical versions of native birdsong, waves, wind, rivers, and rain, incorporating recordings of the natural world.¹⁷ As Lilburn noted: “But with this new electronic medium I can, for the first time, enter into and explore my own total heritage of sound, meaning all sounds, not just the narrow segments of them that we’ve long regarded as being music.”¹⁸

His work, *Summer Voices* (1969), evokes sound that suggest the heat of the season, textures of moving dry grass, insect-like buzzing.¹⁹ Of this piece Lilburn says: “In 1968 I was fascinated to study a recording by children of an East Coast school of the lullaby ‘Pō Pō.” This is an oriori composed by Ēnoka te Pakaru, from the iwi to which I am affiliated, Te Aitanga ā Māhaki. This oriori contains the story of how the kūmara was brought to New Zealand. Lilburn continues:

I had rashly thought of trying to create a sound image of the chant [...] but could find no valid way to do this. Echoes of the sounds remained in my mind through a hot dry summer, and seemed to blend with near and distant sounds that floated in through an open studio window. And I found that rhythms of the chant could be printed onto electronic sounds, suggesting ghostly voices whispering through dry grass and a chorus of cicadas, and other impressions of half-heard sound in the summer air.²⁰

On an initial listening to this work, the title guides my recognition of a heated summer soundscape, though I would have recognised this from the sounds themselves.

Summer Voices communicates an effective and evocative soundscape of processed, imitated and transformed environmental sounds, some of which seem fully intact. There also appears to be random blobs and scratches of electronic ‘noise’. The distinctive sounds of the synthesizer used by Lilburn, date the technological context. Subsequent listening begins to reveal details to the work: there are complex subtle rhythms, varieties of texture and timbre. Most notably, I begin to

perceive rhythms he has referenced from the mōteatea Pō Pō. I recognise these rhythms as specifically Māori, threaded delicately, almost imperceptibly, into the work. These become a reference point, without becoming appropriation, of Māori musical language embedded within his own experimental musical language of a landscape. From my perspective, his compositional transformations during this era, no longer follow a method of drawing from visual cues of a landscape, but rather seem grounded in a close listening to *the land*. Lilburn moves from “[...] patterns of our landscape [...] the flow of light and colour [...]”²¹ to a positioning whereby he can “[...] take for a starting point many of the natural sounds that have been *in my ears* since childhood, and use these much as I would use conventional musical materials.”²²

Soundscape with Lake and River (1979) depicts an unidentified site on Lake Taupo, transitioning between what sounds like afternoon and early evening on a warm, still day.²³ It commences with a play of sounds, suggesting signals of light, and sounds reflecting off the smooth surface of the lake. Two pitches, that seem to waver from one to the other, could be the shimmer of heat. Field recordings of sounds resembling a flowing river are used to transition between three sequences. After the second and, then, final transitional field recordings of water and native birdsong, I am entranced by a final delicate passage of electronic imitative birdcalls. This finale builds on notes heard earlier, but communicates a different time of day, an imagined change in light, a closing or an opening.

The spaces Lilburn creates in both *Soundscape with Lake and River* and *Summer Voices* tend towards a more ‘literal’ depiction of the New Zealand landscape. In other electro-acoustic works, and in moments in these works, his explorations are more abstract though are still referencing natural events. Philip Norman, Lilburn’s biographer, points out that his electro-acoustic works engage stylistic extensions of earlier periods, inclusion of field recordings and composing in a studio offered a new range of voices and spatialities with which to work.²⁴ Norman remarks: “Lilburn always uses space as a colouring element for his chosen sounds, never simply as a compositional effect.”²⁵ Listening to his four-channel works, *Sounds and Distances* (1975), and *Lines and Distances* (1975), spatiality of sound design seems to be kept simple.²⁶ There appears to be a ‘front’ and ‘back’, though the accompanying texts on the CD recordings of these works do not indicate how one’s body might orientate itself for this acoustic spatialising.

Lilburn is not the only composer to engage with sonic expressions of the landscapes of Aotearoa New Zealand. There are many examples among those that are associated with Western classical music, one example is Gillian Whitehead, and many outside this field. A recent performance I attended by Billy Te Kahika comes to mind. The legendary local musician, known as Billy TK, the ‘Māori Jimi Hendrix’,²⁷ powerfully re-enacted a storm he experienced through an extended psychedelic improvisation on distorted electric guitar.²⁸ Another example is Stanier Black-Five, the moniker of Jo Burzynska, who recorded the aftershocks, collapsing buildings and demolition after the devastating 2011 Christchurch

15 Ibid., 375.

16 Ross Harris, *Douglas Lilburn: Electro-Acoustic Works*, CD booklet (Wellington, 2004).

17 Ibid.

18 Douglas Lilburn, “A Search for Sound,” in *Memories of Early Years and Other Writings*, ed. Robert Hoskins (Wellington, 2014), 69.

19 Douglas Lilburn, *Douglas Lilburn: Electro-acoustic works*, CD 2, Track 4 (Wellington, 2004). See <https://www.youtube.com/watch?v=gjXhaKiiVo>

20 Harris, op. cit.

21 Lilburn, *A Search for Tradition & A Search for Language*, 44.

22 Lilburn, “A Search for Sound,” in *Memories of Early Years and Other Writings*, 69.

23 Lilburn, *Douglas Lilburn: Electro-acoustic works*, CD 2, Track 1. See <https://www.youtube.com/watch?v=UxUVS9tkyfE>

24 Norman, op. cit., 400.

25 Ibid., 412.

26 Lilburn, *Douglas Lilburn: Electro-acoustic works* DVD, 5-6.

27 See Nick Bollinger, “Billy TK Profile aka Billy Te Kahika.” (2013). Accessed January 2018, <https://www.audioculture.co.nz/people/billy-tk>

28 Billy TK and Endless Boogie at The Tuning Fork, Auckland, April 2017.

earthquake. These recordings were subsequently installed and performed locally and internationally as *Body Waves*. Burzynska collaborated with Australian electro-acoustic performer, Malcolm Riddoch, performing as Zeug Gezeugt.²⁹ The recordings were played through four speakers, Riddoch using feedback to tune the recordings to each acoustic space within which the works were performed. Though I have heard only the recorded versions, reviewer Nick Cain describes the sonic event as consisting of “dense bass frequencies oscillating into and back out of distortion, occasional impact crashes, washes of granular sound clouds and metallic drones [...] rolled together into a cacophonous, surround-sound blast.”³⁰

These latter works are specific to my ongoing research interests and form some of the context for my own work, though I especially focus on Lilburn for recognition of his role as a kaumātua in a whakapapa of experimental sound in New Zealand. Lilburn exemplifies a Pākehā ‘local listening’ spanning a shift in cultural perspectives. His early investigations into formulating authentic local voices in music were very much the outcome of colonial legacies. He actively searched for a voice of the land, yet not hearing or choosing not to hear voices already there and what they might contribute. Later, in his electro-acoustic period, there is evidence of his consideration of Māori practices, through for example, *Summer Voices*, which integrated underlying rhythms of the oriori, “Pō Pō.” Though I was unable to locate documentation of his depth of engagement with the wider contexts of Māori practices in his recordings. He also exemplifies a twentieth-century move from traditional approaches to classical music composition to more experimental approaches. My regard for Lilburn’s later experimental works appears to be not uncommon in a New Zealand context of dividing between ‘composers’ and ‘experimental musicians’.

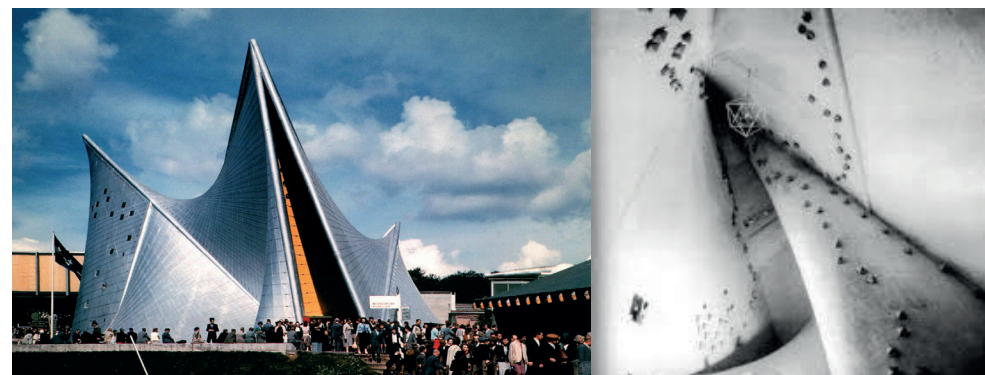
Dugal McKinnon, current Director of the Lilburn Studios, notes: “[...] the long decade during which he was preoccupied with electronic music not as a formal investigation, but as a means to engage with the sonic, affective and existential dimensions of New Zealand’s soundscapes.”³¹ Traditional composers at that time viewed his electronic compositions with disdain. Equally, experimental music considered Lilburn’s pre-electronic output to be irrelevant: “[...] a quaint remnant of a post-colonial and pre-globalised past.”³² My emphasis in acknowledging Lilburn is to present a pioneer of New Zealand music composition, both classical and electroacoustic. By acknowledging his voice as a specifically Pākehā one, in the whakapapa of my practice, it is to consider where and how different cultural voices might intersect in the 20th century histories of Aotearoa New Zealand.

Grains of Sound

Lilburn’s *Study from One Note* (1967) is a single recorded note from the endangered Kōkakō, a bird native to New Zealand, with a rich tonal voice.³³ The Kōkakō note is cut up and arranged into patterns by transposition and reverberation. Some reverberations are reversed and re-reverberated. The note is treated as a purely electronic sound source, clean and isolated, with no cues to provide an environmental context. What is the effect of separating the Kōkakō from its environment? On one level, it appears

this disconnection is Lilburn’s own, one that he is trying to understand through manipulating this one note over and over. On another level, it can be understood as a disconnection inherent to the rules of *Musique Concrète*.

As discussed in Chapter Two, *Musique Concrète*, the practice founded by Pierre Schaeffer in the early 1940s, entails a process of editing and transforming recordings of the environment to create what Schaeffer calls ‘l’objet sonore’ (the sound object). Just as recording and radio technologies distort the relationship between source and signal, *l’objet sonore* is a sound disconnected from its original sounding source. As Schaeffer explains, *l’objet sonore* is not the tape, but is “contained entirely in our perceptive consciousness.”³⁴ In the practice of *Musique Concrète*, composition comes after the selection of recorded material. It should be considered more as a ‘study’ than a ‘work’.³⁵ From the late 1950s, due to his tendency to make ‘works’ instead of ‘studies’, the composer, architect and engineer, Iannis Xenakis, developed electro-acoustic works at the home of *Musique Concrète*, the “Group de Recherches Musicale” (GRM) in Paris. His composition, *Concret PH* (1958), was developed as a two-minute interlude to be played alternately between Edgar Varese’s celebrated, multi-media eight-minute, *Poème Electronique* (1958), within the Philips Pavilion, at the 1958 Brussels World Expo. Audiences encountered *Concret PH* as they entered and exited the pavilion. Xenakis, working at that time as assistant to the Swiss-French architect, Le Corbusier, designed and managed the project.³⁶ The works were heard through a complex sound-system, consisting of 350 speakers in twenty amplifier combinations. Different sound routes gave the impression of sound moving through the pavilion from various directions.



The Philips Pavilion, Brussels World Expo, 1958. Exterior and interior speaker view.

The ‘*Concret*’ in the work’s title references the construction material as well as *Musique Concrète*. *PH* refers to *paraboloides hyperboliques*, the geometric form of the pavilion being a hyperbolic paraboloid. For *Concret PH*, Xenakis tape-recorded sounds of burning charcoal, and then cut the tape into one-second fragments. He further manipulated the tape by splicing, changing the speed of the original recording, and experimenting with overlaying the various sounds throughout the mixing process.³⁷ The work consisted of three tracks to provide three simultaneous sound sources circulating through the speakers in the pavilion. Though the three different soundtracks commenced at approximately forty- to forty-five-second intervals, the composition was played in a repeated loop. The work is significant for being an early example of electroacoustic sonic composition, transforming experience of physical space. It also marks, for Xenakis, a first step in developing a method of granular synthesis in composition. Xenakis describes his process in the program notes of *Electro-Acoustic Music*:

29 Stanier Black Five and Zeug Gezeugt, New Zealand premiere of *Body Waves*, Massey University, (Wellington, 2012). See <https://soundcloud.com/entracte/e157?in=entracte/sets/back-catalogue>

30 Nick Cain, “Review, The Wire” (2013). <http://joburzynska.com/body-waves-album-on-entracte/>

31 Dugal McKinnon, “After the Great Divide, the Little Gully: Miscommunications About Sound,” in *Erewhon Calling. Experimental Sound in New Zealand*, ed. Bruce Russell (Auckland, 2012), 122.

32 Ibid.

33 Lilburn, *Douglas Lilburn: Electro-acoustic works*, CD2, Track 12. See <https://www.youtube.com/watch?v=VFu2DnIErwg>

34 Pierre Schaeffer, “Acousmatics,” In *Audio Culture: Readings in Modern Music*, ed. Christoph Cox, et al. (New York, 2004), 79.

35 James Harley, *Xenakis, His Life in Music* (New York & London, 2004), 20.

36 Brandon LaBelle, *Background Noise: Perspectives on Sound Art* (New York, 2006), 187.

37 Curtis Roads, *Microsound* (Cambridge & London, 2001), 64-65.

Start with a sound made up of many particles, then see how you can make it change imperceptibly, growing and developing, until an entirely new sound results. [...] This was in defiance of the usual manner of working with concrete sounds. Most of the *musique concrète* which had been produced up to the time of *Concret PH* is full of many abrupt changes and juxtaposed sections without transitions.³⁸

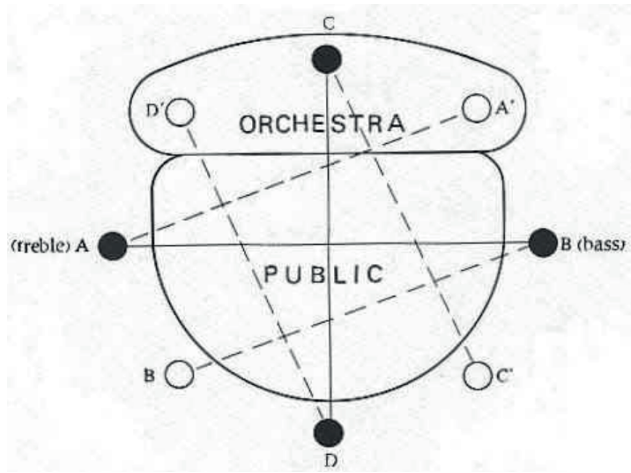


Iannis Xenakis (1970) Electro-acoustic Music. Nonesuch Records

Granular synthesis sees sounds edited into fragments of sound, referred-to as ‘grains’. Each grain serves as a building block for re-assembling new sonic fabrications. This concept, now ubiquitous within contemporary digital audio editing, enabled Xenakis to sonically express his notion of sound or music, as an “ensemble of energetic transformations.”³⁹ To illustrate this concept, Xenakis described his sonic memories of participating in protests in Greece during World War Two. At these protests, the crowds would chant in unison, combining voices. New chants would emerge, overtaking a previous chant, spreading across a crowd as each voice joined in participation. When demonstrators were confronted by their enemy, the rhythmic order would break apart, with chaos ensuing, along with cries and punctuations of gunfire. Machine guns sounded, followed by a “detonating calm, full of despair, dust, and death.”⁴⁰ Xenakis made a curious comparison in this: “The statistical laws of these events, separated from their political or moral context are the same as those of the cicadas or the rain.”⁴¹ Both are examples of sonic events composed from thousands of isolated sounds: “This multitude of sounds, seen as a totality, is a new sonic event [...] which itself follows aleatory and stochastic laws.”⁴²

38 Iannis Xenakis, *Electro-acoustic Music*, Vinyl L.P. programme notes (New York, 1970). Also see Roads, op. cit., 64–6.
 39 Frédéric Duhaupas, Renaud Meric and Makis Solomos, *Expressiveness and Meaning in the Electroacoustic Music of Iannis Xenakis. The Case of La Légende D’Eer*, Conference paper (Sweden, 2012), 2.
 40 Xenakis, *Formalized Music: Thought and Mathematics in Composition* (Bloomington, 1972), 9.
 41 Ibid.
 42 Ibid. Xenakis’ aleatory processes were not related to John Cage’s chance processes that celebrated the removal of agency from the composer and celebrated the aesthetics of a soundscape. Xenakis considered that such removal of agency was not possible, holding that, in general, the sounds of everyday life were banal: “I’m not interested in reproducing banalities,” Xenakis, *Art/Sciences: Alloys. Aesthetics in Music, No.2*, trans. Sharon E. Kanach, transcription of Xenakis’ thesis defense (New York, 1985), 95. Stochastic Music was another method that he developed alongside granular synthesis, and grew from the same inspirational source of mass ‘grains’ of sound. With stochastics, he used probability theory to decide on the length, pitch, timbre and dynamics of the sounds. Through this process he considered he was exploring how the laws of nature and physics sounded. See Duhaupas et al., op. cit., 10.

Analogique B



Speaker Layout for *Analogique B* (Xenakis 1959)

After *Concret PH*, Xenakis began working more systematically with sound grains. He proposed that every sound could be understood as the assembly of a number of elementary particles. He explored this in *Analogique B* (1959), which consists of granular sounds produced by recording onto analog tape a series of sine-tones emitted by analog tone generators. Recorded tones are then edited into smaller sound fragments. Xenakis designed the work by visually scattering grains onto time-grids, which represented, in three dimensions, elementary sonic quanta. These constituted different thresholds in frequency, amplitude, and time.⁴³ The two minute and twenty-five second long work consisted of four tracks played through eight speakers distributed around an audience and orchestra. *Analogique B* is the granular synthesis section of sound designed to play with *Analogique A*. *Analogique A* was written for orchestral instruments, using stochastic methods in designing its musical notation. At times *Analogique B* overlaid *Analogique A* and, at times, it played solo.⁴⁴

According to the American composer, Curtis Roads, the notions deployed by Xenakis concerning apparently continuous phenomena being subdivided into particles has roots in the atomistic philosophers of Greece.⁴⁵ Leucippus and Democritus, in the late fifth century BCE, taught that all matter consists only of atoms and empty space. Later Epicurus, followed by Lucretius who expounded his teachings, insisted that the soul is not a distinct, immaterial entity but a chance combination of atoms that does not survive the body. In these philosophies, both matter and energy were composed of tiny particles. In the seventeenth century, Rene Descartes revived these notions via a theory of matter based on particles and their motion.⁴⁶ During this same period, the science of acoustics emerged in Western Europe. The wave-theory of sound dominated the science of acoustics until 1907, when Albert Einstein predicted that ultrasonic vibration could occur on the quantum level of atomic structures, leading to the concept of acoustical quanta or phonons.⁴⁷

43 Roads, op. cit., 65.
 44 See Xenakis, *Formalized Music: Thought and Mathematics in Composition*, 79–109 for a detailed description of the process of composing *Analogique A* & B. See https://www.youtube.com/watch?v=mXIJ0-af_u8
 45 Roads, op. cit., 44–84.
 46 Ibid., 51.
 47 Ibid., 54.

Physicist, Dennis Gabor, applied Einstein’s acoustic quantum to the domain of audible sounds, allowing for a new era in signal-processing and sound synthesis.⁴⁸ Acoustician and founder of the WDR Electronic Studios in Cologne, Werner Meyer-Eppler, followed by Xenakis, adapted this notion of acoustic quanta to experimental music.⁴⁹ Karlheinz Stockhausen and Gottfried Michael Koenig also engaged with this field of research. This history is relevant because it parallels the shifts in understandings of energy as an affective force in the body, as argued by Bergson and explored in the previous chapters. Einstein’s discoveries were based in an objective perception of time and were at odds with Bergson’s promulgation of duration – clock time vs lived time. These contradictions play out in my own work through the clock time based technologies that aid in crafting my sound assemblages alongside an opening up of the possibilities of affect and experiencing of duration through performative sound assemblages.

Developments in sound technologies in the twentieth and twenty-first^s centuries have allowed increasingly intensive interactions with time-scale in sound production. Before 1950, almost all instruments were designed for live performance. After 1950, due to the development of magnetic tape, technologies of recording changed the nature of electronic music. Tape-based electronic music studios enabled new potentials for ‘manipulating’ temporality. The process, developed by Xenakis, of cutting analog tape to organise micro-sonic compositions was incredibly detailed and time-consuming. This is, perhaps, reflected in the length of the compositions *Concret PH* and *Analogique B*. Neither exceeded two minutes and thirty seconds. With developments in digital audio, ability for detailed manipulation of sound files became ubiquitous. Curtis Roads is credited as the first to realise Xenakis’s notion of ‘grains of sound’ in the digital-computational domain. Barry Truax is credited with developing the earliest real-time implementations of granular synthesis. His work *Riverrun* (1986) is an often-cited work in the whakapapa of micro-sound composition. In this multi-channel work, all sounds were produced in real-time synthesis, by a DMX-1000 Digital Signal Processor. Truax describes *Riverrun* as a flow: “As with water, each countless grain of sound flows away, yet the river itself remains as it was.”⁵⁰

Robert Henke, a German musician, installation artist and software developer, creates his own digital instruments for his work. Henke regularly utilises micro-sound techniques in his own compositions and, in collaboration with Gerhard Behles, with the project group, Monolake.⁵¹ As a software developer, he has contributed to the wider availability of granular audio processing. He designed the Granulator, a plug-in software component, used with the software music-sequencer and digital audio workstation, Ableton Live, designed by Henke and Behles. He created this with Behles. What makes Ableton Live different from other digital audio workstations (DAW) is that it is designed for live performance as well as music production. I regularly use Ableton Live to develop sound-sequences, as I am able to ‘perform’ sound-groupings *and*, at the same time, improvise transformation of specific sounds. I will often switch to Ableton Live from Digidesign ProTools™, my main editing and mixing software, in order to expand experimentations in transforming my recordings. This is just one component of my work, though it greatly expands possibilities of time and texture manipulation for recordings or synthesised sound. Perhaps, more important for my work is the notion of ‘grains of sound’ as a *mosaic*

process, going back to the manual cutting of tape as a form of detailed collage we saw with Xenakis.

Notable in this regard is the New Zealand-Canadian composer, Susan Frykberg, and her composition, *Tē Ao Mata Kite* (2015). The Sarjeant Art Gallery, in Whanganui, New Zealand, commissioned this work to commemorate the 1995 Pākaitore-Moutua Gardens Occupation in Whanganui. For this work, Frykberg asked one hundred and fifty people in the district to give a one-word response to the occupation. She edited the words together, “creating clusters and ‘pointillist’ words. These assemblages were further mixed with soundscapes and combined with music” and presented in the gallery space.⁵² Though Frykberg’s clusters and pointillist editing of words are not ‘officially’ recognised as microsound, (in the language of granular synthesis, microsound is defined as a sonic event that occupies a time scale of between 10ms and 100ms⁵³), her work is consistent with microsound’s pulling-apart its recorded matter to assemble new sonic textures. Japanese composer and artist, Ryoji Ikeda, uses this same technique to create minimalist, techno-scapes from fragments of digital data. Works, such as *Test pattern* (2008) or *Supercodex* (2013), consist of micro-sonic noise gestures where the details of frequencies and the essential characteristics of sound pull apart the 0s and 1s of the virtual flows of digital data, re-configuring them into tactile physical digital landscapes.

Local & Granular Listening

This chapter began with a consideration of a ‘local listening’ specific to a Pākehā relationship to New Zealand. Lilburn is attributed with helping to forge a New Zealand ‘identity’ in sound composition, both formal and experimental. Though what is designated as ‘New Zealand identity’ still tends to be “based on the hegemony of white settler Pākehā values.”⁵⁴ In deference to Lilburn, it is important to acknowledge how difficult it must have been for him at times to be part of ‘white settler Pākehā values’ as closeted homosexual and, later, experimental artist. Though acknowledged now for his contributions, his move to electronic music at the time earned him scorn from his classical music colleagues.⁵⁵ Instead of the numerical constraints of Western classical music, the technologies and methods such as those of *Musique Concrète*, that he imported from Europe and the U.S., gave him a wider field of sound for experimentation. Number and logic have long been central to Western music traditions, with aesthetic value recognised through conformity to specific numeracy and proportion. New technologies that Lilburn embraced enabled a different way to listen to the land, a listening that drove his yearning for an indigenous Pākehā identity. They assisted him in his quest to transform the echoes of Europe in his ears into something he strived to recognise and label ‘authentic’.

Though, in that Europe Lilburn was escaping, there were also ruptures with European music traditions. In France, exiled from his Greek home, traumatised by events during the Second World War and its aftermath, Xenakis sought to look beyond identity and locale into undetermined material processes. In contrast to the established use of time values to construct traditional music, he transposed

⁴⁸ Ibid., 57.

⁴⁹ Ibid., 62.

⁵⁰ Barry Truax, “Riverrun,” in *Digital Soundscapes* CD, Track 5 (Germany, 1988). See *Riverrun* <https://www.youtube.com/watch?v=u81IGEFt7dM>

⁵¹ See Monolake albums, *Silence* (Berlin, 2009), *Ghosts* (Berlin, 2012) as well as his Robert Henke works, *Floating Point* (Berlin, 1997), *Atom/Document* (Berlin, 2007).

⁵² Susan Frykberg, “Biography,” SOUNZ, Centre for New Zealand Music, (Accessed 2017).

<https://www.sounz.org.nz/contributors/1043> and Susan Frykberg, *Personal Communication via ‘Messenger’* (2018).

⁵³ Frykberg has worked extensively with granular synthesis through Ableton Live on compositions such as *Salve Regina Electronica* at New Zealand Electroacoustic Symposium, Auckland University 2009 and *Ubi Caritas Electronica*, 9th International Festival of Women Composers, Indiana (Pennsylvania, 2010).

⁵⁴ Matthew Bannister, “Going out to Everyone?,’ Bic Runga as a ‘New Zealand’ Artist,” in *Many Voices: Music and National Identity in Aotearoa/New Zealand*, ed. Henry Johnson, (Newcastle, 2010), 85.

⁵⁵ McKinnon, op. cit., 122.

ideas of energetic movement onto complex mathematical equations and scientific processes, transforming data into experimental musical outcomes. One outcome of his work was to inspire other composers to elaborate on the ‘atomism’ of sonic data that he demonstrated through meticulous collage. Inherent in this idea is the ‘grain’ of sound as multiple and intricately interconnected quanta. The becomings of these ‘clouds of sound’ help signify a shift of perception of ‘objects’ (sound or otherwise) to ‘events’. Composers, such as Henke, Roads and Truax, through their knowledge of programming language, developed the work of Xenakis, and the whakapapa of those ideas, into the digital domain, creating tools that I use in the production of my own sound assemblages.

Whatever the technology used—kōauau, guitars, or DAWs—‘information’ becomes ‘coloured’ by the processes through which it passes. Each system is encoded with a programming language of its own and reflects a specific milieu. Though my approach often involves manipulating tools others have designed, process and patterning occur in how I understand Bateson’s ‘ecological ‘mind’. This ‘mind’ is an interconnected system involving myself *plus* the technology *plus* my environmental and cultural milieu. Henke’s Granulator plug-ins are silently providing parameters to ‘colour’ my sound assemblages. The story of Lilburn’s quest for a New Zealand identity as a Pākehā, through a close listening to the whenua of Aotearoa New Zealand, provokes recognition of influences and conflicts that quietly inform my ‘intuitions’. The whakapapa of all these processes becomes integral to the aesthetics, decisions, outcomes and ongoing effects of *Te Oro o te Ao*.

Deep Ecologies & Deep Listening

Introduction

Deep ecology, Deep Listening™ and acoustic ecology are practices that developed during the 1970s, drawing on a hybrid of traditions, to forge a meaningful unity with the earth, in recognition of the West's technological estrangements from nature. Deep ecology promoted a method of intuitive and imaginative listening to foster a feeling, as much as a knowing, of being part of a 'web of relations'. From such an intuitive connection with nature, ethical principles were thought to emerge. Similar goals were expressed through Pauline Oliveros's Deep Listening™ method and acoustic ecology. The *listening* in Deep Listening™ encompasses an entire spectrum of perception and imagination, and is often used as an improvisational music technique, acknowledging the natural *and* the technological. Nature and technology also combine in acoustic ecology, which employs field recording as method for listening-to and questioning our relationships to sound environments. Field recording has also provided a basis for a range of approaches to experimental sound making, and for exploring our relations with phenomena.

Deep Ecology

Whereas Māori reveal an identification of self in a deep relationship with the earth, a fundamental disconnection with nature has become a trait of Western cultures. A range of scholars attribute this disconnection within anthropocentric thinking to a series of historical circumstances: The interwoven traditions of Judeo-Christianity; the scientific revolution of the Enlightenment era; and patriarchal dualistic thinking. Though not everyone may identify these specific historical agents, it is generally accepted that there is an ecological crisis occurring that threatens the survival of Papatūānuku and those who live on her. With respect to Western traditions, of the many methods engaging this issue, I especially want to discuss Arne Naess's

ecological-intuitive-imaginative listening practice that resides at the core of understanding and responding to the environmental crisis.

This Norwegian philosopher recognised that the underlying cultural and philosophical disconnection of the West needed to be addressed in relation to ecological activism. Deep ecology is the name he coined for the movement in 1973 to differentiate from what he perceived as a 'shallow' ecology. Shallow ecology refers to ecological awareness as an extension to anthropocentrism, the central objective of which, Naess argues, is "[...] the health and affluence of people in developed countries."¹ According to Naess shallow ecology promotes short-term solutions based on capitalism's valuing of consumption. Examples are the recycling of household plastics and increasing automotive efficiency.² As Naess proclaims: "[...] the aim of supporters of the deep ecology movement is not a slight reform of our present society, but a *substantial reorientation of our whole civilization*."³

Deep Ecology Platform - Arne Naess & George Sessions 1984⁴

1. The well-being and flourishing of human and nonhuman life on Earth have value in themselves (synonyms: intrinsic value, inherent worth). These values are independent of the usefulness of the non-human world for human purposes.
2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.
3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.
4. The flourishing of human life and cultures is compatible with a substantially smaller human population. The flourishing of non-human life requires a smaller human population.
5. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.
6. Policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present.
7. The ideological change will be mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between bigness and greatness.
8. Those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary changes

The eight point platform by Naess and George Sessions provides generalised statements on which people of varying cultures and beliefs are able to agree on and unite in ecological action.

1 Arne Naess, "The Shallow and the Deep, Long Range Ecology Movement: A Summary," *Inquiry* 16, 1 (1973): 95.

2 Eric Katz, Andrew Light, and David Rothenberg, *Beneath the Surface: Critical Essays in the Philosophy of Deep Ecology* (Cambridge, UK, 2000), ix.

3 Arne Naess, *Ecology, Community and Lifestyle: Outline of an Ecosophy*, trans. and ed. David Rothenberg (Cambridge, 2001), 45.

4 Ibid., 29.

Naess proposed the deep ecology movement as umbrella term for all who recognised that ecological problems were essentially social, political and ethical issues. As a philosophy, deep ecology proposes a method to construct a different relationship between Western humanity and nature that transforms an anthropocentric worldview to one where nature is understood as intrinsically valuable. To enact this transformation, the twin practices of ‘identification’ and ‘Self-realisation’ are proposed. Identification is a method of listening to the natural environment to develop an ‘ecological Self’.⁵ An ecological Self, “shifts the burden of clarification from the term ‘self’ (the egotistic ‘I’) to that of ‘ecological Self’, a Self that identifies with all beings and recognises its part with a greater whole.”⁶ In Self-realisation, ‘self’ has a capital ‘S’ to imply a self that is larger than the ego, but is still part of an identity where individuality is not lost.⁷ Practising ‘identification’ involves focusing one’s attention on the ‘concrete contents’ of nature. According to David Rothenburg, Naess’s concept of ‘concrete contents’ builds on a rejection of Galileo’s notion of primary, secondary and tertiary qualities of things.⁸ He proposes that we apprehend the quality of things through their interconnection. The world, Naess suggests, experiences itself rather than us experiencing it. This resonates with Carl Mika’s proposal that a Māori phenomenology would recognise the reciprocity of the perceptual encounter.⁹ Naess’s Identification could also be considered a phenomenological method, where a human framed as a perceiving ‘subject’ is not the sole concern.

“Naess’s world is instead a place of grouped *impressions*, not an amalgamation of truths,” states Rothenberg, “There is a poetic quality to this observation.”¹⁰ Naess’s descriptions of how one ‘identifies’ with the ‘concrete contents’ of nature reads very much like Bergson’s ‘intuition’, a movement towards understanding that our intellect cannot always access. Bergson’s intuition is an understanding which is holistic, non-conceptual and also phenomenological. Instead of relating to the world by using the intellect to isolate particular elements, Bergson suggests intuition is a way to relate to the world that encounters and engages a deep flow of being.¹¹ Intuition constitutes our deep self, a creative, holistic flow that does not accept linguistic distinctions. Naess directly references Bergson’s influence on his understanding of self-realisation and creative evolution.¹² In fact, deep ecology draws on a wide range of cultural influences that explore and uphold an integration of human and nature, as ecosophy.¹³

Also important for the development of deep ecology was the philosophy of Baruch Spinoza and Mahatma Ghandi’s metaphysical beliefs, expressed as ethical non-violent political action.¹⁴ The sacred ecologies and social organisation of the traditions of Native Americans, specifically leaders Black Elk and Luther Standing Bear, are also integrated.¹⁵ It is no accident, then, that Indigenous concepts resonate with some aspects of Naess’s methods of seeing our individual needs and desires expressed within a holistic universe.

It is not difficult to understand Naess’s proposition when considering the connective universe of te ao Māori. For te ao Māori, whakapapa connects to the whole. Respect, ethical reciprocity, and responsibility in intuiting and acknowledging the mauri of entities enhances mauriora for all. In this way Naess’s ecosophic Self-realisation is not self-centredness, a criticism leveled at deep ecology. Rather, if one is Self-realised, all are Self-realised.¹⁶

Deep ecology has also been criticised for its political naivety. The Self that Naess identifies is a gender-neutral self. Feminist critique suggests Naess’s assumption of anthropocentrism maintains a white patriarchal tradition. Women and Indigenous cultures are identified with a devalued natural world that is there to be saved.¹⁷ Though Australian philosopher and activist, Val Plumwood, commends deep ecology for moving environmental discussion toward solidarity with non-human nature, at the same time she holds that the eight-point platform offers only an “abstract embrace of tolerance principles” rather than “real theoretical and stand-point diversity.”¹⁸

As T.J. Demos indicates, ecology cannot be separated from economic and social issues, as they affect how we organise society, assign responsibility for environmental change, and assess social impact: “Environmental stresses can be both a driver and consequence of injustice and inequality—including poverty, racism, and neocolonial violence.”¹⁹ Key concerns of economics, colonialism and racism must be identified in engagements with ecology, to foreground political analyses. Yet, there is value in Naess’s attempts to formulate a method of intuitive—or imaginative—listening practice, to foster an ethical conscience. The concepts and methods he integrates from other thinkers and other cultures underlie a reasoning of ethical principles that emerge through intuitive connections with nature. Identification and Self-realisation are methods of ecological listening, to establish ecological thinking. Crucially Naess devised a method of *listening* that sought different ways of knowing and valuing the world.

Pauline Oliveros’s Deep Listening™

Naess held that the personal is political, and at this time such was also the catch-cry of ‘Second-Wave’ feminism. In the early 1970s, recognising an imbalance of women in music, Pauline Oliveros formed an all-woman improvisation group—the ♀ Ensemble—to explore sound and body experiments in what she termed Sonic Meditation.²⁰ The group met weekly, exploring Sonic Meditation practices that consisted of text scores, journaling, discussion, and kinetic awareness exercises.²¹ This eventually developed into what Oliveros termed the Deep Listening™ method.

5 Naess, “Self Realisation: An Ecological Approach to Being in the World,” in *Thinking Like a Mountain*, ed. John Seed, Joanna Macy, Pat Fleming and Arne Naess (Philadelphia, 1988), 22.

6 Ibid.

7 David Rothenberg, “No World but in Things: The Poetry of Naess,” in *Beneath the Surface: Critical Essays in the Philosophy of Deep Ecology*, ed. Andrew Light, Eric Katz, David Rothenberg (Cambridge, UK, 2000), 160.

8 Ibid., 152.

9 Carl Mika, “The Co-Existence of Self and Thing Through Ira,” op. cit., 105.

10 Rothenberg, op. cit., 160.

11 Bergson, *An Introduction to Metaphysics*, op. cit., 22-23.

12 Naess, *Ecology, Community and Lifestyle: Outline of an Ecosophy*, 85, 166.

13 Carolyn Merchant, *Radical Ecology: The Search for a Liveable World* (New York, 2005), 88.

14 Ibid., 10, 146-150. See also Ecce De Jonge, *Spinoza and Deep Ecology: Challenging Traditional Approaches to Environmentalism* (Farnham, 2004).

15 Merchant, op. cit., 88.

16 Naess, *Ecology, Community and Lifestyle: Outline of an Ecosophy*, 9.

17 Marti Kheel, “Ecofeminism and Deep Ecology: Reflections on Identity and Difference,” in *Rewearing the World: The Emergence of Ecofeminism*, ed. Irene Diamond and Gloria Feman Orenstein (San Francisco, 1990), 128.

18 Val Plumwood, “Deep Ecology, Deep Pockets, and Deep Problems: A Feminist Ecosocialist Analysis,” in *Beneath the Surface: Critical Essays in the Philosophy of Deep Ecology*, 60.

19 Demos, *Decolonizing Nature: Contemporary Art and the Politics of Ecology*, 8.

20 William Osborne, “Sounding the Abyss of Otherness: Pauline Oliveros’ Deep Listening and the Sonic Meditations,” in *Women Making Art: Women in the Visual, Literary and Performing Arts since 1960*, ed. Deborah Johnson & Wendy Oliver (New York, 2000), 68.

21 Kerry O’Brien, “Listening as Activism: the ‘Sonic Meditations’ of Pauline Oliveros.” Accessed from *The New Yorker* website (2016) <https://www.newyorker.com/culture/culture-desk/listening-as-activism-the-sonic-meditations-of-pauline-oliveros>

Native

Take a walk at night. Walk so silently that the bottoms of your feet become ears.

Environmental Dialogue

Each person finds a place to be, either near to or distant from the others, either indoors or out-of-doors. Begin the meditation by observing your own breathing. As you become aware of sounds from the environment, gradually begin to reinforce the pitch of the sound source. Reinforce either vocally, mentally or with an instrument. If you lose touch with the source, wait quietly for another. Reinforce means to strengthen or sustain. If the pitch of the sound source is out of your range, then reinforce it mentally.

Sonic Meditations excerpts (1971)

Oliveros described Deep Listening™ as an evolving practice that derived from her experiences as composer, performer, improviser, and audience member. The ‘Deep’ refers to complexity and extensions beyond habitual understandings. Though Oliveros developed this method with improvisational music practice in mind, Deep Listening™ grew, as well, from her belief that listening facilitates healing, creative acts, activism and the opening of oneself to ‘universal connection’. This universal connection includes the ‘sonosphere’, Oliveros’s concept of the earth’s sonic envelope. This sonic envelope resonates from the earth’s core, radiating out in “ever increasing fractal connections” that vibrate sonically through and around the earth. The sonosphere resonates among the “magnetic, electrical, electromagnetic, geomagnetic, and quantum, as well as the acoustical [...] personal, interpersonal, musical, earth, and cosmological scales.”²² For Oliveros, the biospheric and technospheric layers of the sonosphere are interwoven. Technosphere defines the affects of technological tools that are guided by human thought:²³

Humans sense the sonosphere according to the bandwidth and resonant frequencies and mechanics of the ear, skin, bones, meridians, fluids, and other organs and tissues of the body as coupled to the earth and its layers from the core to the magnetic fields as transmitted and perceived by the audio cortex and nervous system. (All of this with great variation, of course). All cells of the earth and body vibrate.²⁴

As a practice, Deep Listening™ develops listening in every possible way to everything there is to hear, whether it be improvising music or doing the dishes. Such intense listening scans the sonosphere, composed of sounds of daily life, of nature, of one’s own thoughts and imaginings, as well as musical sounds. According to Oliveros, this encountering requires two modes of listening, an expansive listening and a focused listening to perceive detail or trajectory. “Such focus”, she suggests, “should always return to or be within the whole of the space/time continuum (context).”²⁵ Importantly, Deep Listening™ directs attention to pattern and difference in the interplay of sound and silence within all perceptible vibrations. Such relations between sounds facilitate

a space of creativity in art and life. Oliveros defines creativity as the formation of new patterns, exceeding the limitations and boundaries of old patterns, or using old patterns in new ways.

Listening Practice

As a component of my research, I engaged with Deep Listening™ to evaluate how it changed my experiences of listening. I consider myself as someone attuned to listening, though generally this is directed towards locating sounds of interest in particular environments. In September 2016, visiting composer and registered Deep Listening™ teacher, Sarah Weaver, led a Deep Listening™ workshop in Auckland, New Zealand. The workshop involved a group of twelve participants who, at one point, stood in a circle. We went through a series of Tai Chi exercises during which we focused on listening through various part of our bodies: Listening with our hands, listening to the earth through our feet, listening with different portals in our heads, and with our collective body. In the last suite of movements, we brought our hands together to make a downward facing triangle on our stomachs. We were instructed to listen through this. I looked around the circle of predominantly men, who each seemed to be symbolising the figure of a vagina on his lower navel. We all listened through our symbolic ‘vaginas’. Following this, we did a series of listening mediation exercises similar to the walking Sonic Meditation. This was followed by discussion concerning our experiences during the exercise. A slightly awkward improvisational vocalising session then followed, with more discussion about how we found this exercise. Then we were asked to recall a dream in which we could remember sounds or listening: “Remember to listen when you’re asleep,” we were instructed. That night I was rewarded with the sound of a monumental, dense and alarmingly powerful force roaring through my dreams.

Prior to this workshop, I had engaged practices of listening inspired by Hōhepa Kereopa’s statement: “If you sit still for long enough and look around you, the bush will start to speak to you and show you what you need to know.”²⁶ I also did some independent sessions with Naess’s Identification and Self-realisation in mind. Kereopa’s *listening* came through a different cultural paradigm and agency: the cultural beliefs and practices of Ngāi Tūhoe iwi, tōhungatanga, intertwined with Christianity. This is similar to other listening practices inasmuch as they all encourage modes of attunement and attentativeness through listening as a bodily practice that leads to different ways of ‘knowing’; what I am suggesting as ‘intuition’ rather than ‘intellectual’ engagement. These approaches are each strengthened by structured practice. Kereopa says: “Sometimes I come here and build myself a little shelter to keep out the wind and rain, and I clear my thinking, so I am only focused on what I see around me, and once I have got all those other thoughts and problems out of my head, then I am ready to learn.”²⁷ Identification requires one to empathise with interrelations of nature, very much how I imagine I might practice Bergson’s intuition. Deep Listening™ comes with a handbook to guide practice.

I have not explicitly discussed Oliveros’s music. There is so much to highlight over her long and brilliant career.²⁸ Here I focus on what she offers in terms of listening

²² Kahn, *Earth Sound Earth Signal: Energies and Earth Magnitude in the Arts*, 174.

²³ The Technosphere is a term coined by writer, Jose Arguelles. See Arguelles, *Time and the Technosphere: The Law of Time in Human Affairs* (Rochester, 2002).

²⁴ Pauline Oliveros, “Auralizing in the Sonosphere: A Vocabulary for Inner Sound and Sounding,” *Journal of Visual Culture* 10, 2 (2011): 162.

²⁵ Pauline Oliveros, *Deep Listening: A Composer’s Sound Practice* (New York, 2005), xxiii.

²⁶ Moon, *A Tobunga’s Natural World; Plants, Gardening and Food*, 45.

²⁷ Ibid.

²⁸ If I was to discuss Oliveros’s work in more detail, I am drawn to the composition *A Love Song* (1984): <https://www.youtube.com/watch?v=fZLJ7PKmpE0&index=3&list=RDuT20aS-NvOo> When I listen to it, I hear her listening to the vocalist as well as the acoustics of the one-hundred year-old underground water tank in Cologne, Germany, where it was recorded. Ideas developed in this composition are further developed on *Deep Listening* (1989), the work that gave a name to her trademarked listening method, also recorded in an underground water storage space. The ambient tonality of these works does not indicate her entire *oeuvre*. Many ‘noisy’ and dissonant works have been created throughout her long career.

practice as process training. Oliveros’s listening encompasses the entire spectrum of perception and imagination: “Listening is directing attention to what is heard, gathering meaning, interpreting and deciding on action.”²⁹ The personal is political. The political can be expressed aesthetically.

Acoustic Ecology

Douglas Kahn explains that Oliveros’s notion of the sonosphere was influenced by contemporary physical science and traditions of occult engagement with the physical sciences, typified by Theosophy.³⁰ This form of Western Esotericism, coinciding with the era of the Victorian Spiritualists and with Bergson’s critical vitalism, sought direct knowledge of presumed mysteries of life and nature through mystical and occultist philosophies.³¹ Theosophy delved into atmospherics and geophysical acoustics.³² Founder, Helena Blavatsky, wrote: “It is a well known fact in Physical Science, as well as in Occultism, that the aggregate sound of Nature—such as heard in the roar of great rivers, the noise produced by the waving tops of trees in large forests, or that of a city at a distance—is a definite single tone of quite an appreciable pitch.”³³ This keynote was held to be middle F of the pianoforte.³⁴

Founder of acoustic ecology, R. Murray Schafer, did not refer to musical pitch but used a similar concept of a keynote in the landscape. In acoustic ecology, this keynote is created by specific geography and climate. The sea might be the keynote for a coastal community or the drone of the motorway for somewhere else. Acoustic ecological analysis considers how this keynote might affect the lifestyle or culture of a locale’s inhabitants.³⁵ A specific environment’s keynote is ‘ground’ to the ‘figures’ of signals or ‘soundmarks’, aural equivalents of landmarks.

In 1969 Schafer published a pamphlet titled *The New Soundscape: A Handbook for the Modern Music Teacher* in which he encouraged, after Cage, the practice of focused listening as a means to develop an aesthetic appreciation of environmental sound.³⁶ Three years later with colleagues at Simon Fraser University, Schafer established the World Soundscape Project (WSP) to study environmental soundscapes, ways they were changing, and the effects and affects they had upon inhabitants.³⁷ This project created the discipline of acoustic ecology. In acoustic ecology, a listening that is ecological, ethical and imaginative is encouraged. As with the method of identification in deep ecology, it is primarily grounded in a phenomenological enagement. It also foregrounds deep ecology’s aesthetic preference for the ‘natural’ world. Acoustic ecology differentiates Hi-fi and Lo-fi soundscapes. Hi-fi has high-signal to low-noise ratios, as in rural settings where sounds are easily identifiable from an ambient background. Lo-fi soundscapes have high-noise to low-signal ratios, as with urban environments where industry and technological implements create underlying masking noise that obscures the clarity of signals. Schafer contends that we are overloaded with acoustic information, and

through Acoustic Ecological listening, we are able to restore our ability to hear the nuances of sounds around us.

An important component of the acoustic ecological work of WSP is documentation of soundscapes for archiving, as well as for detailed analysis. Such archived recordings provide evidence of changes natural landscapes as they become damaged by human activity. Initially this work was focused in Canada, though later spread to numerous international sites where soundscapes were recorded, catalogued and archived. WSP created an extensive library of ‘acoustic ‘spaces’ that could be preserved as recordings before they were ‘lost’.³⁸ These recordings were catalogued through diverse indexing-methods, to allow for a ‘holistic’ understanding of the collected soundings. The different sound classification practices identified by the WSP project include ‘sound according to physical characteristics’ (acoustics), ‘how they are perceived’ (psychoacoustics), ‘according to their function and meaning’ (semiotics and semantics), and their ‘emotional and affective qualities’ (aesthetics). Sounds were quantified in terms of sound events: duration, frequency/mass, fluctuations/grain, dynamics, noise levels.³⁹

The WSP system also utilised terms developed by Pierre Schaeffer for his sound-object classification, such as ‘mass’ (density of different frequencies all at once) and ‘grain’.⁴⁰ A further system of classification identified by the WSP project was that of grouping sounds according to referential aspects. As Schafer acknowledges, there is no definitive way to do this, as each sound has specific cultural perspectives attached. He does, however, offer a framework developed for an auxiliary project of the WSP, involving the gathering of ‘earwitness’ descriptions of sounds from literary, anthropological and historical documents, a collection of descriptions of sounds and soundscapes from the past. This project entails an extensive list of categories, beginning with ‘Sounds of Creation’ and ‘Sounds of the Apocalypse’. It proceeds through a vast number of categories, ordered empirically, through natural and technological worlds, concluding with categories named ‘Indicators of future occurrences’, ‘Mythological sounds’, the ‘Sounds of Utopias’ and ‘Psychogenic Sounds of Dreams and Hallucinations’.⁴¹

As with ‘identification’ in deep ecology, acoustic ecology is primarily grounded in a phenomenological engagement, and generally foregrounds an aesthetic preference for the ‘natural’ world. Acoustic ecology begins as an investigation into the concrete collecting of empirical data incorporating ecological and political concerns. Through analysis of recordings, via a series of criteria, it binds considerations of ‘soundmarks’ and ‘soundscapes’ in relation to the metaphoric and poetic. As Brandon LaBelle summarises: “The ultimate goal of casting nets of microphones across the globe is to set our ears towards finding the truth of sound, so we can all finally arrive at the original soundscape.”⁴² This is what Schafer has called ‘ursound’, the sound-space from which the sound world itself is ‘born’. Schafer writes: “To find it we must return to the waters of instinct and the un-shatterable unity of the unconscious, letting the long waves of Ursound sweep us beneath the surface, where, listening blindly to our ancestors and the wild creatures, we will feel it surge within us again, in our speaking and in our music.”⁴³ The Ursound is also referred to as a form of silence.

29 Oliveros, “Quantum Listening: From Practice to Theory to Practice Practice.” In *Culture and Humanity in the New Millennium: The Future of Human Values*, ed. Chan Sin-wai and Kwok Siu Tong (Hong Kong, 2000), 27.

30 Kahn, op. cit., 176.

31 Hanegraaff, *New Age Religion and Western Culture: Esotericism in the Mirror of Secular Thought*, 99.

32 Kahn, op. cit., 176.

33 Ibid., 176-177.

34 According to Kahn, current science identifies the earth as continuously ringing, albeit weakly, due to energy exchanges between the lithosphere, hydrosphere and atmosphere. The keynote sounding around fifteen octaves below middle C. See *Earth Sound Earth Signal*, 177.

35 R Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester, 1997), 9-10.

36 Schaeffer, *The New Soundscape: A Handbook for the Modern Music Teacher* (Scarborough, Ontario, 1969).

37 Schafer’s colleagues were Hildegard Westerkamp, Barry Truax, Howard Broomfield, Peter Huse, Bruce Davis, and Jean Reed.

38 A partial catalogue of which is online at: <https://www.sfu.ca/sonic-studio/srs/index2.html>

39 Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, 135.

40 Ibid. In Schaeffer’s system, the ‘grain’ refers to the modulation of a note within the sound giving it a texture, i.e.: vibrato, tremolo, the sound of scraping something across a bumpy surface.

41 Ibid., 144.

42 LaBelle, *Background Noise: Perspectives on Sound Art*, 204.

43 Schafer, op. cit., 262.

In his closing remarks to his classic work, *The Soundscape: The Tuning of The World*, Schafer does not mention the Ursound, but states that all research on sound must conclude with silence: “Not the silence of a negative vacuum but the positive silence of perfection and fulfillment. Thus just as a man [sic] strives for perfection, all sounds aspire to the condition of silence, to the eternal life of the Music of the Spheres.”⁴⁴ In Schafer’s framework Pythagorus’s *The Music of the Spheres* is understood to be so omnipresent that we are unable to distinguish it from silence.⁴⁵ It is also proposed as the perfect universal law that humanity is unable to hear due to our imperfection. Schafer also locates this perfect ‘silence’ in the Vedic concept of the ‘unstruck sound’, the sound of the celestial realm, its etymology lying in Sanskrit, meaning ‘sound produced without touching two parts’ and at the same time ‘pure’ or ‘clean, stainless’. This is described in an ancient text on Indian classical music, written by Narada in 1100 BCE, as vibration of ether, which cannot be perceived by humans but is the basis of all manifestation: “It forms permanent numerical patterns which are the basis of the world’s existence.”⁴⁶ Schafer proposes: “Through contemplation, little by little the muscles and the mind relax and the whole body opens out to become an ear.”⁴⁷ Such listening enhances our chance of hearing the perfect ‘silence’ of Ursound.

Field Recording

From the self-realisation of one’s Identification with the interconnectivity of all things via deep ecological listening, through the consciousness-expanding, healing and improvisational music aspirations of Oliveros’s Deep Listening™, and acoustic ecology’s listening for Ursound, it seems a long way back to field-recording, a foundational practice in the acoustic ecological path to Ursound. Of course, many may not necessarily be listening for Ursound as they adjust their levels and listen closely to the spacings they are recording. My research practice asks: How does field recording figure in this complex of Euro-American engagements with listening? Anyone who has experience making field recordings will tell you that your listening, your whole being, is deeply focused on details of a sound environment. You become as silent as possible. Sounds you never noticed or unconsciously ignored reveal themselves through your headphones. As sound artist, Francisco Lopez, says of field recording, it is a creative way of interacting with reality rather than representing reality.⁴⁸ German sound artist, Christina Kubisch, relates her experience of field recordings: “[...] when you listen to your recordings afterwards in the studio you’re often disappointed because it’s just the sound and not the experience, and so you have to change and re-arrange the material in order to bring back that original sensation.”⁴⁹ To this end, field recordings become material available for creative assemblage and musical experimentation.

Acoustic ecologist and composer, Hildegard Westerkamp, in describing her approach to field recording, explains that she starts with the general ambience, which may then suggest other possibilities that she might follow spontaneously.⁵⁰ Westerkamp’s use of field recordings as a musical base is associated with soundscape composition. Unlike its ‘cousin’, *Musique concrete*, where disassociation is sought through the production of *l’objet sonore*, soundscape composition aims to

retain environmental contexts, no matter how transformed the sounds become.⁵¹ When Westerkamp joined the WSP project, she says she learnt to listen through cataloguing the contents of the three hundred to five hundred hours of tape recordings that had already been collected. Her own extensive field recordings have contributed to the WSP project and have also become the base for her soundscape composition practice. In these, she contributes voice, instruments, extra recorded elements, editing and effects-processing within the original recording:

In a soundscape composition we walk a complex and fine line, attempting to find a balance between the voice of the recorded environment and that of the composer; all this in the interest of understanding, highlighting, and questioning our relationship to our sound environment, our listening and soundmaking.⁵²

Westerkamp’s sound piece, *Kits Beach Soundwalk* (1989), was originally made as a performance piece with the field recording overlaid with her spoken voice, part-performed as if it was a live radio show. In this she was influenced by her weekly radio show ‘Soundwalking’.⁵³ In the recorded version of *Kits Beach Soundwalk*, her voiceover helps the listener understand the environment of the recording, Kitsilano Beach, near Vancouver City. Westerkamp describes the environment and points out the ambience of the city in relation to the sounds of the beach, raising the volume of the city’s hum and then reducing it as the focus changes to the barnacles on the rocks, snapping and clicking when covered by the tide. Her composition finds a balance between describing and contextualising the sounds that the listener hears and allowing the sounds of the environment to come through. She says that in retrospect it was a way to find her own voice as a composer, field recordist and practitioner of acoustic ecology. She was conscious of being the only female in the WSP project group, where she had tended to be a listener rather than a communicator.⁵⁴

In *Kits Beach Soundwalk*, Westerkamp describes the sounds she heard in a series of dreams, using onomatopoeic language to complement the sounds of the environment she hears. One dream is of entering a stone cottage where multiple generations of a peasant family are eating, talking “[...] smacking and clicking and sucking and spitting [...]” overlaid with the sounds of the clicking snapping clacking barnacles on Kits Beach, as she describes the space of her dreams.⁵⁵ This work is exemplary of what Schafer describes as ‘overlaid soundspace’: recording grounded in the concrete, but taking flight into the social, cultural and imaginative. Oliveros would be in agreement with Westerkamp’s statement:

Soundscape work, without the journey into the inner world of listening, is devoid of meaning. Listening as a totality is what gives soundscape work its depth, from the external to the internal, seeking information about the whole spectrum of sound and its meaning, from noise to silence to sacred.⁵⁶

44 Ibid.

45 Piero Weiss and Richard Taruskin, *Music in the Western World: A History in Documents* (Belmont, 2008), 3.

46 Schafer, op. cit., 260.

47 Ibid., 262.

48 Cathy Lane and Angus Carlyle, *In the Field: The Art of Field Recording* (Devon, 2013), 101.

49 Ibid., 70.

50 Ibid., 114.

51 Jonathan Gilmurray, “Introduction,” in *Environmental Sound Artists*, ed. Frederick Bianchi and V.J. Manzo (New York, 2016), xxiii.

52 Lane and Carlyle, op. cit., 116.

53 Ibid., 119.

54 Ibid., 112-113.

55 Hildegard Westerkamp, *Kits Beach Walk*, sound composition (1989)

56 LaBelle, op. cit., 209.



Haines and Hinterding, *Energies*, Vinyl LP, (2015)

I am listening to David Haines and Joyce Hinterding's *The Gardens of Stone* (2015).⁵⁷ It consists of a field recording of ironstone bands in the Platy Pagoda rock formations, found in Carne Creek Gorge and Acoustic (Sunnyside) Canyon, in New South Wales, Australia. The energetic emissions of these rocks are recorded with the aid of radio-scanning technology. I can hear what seems to be an underlying bed of sound for the greater part of the recording that I would best describe as an indistinct roaring. It is reminiscent of the roaring of wind through a forest of trees or a large surf beating the coast, except all the 'air' has disappeared. What remains is a low-to-mid-frequency bed of sound that appears to be a solid object, but surges and rolls on the surface. Is that the sound of the rock? The roar disappears near the end of the track. There is constant static but without crisp edges, as if all the upper frequencies have been filtered off. Intermittent tones and bleeps are repeated often enough to become recognisable, and indicate the technology employed in this endeavour.

A wave of static fades in, and then out. Even with close listening, and apart from the obvious tonal bleeps, it is hard to discern the sound emanating from rock from sound of the recording technology. This technology extends to the turntable reproducing the sound via a vinyl LP recording. Preparing recordings to be reproduced on vinyl LP means that certain frequencies, especially high ones, must be attenuated, as they do not reproduce well in this format. The recording of the electromagnetic emissions of the rocks is 'inscribed' with the artists' presence, through their technological interventions. Does it matter how a rock *really* 'sounds'? The act of artistic and geo-scientific *listening* becomes further stratification to perceiving this work. This 'documentation' provides evidence of unseen energy that flows through and from these rocks. As Haines notes: "We've spent a lot of time in the wilderness, it's a big inspiration for our work, and we started to speculate whether you could actually plug these antennae into the rock structures and see if they are resonating in sympathy with something."⁵⁸

If I listen to these recordings of these rocks as using the methodologies of an acoustic ecologist, I recognise the ecological implications of protecting the 'voice' of these rocks and the environment they inhabit. Haines and Hinterdings are also aware of this. Their field recordings coincide with locales continually threatened by coal mining. As Haines stated, in reference to *Black Canyons*,⁵⁹ a closely related work recorded in the same area, made in collaboration with Michael Morley: "It's not like we are openly declaring a protest within this work, but it's important to see these places and document them. This is part of an awareness through

aesthetics."⁶⁰ Through the tools of acoustic ecology, I also recognise that their recordings are documents that can be engaged on multiple levels, where the concrete takes flight into the social, cultural and imaginative. Having said that, the sounds of the concrete in this case are frequencies that we would not hear without technical translation.

Deep Listening has our listening scanning the sonosphere for audible, technological, electromagnetic, occult and personal elements all interconnected in the sonosphere. Deep Listening has me improvising with an instrument in response to what I hear or sense. *Black Canyons* was performed live with Haines, Hinterding and Morley, collectively known as "Sun Valley," improvising sonic relations between rocks, field recordings of electromagnetic transmissions of rock, electronic processing, projected images from the site, electric guitar and effects pedals. Pauline Oliveros would have embraced it as an example of Deep Listening in practice.



Image from *Black Canyons* performance. Sun Valley: Campbelltown Arts Centre (2015)

Photo: Christopher John Frape

Finally to employ Naess's practice of Identification with the Platy Pagoda rock formations would not engage any recording technology. Identification is focused on empathatic, imaginative and poetic listening to sense the stones themselves and to search for a feeling of connection. Te ao Māori acknowledges that kōhatū, rocks and stones in all their forms, have their own whakapapa connecting to mine. With the right acknowledgements and embodied listening, they speak to me and tell me what they have to say. While I perceive them, they are, in their own way, perceiving me. This does not preclude a recording of that space. Māori artists use Pākeha recording technologies and institutions too. In following kaupapa Māori, permission is asked from the rocks themselves. Permission is sought from tāngata whenua of that area for me to find out where I can and cannot go, if I am allowed to record, and how the recorded documents will be used. I have experienced a number of times in New Zealand and Hawaii, after been granted permission by the tangata whenua to record, being told that if my recording equipment stops working, or there is some issue rendering the data unlistenable, then I possibly don't have permission from that environment. Afterwards, I thank the rocks.

⁵⁷ Haines & Hinterding, "The Gardens of Stone," on *Energies*, vinyl LP., (Sydney, 2015).

⁵⁸ Sarah Thomas, "David Haines, Michael Morley and Joyce Hinterding tap into different kind of rock music," *Sydney Morning Herald*. Accessed 2017: <http://www.smh.com.au/entertainment/art-and-design/david-haines-michael-morley-and-joyce-hinterding-tap-into-different-kind-of-rock-music-20151029-gkltpx.html>

⁵⁹ The Wollangambe river ran black after a coal waste spill in July 2015, the Sun Valley work *Black Canyons* title.

⁶⁰ Thomas, op. cit. The trio perform as Sun Valley. This particular performance overlaid these recordings with live instruments, performed at Campbelltown Art Centre in 2015. See: <https://sunvalley.bandcamp.com/album/black-canyons>

A recognisable shift in Western thinking in the late 1960s and 1970s happens with deep ecology, Deep Listening™ and acoustic ecology. This was also reflected in the arts where Land Art of the early 1970s extended the art object to an environmental context.⁶¹ This coincides, for Aotearoa New Zealand, with stronger commitments to biculturalism. In the early twentieth century, there was prognosis of racial decimation or total assimilation of Māori into Pākehā culture. By the 1970s Māori reclamation of Indigenous rights and cultural identity began to gain recognition from the government. The Waitangi Tribunal was established in 1975 to investigate breaches of the Treaty of Waitangi, providing a platform to redress land theft perpetrated by colonial governments. Widespread decline of Māori language was acknowledged, with Māori-led revival of te reo for future generations.⁶²

This period coincides with my earliest familial memories, parents who engaged with earth-based creative practices of pottery, and the political issues of the time. I recognise core concepts of these practices in the whakapapa of my own cultural hybridity. These are concepts of complexity, diversity and symbiosis, shared with the sciences, along with conceptions of self and humanity as material process, having ecological implications. These furnish my current ‘post-anthropocentric’ turn. Deep listeners, deep ecologists and acoustic ecologists scan the globe for cultural and philosophical traditions to help find a way to meaningful ‘unity’ with the earth. Through *listening* practices they forge an ‘ecological thinking’ that leads to experiencing oneself as a web of relations. These practices seek to locate a feeling, an understanding, a knowing of being part of that web, whether imagined or perceived. For Māori, this is inherent to whakapapa. Profound loss and disconnection experienced by Māori resulting from colonisation must be acknowledged here as well. Reclaiming traditions is essential to healing this.

Deep Listening™ and acoustic ecology specifically involve technology as aspects of creative practice. As our lives are intertwined with technology, Oliveros’s Deep Listening™ also acknowledges that interconnection with the world is not limited to a perceived ‘nature’. All things have mauri and our interaction with things ‘unnatural’—cars, computers, tubes of handcream—can be similarly perceived with ethical outcomes. As Oliveros says: “Listen to everything all the time and remind yourself when you are not listening.”⁶³

61 LaBelle, op. cit., 198.

62 Augie Fleras and Paul Spoonley, *Recalling Aotearoa. Indigenous Politics and Ethnic Relations in New Zealand* (Auckland, 1999).

63 Oliveros, “Quantum Listening: From Practice to Theory to Practice Practice,” 29.

Process & Practice

Bringing a Space into Being

Introduction

In broad terms, my research methods have been developed to provide and ensure rigour for the various concrete practices that constitute my overall project. There are two arenas of research process. One concerns practices of making sounds in assemblages that are formed from technology and technical capabilities, along with locales, particular spacings, and reception—people who listen. The other is a reading and thinking process that aims at disclosing horizons of understanding by which I encounter those making processes. Such horizons include my whakapapa or the historical dimensions of my immersions in cultural life-worlds. This has become a practice of locating my ‘selves’ in the research process culturally, spiritually and critically as Māori *and* Pākehā. There is a reciprocity, folding and ongoing exchange between these two arenas. In living my research processes, these arenas are not thematically divisible. In the context of an exegesis though, they may be considered discretely. In this chapter, I discuss how the processes of research-through-making happen.

Procedural Frameworks 1: Conception through Resonant Imaging

Te Oro o te Ao is grounded in practice-led processes of experimental audio production and composition. These processes usually begin with a loose resonant-image that guides my experimentation. This resonant-image may be a vague impression or a clear image or a diagram. It may be a texture, or a feeling, or a notion of physical or aural movement. An example is *pounamu becoming crystal*, referred to earlier in this exegesis, or the quivering hand gesture in Māori performing arts, known as wiri. Resonant-images guide me from the initial stages of collecting sounds, through to generating and recording sounds for potential incorporation, through the processing and assembling of sounds digitally and spatially, and on to their presentations to

audiences. I’ve adopted the term ‘resonant-image’ from the title to a retrospective exhibition by the Australian artist, Joan Brassil.¹ I prefer this to the related term ‘sonic-image’, more common in contexts of electroacoustic composition. John Young notes that ‘sonic-image’ is used in a range of ways in this field, reflecting electroacoustic composition’s potentials to present “sound ‘documents’ re-contextualised from real-world experience,” as well as projecting, “abstract entities in which the concept of an image may give coherent form to fantastical constructs, frequently driven by the transforming and distortive effects of signal processing.”² Lilburn also used the term ‘sound image’ to mean an “evocative reflection on a metaphorical text [...]” and to allude to sound as sonic event already existing in the real world.³

My notion of resonant-image is closer to French philosopher Gaston Bachelard’s ‘poetic images’. These are images that arise between unconscious and conscious psychic processes. Bachelard’s argument is that language, especially when bound in habitual metaphors and other forms of representation, defines an unconscious system of rules that restrict the ways we experience space and time. Poetic images are able to break these ‘rules’ of language and reveal new imaginings.⁴ Brassil refers to the poetic as a way to “address revolutions in sensibility and forms in sculptural practice.”⁵ I agree with her conviction, that perceiving the world anew is of prime importance in creative thought. An audience listening to *Te Oro o te Ao* ideally produces resonant-images as response. These are determined by individuated perceptions, intrinsic and extrinsic aspects of the sounds presented, separated or combined.⁶ Intrinsic aspects refer to the physical attributes of a sound, its texture and timbre, independent of what caused the sound or what meanings it might suggest, in short, Schaeffer’s acousmatic. Extrinsic aspects are the connotations, meanings and references situated *outside* sounds that can be related to listeners’ experiences. Together intrinsic and extrinsic combine to make a resonant-image that could be understood and felt through affect. As previously discussed, affect does *not* belong to the sound or to the person listening but retains the resonance of both. Affect carries an emotional, cultural, individual response while remaining distinct. If I was to consider a correlation of the resonant image produced by an audience in response to listening to an artwork in the context of ihi — the power that the artwork emits; wehi — the reaction; and wana — the ‘auric’ exchange between audience and artwork and performer, I would add the possibility of the perceiving of ‘tohu’, in conceiving of resonant images that arise for both the maker and listener.

Tohu, in one context, is a symbol, a sign, an instruction or guidance. Te Ahukaramū Charles Royal, discusses it in another context where his understanding of tohu is arrived at in relation to Māori Marsden’s retelling of an examination of a student of the whare wānanga.⁷ The student successfully transposed specific observations of the forest into metaphors for how he understood social organisation. From this example Royal translates tohu as ‘original knowledge’, that arises from an “‘immediate’ and ‘intimate’ experience of the world.”⁸ Here the world is knowledge and wisdom, and the task of the listener is to become ‘open’ and ‘receptive’ to what it has to say. Though Royal’s reference relates to a listening to the ‘real world’, perhaps artworks can also be a source to draw out this original knowledge. I think a resonant image could also be

1 Joan Brassil, “A Retrospective: The Resonant Image,” exhibition ACCA (Melbourne, 1990).

2 John Young, “Reflections on Sound Image Design in Electroacoustic Music,” *Organised Sound* 12, 1 (2007): 25.

3 Ibid., 25-26.

4 Gaston Bachelard, *The Poetics of Space*, trans. Maria Jolas (Cambridge, MA., 1994).

5 Rita Joan Brassil, “The Poetic Vision,” Doctor of Creative Arts thesis, University of Wollongong, (1991), 13.

6 Daniel Barreiro, “Sonic Image and Acousmatic Listening,” *Organised Sound: An International Journal of Music and Technology* 15, 1 (2010): 35.

7 Te Ahukaramū Charles Royal, *Mātauranga Māori, An Introduction, Monograph One* (Porirua, 2009), 89-90.

8 Ibid., 89.

understood in some contexts as Royal's description of *tohu* as 'original knowledge' that arises from open and receptive listening to what the world has to say.

Procedural Frameworks 2: Composition

I use the notion of a 'toolbox' to define the knowledge and skills I draw on in making sound works. I think of the 'tools' as compositional *elements*, such as volume, repetition, spatialisation and movement through multiple speakers; or reducing light to minimise visual distraction, surprising an audience; making sounds unrecognisable or, instead, intentionally recognisable; selecting a specific acoustic space, equalisation, compression, rhythm, arrhythm, and so on. Those techniques, design elements or processes for effecting and affecting sound and its audience are in this toolbox. As my practice progresses, I need to upscale, constantly adding to this collection. My processes include field recordings, the generation of sounds through objects, ready-made instruments—keyboards, percussion, bass, guitar, flutes, taonga puoro—digital synthesis and generating oscillating noise currents or tones. Sometimes sounds or sequences of sounds may be recreated from descriptions taken from my 'listening practice' notes or modelled on elements from original environmental recordings in the studio. For field recording, I use the Zoom H4n, a hand-held professional digital recording device, with a range of microphones. The proximity of the microphone to sound source is a key creative tool in this situation. Recorded material is reassessed in the studio environment and often the true potential of certain audio artefacts do not become apparent until after listening in this situation.

Once I have a selection of audio data, I sort this array, assembling it into groups to then process individual sound files. I experiment with assembling different configurations and layerings of the sounds, looking for something that 'feels' appropriate. These intuitive decisions are later tested in performance situations to re-assess their effectiveness. Processing the audio data may be compared to 'photoshopping' an image. I use ready-made tools, digital audio plug-ins that are designed to work with my DAW, Digidesign Pro-tools™. These are generally virtual versions of outboard—real three-dimensional electronic—audio processing equipment. Sometimes I re-record the digitally processed sounds through speakers or spaces that 'colour' the sounds in certain ways. I often aim in this process to create textures. Am I able to have a particular fragment of audio sounding 'grainy', 'smooth', 'oily', or 'rough'? As mentioned in Chapter Four, the DAW Ableton Live is also a programme I worked with when developing *Tē Oro o te Ao*. Ableton Live was originally designed for live performance so it is useful for simultaneously assembling sound sequences and processing them live. This introduces a further element of improvisation into the process of composition. It also provides Henke's granular processing software.

At times, specific sequences or sounds are worked on in a lapidary-like manner. Individual sounds having potential are assessed for their qualities. I look for sound elements having *affective* potential or alignment with the resonant-image with which I am currently working. Affective potential references the elements of texture, timbre, how it makes me 'feel' or think, all of which help establish a sound's unique quality. Adjusting the different features of a sound's 'envelope'—attack, decay, sustain and release—significantly changes how we perceive a sound. Assessing effective durations and relations between different speeds or rhythms in sounds is part of this process. Frequency manipulation provides an important opportunity for shaping, enhancing and altering the timbre of a sound. Often sound frequencies also need to be re-adjusted in relation to the speakers that play the sound. The process of installation involves auditioning the sounds and the locales of their presentation.

This also means that each installation is site-specific; the speakers, their location, the resonance of the environment all generate different resonant-images. Attention to the intensity of each sound's relation to another is crucial in forging affective material. Repetition is another issue. I listen for and remove unwanted sounds within the sound envelope, locating 'errors'. These can be sounds emanating from the technologies in operation, or interferences and audible digital echoes. These may be textural or tonal. As the work is on a loop, easily recognised sounds or short sequences, clicks, and errors are best removed in this context. There is, of course, music to be made from clicks and errors. However, in this situation if they are clearly repetitive it becomes too much of a reminder of the machinic process, which I don't want for this project. I want to create organic movement, vitality, unfolding—dramatisation of an imaginary landscape.

An example of this approach to processing sound is the 'shimmer' I developed for the *Wirīwiri* section of *Tē Oro o te Ao*. Cymbals shimmer with rapid repeated striking but, once recorded, the shimmer needs to be separated from its relation to the cymbal. This is classic acousmatics. In this situation I experimented with methods for separating the shimmer from its source, which may involve auditioning the sound in a specifically responsive space and re-recording the transient frequencies for further digital manipulation. This process involves attention to the elements of the sound envelope, frequencies and other elements in my toolbox. I think about the resonant image of the wiri, the trembling hand gesture, and listen carefully to recognise it in the unfolding variations of sounds so that I might enhance aspects I recognise as sympathetic to a wiri. This recognition often manifests as involuntary physical response. In a split-second of disorientation, the process no longer seems to be connected to me or my efforts and the sound has the potential to become an independent being. When my perception seems a little clouded, I turn to someone whose listening I consider to be unbiased or well-informed. I ask my ten year old son: What does this sound like to you? "It's a cymbal," he says. I continue to experiment with transforming the sound. I play it to him again. "It sounds like sand."

Diffusion

I initially assemble the performance audio in stereo format. Though, this is not always the case; there is an iterative process of recording, editing, processing more audio data if I need it, until the work's structure and duration are deemed performable. This can be dictated by performance deadlines, or by deciding a work would benefit from *auditing* by others, to help retune my perspective. This audition generally happens by presenting a work to experienced listeners in my field. Performing different iterations of my work has happened numerous times at the Audio Foundation, in Auckland, and at various other sonic art events both in New Zealand and internationally. I have also presented work in the context of my PhD research, for critique and response by supervisors, other academic staff and other students. My work is then further developed in response to these performances, as well as via auto-critiques in spatial situations other than my studio.

The work takes on another stage of development when it is spread over multiple speakers. Surround sound, interior installation, and minimal visual distraction all help to exaggerate the interface between a listening body and sound reproduction technology. Housing the work in a specific spatial environment, such as AUT's Blackbox performance space, where *Tē Oro o te Ao* was installed for examination, helps enhance a response that is quite different to those that happen, for example, in public locales where listening occurs through casual and everyday encounters. It requires quite a different commitment from an audience. Quality speakers, non-noisy cabling, and acoustic treatment when appropriate also enhance the

experience. At times, insitu environmental sounds cannot be avoided, as in the wiring of a building, or acoustics and peripheral sounds leaking into a performance space. High volume can drown out other sounds and may create drama, although, I am always aware that an audience may suffer fatigue by extended periods of such volume. Variation in volume levels helps to keep an audience affectively engaged.

Earlier in my research for this project, I experimented with the inclusion of a generative element—software that effected incremental changes in sound as it developed over time. I mention this as it was a suggestion offered to me multiple times. With appropriate algorithms it could usefully be an analogy for something essential to my work—processes of becoming and complexity. And I may yet work with generative compositions in developments from this PhD research. I did produce and exhibit an earlier version of *Wiriwiri* whose generative elements included heat-sensitive and light-sensitive electronics powered by photovoltaic cells. With *Te Oro o te Ao* though, I aimed, first and foremost, for an experience of whakapapa through whenua-as-self and a self's beyond. This needed to be a granulation of the material world, the universe, a self's resonant imaging—everywhere the mind goes. For that split-second of disorientation, I wanted a listener to be lost inside these sounds before coming back to self.

There is value in repetition. In repetition, different details become apparent. A work will always differ for each listener, and differ from itself in repeated encounters. This became apparent in responses I received from varied audiences. Regarding repetition, I am reminded of being told about an interview with German artist, Carsten Nicolai, in which he recounted his experience of the different layers of listening made possible through repetition. As a teenager in communist East Germany, Nicolai and his friends would rarely get access to new records. One such record was the Talking Heads' fourth album, *Remain in Light* (1980). Nicolai recounted how he listened over and over to this record. In the course of the repeated listenings, his focus on what could be heard would change—melodies, meanings, structure—and eventually he and his friends would be listening solely to the sound of the needle touching the record. I am also mindful of the value of repetition as incantation or a recitation of layered structures, such as whakapapa.

Translation and audification

Two key *structures* that guide my making processes develop my capacity for sonic or resonant imaging: translation and audification. I think of these 'structures' as ontological or phenomenological pre-structures to empirical registering of sounds. In this sense, translation and audification do not so much structure *sound* but rather structure sonic imagination: *How the unheard becomes audible*. This defines a movement from a previously unheard event to recorded composition. In this sense, this research process is guided methodologically by defining pre-structures to a disclosure of sound, how it is that sound *is*. Translation and audification are ways whereby sound 'becomes'. They guide the rigour of my making processes. In phenomenological terms, they are *a priori*, prior to sonic experiences, and distinct from the toolbox of compositional elements discussed above. Though, each of these capacities for modification opens to research methods that are instrumentally technological—my box of tools—in the sense of producing technical accomplishments. They are also critically hermeneutical and interpretative. Though my research outcomes aim at expression—evocation and affect—rather than effect, defining content and form.

Walter Benjamin, in "The Task of the Translator," describes translation in terms of "finding that intended effect upon the language into which he [sic.] is translating

which produces in it the echo of the original."⁹ Rather than aiming at resembling the meaning of an original, Benjamin explains, this *echo* of a mode of production would make both the original and translation recognisable as fragments of a greater language. Translation is also a form of metaphorical equivalence. Etymologically 'to translate' is echoed in the word 'metaphor' which, via Latin *metaphora* from the Greek, *metapherein* means 'to transfer'.¹⁰ Audification is a translation that includes technologies, sound and imagination, and can be recognised in metaphors, simulacra, echoes and resonance.

Translation through technology has profoundly augmented the ability to imagine sound and what it can do. The invention of the phonograph meant sound could be re-produced and stored. Pressure variations of sonic vibrations could be converted into electrical—later digital—signals and the process could then be reversed. Even after transduction, patterns of primary soundings remain. Technology is a transducer activating *echoes* and *resonances*, adding its own distinctive information to a new signal. Echoes are a re-encountering of the same sound with distortions of place and time. Resonances are a rhizomatic sound event agitated into being by previous soundings.¹¹ Both qualities, for different reasons, are removed yet still infused with patterns from an original movement of material. They embody their past. They both become enough of a 'new' thing to be recognised and named. Across different senses and practices, both echo and resonance are metaphors expressing an idea of connectivity through space and time. Echo and resonance allow time and space to be apprehended or imagined simultaneously.

As forms of translation, sonification and audification are the technological and conceptual relations of echo and resonance. Audification is part of the process of sonification. Sonification is a technique that uses data as input, and generates sound signals. In sonification, sound reflects objective properties or relations located in the input data. Transformation from data is systematic, that is, there is a precise definition provided for how data and optional interactions cause a sound to change.¹² Audification, in the scientific sense, is the shifting of the 'time-series data' to a frequency within the audible range. A classic example of the audification of data is the 'cosmic noise' detected by Robert Wilson and Arno Penzias in 1965, that turned out to be remnants of the event known as 'The Big Bang'.¹³ An immense explosion 13,700 billion years ago caused matter and energy as we know it to emerge from a state of primordial 'potential'. Listening through the Holmdel horn antennae (the aural equivalent of a powerful telescope), Penzias and Wilson detected a faint signal that came from all directions in the sky.

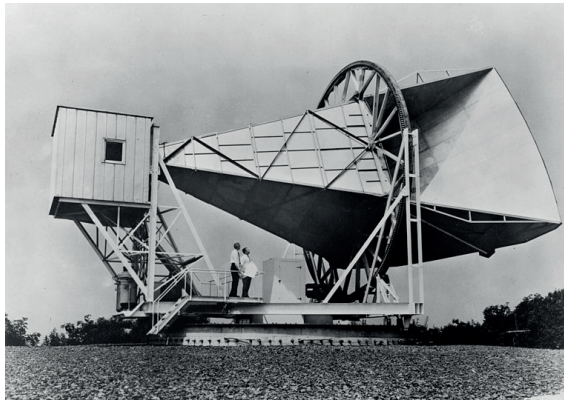
9 Walter Benjamin, "The Task of the Translator," in *Illuminations*, trans. Harry Zohn, ed. Hannah Arendt (New York, 2007), 76.

10 J. Hillis Miller, "Border Crossings, Translating Theory: Ruth," in *The Translatability of Cultures: Figuration of the Space Between*, ed. Wolfgang Iser and Sanford Budick (Stanford, Ca, 1996), 207.

11 Casey O'Callaghan, "Sound and Events," in *Sounds and Perception: New Philosophical Essays*, ed. Matthew Nudds and Casey O'Callaghan (Oxford, 2009) 41, 44.

12 Thomas Hermann, "Taxonomy and Definitions for Sonification and Auditory Display," in *Proceedings of the 14th International Conference on Auditory Display* (Paris, 2008), 2.

13 Rupert Lee, "Proof of the Big Bang," in *The Eureka! Moment: 100 Key Scientific Discoveries* (New York, 2002), 153.



Penzias and Wilson under The Holmdel horn antennae, Holmdel, NJ, (1962) Photo: Nasa

After a process of eliminating all possibilities of the ‘noise’ being caused by the technology itself or interference by other technology in the immediate environment, it emerged that they were in fact listening to low-level radiation left behind, the ‘afterglow’ of the Big Bang. Human ears are unable to hear the frequencies emitted by these cosmic radio waves. Through the use of sensitive antennae and receivers, this cosmic microwave radiation is converted into data compatible with the audible range of humans. The original frequencies were 24,000 times lower than humans can hear. With audification, we are able to discern features, such as patterns of energetic movement. What we hear is the mediated echo of an original event.¹⁴

As processes regularly used in scientific research, especially in researching what the ear cannot hear, sonification and audification are also very much processes engaged by the arts. An example that crosses between artistic work and scientific research are Andrea Polli’s sound works for *Heat and the Heartbeat of the City* (2004) that transform data based on temperature measurements, taken in New York’s Central Park, that were over 90 degrees F (32.22 C) during consecutive summers in the 1990s. The project used global warming projections that anticipate average temperatures in New York increasing by one-to-four degrees Fahrenheit by 2030, and up to ten degrees by 2100, with devastating impact for the region.¹⁵ Polli allows an audience to listen to increasing temperatures on fast-forward, as heat is expressed by an increasingly noisier and louder signal. Polli suggests: “The noise was designed to be somewhat uncomfortable, to try and make people feel the difficulties, the discomfort, the actual problems that will result from global warming.”¹⁶ The work is supported by visual data to contextualise the sounds and is variously realised online and as multi-channel, stereo-speaker and headphone installations.

The audification that especially interests me is closely related to what is considered to be the first text known as an audification of abstract data. The German poet, Rainer Maria Rilke, produced in 1919 a short essay, *Ur-Geräusch*. It reflects on the form of the coronal suture of a skull, imagining the shape translated into sound in the same way that the “needle of a phonograph engraves on the receiving rotating cylinder of the apparatus.”¹⁷ Audification of data is aesthetically imprinted

with both the technologies that process it and the person or people making the process decisions. Like Rilke’s poetics of the audification of the fine lines that inscribe a skull, audification also considers the ‘data-input’ of imagination. In this way, audification may become a making-audible of resonant-images. A further exemplary work is by Hannah Rickards: *The sound I think it makes is, is that whispering sound, to me it sounds, it almost sounds, um, uh, what’s the word I’m thinking? Um, like historic, not historic, but, um, oh: a legend, it, it sounds like a legend, you know, when you think of a legend or something way back in the past you get that, that, it sounds like that to me, like this legend or somebody’s, this whispering sound: it’s a legend* (2007). This work becomes an audification, this time generated by an actual sonic event. This work comprises recorded voices from interviews of people in Alaska who witnessed the aurora borealis, as they try to describe what they had witnessed and the sounds they heard. The uncertainty of the recordings is reflected in the title itself. The work also had visual material—transcripts of the recorded voices displayed on monitors in red, green and blue. These three colours reference the constituent colours of a cathode ray tube, and mimics the process of electrification of particles that results in both the Northern Lights and television images.¹⁸ This work translates the original sonic event through perceptions, memories and the languages of those who heard the aurora borealis, as an audification in two directions.

Phenomenology

Reference has been made throughout this exegesis to phenomenology in relation, for example, to phenomena engaged in the ‘Identification’ of Deep Ecology, the reduced listening of Pierre Schaffer, and Carl Mika’s proposal for a Māori phenomenology that acknowledges the reciprocity of perceptual encounter alongside knowing’s instability and finitude.¹⁹ These phenomenological approaches do not aim to be consistent. The phenomenological tradition has many differing approaches. If I go back to Husserl’s proposition of phenomenology, the study of phenomena—things themselves—and our perceptions of them, then central to Husserl’s method is a ‘bracketing’ that suspends metaphysical questions and focuses on the phenomenological descriptions of experience. The reduced listening of Pierre Schaffer adapts Husserl’s process of ‘bracketing’ to listen to sound’s ‘thing itself’. His process of ‘bracketed listening’ or reduced listening is adapted from a method that has historically privileged the visual over the aural. All thoughts, connections, sources are wilfully sought, as disconnected from the sound ‘object’. But as Don Ihde explains in his discussion of the phenomenologies of sound, to listen phenomenologically is more than an intense and concentrated attention to sound and listening. It is also to be “aware in the process of the pervasiveness of certain ‘beliefs’ that intrude into the listening of things in themselves.”²⁰

It is here that I can start to bring together a number of elements central to this research. The intense ‘Identification’ of Deep Ecology considers relations between entities as a form of bracketing with an ‘agenda’, looking to recognise and feel the interconnections between entities. Naess’s ‘recognition’ seems to correlate with what Mika understands for Māori perception of a ‘thing-in-itself’ as indivisible from metaphysical concepts that moor ‘things’ to their primordality. This is a metaphysics that “governs the inherent fluidity of things and the accompanying tentative representations of those things.”²¹ Mika discusses this in relation to the fact that colonisation added metaphysical complexity by forcing Māori to conform

14 For the Wilson & Penzias recording of CMBR: See <https://www.youtube.com/watch?v=gJJmFnMeaIQ>

15 Andrea Polli, “Heat and the Heartbeat of the City: central park climate change in sound.” Accessed May 2017: <http://www.andreapolli.com/centralpark/main.html>. To view a version of the work see: <https://vimeo.com/127884090>

16 Polli, “Sonifications of Global Environmental Data,” in *Environmental Sound Artists: In Their Own Words*, ed. F. Bianchi and V. J. Manzo (New York, 2016), 5. To view a version of the work see: <https://vimeo.com/127884090>

17 Florian Dombois and Gerhard Eckel, “Audification,” in *The Sonification Handbook*, ed. Andy Hunt Thomas Hermann, John G. Neuhoff (Berlin, 2011), 305. The term *Ur-Geräusch* translates as Primal Sound and relates to R. Murray Schaffer’s ‘Ur-sound’ concept.

18 Exhibition: “Hannah Richard: ... a legend, it, it sounds like a legend ...” The Show Room, (2007). Accessed 2015.

19 Carl Mika, “The Co-Existence of Self and Thing Through Ira,” 105.

20 Don Ihde, *Listening and Voice: Phenomenologies of Sound*. 2nd ed. (Albany, 2007), 49.

21 Mika, op. cit., 93.

to a worldview “that configures perception of entities so that they partake in a static notion of being, transmitted through ideas about speech, representation as well as institutional dealings.”²² In listening to spatial impressions produced by sounds, I am at times separating them from their sources, as with Schaffer’s pursuit of texture or form, disconnected from their original source. This does not also infer disconnecting them from a primordial mooring. Balancing sensation and communication—the affective and understandings—that occurs in my editing phase, seeks to open a glimpse of the relations between the presencing of my ‘self’ and primordiality.

Finding a format

During the course of my candidature, I experimented widely with different processes to research the range of mediums pertinent to my work. These other works contributed to ways of thinking about practice. As audio designer on Douglas Wright’s final performance prior to his retirement, *A Kiss Inside*, (2015), I was given the opportunity to discuss and witness in action an experienced choreographer’s decision processes for translating sounds into sequences of interacting body movements. In 2015 I was commissioned to translate two poems by the New Zealand poet, Joanna Margaret Paul, into Super-8 sound-film. This offered an opportunity to further research the notion of resonant imaging. I exhibited a number of installations, including one that contained seeds of the final PhD presentation, within the New Zealand pavillion at the Prague Quadrennial, in 2015. Also very useful in the process of formulating core concerns for my doctoral research was the creation of a film score for the New Zealand artist, Gavin Hipkins. This was for his feature film, *Erewhon* (2014). In this meditative film, I created sound sequences in response to filmed landscapes of Aotearoa. Major segments of the film were narrated by the actress, Mia Blake. The text was taken from the novel, *Erewhon*, by Samuel Butler. There was an associated live performance of excerpts from the film, accompanied by Blake’s narration and my live-sound performance.



Live performance of *Erewhon* soundtrack with actress, Mia Blake.
Mangere Arts Centre, Auckland, NZ 2014. Photo James Pinker

In working across the mediums of film, choreography, and film score with live voice, I was able to affirm that my doctoral research presentation would focus exclusively

²² Ibid., 95.

on the auditory. These various projects were able to clarify ways of thinking about creative processes that affirmed my focus. Live sound performances in Aotearoa New Zealand throughout the candidature, as well as in Tokyo, Prague, London and Los Angeles in 2015 provided opportunities for testing diverse audience responses to improvised sound sequences. The five-channel sound installation I produced as part of the New Zealand Pavillion at the Prague Quadrennial demonstrated for me how easily a sound work is lost when there are many visual ‘distractions’ in a locale. The work became ‘background sound’ for the installations, this being my single presentation option in the end. This affirmed for me that I wanted an opportunity to fill an entire locale with my sound work. I came to a similar conclusion after exhibiting an iteration of *Wiriwiri* at the 2017 Oceanic Biennial at Auckland’s Te Uru Gallery. It also affirmed my desire to bring an entirely new sound-space into being, where an audience was able to hear details in my sound arrangements, without competing visual distraction.



Rachel Shearer *Wiriwiri* (2017) Stereo audio, photovoltaic panel, customised electronics
22 mins approx. (duration variable due to light and heat.) Photo Rachel Shearer

Ngarue o Whakaaro: Wānanga at Ōwhakatoro Marae, Rūātoki Sept 29 - Oct 2 2016

A further important event contributing to this research was a wānanga at Ōwhakatoro Marae in Rūātoki, led by Rangitunoa Black, to explore aspects of sound in te ao Māori. Wānanga as a verb means ‘to meet and discuss’, ‘to deliberate and consider’. As a noun it has several meanings all relating to sites of knowledge. Wānanga also refers to a learning event, such as a seminar or conference. To wānanga in the context of a Māori wānanga (conference) is to follow Māori protocols throughout this process. This wānanga was initiated in response to ongoing discussion I was having with Black concerning sound in te ao Māori, through her relation to the world of sound as composer in te reo Māori. An invitation was extended to other women who I thought might find the kōrero useful. That the invitation was extended to women specifically reflects Rangitunoa’s focus on mana wāhine. It also emphasises that the wānanga was to focus on female sound arts in te ao Māori.

Having a wānanga at a marae involves specific rituals for arriving, opening and closing the event. Throughout the wānanga we slept in the wharenuī, prepared and ate food together with much of the discussion of the content of what we were learning spilling into these everyday activities. Originally, when I was organising the wānanga with Rangitunoa, we discussed the idea of walking in the Urewera ranges as a group, to listen to the sounds of the bush. Due to various issues, Ōwhakatoro

Marae was the one where we stayed. We drove across a bridge at Rūātoki and went further inland. The original bush had been converted to pine forest and farming, to provide economic sustenance. The low hills around the marae looked dry and damaged from the fairly recent removal of pine, with erosion exposing damaged and depleted soil. Money earned from pine forest harvesting went towards a new marae interior. The marae facilities are excellent. The wharenuī is warm, clean, insulated and comfortable. The wharekai is well appointed. There was no sounds of the forest though. It was quiet and empty except for intermittent birdsong, a dog barking, distant milking machinery at milking time, the odd quad bike. One of the kaumātua at the marae, Matua Charlie, said the pines suck up so much water that the Ōwhakatoro river that runs alongside the marae had reduced in size considerably.

Anituatua is Rangitūnoa's mother. She is an expert in karanga and a first language te reo Māori speaker. She was dressed impeccably with her velvet hat with feather adornments and her korowai, donned especially for taking us onto Ōwhakatoro Marae. She became our kaiwhakautu, the person who performs the karanga on behalf of the manuhiri. On this occasion though, all the women of Ōwhakatoro Marae were away at a Māori Womens Welfare League meeting. For us, there had been a late venue change to accommodate us, as the original marae we booked was hosting a tangihanga, a three-day funeral event. The late change meant the kuia were not warned in time to make themselves available. There were only men on the marae that day. In the absence of a female voice, we were welcomed on to the marae with a bell that hung off the left raparapa, the projected carved ends of the bargeboards on the gable of the wharenuī, the meeting house at the centre of the marae.

We gathered as a group outside the marae as one of the men struck the bell continuously, echoing around the quiet low valley. This was our signal to slowly start walking across the marae forecourt towards the wharenuī. Usually in a pōwhiri, as the kaikaranga's call begins to fall and fade, the kaiwhakautu would then respond. There should be an unbroken series of calls creating, through sound, a safe virtual passage for the manuhiri across the marae forecourt.²³ The bell rang and as we slowly moved forward as a group, Anituatua responded with her call, broken with sobs, calling out to her recently departed dead.

The key focus of the wānanga was to be sounds specific to women, based on traditions of birth, death and weaving—creating, binding, connecting. We began learning how to chant moteatea—classical maori chants—focusing on the prayer of Hineteiwaiwa, atua of childbirth, weaving and the womanly arts. We learnt by ear, Rangitūnoa withholding the written text so we would learn to 'listen' to the words. Lines of the moteatea were to be learnt in threes: 'Raranga, raranga' a weaving process in which three fingers are used. We also practiced chanting the oriori, *Pō! Pō!* a Te Aitanga ā Māhaki composition mentioned earlier in this exegesis when discussing Lilburn. Our struggle with learning by ear quickly demonstrated how dependent we are on written material. This approach did make me listen and learn words differently. Without visualisation of the words, I found I was trying to memorise the shapes of the sounds themselves. Though, I still found myself spelling out the word in my head. A number of themes emerged during the wānanga. These included giving myself permission to use my voice; spontaneity, which meant there was an element of improvisation within traditional structures; and listening carefully to the whenua, to my 'inner knowing', for what I needed to say. We also had improvisation sessions as a group on instruments we had brought, or that Rangitūnoa provided.

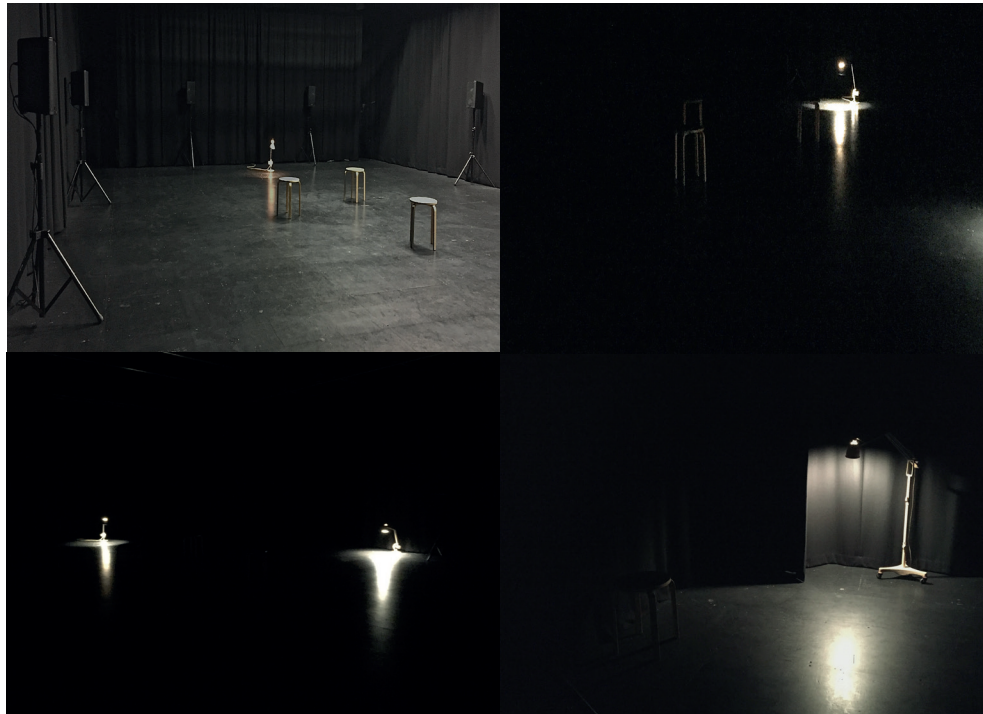
The wānanga, Ngarue o Whakaro—which Black named and translates as 'Making

Waves in Thought'—and its affects, offered multi-level lessons in more than simply aspects of female Māori sound practices not found in books. It also offered aspects of and challenges of following tikanga, issues associated with organising a wānanga and areas to address in becoming a better leader. The ecological issues affecting the whenua around the marae also offered ecological and political dimensions, in considering the ongoing issues that the mana whenua of the area were dealing with. I am very grateful to Rangitūnoa Black and the tangata whenua at Ōwhakatoro Marae, Ngāti Rongo of Rūātoki, for hosting us. I also recognise and thank Joan George, Rebecca Hobbs, Pritika Lal, Leonie Hayden, Melanie Tangaere-Baldwin, Waimania Wallace, Nova Paul, Tina Pihema, Sijonel Timu, and Heather Mansfield for their involvement.

23 Salmond, *Hui: A Study of Māori Ceremonial Gatherings*, 137.

Te Oro o te Ao

Assemblages of Sound, Space, Time & Technology



Te Oro o te Ao installed in AUT's Blackbox performance space, December 2017

The focus of the creative practice for this research is sound production made in response to a close listening to the earth. This involves listening for whakapapa and its accompanying stories, found in unfolding energies of a material world and its immaterial intensities. Analogues of structure, pattern and vibration are translated into multi-channel sonic compositions. Ecology becomes the model for understanding interconnected and interdependent systems, as do the Māori concepts of whakapapa and whanaungatanga. No ecological system is closed and, as Bateson reminds us, neither is consciousness: The mind is an ecosystem where our ideas are the 'flora' and 'fauna' of this system. The compositions of *Te Oro o te Ao* are recitation, incantation, and affirmation of solidarity with the interdependencies of the universe. Each time this work is presented, it is compositionally different, in that it needs to be adjusted to resonate with the singularity of its enclosing spatiality for performance. Structurally, eight channels project composed sound, tailored to a space. Various techniques are employed to maximise an audience's sensory engagement. Among these are the immersive listening experience of surround sound, enhanced by a dimly lit environment.

For the assessment iteration of *Te Oro o te Ao*, AUT's Blackbox performance space provided an opportunity to minimise any visual or aural distraction. The building inevitably made itself heard through electrical and other services supplying the room, such as air conditioning that could not be turned off, and were encountered as a component of inhabiting the space. These additional environmental noises did not overwhelm the work. Rather, they placed the work in its locale. There was sufficient light for audience movement within the performance space, though illumination was at a level low enough to avoid disclosing the room's perimeter extent. Easily moveable stools were provided rather than other options such as bean-bags or mattresses. I aimed to encourage active listening, avoiding audience body postures

that encourage overly relaxed inclination.

I now provide an account of each sound work presented in the final installation, a version of which is provided on an analogue vinyl long-playing (LP) record, otherwise referred to as vinyl LP. Though the installation had a continuous looped sound track, there were discrete works that could be listened to in sequence. The works were adapted for stereo vinyl format after the installation event. The vinyl LP then is documentation of the installation, and not a replication of it. It is not possible to accurately translate the spatialisation and detail in the frequency range offered in an eight-channel sound system. Sequences that rely on shift-details of higher frequencies especially suffer in the translation. This means that the vinyl LP becomes its own event. To move into this format continues my research considerations by translating recorded sound between digital and analogue formats, and between multi-channel and stereo spatialisations. I even associate the clockwise rotations of the vinyl with the earth's rotation when viewed from the South. This combination of recording, vinyl, needle, amplifier and speakers into a sound system, as well as the spatiality of listening and disposition of listener, constitutes a further assemblage of sound, space, time and technology.

Te Oro o Te Ao

Side 1, Track 1: Waba (gate, opening, mouth, voice)

The Māori waha translates as 'gate', an opening, though also translates as 'mouth' or 'voice', guiding this specific sound work. It experiments with the orality of sound: what it *does* in te ao Māori. It is also the first step of a planned ongoing collaboration with the dancer, choreographer, healer and educator, Cathy Livermore (Waitaha, Ngāti Māmoe, Ngāi Tahu). This collaboration was initiated during my doctoral candidature, through conversations concerning sound and movement in contexts of te ao Māori. The initial part of this work emerges from a recorded reference to karanga, composed specifically for the assessment iteration of *Te Oro o Te Ao* and performed by Livermore. I am responsible for the composition and processing of the recordings. To reiterate earlier discussion of the karanga, it is the domain of women, a call creating a portal between living and spiritual worlds and a safe passage for visitors. Hineahuone, the first woman in Māori tradition, is recalled in the karanga ritual as the first voice on the marae ātea. Hineahuone begat Hinetitama, who represents the life force symbolic of the dawn. Through her horror at discovering her husband, Tāne, was also her father, she transformed into Hinenuitepō, the goddess of night and death, which represents the last voice on the marae ātea. This tradition provides the whakapapa framework for the karanga.²⁴ According to Rangitūnoa Black, it is the specific tone and emotion of delivery that has the power to open portals to the realm of the ancestors, calling them to be present.²⁵ A further element explored in this work is the resonance of Māori vowels. Vowels predominate in te reo Māori; every word ends in a vowel. This work initiates an ongoing collaboration with Livermore, exploring threads of a kōrero concerning vowel soundings in the context of te reo Māori, how they facilitate specific resonating ways of becoming.

Side 1, Track 2: Pounamu Becoming Crystal Part I

This sequence is an iteration of an ongoing exploration into the sound of *pounamu*

²⁴ Hinematai McNeill and Sandy Hata, "Karanga," In *Kia Rōnaki: The Māori Performing Arts*, 56.

²⁵ Rangitūnoa Black, *Personal communication*, (2016).

becoming crystal, mentioned earlier in this exegesis. This composition is a *recitation* of waves of pressure, displacement and change, ‘told’ with audible mechanical waves of pressure, displacement and change. In this section, the movement and strength of water is foregrounded, with sequences that aim to, at times, engulf or even overwhelm a listener’s perceptions. This sequence was entirely conceived of and developed through the eight-channel format. To this end, movements within this sound sequence happen throughout the entire volume of the Blackbox performance space, as a main feature of the composition. For this reason it has been the most difficult to translate into stereo for the vinyl LP.

Side 2, Track 1: Pounamu becoming Crystal Part II and Wiriwiri (tremble)

Moving geological sonic textures feature in this sequence. *Pounamu becoming crystal* itself becomes subterranean volcanic activity, tectonic plate movements and land slippages. This rupturing of earth gives way to the unfolding, differentiating white noise of *Wiriwiri*. Though ostensibly a separate track, in the course of assembling the installation these two works are presented in close, uninterrupted sequence. Wiriwiri means to tremble, and holds the trembling hand, iconic in Māori performing arts known as a wiri, as its guiding resonant-image. The wiri is an acknowledgement of Tānerore, who is the shimmering heated air rising from the ground on a hot summer’s day. Tānerore is heat made visible, caused by light refracting as it reflects off the earth, and passes back up through atmospheres of different thermal density. This phenomenon is personified as ‘te haka a Tānerore’ (the dance of Tānerore). As the son of the sun, Tamanuiterā, and summer, Hineraumati, Tānerore is an expression of heat and also offers a performative guide for traditional Māori dance. As the Ngāti Kahungunu website for the 2017 biennial national kapa haka (Māori performing arts group) competition invites:

Ko koutou mā ērā i poipoi i te kārohirohi o te haka a Tāne-rore.

*You are necessary to nurture the shimmer of Tānerore’s haka.*²⁶

Performers attune their bodies and minds to the light energetic shimmer of Tānerore. Wiri is performed as a vibrato in the voice as well as in trembling hands. The doubling of the noun demonstrates a repeating and ongoing action. *Wiriwiri* consists of two prepared aural motifs. One is the gesture of wiri, further resonating in this work as vibration at the core of the material world, performed as a field of trembling shimmering shifting textures of sound.

Since all matter vibrates in an elastic medium, even at subatomic levels, I have argued that all matter produces sound, whether or not the human ear is capable of perceiving it.²⁷ Mauri is also evoked here, ubiquitous as vibration, life force that imbues the material world, binding our listening to metaphysical realms. The conceptual loop of vibration-as-matter-as-sound-as-vibration, and the presence of mauri permeating all elements of this process are presented here as sonic imaginings of the sound of Tānerore’s shimmer. At times, overlaying and overtaking the vibrating wiri is another (second) sonic motif, evoking cicadas. Field recordings of cicadas were processed and augmented until what remained was an imprint of their sounding within a thin band of brittle frequencies, shaped into sizzling electronic textures of sound. Cicadas are also a reference to global warming. As temperatures rise, cicadas increase in volume, and Tānerore’s dance intensifies. As earlier mentioned, an iteration of *Wiriwiri* was presented at the 2017 Oceanic Biennial at Te Uru

Gallery, Auckland. In this installation, the concept of heat was expanded with heat and light responsive electronics adjusting the volume levels of *Wiriwiri*’s cicadas so that the volume intensified in response to warmer temperatures and sunny days. The installation was conceived as an assemblage sustained, like the rest of life on earth, by converting the sun’s energy. I conceived this work to be inhabiting its own ecological niche, where electronics behave organically.

Side 2, Track 2: Ao

This track was not in the examination exhibition presentation. I have added it to the record as, when I was compiling the audio, a poroporoaki, a farewell, a coda if you like. This coda was not needed in the installation, though seemed appropriate for the record and this final stage of my research. This particular track was made in response to cloud formations and movements during a sunrise, after the installation event. Ao can mean both sunrise and clouds, as well as daytime, world, earth, depending on the context. I set up an electric guitar, processed through multiple effects pedals, such as distortion, delay, vibrato, equalisation, with cables feeding directly into a DAW and into a guitar amplifier to monitor what I was playing. I hit the guitar strings with a soft mallet in response to the clouds that were present as the sun rose behind Ōwairaka (Mt. Albert). My gestures responded to their size, density and movement. Once their ‘presence’ had a sound pattern, I further improvised through adjusting the effects pedals and guitar playing in response to the assemblage of elements: the light, the temperature, the soft intermittent rain, how I was feeling in response, how the processed guitar sounded when played back into the environment. Afterwards, in the studio, I selected a section to serve as a poroporoaki for *Tē Oro o Tē Ao*: an end and a beginning.

As the final sound assemblage for this research project, the recordings of *Tē Oro o Tē Ao* return us to the concerns that opened this exegesis: *If we listen closely to the earth, what might we learn from the interdependencies of its energetic complexes?* These sound assemblages explore how we listen to the earth anew, and what forms of human and non-human ways of knowing can express this listening. As I allude to here, these questions are also tied in with a sense of kaitiakitanga, a guardianship for the earth as part of a role of being an interconnected part of a listening world. The sound assemblages look to intensify both our relationship with the earth, but also the larger relationships within which this exegesis sits: those of the assemblages of humans and sound.

²⁶ Te Matatini. Kapa Haka Aotearoa. “Host - Te Kahu O Te Amorangi.” Accessed April 2017.

²⁷ See opening discussion in Chapter One: Hainge, *Noise Matters: Towards an Ontology of Noise*, 1.

CONCLUSION

Te Mutunga

This project has engaged a listening to sound-in-itself, as well as a listening that charts genealogies of sound's associations, linking such multiple approaches to a processual, energetic universe that can be experienced more intensely through listening. Listening has the capacity to create new imaginative worlds. My research practice as sound installation is presented here as an energetic threshold opening portals between realms. This is a waiata to my tipuna, Ani Rangitunoa, and a listening for her response. It is a waiata to listeners and dreamers. This installation as sonic rupture seeks to bring new spaces into being within which new dreamings emerge. These dreamings are contingent on listeners, but there are specific conversations that this project has set out to engage.

On one level, this work contributes to a notion of biculturalism, as promoted by our institutions in Aotearoa New Zealand. What might this notion practically mean? Since its introduction in the 1980s, what biculturalism means has continued to change as socio-political contexts change. Fleras and Spoonley cite five modes of biculturalism that range from 'soft' to 'hard'.¹ Soft biculturalism recognises and includes Māori cultures within national New Zealand—Pākehā—cultures. 'Moderate' biculturalism was pursued in the 1970s until the mid-1980s, in response to Māori protests around land grievances and social inequalities, reflected in statistics of lower school achievement, higher incarceration rates, higher mental health rates, and higher unemployment rates amongst Maori. Its goal was to improve race relations by including Māori perspectives as to how aspects of Māori cultures could be introduced into national Pākehā cultures.² After the 1985 Treaty of Waitangi Amendment Act was passed, the Waitangi Tribunal became a significant force behind

shifting 'soft' and 'moderate' forms to what Fleras and Spoonley define as 'inclusive' and 'strong' forms of biculturalism.³ The Act meant that the Tribunal was authorised to hear Māori claims retrospective to 1840, and recognised iwi interests rather than pan-Māori interests. 'Inclusive' biculturalism, with its focus on partnership, reflects renewed acknowledgement of the Treaty of Waitangi.⁴ 'Inclusive' biculturalism is described by Andrew Sharp as an adaptation of "[P]ākehā institutions to meet Māori requirements," whereas 'strong' biculturalism refers to the development of "different and specifically Māori institutions to share the authority defined by the Treaty."⁵ At the end of this spectrum, 'hard' biculturalism guarantees tino rangatiratanga for Māori, absolute sovereignty over their own interests, as promised by the Treaty of Waitangi. As Ranginui Walker explains: "[...] biculturalism means more than Pākehās learning a few phrases of Māori language and how to behave on the marae. It means they will have to share what they have monopolised for so long, power, privilege and occupational security."⁶ Biculturalism is understood here as honouring Māori sovereignty under the terms of a Māori understanding of the Treaty of Waitangi. Chris Jenkin uses the term, 'Te Tiriti-based' in education, instead of the term biculturalism, as Te Tiriti o Waitangi intends power sharing. Whereas 'bicultural practice' in New Zealand refers to Māori and Pākehā working in parallel, 'Tiriti-based practice' incorporates a deliberate intention to share power, as a political obligation stemming from Te Tiriti o Waitangi.⁷

What are the implications of this for a project conducted through mainstream tertiary education, rather than through a tertiary department established specifically for Māori learning? When I began this research, I was aware of my Western approaches to histories and philosophies. This, after all, was my lifeworld. The cultures of my Māori tipuna were but diffused echoes within my life experience. At the same time, it was impossible to proceed without considering Māori contexts. This is not simply because of my iwi affiliations, but also because of my responsibilities as an Aotearoa New Zealand researcher, acknowledging my geo-situatedness. Perhaps English language overshadows this project, though I explore a 'pre-language' spacing through my sound compositions. I have begun to recognise poetics resonant in te reo Māori. Yet in engaging with Māori concepts, I am deeply aware of my limited grasp of the language.

I commenced where I was, and saw where this took me. The 'formula' to proceed became the question: *What happens when I seek answers to the same questions in both te ao Māori and te ao Pākehā?* My education had prepared me for asking questions in te ao Pākehā. To ask those same questions in te ao Māori reveals an entirely different world and approach. Knowledge is tapu in te ao Māori, and emerges from a completely different cultural context than that necessarily understood in Pākehā cultures. For each thing sought, there is a web of interrelated concepts that need to be understood, and the tikanga around learning also needs to be understood and followed. It is important to ask permission, to proceed respectfully and carefully, to be transparent and to listen. It was important for me to learn to recognise when *not*

1 Augie Fleras and Paul Spoonley, *Recalling Aotearoa. Indigenous Politics and Ethnic Relations in New Zealand* (Auckland, 1999), 238.

2 Megan Lourie, "Biculturalism in Education: Haere Whakamua, Hoki Whakamuri/Going Forward, Thinking Back," *New Zealand Journal of Teachers' Work* 12, 2 (2015): 135.

3 Lourie, op. cit., 133. The Treaty of Waitangi was signed by representatives of the British Crown and chiefs of over 500 iwi in 1840. There was confusion over that to be ceded to the Crown and that protected for Māori due to there being both Māori and English versions of the Treaty. They do not accurately translate or correspond.

4 *The New Zealand Curriculum* "acknowledges the principles of the Treaty of Waitangi and the bicultural foundations of Aotearoa New Zealand" and articulates a strong statement of support for the idea of partnership: "[O]ur vision is for young people ... [w]ho will work to create an Aotearoa New Zealand in which Māori and Pākehā recognise each other as full Treaty partners" See The Ministry of Education, *The New Zealand Curriculum* (2007), 8-9. And Lourie, op. cit., 139.

5 Andrew Sharp, Andrew, *Justice and the Māori: The Philosophy and Practice of Māori Claims in New Zealand since the 1970s*, (Auckland, 1997), 230

6 Ranginui Walker, *The Meaning of Biculturalism* (Auckland, 1986), 5.

7 Chris Jenkin, "Early Childhood Education and Biculturalism: Definitions and Implications," *New Zealand Journal of Teachers' Work* 14, 1 (2017): 8.

to pursue that which is not for me to know. Part of this process has been learning more about my whakapapa so I am able to say who I am in the context of the Māori world.

Who am I to ask for this knowledge and what can I do with it? Engaging with my whakapapa means acknowledging not just my Māori tīpuna but my Pākehā tīpuna and histories as well. I have found myself moving deeper into Māoritanga while, at the same time, confronting how much of a product of Pākehā culture I am. This research responds to my ‘hybrid’ path that acknowledges the material flows and affects and interminglings that result from the whakapapa of cultures and experiences I embody. This research also looks to contribute to a Pacific response to international critical dialogues around materiality in the production and analysis of sonic arts. If we engage the notion that we are brief material hardenings in a whakapapa of interrelated flows, creating events that disperse new understandings and possible openings, then Māori oral traditions have a wealth of knowledge and poetic imagery relevant to this discussion.

Carl Mika explains: “In Māori thought [...] metaphysics is at the base of all thought, feeling and eventually knowledge.”⁸ The ‘three baskets’ that make up the epistemological frameworks of Māori knowledge are, firstly, the basket that is the domain of sense and perception (te kete Aronui); secondly, there is the basket containing knowledge of energetic cosmic processes that continue to operate as a complex series of rhythmical energetic patterns that sustain and replenish the energies of the natural world (te kete Tua Uri). The third is te kete Tua-Atea, what Marsden describes as the “world beyond space and time.”⁹ All these baskets of knowledge are woven together through whakapapa and whanaungatanga.¹⁰ As Mika observes “This coexistence should encourage the self to think about the play of things in the world against a backdrop that one only has limited cognitive access to.”¹¹ This points to an idea of listening as empiricism intertwined with metaphysics. This opens listening to a different way of knowing but also a potential to ‘remember’ deep knowledge.

In this research I explored, through listening, how to access different ways of knowing and remembering myself in relation to an interconnected universe. Traditional Māori society functioned with highly developed practices of listening, hearing and sounding. Even though Māori adapted easily to Western literacies and new technologies, these traditional practices remain a feature of te ao Māori. These traditions provide an important model for listening to the earth. This research has traced a close listening to the earth, for what the earth might say, through the embodied listening of Hōhepa Kereopa, through the sound practices of Māori women, through Naess’s Identification and Self-realisation, Oliveros’s tuning into the sonosphere, Acoustic Ecology’s nets of microphones, listening for the ‘Ursound’, and Lilburn’s search for himself in the New Zealand landscape. There is Xenakis sifting through grains of sound and mathematical probabilities, Hinterding and Haines scanning electromagnetic signals for voices of subtle energies, Bateson listening for patterns that connect, and my own assemblages of sound, space, technology and time. When I listen deeply I open myself to remembering as an inner knowing, not just Māori

remembering, but Pākehā remembering as well.

In many ways the ‘post-human’ turn is catching up with Indigenous thought when it comes to understanding our role as a responsible part of an interconnected web of energetic exchange. A finding a way back home from the destructive elements of a ‘dominion’ model where humans, especially Pākehā men, in the image of a transcendent God, are superior in the ‘order of things.’ What can a sound assemblage such as *Te Oro o Te Ao* offer in this complex unfolding of energetic becomings?

Ahakoā he iti he pounamu

Although it is small it is greenstone

This whakataukī, an aphorism, expresses that even though the contribution may be small, the pounamu, a metaphor for something precious, is sincere and comes from the heart. In the larger scheme of things this work is a small event, but I have crafted the work thoughtfully and with great love. It may sound mawkish talking about love in the midst of an academic research project. But why not? Love underlines the best of what humans have to offer. As I write this I can hear another voice reminding me:

Kāore te kumara e kōrero mō tōna ake reka.

The kumara does not speak of how sweet it is.

Who am I to say what affects this research could engender? This research offers ensembles of energetic transformations with the hope that it engenders, through affect, further ensembles of energetic transformations, resonating through time and space.

Te Oro o Te Ao investigates acts of listening to the earth as sonic dreamings and re-memberings of ethical relations with nature. An ethics of listening is an ethics of the self intertwined within its world and within participatory frameworks. Listening to the earth reminds us of human nature’s *divine* communication with nature. From this comes commitment to place and ethical responsibility, articulated through the Māori notion of mauri-ora. As commitment, mauri-ora recognises and maintains balance in our relations with one another and with the natural world, for the benefit of all, human and non-human, and generations to come. Listening with curiosity and solidarity enhances our connectivity and, subsequently, our reciprocal responsibilities relating to the systems within which we find ourselves. Though the works developed in this research bring new spaces or worlds into being, they equally concern us being grounded in this world.

8 Mika, “The Co-Existence of Self and Thing Through Ira,” 96.

9 Marsden, op. cit., 61.

10 The names of the baskets vary amongst iwi. I have used Māori Marsden’s discussion here. Hohepa Kereopa talks of his iwi [Tūhoe] having only one basket. See Moon op. cit., 116. Further discussion on the three baskets of knowledge is found in Charles Royal, *Te Whare Tāpere: Towards a Model for Māori Performance Art*, PhD thesis (Wellington, 1998), 57-59; Marsden, op. cit., 60-62; Shirres op. cit., 16-19; Thornton, op. cit.; Hoani Te Whatahoro, *The Lore of the Whare-Wananga: Or Teachings of the Maori College on Religion, Cosmogony, and History Part I*, trans. S.Percy Smith (New York, 2011).

11 Mika, op. cit., 99.

REFERENCES

- Abel Tasman 370 Seminar, “Summary Account of Proceedings. Nelson 2012.” Accessed January 2017, http://abeltasman.org.nz/wp-content/uploads/2017/10/Abel-Tasman-370-Seminar-Summary-Account-etc_FINAL.pdf
- Anderson, Johannes C. *Maori Music with its Polynesian Background*. New Plymouth, NZ: Thomas Avery and Sons, 1934.
- Arguelles, Jose, *Time and the Technosphere: The Law of Time in Human Affairs*. Rochester, VT: Bear and Company, 2002.
- Attali, Jacques. *Noise: The Political Economy of Music*. Minneapolis, MN: University of Minnesota, 1985.
- Augoyard, J. F. and H. Torgue. *Sonic Experience: A Guide to Everyday Sounds*. Montreal, Quebec: McGill-Queen’s University Press, 2005.
- Bachelard, Gaston. *The Poetics of Space*. Translated by Maria Jolas. Boston, MA: Beacon Press, 1994. 1964.
- Bannister, Matthew. ““Going out to Everyone?” Bic Runga as a ‘New Zealand’ Artist.” In *Many Voices: Music and National Identity in Aotearoa/New Zealand*. Edited by Henry Johnson. Newcastle, UK: Cambridge Scholars Publishing, 2010.
- Barlow, Cleve. *Tikanga Whakaaro: Key Concepts in Māori Culture*. Auckland, NZ: Oxford University Press, 1994.
- Barreiro, Daniel L. “Sonic Image and Acoustic Listening.” *Organised Sound: An International Journal of Music and Technology* 15, no. 1 (2010): 35-42.
- Bateson, Gregory. *Mind and Nature: A Necessary Unity*. Cresskill, NJ: Hampton Press, 2002. 1979.
- Bateson, Gregory. *Steps to an Ecology of Mind; Collected Essays in Anthropology, Psychiatry, Evolution and Epistemology*. Lanham, MD: Jason Aronson Inc., 2002. 1987.
- Benjamin, Walter. “The Task of the Translator.” Translated by Harry Zohn. In *Illuminations*, edited by Hannah Arendt. New York: Schocken Books, 2007. 1969. 1923.
- Bergson, Henri. *Matter and Memory*. Translated by N.M. Paul and W.S. Palmer. New York: Zone Books, 1988. 1896.

- Bergson, Henri. *An Introduction to Metaphysics*. Translated by T.E Hulme. Indianapolis & Cambridge: Hackett Publishing Company, 1999. 1912.
- Bergson, Henri. *Time and Free Will: An Essay on the Immediate Data of Consciousness*. Translated by F.L Pogson. Mineola, NY: Dover Publications, 2001. 1913.
- Bergson, Henri. *Creative Evolution*. Basingstoke, U.K: Palgrave Macmillan, 2007. 1911.
- Biggs, Bruce. “Knowledge as Allegory.” In *Science of Pacific Island Peoples: Education, Language, Patterns & Policy 4*. Edited by John Morrison, Paul Geraghty, Linda Crowl, Institute of Pacific Studies, University of the South Pacific, Suva, Fiji (1994): 1-11.
- Binney, Judith. *Māori oral narratives Pākehā written texts: Two forms of telling history*. New Zealand Journal of History, 38, 2 (2004): 16–28.
- Binney, Judith. “Songlines from Aotearoa.” In *Quicksands: Foundational Histories in Australia and Aotearoa New Zealand*, edited by Klaus Neumann, Nicholas Thomas and Hilary Ericksen, 218-37. Sydney, Australia: University of New South Wales Press, 1999.
- Bloor, David. *Knowledge and Social Imagery*. Chicago, IL: University Chicago Press., 1976.
- Bodnar, Istvan. “Aristotle’s Natural Philosophy.” The Stanford Encyclopedia of Philosophy (Winter 2016 Edition), <https://plato.stanford.edu/archives/win2016/entries/aristotle-natphil/>
- Bollinger, Nick. “Billy Tk Profile Aka Billy Te Kahika.” Audio Culture, <https://www.audioculture.co.nz/people/billy-tk>.
- Brassil, Joan. “A Retrospective:The Resonant Image.” Exhibition Australia Centre Contemporary Art, Melbourne, 1990.
- Brassil, Rita Joan. “The Poetic Vision.” Doctor of Creative Arts thesis., University of Wollongong, 1991.
- Butler, S. (2015). *The Ancient Phonograph*. NewYork: Zone Books, 2015.
- Cage, John. “The Future of Music Credo.” In *John Cage: An Anthology*. Edited by Richard Kostelanetz. New York: Da Capo Press Inc., 1991.
- Cage, John. “Composition as Process: II Indeterminacy.” In *Silence: Lecture and Writing by John Cage*. Edited by John Cage. Middletown, Connecticut: Wesleyan University Press, 1961.
- Cage, John, Roger Shattuck, Alan Gillmor. “Erik Satie: A Conversation.” *Contact: A Journal of Contemporary Music* Autumn, no. 25 (1982): 21-26.
- Cage, John, and Daniel Charles. *For the Birds: John Cage in Conversation with Daniel Charles*. UK: Marion Boyers Publishers Ltd, 2000.
- Cage, John. “Introduction to Themes and Variations.” In *Audio Culture : Readings in Modern Music*. Edited by Christoph Cox and Daniel Warner. New York: The Continuum International Publishing Group Ltd, 2004.
- Cajete, Gregory. *Native Science, Natural Laws of Interdependence*. Santa Fe, New Mexico, USA: Clear Light Publishing, 2000.
- Carson, Rachel. *Silent Spring*. Boston, MA: Houghton Mifflin, 1962.
- Carter, Lynette. “Singing the Land: Waiata as Spatial and Temporal Markers of Place in the Landscape.” *Scope: Kaupapa Kai Tabu* 3 (2015): 5 - 10.
- Caygill, Howard. “Life and Energy.” *Theory, Culture & Society* 25, no. 6 (2007): 19-27.
- Chen, Mel. *Animacies: Biopolitics, Racial Mattering, and Queer Affect*. Durham and London: Duke University Press, 2012.
- Chion, Michel. *The Voice in Cinema*. New York: Columbia University Press, 1999.
- Clarke, Eric F. *Ways of Listening:An Ecological Approach to the Perception of Musical Meaning*. Oxford: Oxford University Press 2005, 2005.
- Coole, Diane, and Samantha Frost. “Introducing the New Materialism.” In *New Materialisms: Ontology, Agency, and Politics*. Edited by Samantha Frost Diane Coole. Durham & London: Duke University Press, 2010.

- Cotton, Charles A. *The Geomorphology of New Zealand*. New York: Wiley and Sons, 1942. 1922.
- Cox, Christoph. *Nietzsche: Naturalism and Interpretation*. Berkeley: University of California Press, 1999.
- Cox, Christoph. “Installing Duration: Time in the Sound Works of Max Neuhaus.” In *Max Neuhaus*, edited by Lynne Cooke, 112–132. New York: Dia Art Foundation, 2009.
- Cox, Christoph. “Beyond Representation and Signification: Toward a Sonic Materialism.” *Journal of Visual Culture* Vol.10, no. 2 (2011): 145–161.
- Cresswell, Walter D’arcy. “Present without Leave.” National Library of New Zealand, http://ndhadeliver.natlib.govt.nz/delivery/DeliveryManagerServlet?dps_pid=IE26018988.
- Crowe, Andrew. *Which New Zealand Insect?* New Zealand: Penguin Books, 2015. 2002.
- Curtin, Deane. “A State of Mind Like Water: Ecosophy T and the Buddhist Traditions.” In *Beneath the Surface: Critical Essays in the Philosophy of Deep Ecology*. Edited by Andrew Light, Eric Katz and David Rothenberg. Cambridge, MA, London, UK: The MIT Press, 2000.
- Davismoon, Stephen. “Atomisation of Sound.” *Contemporary Music Review* 35, no. 2 (2016): 263–274.
- De Jonge, Eccy. *Spinoza and Deep Ecology: Challenging Traditional Approaches to Environmentalism*. Farnham, UK: Ashgate Publishing, 2004.
- DeLanda, Manuel. *A Thousand Year of Nonlinear History*. New York: Zone Books, 1997.
- Deleuze, Gilles, and Felix Guattari. *A Thousand Plateaus : Capitalism and Schizophrenia*. Translated by Brian Massumi. Minneapolis: University of Minnesota Press, 1987.
- Deleuze, Gilles and Felix Guattari. *What Is Philosophy?* New York: Columbia University Press, 1994.
- Deleuze, Gilles. “Vincennes Session of April 15, 1980, Leibniz Seminar.” *Discourse* 20, no. 3 (1998): 77–98.
- Deleuze, Gilles. *The Logic of Sense*. New York: Continuum, 2004, 1969.
- DeLoughrey, Elizabeth M. *Routes and Roots: Navigating Caribbean and Pacific Island Literatures*. Honolulu: University of Hawai’i Press, 2007.
- Demos, T.J. *Decolonizing Nature: Contemporary Art and the Politics of Ecology*. Berlin: Sternberg Press, 2016.
- Dombois, Florian, and Gerhard Eckel. “Audification.” In *The Sonification Handbook*. Edited by Andy Hunt Thomas Hermann, John G. Neuhoff. Berlin, Germany: Logos Publishing House, 2011.
- Duckworth, William. “Anything I Say Will Be Misunderstood: An Interview with John Cage.” In *John Cage at Seventy-Five*. Edited by Richard Fleming and William Duckworth, 21–22. Cranbury NJ, London and Ontario: Associated University Presses, 1989.
- Duckworth, William, and Max Neuhaus. “Interview with William Duckworth.” In *Inscription, Max Neuhaus, Sound Works, Volume 1*. Edited by Max Neuhaus and Gregory des Jardins. Ostfildern, Germany: Cantz Verlag, 1994.
- Duhauptas, Frédérick, Eric Renaud, and Makis Solomos. “Expressiveness and Meaning in the Electroacoustic Music of Iannis Xenakis. The Case of La Légende D’eer.” In *Electroacoustic Music Studies Network Conference: Meaning and Meaningfulness in Electroacoustic Music*. Sweden: Electroacoustic Music Studies Network Conference, 2012.
- Dyson, Frances. *The Tone of Our Times: Sound, Sense, Economy and Ecology*. Cambridge, MA & London, UK: The MIT Press, 2014.
- Fleras, Augie, and Paul Spoonley. *Recalling Aotearoa. Indigenous Politics and Ethnic Relations in New Zealand*. Auckland: Oxford University Press, 1999.
- Flintloff, Brian. *Taonga Puoro: Singing Treasures the Musical Instruments of the Maori*. New Zealand: Craig Potton Publishing, 2004.
- Fondazio Bonotto. “Artists, La Monte Young, *Collezione Fluxus*.” Accessed July, 2017. <http://www.fondazionebonotto.org/it/collection/fluxus/younglamonte/2121.html>

- Foucault, Michel. “Nietzsche, Genealogy, History.” In *Language, Counter-Memory, Practice: Selected Essays and Interviews*, 139-164. Ithaca, NY: Cornell University Press, 1977.
- Gibson, James J. *The Ecological Approach to Visual Perception*. UK: Taylor & Francis Ltd., 2014. 1979.
- Gilmurray, Jonathan. “Introduction.” In *Environmental Sound Artists*. Edited by Frederick Bianchi and V.J Manzo. New York: Oxford University Press, 2016.
- Glennie, Evelyn “The Hearing Essay.” 1993. Accessed September, 2016.
<https://http://www.evelyn.co.uk/hearing-essay/>.
- Gordon, Kim. *Girl in a Band: A Memoir*. New York: Dey Street Books, 2015.
- Gottschalk, Jennie. *Experimental Music since 1970*. NY and UK: Bloomsbury Academic, 2016.
- Grey, George. *Nga Mahi a Nga Tipuna*. Wellington, NewZealand: A.H & A.W Reed, 1853. 1971.
- Grosz, Elizabeth. *Chaos, Territory, Art: Deleuze and the Framing of the Earth*. New York: Columbia University Press, 2008.
- Haami, Bradford. *Putea Whakairo: Maori and the Written Word*. Wellington, NZ: Huia Publishers, 2004.
- Hainge, Greg. *Noise Matters: Towards an Ontology of Noise*. New York, London: Bloomsbury Academic, 2013.
- Haines, David, and Joyce Hinterding, “The Gardens of Stone.” on *Energies*, Sydney, Australia: MOCA 2015. Vinyl L.P.
- Hakopa, Hauiti. “Te Paepae: Spatial Information Technologies and the Geography of Narratives.” PhD thesis, University of Otago, 2011.
- Hanegraaff, Wouter J. *New Age Religion and Western Culture: Esotericism in the Mirror of Secular Thought*. Albany, NY: SUNY Press, 1998.
- Harley, James. *Xenakis: His Life in Music*. New York, London: Routledge, 2004.
- Harris, Ross. *Douglas Lilburn: Electro-Acoustic Works*. Wellington, NZ: Atoll Ltd 2004. Compact Disc information booklet.
- Hayward, Bruce, Graeme Murdoch and Gordon Maitland. *Volcanoes of Auckland: The essential guide*. Auckland, New Zealand: Auckland University Press, 2011.
- Hēnare, Mānuka. “Tapu, Mana, Mauri, Hau, Wairua: A Maori Philosophy of Vitalism and Cosmos.” In *Indigenous Traditions and Ecology: The Interbeing of Cosmology and Community*. Edited by J. Grimm, 197-221. Cambridge: Harvard University Press for the Centre for the Study of World Religions, 2001.
- Henke, Robert. *Floating Point*. Berlin, Germany: Imbalance Computer Music, 1997. Compact disc album.
- Henke, Robert. *Atom/Document*. Berlin, Germany: Monolake/Imbalance Computer Music, 2008. Compact disc album.
- Hermann, Thomas. “Taxonomy and Definitions for Sonification and Auditory Display.” In *14th International Conference on Auditory Display*. Paris, France, 2008.
- Himona, R.N. “Whakapapa Maori, Structure, Terminology and Usage.” 2001. Accessed 25 Jan, 2017.
<http://maaori.com/whakapapa/whakpap2.htm>
- Hirschkind, Charles. “Religion.” In *Keywords in Sound*. Edited by David Novak and Matt Sakakeeny. Durham & London: Duke University Press, 2015.
- Hoffmann, Peter. “Xenakis, Iannis.” In *The New Grove Dictionary of Music and Musicians*. London: Macmillan Publishers, 2001.
- Hunt, Sarah. “Ontologies of Indigeneity: The Politics of Embodying a Concept.” *Cultural Geographies*. 21,1: 27–32.
- Ihde, Don. *Listening and Voice: Phenomenologies of Sound*. Second ed. Albany: SUNY Press, 2007.
- Ikeda, Ryoji. “Data. Matrix” on *Dataplex*. Berlin, Raster-Noton, 2005. Compact disc album.

- Jay, Martin. *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought*. Berkeley: University of California Press, 1993.
- Jenkin, Chris. “Early Childhood Education and Biculturalism: Definitions and Implications.” *New Zealand Journal of Teachers’ Work* 14, no. 1 (2017): 8-20.
- Jung, C G. *Psychology and Alchemy*. Translated by R.F.C Hull. Princeton, NJ: Princeton University Press, 1968.
- Ka’ai-Mahuta, Rachel. “The Genesis of *Waiata* and *Haka*.” In *Kia Rōnaki: The Māori Performing Arts*. Auckland, NZ: Pearson, 2013.
- Kahn, Douglas. *Noise Water Meat: A History of Sound in the Arts*. Cambridge, MA: MIT Press, 1999.
- Kahn, Douglas. *Earth Sound Earth Signal: Energies and Earth Magnitude in the Arts*. Los Angeles: University of California Press, 2013.
- Kane, Brian. *Sound Unseen: Acousmatic Sound in Theory and in Practice*. New York: Oxford University Press, 2014.
- Karetu, Timoti. “Language and Protocol of the Marae [Meeting Place].” In *Te Ao Hurihuri*. Edited by Michael King. Auckland, NZ: Longman Paul, 2011.
- Kassabian, Anahid. *Ubiquitous Listening: Affect, Attention and Distributed Subjectivity*. Berkely CA: University of California Press, 2013.
- Katz, Eric, Andrew Light, and David Rothenberg. “Introduction: Deep Ecology as Philosophy.” In *Beneath the Surface: Critical Essays in the Philosophy of Deep Ecology*, Edited by Eric Katz, Andrew Light and David Rothenberg. Cambridge, MA: MIT Press, 2000.
- Keefe, Alexander. “Lord of the Drone, Pandit Pran Nath and the American Underground.” in *Bidoun, Bazaar Issue 20* (Spring, 2010). Accessed June, 2017, <http://bidoun.org/issues/20-bazaar#lord-of-the-drone>
- Kellein, Thomas, and Jon Hendriks. *Fluxus*. London: Thames and Hudson, 1995.
- Kelly, Caleb. *Sound: Documents of Contemporary Art*. Edited by Caleb Kelly London, Cambridge, MA: Whitechapel Gallery & MIT Press, 2011.
- Kelly, Caleb “Sound Full: Sound in Contemporary Australian and New Zealand Art.” Dunedin, New Zealand: Dunedin Public Art Gallery, 2013. Exhibition catalogue essay.
- Kheel, Marti. “Ecofeminism and Deep Ecology: Reflections on Identity and Difference.” In *Rewearing the World: The Emergence of Ecofeminism*. Edited by Irene Diamond and Gloria Feman Orenstein. San Francisco CA: Sierra Club Books, 1990.
- Kim-Cohen, Seth. *In the Blink of an Ear: Toward a Non-Cochlear Sonic Art*. New York: Continuum Books, 2009.
- Kittler, Friedrich. *Gramophone, Film, Typewriter*. Translated by Michael Wutz & Geoffrey Winthrop-Young. Stanford: Stanford University Press, 1999. 1986.
- Kostelanetz, Richard. “John Cage and Richard Kostelanetz: A Conversation About Radio.” *The Musical Quarterly* 72, no. 2 (1986): 216-227.
- Kruger, Tāmari. “The Qualities of Ihi, Wehi and Wana.” In *Nga Tikanga Tuku Ibo a te Māori, Customary Concepts of the Māori: a source book for Māori Studies students*. Edited by Hirini Moko Mead. Wellington, New Zealand: Victoria University of Wellington, 1984.
- LaBelle, Brandon. *Background Noise: Perspectives on Sound Art*. New York: Continuum, 2006.
- Lane, Cathy, and Angus Carlyle. *In the Field: The Art of Field Recording*. Devon, UK: Uniformbooks, 2013.
- Lanza, Joseph. *Elevator Music: A Surreal History of Muzak, Easy-Listening and Other Moodson*. New York: Picador. 1994.
- Larson, Kay. *Where the Heart Beats; John Cage, Zen Buddhism and the Inner Life of Artists*. New York: Penguin Press, 2012.
- Lee, Rupert. “Proof of the Big Bang.” In *The Eureka! Moment: 100 Key Scientific Discoveries*. New York: Routledge, 2002.
- Licht, Alan. *Sound Art: Beyond Music, between Categories*. New York: Rizzoli, 2007.

- Licht, Alan. “Sound Art: Origins, Development and Ambiguities.” *Organised Sound* 14, no. 1 (2009): 3-10.
- Lilburn, Douglas. *Douglas Lilburn: Electro-Acoustic Works*. Wellington, New Zealand: Atoll Ltd 2004. Compact disc and DVD.
- Lilburn, Douglas. *A Search for Tradition & a Search for Language*. Wellington Aotearoa New Zealand: Lilburn Residence Trust, 2011.
- Lilburn, Douglas. “A Search for Sound.” In *Memories of Early Years and Other Writings*. Edited by Robert Hoskins. Wellington Aotearoa New Zealand: Steele Roberts Publishers, 2014. 1967.
- Livermore, Cathy. “Dancing from Te Kore into Te Ao Marama.” *Te Kabaroa, Special Edition, Ka Haka - Empowering Performance: Māori and Indigenous Performance Studies Symposium* 9 (2016): 55-63.
- Lo, Kevin D. and Carla Houkamau. “Exploring the Cultural Origins of Differences in Time Orientation between European New Zealanders and Māori.” *NZJHRM* Spring 12, no. 3 (2012): 105-123.
- Lourie, Megan. “Biculturalism in Education: Haere Whakamua, Hoki Whakamuri/Going Forward, Thinking Back.” *New Zealand Journal of Teachers’ Work* 12, no. 2 (2015): 131-148.
- Makoto, Kawabata. “Kawabata Makoto.” Accessed March, 2017, <http://acidmothers.com/kawabata-makoto>
- Marsden, Māori. *The Woven Universe*. Ōtaki, New Zealand: Te Wānanga-o-Raukawa, 2003.
- Massumi, Brian. *Parables for the Virtual: Movement, Affect, Sensation*. Durham, NC: Duke University Press, 2002.
- Massumi, Brian. “Notes of the Translation and Acknowledgement.” In *A Thousand Plateaus: Capitalism and Schizophrenia*, by Gilles Deleuze and Felix Guattari. London & New York: Continuum, 2004.
- Matthews, Nathan. “The Physicality of Māori Message Transmission: Ko Te Tinana, He Waka Tuku Korero.” *Junctures: The journal for Thematic Dialogue* 3 (2004).
- Maungakiekie-Tāmaki Local Board, Auckland Council. 2015 “Our Place.” Accessed December, 2017. <http://www.teoro.org.nz/place/>.
- McClintlock, Kahu. “Te Mauri Kōtahu.” Masters of Philosophy thesis., Te Pūtahi ā Toi, The School of Māori Studies, Massey University, Wellington, 2003.
- McKinnon, Dugal. “After the Great Divide, the Little Gully: Miscommunications About Sound.” In *Erewhon Calling, Experimental Sound in New Zealand*. Edited by Bruce Russel. Auckland, New Zealand: The Audio Foundation and CMR, 2012.
- McLean, Mervyn. *Maori Music*. Auckland, Aotearoa NZ: Auckland University Press, 1996.
- McNeill, Hinematau, and Sandy Hata. “Karanga.” In *Kia Rōnaki: The Māori Performing Arts*. Auckland, NZ: Pearson, 2013.
- McRae, Jane. *Māori Oral Tradition: He Kōrero Nō Te Ao Tāwhito*. Auckland, New Zealand: Auckland University Press, 2017.
- Melbourne, Hirini, and Richard Nunns. *Te Ku Te Wbe*. Wellington, NZ: Rattle Records, 1994. Compact disc.
- Merchant, Carolyn, *Earthcare: Women and the Environment*, New York: Routledge, 2013. 1996.
- Merchant, Carolyn. *Radical Ecology: The Search for a Liveable World*. New York, Oxford U.K: Routledge, 2005.
- Message, Kylie. “Stratification.” In *The Deleuze Dictionary Revised Edition*. Edited by Adrian Parr. Edinburgh: Edinburgh University Press, 2010.
- Mika, Carl. “The Co-Existence of Self and Thing through Ira: A Māori Phenomenology.” *Journal of Aesthetics and Phenomenology* 2, no. 1 (2015): 93-112.

- Miller, J.Hillis. "Border Crossings. Translating Theory: Ruth." In *The Translatability of Cultures: Figuration of the Space Between*. Edited by Sanford Budick and Wolfgang Iser. Stanford, CA: Stanford University Press, 1996.
- Mills, Toby. "Taonga Puoro - a Gift of Sound." 22 mins. New Zealand: Tawera Production, 2007.
- Ministry of Education. "The New Zealand Curriculum." Wellington, New Zealand: Ministry of Education, 2007.
- Mitchell, Tony, and Tama Waipara. "Kaupapa and Whakapapa in Contemporary Maori Music." In *Home, Land and Sea: Situating Music in Aotearoa New Zealand*. Edited by Glenda Keam and Tony Mitchell. Auckland, New Zealand: Pearson Education Australia, 2011.
- Ministry for the Environment. "Rena Long Term Recovery Environmental Plan." December 2011. Accessed January 2017. <http://www.mfe.govt.nz/sites/default/files/rena-long-term-environmental-plan.pdf>
- Monolake. *Silence*, Berlin, Germany: Monolake/Imbalance Computer, 2009, double vinyl LP.
- Monolake. *Ghosts*. Berlin, Germany: Monolake/Imbalance Computer, 2012, compact disc.
- Moon, Paul. *A Tobunga's Natural World; Plants, Gardening and Food*. Auckland, New Zealand: David Ling Publishers, 2005.
- Moon, Paul. *Encounters: The Creation of New Zealand: A History*. Auckland, New Zealand: Penguin Books, 2013.
- Moon, Paul. "Discovery Myths of New Zealand: Some Cultural, Historical and Philosophical Perspectives." *Tē Kabaroa* Vol 8 (2015).
- Morley, Michael. "Mixtape: The Dead C." *Bomb Magazine*, 2010. Accessed February, 2018, <https://www.audioculture.co.nz/stories/the-dead-c-why-use-two-chords-when-one-will-do-part-1>.
- Naess, Arne. "The Shallow and the Deep, Long Range Ecology Movement: A Summary." *Inquiry* 16, no. 1 (1973): 95-100.
- Naess, Arne. "Self Realisation: An Ecological Approach to Being in the World." In *Thinking Like a Mountain*. Edited by John Seed, Joanna Macy, Pat Fleming and Arne Naess. Philadelphia PA: New Society Publishers, 1988.
- Naess, Arne. *Ecology, Community and Lifestyle: Outline of an Ecosophy*. Translated by David Rothenberg. Cambridge UK: Cambridge University Press, 1989.
- Nancy, Jean-Luc. *Listening*. Translated by Charlotte Mandell. New York: Fordham University Press, 2007.
- Neuhaus, Max. "Conversation with Ulrich Loock." In *Inscription, Max Neuhaus, Sound Works, Volume 1*. Edited by Max Neuhaus and Gregory des Jardins. Ostfildern, Germany: Cantz Verlag, 1994.
- Neuhaus, Max in "The Sound of Space." *Art Review*, vol. 56. (April, 2005): 55.
- Neuhaus, Max. "Listen." In *Sound by Artists*. Edited by Dan Lander and Micah Lexier. Mississauga, Ontario: Blackwood Gallery, University of Toronto, 2013.
- Ngata, Apirana, and Pei Te Hurinui Jones. *Nga Moteatea*. Translated by Pei Te Hurinui Jones. Edited by Apirana Ngata. Auckland, NZ: Auckland University Press, 2004. 1959.
- Nicolai, Carsten in "When Does A Sound Become Art" *Art Review*, vol. 56 (April, 2005): 77.
- Nietzsche, Friedrich. *Human, All Too Human: A Book for Free Spirits*. Translated by R.J Hollingdale. Cambridge, U.K: Cambridge University Press, 1996. 1878.
- Nietzsche, Friedrich. *On the Genealogy of Morality*. Translated by Horace. B. Samuels. Minneola, NY: Dover Publishing, 2003. 1887.
- Novak, David. "Noise." In *Keywords in Sound*. Edited by David Novak and Matt Sakakeeny. Durham & London: Duke University Press, 2015.
- Norman, Philip. *Douglas Lilburn: His Life and Music*. Christchurch, New Zealand: Canterbury University Press, 2006.

- Norment, Camille. “Triplight” in *Soundings: A Contemporary Score*, at The Museum of Modern Art, New York, Aug 10–Nov 3, 2013. Exhibition installation.
- Norment, Camille. “Selected Work, Camille Norment Studio.” Accessed March 2017
<http://www.norment.net/work/objects-installations-ind/triplight/>
- Nunns, Richard. *Tē Ara Puoro: A Journey into the World of Māori Music*. Nelson, NZ: Craig Potton Publishing, 2014.
- Nyman, Michael. *Experimental Music; Cage and Beyond*. Cambridge, UK: Cambridge University Press, 1999. 1974.
- O’Brien, Kerry, *The New Yorker* online, “Listening as Activism: the ‘Sonic Meditations’ of Pauline Oliveros.” Dec 9 2016. Accessed June 2017,
<https://www.newyorker.com/culture/culture-desk/listening-as-activism-the-sonic-meditations-of-pauline-oliveros>
- O’Callaghan, Casey. “Sound and Events.” In *Sounds and Perception: New Philosophical Essays*, edited by Matthew Nudds and Casey O’Callaghan. Oxford & New York: Oxford University Press. 2009, 26–49.
- O’Callaghan, Casey. *Sounds: A Philosophical Theory*. New York: Oxford University Press, 2007.
- O’Doherty, Brian. *Inside the White Cube: The Ideology of the Gallery Space*. Los Angeles: University of California Press, 1976.
- O’Sullivan, Simon. *Art Encounters Deleuze and Guattari: Thought Beyond Representation*. New York: Palgrave MacMillan, 2006.
- Oliveros, Pauline. *Sonic Meditations*, Urbana IL: Smiths Publication, 1974. 1971.
- Oliveros, Pauline. Stewart Dempster and Panaiotis, *Deep Listening*. San Francisco, CA: New Albion, 1989. Compact disc album.
- Oliveros, Pauline. “Quantum Listening: From Practice to Theory to Practice Practice.” In *Culture and Humanity in the New Millennium: The Future of Human Values*. Edited by Chan Sin-Wai and Kwok Siu Tong. Hong Kong: Chinese University Press, 2000.
- Oliveros, Pauline. *Deep Listening: A Composer’s Sound Practice*. New York: iUniverse, 2005.
- Oliveros, Pauline. “Auralizing in the Sonosphere: A Vocabulary for Inner Sound and Sounding.” *Journal of Visual Culture* 10, no. 2 (2011): 162–168.
- Ong, Walter. *Orality and Literacy: 30th Anniversary Edition*. New York: Routledge, 2012. 1982.
- Ono, Yoko. *Grapefruit: A Book of Instruction and Drawings by Yoko Ono*. New York, USA: Simon & Schuster, 2000 [1964].
- Orbell, Margaret. *Waiata: Maori Songs in History, an Anthology Introduced and Translated by Margaret Orbell*. Translated by Margaret Orbell. Auckland, New Zealand: Reed Books, 1991.
- Osborne, William. “Sounding the Abyss of Otherness: Pauline Oliveros’ Deep Listening and the Sonic Meditations.” In *Women Making Art: Women in the Visual, Literary and Performing Arts since 1960*. Edited by Deborah Johnson and Wendy Oliver. New York: Lang, 2000, 65–86.
- Page, Tim. “Music in 12 Parts (1993).” In *Writings on Glass: Essays, Interviews, Criticism*, edited by Richard Kostelanetz and Robert Flemming. Berkley, Los Angeles & London: University of California, 1999, 98–101.
- Parr, Adrian. *The Deleuze Dictionary Revised Edition*. Edited by Adrian Parr Edinburgh: Edinburgh University Press, 2010.
- Penchira, Mera, Linda Tuhiwai Smith, Alison Green, and Clive Aspin. “Mouri Matters; Contextualising Mouri in Māori Health Discourse.” *AlterNative: An International Journal of Indigenous Peoples* 7, no. 2 (2011): 177–87.
- Pere, Rangimarie Turuki Rose. “Te Wheke Kamaatu: The Octopus of Great Wisdom.” Accessed July 2016. http://www.natureplaynz.co.nz/pdf/tewheke_rosepere.pdf
- Pēwhairangi, Te Kumeroa Ngoingoi. “Learning and Tapu.” In *Tē Ao Huriburi*. Edited by Michael King. Auckland, New Zealand: Raupo, 2011. 1975.

- Plumwood, Val. “Deep Ecology, Deep Pockets, and Deep Problems: A Feminist Ecosocialist Analysis.” Chap. 4 In *Beneath the Surface: Critical Essays in the Philosophy of Deep Ecology*. Edited by Eric Katz, Andrew Light and David Rothenberg. Cambridge, MA: The MIT Press, 2000, 59-84.
- Plumwood, Val. *Feminism and the Mastery of Nature*. New York: Routledge, 2003. 1993.
- Plumwood, Val. *Environmental Culture: The ecological crisis of reason*. London & New York: Routledge, 2002.
- Polli, Andrea. “Sonifications of Global Environmental Data.” In *Environmental Sound Artists: In Their Own Words*. Edited by Frederick Bianchi and V.J Manzo. New York: Oxford University Press, 2016.
- Polli, Andrea. 2017 “Heat and the Heartbeat of the City: central park climate change in sound.” Accessed May 2017. <http://www.andreapolli.com/centralpark/main.html>
- Reedy, Amster. “Maori Oriori or Lullabies, Part 1 of 2.” New Zealand: Waka Huia TVNZ, 2011. Documentary interviewing Amster Reedy.
- Rickards, Hannah. The Show Room, Exhibitions, 2007, “Hannah Richard: ...a legend, it, it sounds like a legend...” Accessed August 2015. <https://www.theshowroom.org/exhibitions/hannah-rickards-the-sound-i-think-it-makes-is-is-that-whispering-sound-to-me-it-sounds-it-almost-sounds-um-uh-whats-the-word-im-thinking-um-like-historic-not-historic-but-um-oh-a-legend-it-it-sounds-like-a-legend-you-know-when-you-think-of-a-legend-or-something-way-back-in-the-past-you-get-that-that-it-sounds-like-that-to-me-like-this-legend-or-somebodys-this-whispering-sound-its-a-legend>
- Roads, Curtis. *Microsound*. Cambridge, MA & London, UK: The MIT Press, 2001.
- Roberts, Roma Mere, and Peter R Wills. “Understanding Maori Epistemology: A Scientific Perspective.” In *Tribal Epistemologies: Essays in the Philosophy of Anthropology*. Edited by Helmut Wautischer. UK: Ashgate Publishing Ltd, 1998.
- Roberts, Mere. “Revisiting ‘the Natural World of the Māori.’” In *Huia Histories of Māori: Ngā Tāhuhu Kōrero*. Edited by Danny Keenan. Wellington, Aotearoa NZ: Huia Publishers, 2012.
- Robinson, Howard. “Dualism.” Stanford University, <http://plato.stanford.edu/archives/fall2003/entries/dualism/>.
- Robinson, Samuel Timoti. *Tobunga: The Revival. Ancient Knowledge for the Modern Era*. Auckland, NZ: Reed Publishing, 2005.
- Rollo, Te Manaaroa Pirihiara. “Tito Waiata - Tito Pūoro: Extending the Kīngitanga Music Tradition.” Doctor of Philosophy thesis. Department of Music, The University of Waikato, 2014.
- Rothenberg, David. “No World but in Things: The Poetry of Naess’s Concrete Contents.” In *Beneath the Surface: Critical Essays in the Philosophy of Deep Ecology*. Edited by Eric Katz, Andrew Light and David Rothenberg. Cambridge, MA: The MIT Press, 2000.
- Royal, Te Ahūkaramu Charles. “Mōteatea and the Transmission of History.” In Historical Journal *Ōtaki Historical Society*. Ōtaki, New Zealand, 1997.
- Royal, Te Ahukaramū Charles. “Te Ao Mārama: A Research Paradigm.” *He Pukenga Kōrero* 4, no. 1 (1998): 1-8.
- Royal, Te Ahūkaramu Charles. “Te Whare Tapere: Towards a Model for Māori Performance Art.” PhD Thesis, Victoria University of Wellington, 1998.
- Royal, Te Ahukaramū Charles. *Let the World Speak: Towards Indigenous Epistemology, Monograph Two*. Te Kaimānga: Towards a New Vision for Mātauranga Māori. 5 vols. Vol. 2, Porirua, Aotearoa New Zealand: Mauriora-ki-te-Ao/Living Universe Ltd, 2009.
- Royal, Te Ahukaramū Charles. *Mātauranga Māori, an Introduction, Monograph One*. Te Kaimānga: Towards a New Vision for Mātauranga Māori. Porirua, Aotearoa New Zealand: Mauriora-ki-te-Ao/Living Universe Ltd, 2009.
- Russell, Bertrand. *The History of Western Philosophy*. Crows Nest, Australia: George Allen & Unwin, 1946.
- Russell, Bruce. *Left-Handed Blows. Writing on Sound 1993-2009*. Auckland, New Zealand: Clouds 2009.
- Russell, Bruce. “Over the Range: An Introduction to ‘Erewhon Calling.’” In *Erewhon Calling, Experimental Sound in New Zealand*. Edited by Bruce Russell. Auckland, New Zealand: The Audio Foundation and CMR, 2012

- Russolo, Luigi. *The Art of Noises*. Translated by Robert Filliou, 1967. 1913. Accessed July 2015 http://www.artype.de/Sammlung/pdf/russolo_noise.pdf
- Salmond, Anne. *Hui: A Study of Māori Ceremonial Gatherings*. Auckland, New Zealand: Reed Methuen, 1987.
- Salmond, Anne. *Amiria, the Life Story of a Māori Women*. Auckland, New Zealand: Penguin, 2005. 1976.
- Salmond, Anne. “Beyond the Binary - Shifting New Zealand’s Mindset.” Inaugural Bishop Reeves Memorial Lecture. Accessed 1 September. http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10827658.
- Samuels, David, and Thomas Porcello. “Language.” In *Keywords in Sound*, edited by David Novak and Matt Sakakeeny. Durham & London: Duke University Press, 2015.
- Sausman, Justin. “‘It’s Organisms That Die, Not Life’: Henri Bergson, Psychical Research and the Contemporary Uses of Vitalism.” In *The Machine and the Ghost: Technology and Spiritualism in Nineteenth to Twenty-First-Century Art and Culture*. Edited by Sas Mays and Neil Matheson. Manchester & New York: Manchester University Press, 2013.
- Schaeffer, Pierre. *Traité Des Objets Musicaux*. Paris: Le Seuil, 1966.
- Schaeffer, Pierre. “Acousmatics.” In *Audio Culture: Readings in Modern Music*. Edited by Christoph Cox, et al. New York: Continuum, 2004.
- Schaeffer, R Murray. *The New Soundscape: A Handbook for the Modern Music Teacher*. Scarborough, Ontario: Berandol Music Limited, 1969.
- Schafer, R Murray. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, Vermont: Destiny Books, 1994. 1997.
- Schwarz, Hillel. *Making Noise: From Babel to the Big Bang and Beyond*. Cambridge, MA: Zone Books, 2011.
- Schwimmer, Eric. *The World of the Maori*. Wellington, NZ: Reed Education, 1966.
- Seed, John, and Pat Fleming. “Evolutionary Remembering.” In *Thinking Like a Mountain: Towards a Council of All Beings*. Philadelphia, P.A: New Society Publishers, 1988.
- Seigworth, Gregory J., and Melissa Craig. “An Inventory of Shimmers.” In *The Affect Theory Reader*. Edited by Gregory J. Seigworth and Melissa Craig. Durham & London: Duke University Press, 2010.
- Sharp, Andrew. *Justice and the Māori: The Philosophy and Practice of Māori Claims in New Zealand since the 1970s*. Auckland, New Zealand: Oxford University Press, 1997.
- Shieff, Sarah. *Talking Music: Conversations with Nz Musicians*. Auckland, New Zealand: Auckland University Press, 2002.
- Shirres, Michael P. *Tē Tangata: The Human Person*. Auckland, New Zealand: Accent Publications, 2000. 1997.
- Simmons, David. “The Sources of Sir George Grey’s ‘Nga Mahi a Nga Tupuna.’” *Journal of the Polynesian Society* 75, no. 2 (1966): 177-188.
- Smith, Daniel. *Essays on Deleuze*. Oxford, UK: Oxford University Press, 2012.
- Smith, Linda Tuhiwai. *Decolonizing Methodologies*. Second ed. London, New York: Zed Books, 2012, 1999.
- SOUNZ, Centre for New Zealand Music. “Susan Frykberg, Biography.” Accessed August 2017. <https://www.sounz.org.nz/contributors/1043>
- Stagoll, Cliff. “Event.” In *The Deleuze Dictionary Revised Edition*. Edited by Adrian Parr. Edinburgh: Edinburgh University Press, 2010.
- Stagoll, Cliff. “Force.” In *The Deleuze Dictionary Revised Edition*. Edited by Adrian Parr. Edinburgh: Edinburgh University Press, 2010.
- Stanier Black Five and Zeug Geseugt, “Body Waves, Massey University, Wellington July 18, 2012.” Accessed December 2017 <https://soundcloud.com/entracte/e157?in=entracte/sets/back-catalogue>
- Sterne, Jonothan. “Sonic Imaginations.” In *The Sound Studies Reader*. Edited by Jonathan Sterne. Oxon, New York: Routledge, 2012.

- Tasman, Abel. *Abel Janszoon Tasman's Journal*. Australia: Project Gutenberg Australia, 2006 [1642]. <http://gutenberg.net.au/ebooks06/0600571h.html#journal>.
- Tau, Te Maire. “Matauranga Maori as an Epistemology.” In *Histories, Power and Loss: Uses of the Past - a New Zealand Commentary*. Edited by Andrew Sharp and Paul McHugh. Wellington, New Zealand: Bridget William Books, 2001.
- Te Matatini. Kapa Haka Aotearoa. ‘Host - Te Kahu O Te Amorangi.’ Accessed April, 2017, <http://www.tematatini.co.nz/festival/host-and-venue/>
- Thomas, Sarah, “David Haines, Michael Morley and Joyce Hinterding tap into different kind of rock music,” *Sydney Morning Herald* 2015. Accessed May, 2017. <http://www.smh.com.au/entertainment/art-and-design/david-haines-michael-morley-and-joyce-hinterding-tap-into-different-kind-of-rock-music-20151029-gkltpx.html>
- Thorne, Rob. “Jumping the Gap: The Distance between Taonga Puoro & Experimental Music.” Accessed January, 2018, <http://www.robthorne.co.nz/jumpingthegap/2014/3/18/jumping-the-gap-the-distance-between-taonga-puoro-and-experimental-music>.
- Thornton, Agathe. *Maori Oral Literature; as Seen by a Classicist*. Dunedin, New Zealand: University of Otago Press, 1987.
- Thornton, Agathe. *Birth of the Universe: Te Whanautanga O Te Ao Tukupu*. Auckland, New Zealand: Raupo Publishing, 2004
- Thrift, Nigel. *Non-Representational Theory: Space, Politics, Affect*. Oxon, New York: Routledge, 2008.
- Truax, Barry. (1988). “Riverrun” on *Digital Soundscapes*. Germany, Wergo. Compact disc album.
- Varga, Balint Andras. *Conversations with Iannis Xenakis*. London, UK: Faber and Faber Limited, 1996.
- Voeglin, Salome. *Listening to Noise and Silence: Towards a Philosophy of Sound Art*. New York: Continuum, 2010.
- Voeglin, Salome. “Ethics of Listening.” *Journal of Sonic Studies* 2, no. 1 (2012).
- Walker, Ranginui. *The Meaning of Biculturalism*. Auckland, New Zealand: R.J. Walker, 1986.
- Walker, Ranginui. “The Relevance of Māori Myth and Tradition.” In *Te Ao Hurihuri – Aspects of Maoritanga*. Edited by Michael King, Auckland, New Zealand: Penguin, 2011, 170–182.
- Ward, Paul Stanley. “Colin McCahon: The Luminary.” 2009. Accessed April, 2015, <http://www.nzedge.com/legends/colin-mccahon/>.
- Weiss, Piero, and Richard Taruskin. *Music in the Western World: A History in Documents*. Belmont, CA: Thomson Shirner, 2008.
- Whatahoro, Hoani Te. *The Lore of the Whare-Wananga : Or Teachings of the Maori College on Religion, Cosmogony, and History Part I. - Te Kaurwae-Runga, or ‘Things Celestial.’* Translated by S. Percy Smith. New York: Cambridge University Press, 2011. 1913.
- Whiteford, Gail, and Mike Barns. “Te Ao Hurihuri New Zealand’s First Time.” In *Time Use Research in the Social Sciences*. Edited by Wendy E. Pentland, Andrew S. Harvey, M. Powell Lawton and Mary Ann McColl. New York: Plenum Publishers, 2002, 211-223.
- Wishart, Tony. *On Sonic Art*. Amsterdam, The Netherlands: Harvard Academic Publishers, 1996.
- Wolffram, Paul. *Voices of the Land: Ngā Reo O Te Whenua*. New Zealand: Blueskin Films, Handmade Productions Aotearoa, 2014. Documentary film.
- Worster, Donald. *Nature’s Economy; a History of Ecological Ideas* Second ed. Cambridge, U.K: Cambridge University Press, 1994.
- Wright, Douglas. *The Kiss Inside*. Dance performance. Premier Sky City Theatre, Auckland, New Zealand, 2015.
- Xenakis, Iannis. “Speaker Layout for Analogique B.” In *Analogique A: partition d’orchestre*, Paris: Salabert, 1968. Accessed February, 2017. <https://www.granularsynthesis.com/hthesis/xenakis.html>

Xenakis, Iannis. *Electro-acoustic Music*. New York: Nonesuch Records, 1970. Vinyl LP album.

Xenakis, Iannis. *Formalized Music: Thought and Mathematics in Composition*. Revised ed. Hillsdale, NY: Pendragon Press, 1971.

Xenakis, Iannis. *Art/Sciences: Alloys*. Translated by Sharon E. Kanach. Aesthetics in Music, No.2. New York: Pendragon Press, 1985. Transcription of Xenakis’ PhD defense.

Young, John. “Reflections on Sound Image Design in Electroacoustic Music.” *Organised Sound* 12, no. 1 (2007): 25-33.

GLOSSARY

Te reo Māori in this exegesis

Māori words used in the main body of the exegesis are not italicised as Māori is an official language of Aotearoa New Zealand. Translations and explanations of Māori words used are generally provided in the exegesis, and appear in this glossary. Macrons have been used to highlight extended vowels. Citations derived from sources that use double vowels, or provide no indication of vowel-length, appear as in their original references.

- ao** daytime, to dawn, bright, Earth, globe, global, cloud
- atua** supernatural ancestor with continuing influence over specific domains, deity,
- hapū** clan, sub-tribe, pregnant.
- hau** breath, a form of vital essence of a thing or person - different than wairua and mauri
- iwi** extended kinship group, tribe, nation, people, nationality, race, bone.
- kaitiakitanga** guardianship
- kapa haka** Māori performing arts, Māori cultural group
- karakia** prayer-chant, incantation
- karanga** ceremonial call by women
- kaumātua** elder, person of status within the whānau
- kaupapa** topic, subject, theme, motif, collective philosophy
- kaupapa Māori** Māori philosophy, Māori topic

- kawa** protocol
- kawe mate** mourning ceremony where relatives of the deceased visit as a group the marae of other communities after a tangihanga.
- ki** an action towards, ‘to’
- kōrero** speak, talk, oratory, oral traditions, stories
- kuia** matriarch, old woman
- mana** prestige, authority, power, influence, status -mana is a supernatural force in a person, place or object.
- mana whenua** authority over land or territory
- Māoritanga** Māori culture, Māori perspective
- marae** a fenced-in complex of buildings and grounds that serves as a focus for a community.
- marae ātea** the courtyard area in front of the wharenui, meeting house, on a marae
- mātauranga** knowledge
- mātauranga Māori** Māori knowledge
- mauri** vital essence, life force that binds the material to the immaterial, life principle, power of the atua for all living things, also a material symbol of a life
- mauri ora** the well-being of the mauri, a sense of well-being
- mōteatea** poems, laments, traditional songs and chants
- oriori** lullaby, form of waiata mōteatea
- Papatūānuku** atua of the earth, Earth Mother
- patupaiarehe** fairy people
- pepeha** tribal saying, tribal identification
- poroporoaki** farewell
- pounamu** greenstone, Aotearoa New Zealand jade.
- pōwhiri** welcoming ceremony
- rangatiratanga** sovereignty, autonomy, indigenous rights
- Ranginui** atua of the sky, Sky Father
- tangata whenua** people of the land, local people, Indigenous
- tangihanga** funeral
- taonga puoro** traditional Māori instrument
- tapu** sacred, prohibited, restricted, set apart, forbidden, under atua protection
- Te Kore, Te Korekore** The Void, realm of potential being, realm of chaos
- te ao Māori** the Māori world. The term denotes the Māori material world and the Māori worldview.
- te ao mārama** world of life and light, Earth, physical world.
- Te Pō** realm of darkness, place of departed spirits, underworld
- te reo** language, voice
- te reo Māori** Māori language
- Te Tiriti o Waitangi** The Treaty of Waitangi

tikanga Māori Māori customs and traditions

tino rangatiratanga the principle of self determination

tipuna ancestor, grandparent (eastern dialect version of tupuna)

tīpuna ancestors, grandparents (eastern dialect version of tupuna)

tōhunga expert, priest, scholar, healer, expert in sacred lore, traditions and genealogies of their own iwi, mediator between the atua and people

tūrangawaewae ‘a place to stand,’ domicile, homeland, sense of belonging

waha gate, entrance, mouth

wairua spirit, soul of a person distinct from the body and the mauri

waiata generic name for songs

waka vehicle, canoe

wānanga knowledge, lore, learning, to meet, discuss, conference, forum

whakapapa epistemological structure in te ao Māori, to layer, genealogy
- there are different terms for different types of whakapapa and recitation methods

whakarongo to listen, hear, taste, smell, feel

whakataukī proverbial saying

whānau family, extended family structure

whanaungatanga relationship, kindred

wharenuī main meeting house on a marae

whare wānanga traditional higher learning institution where tōhunga taught, university.

whenua land, earth

wiriwiri to tremble, shiver, quake

