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Studying Sonorous Objects to Develop Frameworks for Improvisation

Abstract

French *musique concrète* artist Pierre Schaeffer pioneered new ways of listening to and studying sound. His study and manipulation of recorded sounds to create music changed the way contemporary musicians, from a multitude of disciplines, approach making music. Additionally, Schaeffer's treatise on acousmatic listening to sonorous objects has deeply influenced contemporary sound studies. In this article, I elucidate how *musique concrète* has informed my practice-led research project, *Looking Awry* – from which I will discuss two case studies. I outline how acousmatic listening to field recordings from everyday environments informed the development of performance strategies that guide improvised musical performance; a malleable practice that can be applied to a variety of performance settings.

Introduction

Establishing a common definition for the word 'music' has been elusive. From one moment to the next its meaning is being commandeered by the public. With each changing generation parents often despair of their children's musical tastes, claiming 'that's not music!' Uninitiated pedestrians stroll past experimental music performance venues and wonder whether to call the sounds permeating on to the street, music. In academic circles, it is not necessarily any clearer; at interdisciplinary music conferences, if a speaker should discuss the avant-garde or experimental, often the question is posed, 'how can we differentiate between what is noise and what is music?' Yet, Luigi Russolo's *The Art of Noises* (1913) and Henry Tate's *Australian Musical Possibilities* (1924) – two vastly different texts; one discussing how the sounds of industrialization might inform futurist works, the other urging Australian classical music composers to study the sounds of Australian wildlife to arrive at a national identity – highlight that in Western music culture, for over 100 years, musicians have been questioning where noise stops and music begins.

The music of Edgard Varèse and, more famously, John Cage, brought these questions to the fore of contemporary music practice, with their outcome being that every sound can be considered music. However, it is important to note that not all sound, at all times, is music.

As Douglas Kahn argues, if all sound is music, how can we have noise (1999: 162)? Relatedly, Australian musician Jon Rose puts forward the notion of intent, which is paramount to distinguishing noise and music. Rose offers:

Intent: that if I rub these two stones together, or scratch an LP with the stylus and the volume turned up to howling feedback, it is music; that if I sit and listen to two Butcher birds singing together, or to jet planes taking off and landing for 5 hours, my intention is to hear the experience as music (2015).

Thus, as philosopher and musician Paul Hegarty writes, noise ‘is a phenomenology of noise’ (2007: 4), it is subjective – what is noise to one person is not necessarily noise to another. For example, while writing this introduction, my concentration has been disrupted by the *noise* permeating from a nearby construction site. Upon pausing and listening with intent, to hear the sound as music, the role is altered, and what was *noise* becomes *music*.

Fundamental to a *musique concrète* artist’s approach is their selection of materials. Thus, I hold that no one understood the importance of intent better than Pierre Schaeffer, the forefather of *musique concrète*. Describing the materials employed in the creation of *musique concrète* compositions while working in Schaeffer’s studio, Luc Ferrari writes, ‘*musique concrète* was a collection of dust: the sound objects were dirty, the source material was found in any old corner. It was literally made of dusty old bric-a-brac, like coils, sheet metal, and broken pianos’ (Robindoré and Ferrari 1998: 8). Thus, it is apparent that Schaeffer recognised the sonorous potential in these items and possessed the intent to study their sounds and manipulate their sonic qualities to create musical works.

In addition to his musical output, Schaeffer was considered well-read and an active researcher (perhaps the best indication of his interest in research was the title he gave to his studio and group of collaborators, ‘*Groupe de Recherches Musicales*’). It is not surprising then, that his thinking, much of which he documented in *Treatise on Musical Objects* (1966), drew from Pythagoras and Husserl (Battier 2007: 190).¹ While a complete English translation

¹ It should be noted that Schaeffer’s appropriation of Husserlian phenomenology has been criticized. This is most commonly due to Schaeffer’s assertion that the object of study only comes forth through acousmatic listening, which pushes against Husserlian phenomenology whereby as Merleau-Ponty writes, ‘the world is always “already there” prior to reflection’ (Merleau-Ponty 2014: lxx). See Mitchell Herrmann’s article in volume 20 (3) of *Organized Sound* (2015) for further reading.

of *Treatise on Musical Objects* is scheduled for publication in July 2017 by University of California Press (Schaeffer 2017), an English translation of the chapter entitled *Acousmatics* is featured in Cox and Warner's (eds) influential book, *Audio Culture: Readings in Modern Music* (2004). In this chapter, Schaeffer describes both *acousmatic* listening and *sonorous objects*, separately, and how they relate to one another, as they relate to his music practice.

In what follows, my intention is to elucidate how acousmatic listening to sonorous objects has informed my approach to creating music for a project entitled *Looking Awry*. The project concerned the development of frameworks to guide improvised musical performance by studying sounds of the environment. The intention of the project was to create an opening for listeners to find an appreciation for sounds of the environment. Field recordings were taken at a variety of locations, studied as sonorous objects, and then strategies were developed in response to the field recordings in order to guide non-idiomatic, improvised musical performance. This practice-led research project was largely process-driven – there was no clear, pre-conceived end. Rather, through the process of developing the works, ideas and insights emerged that were unforeseen at the beginning of the project.

My path of enquiry emerged during practice and became clear only in reflection. This style of research is what Donald Schön calls *reflective practice* (1983). Specific to my research was a methodology that Schön calls *repertoire-building research*; a method whereby the researcher describes the evolution of enquiry by reflecting upon already completed processes (1983: 317). By maintaining a journal throughout my research, I documented the relevant avenues of enquiry pursued throughout this project to develop the artistic works. I addressed two complementary research questions: 'How can sounds of the environment inform strategies for improvised musical performance?' and 'how does engaging with environmental sounds affect improvised musical performance?' To show how these questions were addressed throughout my research, this article will consider two case studies from my project *Looking Awry: Responding to the Port Melbourne Jetty, as it was on June 25, 2015 (PMJ)* and *Responding to Flinders Street Railway Station, as it was on June 30, 2015 (FSRS)* – both works were performed and recorded live late in 2015.

Situating my practice

My project, *Looking Awry*,² was initially inspired by an essay entitled *The Music of Place: Reclaiming a practice*, written by Australian musician Jon Rose (2013). Rose's argument and vision for music to bring us into 'communion with ... the natural world from which we came' had a considerable influence on me when deciding to pursue this project (56). While Rose's essay focuses on the role of music in Australian society and financial disparity within the Australian arts sector, I believe his suggestions for remedy – establishing a music relating to place – can also be applied to address environmental concerns.

Rose writes about developing a music practice through the study and appreciation of Australian wildlife and the environment. He asks readers to 'recognize the inherent sonic connectivity of land,' and calls for 'a kinship with geographical location' (2013: 56). In line with my musical background, the music created for my project is situated within the tradition of free improvisation that emerged from Europe and North America in the twentieth century. While musicians from this tradition, such as Jon Rose, Jim Denley, and David Rothenberg, have drawn inspiration from the environment to develop a music practice, the environment has been the focus of musical practice across numerous styles within Western musical traditions. This includes classical compositions by Ludwig van Beethoven, Henry Tate, and Olivier Messiaen; futurist works by Luigi Russolo; sound ecology by R. Murray Schafer and David Dunn; the experimental music of John Cage, Alvin Lucier, and Pauline Oliveros; and *musique concrète* works by Pierre Schaeffer and Luc Ferrari.

Italian futurist Luigi Russolo is considered by scholars to be one of the earliest advocates for studying sounds of the environment (or 'noise', to use Russolo's term) to further musical practice (Hegarty 2007). Russolo writes:

I want to lead you to the understanding and admiration of the noises that nature and life offer us. ... I will be satisfied if I succeed in convincing you that noise is not always as disagreeable and annoying as you believe and say, and that for him who understands it, noise represents instead an inexhaustible source of

² The track *Responding to Flinders Street Railway Station, as it was on June 30, 2015* has been released and is available for streaming/download here: [author to insert link after peer-review]

sensations, from one moment to the next exquisite and profound, grandiose and exalted (1986: 41).

It was during the 1940s and 1950s however, that the likes of Cage and Schaeffer, each in their own way, began exploring sounds of the environment and created a nexus for experimentalism in music. This resulted in practitioners from varying musical backgrounds becoming increasingly interested in how sounds of the environment could further musical practice (LaBelle 2015).

In my project, I recognised the musicality of sounds of the environment in alignment with sound ecologist R. Murray Schafer who writes, 'all sounds belong to a continuous field of possibilities lying within the comprehensive dominion of music. Behold the new orchestra: the sonic universe!' (1977: 5). While Schafer's work has been influential within the discipline of sound ecology, it would seem his 'new orchestra' has encountered a similar problem to John Cage's assertion that all sound is (or has the potential to be) music. As Max Neuhaus writes, in regards to Cage bringing the sounds of the street into the music hall, 'most members of the audience seemed more impressed by the scandal than with the sounds, and few were able to carry the experience over into an appreciation of these sounds in their daily lives' (2011: 191).

Thus it seems still more work can be done to foster an appreciation of sounds of the environment – both those that are natural and industrial (throughout my project I considered industrial and natural sounds to be of equal importance). In consideration of Neuhaus' observation, I took an alternate approach to Cage and Schafer and developed a performance practice that involved musicians improvising in real-time. The intention of *Looking Awry* was to draw attention to the environment's innate beauty and musicality through musical performance. I was also interested in breaking down the hierarchy between natural and industrial sounds (often, natural sounds are posited as the sublime) – when experienced from an acousmatic perspective, both possess unique sonorous qualities. To develop the works, I selected environments that I (and many others) moved through while engaging in my routine activities in Melbourne, Australia; in relation to the case studies discussed in this article, these included the natural sounds from the Port Melbourne jetty (my work area) and the industrial sounds from Flinders Street railway station (where I

change trains). The benefit of working from field recordings, as opposed to responding directly to sounds of the environment on location in real-time, was twofold. Firstly, field recordings, while subject to limitations in regard to quality of recording equipment,³ defined the range and scope of the environmental sounds to be studied. Secondly, as sonorous objects, they provided consistency, which allowed me to re-listen, share with ensemble members, and rehearse and perform with the same materials multiple times. My study of field recordings was largely informed by Schaeffer's acousmatic listening.

What Schaeffer calls acousmatic, a term borrowed from Pythagoras (Schaeffer 2010: 76), is sound separated from its source and experienced without accompanying visuals: for example, the radio, or a voice behind a curtain (which is how Pythagoras addressed his disciples for a time) create acousmatic experiences (Schaeffer 2010: 79). This is not to imply that if one knows the source of a sound, the experience cannot be acousmatic – Pythagoras' disciples who listened to their teacher speak from behind a curtain were surely aware it was in fact a person speaking to them. Thus, acousmatic listening encourages the consideration of sound as a thing in itself. The answer to the question 'what is that sound?' is not the source of the sound, for example, a violin; the sound is rather the phenomenon heard as opposed to the external generator of that sound. Acousmatic listening posits sound as a phenomenon in its own right. What Schaeffer calls a 'sonorous object', is the sonic phenomenon experienced during acousmatic listening – sound that is 'independent of any causal reference' (Schaeffer 2010: 79).

When studying a field recording, I explored the qualities unique to each location. Maintaining a journal with written descriptions of field recordings, reflecting upon my observations, and re-listening to the field recording allowed me to focus on and evaluate sounds in the periphery, as well as those in the foreground. More often than not, I was intrigued by the relationships between sounds, such as the enveloping, repetitive sounds from the Port Melbourne jetty and the five distinct frequency bands that constitute the overall soundscape from Flinders Street railway station. Acousmatic listening to sonorous

³ It was not expected that field recordings would provide an exact reproduction of what the human ear might have heard on location. However, field recordings became the definitive resource throughout my project, taking precedent over my listening on-site while recording in the field.

objects (field recordings) enabled me to discern characteristics of the field recording that could be reflected by musicians playing traditional instruments. For example, instead of attempting to reflect the lapping waves from the Port Melbourne jetty, I considered the timbre, density, and ambience of the sonorous object – qualities that could be reflected by a variety of instruments.

However, while acousmatic listening allowed me to study sounds of the environment and determine characteristics to pursue in performance, distinct from Schaeffer, it was important the completed works embrace the fact that they were informed by the environment – the sound's source. This was integral if the works were to convey to the audience an appreciation for the environment. Thus the relationship between me and the field recordings in the developmental stages of this project was quite different from the relationship between the final works and the audience. To ensure the intention of the project was received by the audience it was important to make clear the relationship between the environment and the works. By providing descriptive titles for each work and at times featuring the field recording during performance, a context for the works was established for the audience.

Two ensembles recorded the works discussed in this article; a quintet consisting of Tony Hicks (woodwinds), Reuben Lewis (trumpet), Mark Shepherd (synthesiser), Zeke Ruckman (drums), and myself (guitar); and a duo comprised of Shepherd (synthesiser) and myself (guitar).⁴ Ensemble formations were selected by considering the sonic characteristics of the correlating environment informing the work. Performance frameworks were conveyed to performers via audio referents (field recording excerpts) and verbal instructions (which is also a type of referent). The term 'referent,' (borrowed from psychologist and musician, Jeff Pressing), in this instance refers to pre-conceived performance frameworks that guide and generate context and continuity for performance (Pressing 1984). Audio referents were field recordings of the environments that I intended to reflect and draw attention to during performance. Verbal instructions were used to accompany the audio referent so as to ensure

⁴ My selection of ensemble members was guided by three factors: people whom I had experience working with prior to this project; performers who were experienced performers within free improvisation and sound art disciplines; and musicians who possessed a keenness and willingness to engage in this project over the required period of time.

the unified interpretation of the audio referent, as well as specifying the particular qualities of the audio referent to be reflected in our performance. For example, after studying the field recording (sonorous object) from Flinders Street railway station, I became interested in the division of frequency ranges. Thus, our performance strategy involved, among other things, orchestrating a quintet into particular registers for the duration of our otherwise improvised performance. This instruction was conveyed to the ensemble verbally. The performers were then able to contextualise my instructions by collectively listening to and discussing the audio referent.

The Influence Luc Ferrari and Jim Denley had on My Project

It is clear that there are aspects of my project that draw from the tradition of *musique concrète*, whereas other aspects of my work, such as improvised performance, are distinctly non-related. In the following paragraphs I discuss both aspects of my practice in regard to two practitioners who had a profound influence on my project, namely Luc Ferrari, whose work *Presque Rien No. 1* (1970) is grounded in *musique concrète* and Jim Denley, whose album *Through Fire, Crevice + the Hidden Valley* (2006) draws from free improvisation.

Where *musique concrète* artists were traditionally concerned with the electronic manipulation of sonic material (LaBelle 2015), LaBelle asserts that Ferrari's work referenced 'the real as autobiographical narrative rather than sonic material' (2015: 31). Expanding upon this, LaBelle describes Ferrari's piece *Presque Rien No. 1*:

Ferrari's work consists solely of a recording produced by positioning a microphone out his window while staying in a small fishing village in Yugoslavia near the Black Sea. In short, the work moves outside the confines of both the concert hall and the music studio to confront the random and ambient murmurings of everyday life (2015: 31).

Ferrari's method of creating musical works by presenting sounds from everyday acoustic locations inspired my practice. By presenting sounds of the environment, no matter how extraordinary or banal, LaBelle writes that Ferrari's work "'tells stories" by harnessing the "bodily real," the quotidian environment' (2015: 32). Similar to Ferrari, I explored sonic characteristics of the environment that were unique to a particular location, regardless of how remarkable or ordinary they may have been. As opposed to seeking out exotic locations

or particular sounds, my intention was to reflect the general character, or 'ambience' (referring to the overall quality of sounds heard within an environment, as they relate to one another as a whole) of a location.

Further, in *Presque Rien No. 1*, the listener experiences sequentially composed fragments of environmental sounds. The field recording was subjected to human intervention, as Ferrari selected the duration of each theme and ultimately, the overall piece. Compositional choices were made as to what content to remove and what to present to the listener. My project takes the process of human intervention further. While, similar to Ferrari, I made decisions about which characteristics of acoustic locations were to be pursued in performance, I felt little obligation to retain the environmental sounds themselves – which is not to say that I avoided including sounds of the environment during performance completely. Rather, what was important was that sounds of the environment informed the development of performance frameworks that would guide improvised performance. While fragments of field recordings are included in *FSRS*, in contrast to *Presque Rien No. 1*, sounds of the environment as musical phenomena did not comprise the entirety of either of the works discussed in this article (nor any of the other works created for *Looking Awry*).

The approach to improvisation documented in this project was closely aligned to the work of Australian saxophonist Jim Denley, whose practice exemplifies the refinement of techniques that allow him to interact with and respond to sounds of the environment. His release *Through Fire, Crevice + the Hidden Valley* documents an approach to improvising and recording in situ, on location within natural environments. It seems each work was recorded in a distinct location, as suggested by track names such as *Water Falls*, and *Through Fire*; the sounds of splashing water and crackling fire can be heard on each respective track. On these works Denley employs distinct improvisatory techniques, which allow him to respond to specific environmental sounds, particularly with regard to timbre and rhythm.

In an interview with Jon Rose, Denley describes developing techniques that allow him to improvise in a variety of settings:

Playing with Martin Ng, he's using turntables and electronics and I didn't want to sound like a flute player or saxophonist with a turntable; I wanted this melding

together of the sounds. I was searching on my instruments. We rehearsed a lot, mostly trying to find ways to make ambiguous where the sound source is coming from. You don't want in performance to be copying and mimicking and operating like birds where one guy flies to the left so we all fly to the left, but it gives you a repertoire of sound objects to use in that context which are possibly more appropriate than if I was playing with [someone performing on a different instrument, such as a] bass [player] (abc.net.au. 2015).

Comparable to Denley, who speaks of melding the sounds of his woodwind instruments with turntables and electronics, in my project performers melded their contributions with sounds of the environment (which is similar to Denley's approach on *Through Fire, Crevice + the Hidden Valley*). Melding sounds was important as it allowed the group to reflect more closely the ambience and character of the environment that informed the work, which was particularly beneficial to our performance when field recordings were featured – it was important that the field recording and the group's contributions could occur simultaneously while sounding congruent with one another.

Field recordings were not manipulated prior to their inclusion in the works. During performance, their volume was controlled in real-time using an iPad. They were cued to begin playback at the beginning of each performance with the output volume set at zero (the field recording would begin playback, yet would not be heard). Therefore, it was a simple process of increasing the output volume to introduce the field recording during performance. The volume was controlled at my discretion throughout – improvised similarly to my contributions on the guitar. There were three primary considerations guiding my decision to introduce a field recording during performance. The first was to ensure variety between works; I did not want each work to feature the field recording in the same place, such as at the beginning. The second was in regard to my capacity to control the output volume, a task I was incapable of carrying out when both hands were needed to play guitar. Finally, and most importantly, I searched for moments during our performance that were appropriate; these moments generally coincided with sections of minimal activity from the group. Introducing the field recording at these times allowed it to be heard clearly as it was introduced, giving ensemble members the opportunity to respond and contextualise their playing appropriately. The presence of the field recording in performance also allowed the

listener to establish a relationship between it and the music performed by the group. Exploring Denley's idea of melding sounds was integral in maintaining consistency of ambience between field recordings and the music created by the performers.

Denley also mentions the process of improvising with a partner, providing an analogy of flying birds. In acknowledgement of Denley's comment, which infers that some approaches to ensemble interaction may be more desirable than others, outlining an approach to ensemble interaction was pertinent to my project. Since each performer was an experienced improviser in a variety of styles and settings it was important to specify how the ensemble would interact with one another. Establishing a unified approach was crucial, as the way performers interact can greatly affect musical outcomes. For example, musical decisions made while performing in a traditional jazz format with soloist and accompaniment, such as demonstrated on Sonny Rollins' *Tenor Madness* (1956), will differ from those made when performing collective non-idiomatic improvisation, such as the music created by the British ensemble *AMM*.⁵ While there is somewhat of a hierarchy in the traditional jazz format (the soloist is often the feature), there are generally no such delineations in the music created by *AMM*.

In this project, a musical work created by the performers, as experienced by the listener, can be described as a 'monistic ensemble'. While this term refers to the final product (a complete musical work), understanding this concept directly affected decisions made during performance. While monism is generally a term associated with philosophy/theology, within a context of experiencing sound, artist and theorist Salomé Voegelin describes a monistic ensemble as individual elements that 'complete each other without abandoning themselves' – the 'ensemble appreciates the individual element' and 'brings together their particularity' (2013: 125). In relation to actors, film director and theorist Sergei Eisenstein states that the individual elements of a monistic ensemble '*do not accompany* (nor even parallel) each other, but function *as elements of equal significance*' (1949: 20). While the process of creating a work may be problematic in regard to adhering to the standard theological definition of monism – a single unifying substance or reality (Cross and

⁵ See, *AMM*. 1967. *AMM Music 1966*. Elektra Records. CD.

Livingstone 1974: monism), by drawing from the thought of Voegelin and Eisenstein, the final work as experienced by the listener can embody the notion of monism.

A monistic approach to ensemble interaction can be understood with the following analogy of pedestrians moving through a city centre. An individual walking along the sidewalk moves along a specific trajectory to get from A to B. Yet, if it is busy, there will be multiple other individuals moving along the same sidewalk at similar speeds and in similar directions, each moving autonomously along their own trajectory. But they also move together, and the presence of others influences the movements of each individual. Should an obstacle present itself, depending on the urgency of their journey and the space available to them, the people may smoothly move to one side, split down the middle, or separate into any number of formations before re-joining to continue their journey. If another individual joins the parade mid-way, they too become part of the procession: autonomous, but interacting with those around them.

By expanding upon Denley's analogy of flying birds and accepting the functionality of the group as being fundamentally monistic, practitioners in this project found a balance between autonomous polyphony and mimicry without completely resigning themselves to either. Ensemble members instigated their own trajectories within the ensemble while simultaneously listening to and being sympathetic to the contributions of the other performers. The group worked together without intentionally accompanying one another: as Eisenstein playfully writes; 'one would not say that, in walking or running, the right "accompanies" the left leg, or that both of them accompany the diaphragm!' (1949: 21).

Case Studies

[Responding to the Port Melbourne Jetty, as it was on June 25, 2015](#)

PMJ was performed as a duet that featured Shepherd (synthesiser) and myself (guitar). This instrumentation was appropriate as the intention of the work was to explore and amplify the repetitive and homogenous character of the primary sound from the audio referent. The sound is constant, yet has small, regular fluctuations in volume; there is a back and forth, almost a gentle rocking. This sound, while gentle and enveloping, has a brittle glass-like timbre, a result of the lack of reverberation provided by the open landscape. In addition to

studying and discussing the audio referent, to further contextualise our approach to performance we listened to and discussed Brian Eno's *Ambient 4: On Land* (1982) and Nurse with Wound's *Soliloquy for Lilith* (2003); two albums exhibiting stillness and homogeneity as primary characteristics.

We intended to create music that was drone-like, dense, and immersive. I wanted the work to plateau and exhibit only slight variations throughout, to verge on the border of monotony with minimal deviation from a continuing theme; a work that allowed the listener's mind to wander. To achieve this and reflect the ambience of the field recording, an extended duration was pivotal, for after reflecting upon earlier, shorter iterations of the work (between four and seven minutes in duration), an immersive, monotonous character was not adequately established. Thus, while we did not reference a time-keeping device during the final, recorded performance, we set out to perform for a minimum of ten minutes – a duration that allowed the work to exhibit the desired characteristics.

After studying the field recording, I noted in my journal: 'there are multiple levels of sound: the gentle sound of moving water, the louder sound when it makes contact with the jetty, and the bubbling that comes after impact. There is a pattern that is continually enveloping itself – it is as if a complete cycle never finishes before it is overcome by another incoming wave' (McAuliffe, journal entry June 26, 2015). To reflect this character in our performance, Shepherd and I created comparable sounds from our instruments. We performed primarily within a limited frequency range in the lower register of our instruments. Our contributions were similar in density, texture, timbre, and register, and exhibited minimal thematic variation. Gradually, our contributions developed as the piece progressed, yet never into areas that were surprising or unexpected. Rather, the work (sound example 1) ebbed and flowed and could be situated in the domain of ambient, drone-like minimalism.

[Responding to Flinders Street Railway Station, as it was on June 30, 2015](#)

FSRS was developed after completing *PMJ*. At this stage in the research, I was still developing my approach to creating referents for a quintet (*FSRS* was the first of three works for quintet). While I was able to draw upon knowledge gained from the creation of

PMJ, my approach was also informed from my studies with Australian guitarist Ren Walters in 2011-2012. During lessons, Walters set performance restrictions for us to adhere to while we improvised together; with a focus on developing extended techniques on the guitar. Examples of these exercises with inbuilt restrictions include: 'improvise exclusively with natural harmonics,' and 'improvise exclusively on one string of the guitar'. These exercises encouraged me to explore the guitar in technical and creative ways previously unconsidered. Further, as Walters did not encourage rehearsal of improvised music, these lessons also taught me to approach each exercise (and every improvised performance, whether at home or on stage) as an opportunity to create a musical work.

When considering a performance framework for *FSRS* I drew from these experiences with Walters and developed a strategy that revolved around allocating each ensemble member a role, or restriction. I wanted the quintet to reflect the division of frequency ranges heard in the audio referent while we collectively improvised. Since it was impractical to reflect the multitude of sounds heard on location, pursuing the general division of frequency ranges in which these sounds occurred was more manageable in performance. Guided by the range of our instruments, it was determined that Hicks' soprano saxophone and flute, and Ruckman's cymbals, would best suit the upper registers. Lewis' trumpet would occupy the middle range alongside Ruckman's drums, and Shepherd's synthesiser and my guitar would fill out the lower registers.

While the ensemble collectively deemed the approach worthy of developing further, our first attempt resulted in music that lacked a clear relationship to the correlating field recording. Our performance was somewhat monotonous as the range of contrasting sounds and diversity of dynamics and rhythms present in the field recording were absent from our performance. Reflecting further upon our rehearsal, I noted in my journal, 'the process is effective, although we need to develop the work slower. The development that occurred over the course of approximately 30 seconds probably should have taken 5+ minutes' (McAuliffe, journal entry July 5, 2015). Thus I revisited the concept of duration that Shepherd and I had explored in our duet. This led me to reflect upon the experience of being stationary in an acoustic environment. I mused upon the homogeneity of sound and how it was somewhat predictable (at least in the sense of knowing I would not encounter

the sounds from the Port Melbourne jetty while on location at Flinders Street railway station). After extended listening to sounds from a particular environment an overarching, unifying ambience became apparent. It became clear that similar to *PMJ*, quintet performances required an extended duration to adequately reflect the homogeneity and predictability of each location.

It seemed necessary to expand upon what I had learnt from Walters and develop performance frameworks that were more specific than the initial one conceived for *FSRS*. Ensemble members would need to be allocated more than one restriction to create a more encompassing performance strategy for each work. Acousmatic listening to the field recordings enabled me to uncover characteristics of the field recordings that could further inform performance strategies. For example, in relation to the railway station, the field recording exhibited a diverse array of sounds that presented themselves in a dense tapestry – it was at times difficult to differentiate sounds. While some exhibited predictable rhythms, others existed as flurries heard only briefly before fading away. They were rich in dynamics, often unexpectedly spiking in volume, yet overall, the volume of the soundscape was relatively consistent. The sonorous qualities of the environment were dense, yet most sounds were short in duration; constantly being replaced by new sounds.

To create a work more closely related to these observations, I expanded upon the initial performance framework for *FSRS* by developing a strategy that revolved around instrumentation (the aforementioned division of frequency ranges), maintaining a consistent density and volume throughout the piece, and encouraging performers to overlap and envelope the contributions of others – similar to the field recording where sounds of outgoing trains receded into the distance or murmurs of traffic were overcome by the sound of incoming closer sounds, such as a group of people walking past. Additionally, the quintet aimed to abandon traditional notions of thematic climax and resolution – a theme that ran throughout the entire project. This performance strategy was deemed a success by the group and it informed our performance of the final work (sound example 2).

Conclusion

In this article I have described the influence that Pierre Schaeffer, Luc Ferrari, and Jim Denley, had on my project, *Looking Awry*. By adopting Schaeffer's acousmatic listening to sonorous objects, I was able to acquire an in-depth understanding of acoustic locations. This knowledge then informed the development of performance frameworks, which allowed an improvising ensemble to draw attention to particular qualities of the environment through performance. The work of Ferrari and Denley established a precedent for my project, whereby I was inspired to work with everyday sounds from my environment.

Key aspects that emerged within this practice-led research project were studying sounds of the environment to develop performance strategies for improvisation, establishing an approach to ensemble interaction, acquiring a repertoire of improvisatory materials from developing each work, and creating an artistic impression of acoustic environments. As a practice-led research project, the musical works comprise the primary outcome of my research. I believe the works themselves embody the clearest answers to my research questions as they provide concrete examples of precisely how sounds of the environment informed my musical practice. In the following paragraphs I provide a brief written overview to accompany the recorded works so as to articulate a final synthesis of my observations.

How can sounds of the environment inform strategies for improvised musical performance? The strategy developed for each work inherently reflects a personal understanding of each location. However, my approach to developing these strategies, as documented in this article, is one that could be applied by other practitioners. Acousmatic listening to sonorous objects provided me with a means of uncovering characteristics of field recordings to be highlighted in performance. The characteristics of environmental sounds that informed performance strategies were conveyed to performers as general concepts. For example, the vast array of sounds heard on the field recording from Flinders Street railway station were considered in relation to their general frequency ranges. By orchestrating the ensemble into similar frequency bands, the group was able to reflect a certain character of the field recording without attempting to directly recreate specific sounds.

The degree to which engaging with environmental sounds affects improvised musical performance becomes apparent when comparing different tracks. The contrast between working with stimulus from the Port Melbourne jetty (resulting in ambient and drone-like music within a limited frequency range), compared to working with sounds from Flinders Street railway station (resulting in polyphonic counterpoint over an expansive frequency range) highlights how responding to different acoustic locations affects musical outcomes. Similar to how improvising within an idiomatic tradition informs a musician's contribution during performance, the frameworks created in response to each location established a context and direction for each work. Thus, from the perspective of creating the works, my contribution to the field is the development of an improvisatory practice that is informed by the environment, yet does not require performers to be at the particular location that informed the work.

Finally, I would like to return to the underlying intention of this project: to foster an appreciation of sounds of the environment – both natural and industrial. I believe we cannot presuppose a simple opposition between natural and industrial sounds; the implication that natural sounds embody the sublime – a world intact and untarnished, while industrial sounds represent destruction, is misguided. Rather, both phenomena possess their own beauty and deserve to be experienced without bias. For it would be folly to depreciate the artistic value in Frank Gehry's architectural design of the Guggenheim Museum Bilbao – and the sounds experienced at such a location – solely on the premise that its construction was a result of industrialisation. We can refer to Russolo's fascination with the sounds of 'trams', 'automobile engines', and 'brawling crowds' (1913: 25) to establish a precedent for finding aesthetic beauty in industrial sounds.

There is a multitude of economic, political, and environmental factors involved in determining the positive or negative effects of industrialisation. Therefore, it is important not to pass judgement upon the sounds we experience based on their origin. While we may experience particular natural environments and revel in their beauty while other locations disappoint us because they have been sullied by human intervention, the aesthetic qualities of any given environment can still be of interest. Even locations that many would consider ecological disasters, such as Chernobyl, are capable of possessing sonorous beauty,

especially from an acousmatic perspective. Thus my project does not ask the audience to pass judgement upon the environment; rather it aims to create an awareness of the innate musicality of all environmental sounds, regardless of their source. If such awareness were to lead to more environmentally-focused considerations and maybe even actions on the part of my listeners, I would consider my music to have reached its full potential.

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