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Abstract

This article details the sounding project I am conducting in Montreal's Underground City—the more than 30 km network of tunnels, corridors and commercial spaces located throughout the downtown core of the city. The project is concerned with understanding how listeners engage with this well used and expansive, yet understudied area, while also attempting to extend the auditory scope of current locative sound art and sound mapping praxis, which too often maintain a narrow focus in relation to what constitutes urban sound and the creative possibilities of locative media.

Introduction

In the last decade or so a rush of interdisciplinary scholarship has emerged to address the connections between sound, listening and mobility within various Western urban centres and contexts.[1] Much of this work is conceptually focused on the study of soundscapes and/or acoustic ecology, and whether explicitly stated or not, it is driven by a desire to challenge and engage with the epistemological urban bias that has haunted these interrelated fields ever since R. Murray Schafer's (1977) infamous ideological

distinction between urban lo-fi and rural hi-fi soundscapes.[2] In the sonic arts a similar move to the city has occurred with soundmakers developing a range of creative sounding practices, from remixing (Edmonds et al. 2012; Freeman et al. 2011), to mobile music applications (Thulin 2012, 2014), and soundscape composition (Chapman 2009; McCartney 2004; Westerkamp 2002), to better understand how sounds of the city can be rearticulated for the purposes of music making, performance and community engagement.

In what follows I detail my sounding project of Montreal's Underground City—the more than 30 km network of tunnels, corridors and commercial spaces located throughout the downtown core of the city. The project is concerned with understanding how listeners engage with this well used and expansive, yet understudied area, while also attempting to extend the auditory scope of current locative sound art and sound mapping practices, which too often maintain a narrow focus in relation to what constitutes urban sound and the creative possibilities of locative media. While certainly not the only method for urban sound practitioners to forge connections between sound and place, sound maps are increasingly becoming the most common and widespread, and reveal many of the limitations of web-based and networked aural arts praxis. I begin by addressing several emergent critiques of these projects before moving on to a discussion of the ongoing work I am conducting in Montreal's Underground City and the project's larger objectives and methods.

Mapping Critiques

The fervent interest of the last decade and a half in creative sounding practices and cities has been accompanied by an increasing (presumed) ubiquity of Internet access and the far-reaching availability of smart phone technology.[3] Perhaps then it should come as no surprise that many urban sound projects in one way or another integrate the use of these newish devices, their networked connectivity and recording capabilities. One of the most prominent manifestations of the turn to locative urban sound art has come in the form of sound maps—an emergent, social media application that has attracted the attention of a range of sound practitioners, community groups, libraries and tourist organizations, among others. As Waldock (2011) writes, in cities ranging from New Orleans, Montreal, Vienna, Seoul, New York, and various locales in the United Kingdom (UK), these rather recent web-based, publically-orientated aural cartographies are primarily centred on recording, archiving and drawing attention to the everyday sounds that circulate within cities throughout the world. While typically modest in terms of their (web) design, they are often vast in their territorial and ocular ambitions, with some hoping to create something like a global archive of recorded sonic experiences. After more than a decade of steady development of online sound mapping praxis, a range of critiques have recently materialized questioning their efficacy in representing and documenting the complex listening and sounding experiences that listeners encounter in their everyday lives. To date, sound maps have been seriously hindered by a narrow set of approaches to sound reproduction and representation, while also tending to focus on a thin slice of urban sound environments. Waldock (2011), for instance, argues that sound maps are remarkably similar in their online formats and almost always use static Global Positioning System (GPS) tags with pin signs to mark public, above ground spaces—rather than domestic, underground or private spaces—at

very specific times of the day. Secondly, current sound maps unduly focus attention on documenting sounds and aural experiences from a "purely acoustic perspective"—in other words, these maps only archive the sounds themselves and contain very little additional information from their contributors, including their relationships to the sounds (Waldock 2011, p. 6). And thirdly, while many mapping projects are framed by a collaborative and democratizing techno-ethos, they almost exclusively receive recorded sounds from men, professional sound practitioners and people between the ages of 20 and 50 (Waldock 2011, p.4).[4]

In a similar vein, Carlyle (2014) notes the striking similarities of online sound maps and challenges their current emphasis on representing sound recordings coupled with a flat, online cartographic view from above. This particular vantage point, of course, obscures what Carlyle calls the "urban vertical," the extensive area of cultural activity that transpires above and below ground within cities (p. 143). As he emphasizes, "given the vast swatches of city space that are constructed above and below ground level, it is remarkable how little auditory attention has been devoted to these zones of activity" (p. 148). Carlyle contends that as a consequence of experientially framing sound maps within this point of view, "it is almost as if sight has won again and the weighty visual inheritance of the map has conspired—even when it has been repurposed towards the heard world-—to flatten sound into a grid of surface and source" (p. 149). Which begs the following questions: what are the ways in which one might map a deep, layered space, like Montreal's Underground City, which is resistant to tracking by locative media and smart phones? How do underground spaces contribute to our understandings of

listening and mobile making? How does an underground soundscape both extend and develop our understandings of what constitutes urban sound?

The Underground

These questions form the primary lines of inquiry for a sound project I am currently developing in relation to Montreal's vast subsurface development—a site that offers particularly dynamic encounters for creatively and critically advancing the possibilities of sound mapping, mobile making and listening. The heavy construction of these various underground spaces began in the early 1960s, and after several successive expansions it is now comprised of roughly 30km of total space, including an extensive network of connections to aboveground buildings and pathways (Durmisevic 1999, p. 236). With its complex array of sounds, produced at all times by people and machines, mixed with the seemingly infinite variations of sonic effects and reflective surfaces from above and below, the Underground can feel like an endless sounding instrument to be played with and to be played by. At different times of the day and night a cacophony of frequencies and moving air swirl through its innards. Yet, at the same time, the space can offer quietude and warmth compared to the business of the streets and the extreme winter conditions of Montreal.

Map of the Montreal Underground City

The Underground's rich sensory makeup is not just produced by its complicated acoustic expressivity and so it presents many possibilities for connecting auditory experiences to other senses. For instance, Durmisevic (1999) asserts that a mixed palette of design atmospherics were intentionally put into play by a range of clients and architects with each successive expansion in the Underground's history, contributing to its diverse affective economy-. As he writes, "various materials and colours were used to prevent boredom and tiredness and natural light was introduced whenever possible … and in such a way ease orientation and reduce the feeling of entrapment " (p. 236). Additionally, seasonal weather changes, precipitation rates, time of day, and day of the week are just some of the factors that play into the complexity of conducting sensory research in the Underground.[5]

I am pursuing an ongoing program of study to better understand how the sound environment transforms through these seasonal changes, how they affect listeners and how various listening standpoints relate to other sensory encounters. Rather than simply representing a formal taxonomy of sounds online, which typically organize sounds as "mechanical," "human," "animal" and so on (Waldock 2011), I am interested in knowing who these mobile listeners are; how they engage with the sounds of the Underground; and how they are affected by the network of echoic chambers and tunnels that form the Underground City. The project uses a variety of mobile methods for engaging with the space and the listeners who move through it. Mobile methods, as Buscher, Urry and Witchger posit (2011), include "an array of methods that in different ways capture, track, simulate, mimic, parallel and 'go along with' the kinds of moving systems and experiences that seem to characterise the contemporary world" (p. 7). More specifically, sound walking (both solo and in groups, followed by post-walk discussions), mobile sound recording and music production are the primary modes of encountering and producing with the Underground.

Sound/Tracking the Underground

Soundwalking and soundscape composition have become foundational parts of my sounding praxis over the last eight years primarily through my involvement in Andra McCartney's Soundwalking Interactions project as a research assistant and collaborator. The project's objective "is to explore the use of soundwalks and interactive installations to engage audiences and raise issues about various locations and their history" (Soundwalking Interactions 2015). While working on the project I led and participated in several soundwalks, contributed to the project's website and produced many

soundscape works, including a collaborative and improvised soundscape performance of Montreal's Parc Lafontaine with sound recordists and more traditional instrumentalists (violin, prepared electric guitar and saxophone), entitled Résonances de la Fountaine. McCartney's work provides an approach to soundwalking that I have adapted for sound/tracking the Underground. In short, this approach affords the possibility of mobilizing several different ways of listening and listening standpoints, planned and improvisatory soundwalking, and extensive post-walk discussions during group soundwalks (Paquette and McCartney 2012).

A soundwalk is an opportunity to develop and refine various ways of listening by repeatedly focusing on and engaging with the surrounding sonic environment or soundscape. While soundwalking, one can make connections between sound, sensory experience and place. Drawing from Soundwalking Interactions, the term "sound walk" is used for my walks through the Underground as it is more widely known than other terms and it opens up more possibilities beyond"'listening", especially in relation to the interaction of the senses and the reality of sound production while walking, with members of group walks inevitably producing sound as they walk. For instance, some scholars and practitioners prefer to use the term "listening walk" (eg. Greg Wagstaff), rather than "soundwalk." While on a soundwalk it is also important for participants to be aware of their multiplicity of listening standpoints—one's background and identity (eg., woman, immigrant, academic, etc.), and all of the various things that inform experience. Even though we might think we are listening with open ears while soundwalking, these various standpoints affect how one listens and processes sound.

Listeners should have an awareness of their standpoints, and, as a listening experiment, can then attempt to try to listen in other ways as well, if possible.

While on a soundwalk, a listener might engage with an acoustic environment through structural listening by focusing on intrinsic musical properties such as rhythm, meter or melody; listening for meaning, wherein listeners connect sounds to a multiplicity of meanings; restricted listening, which makes listening associations vis-à-vis one's interpretive community; political listening, or the way a constellation of political locations affect listening and how certain sounds mask others; disciplinary listening, or the relationship between disciplinarity and listening; socially aware listening, wherein listeners make connections between sounds and the surrounding social environment; improvisational listening, or the way listeners make decisions in real time in relation to the sounds they encounter; subjective listening, or the personal narrative that might be constructed throughout a walk; historical listening, wherein listeners think of other times they have walked in that place or in similar places and how the soundscape has changed over time; evocative listening, or the sensual relationality of listening; and imaginative listening-—when a listener's imagination and memory intermixes with the in situ soundscape that one is encountering while walking (McCartney 2014).
Since fall 2015, I have led and audio recorded nine group soundwalks with anywhere from four to eleven listeners, in addition to four recorded solo walks, covering a range of the Underground's subsurface infrastructure. The walks are usually forty-five to sixty minutes in length and I attempt to move through new terrain with each walk as a way to encounter the diverse sensory affordances of the various spaces. To be clear, Montreal's Underground City is not merely comprised of an underground public transportation

system or metro; much of its more than 30km of space is comprised of corridors, tunnels and commercial spaces.[6] With each new walk, there are new discoveries, sonic or otherwise, that seem to undo any uniform understandings and relationships between sound, place and listening. Weather patterns, for instance, which can change so much from day-to-day in Montreal, drastically affect how listeners engage with the Underground, before, during and after soundwalks. Furthermore, depending on the time of day, there can be severe changes in terms of how many pedestrians and commuters are moving through and using the space. During peak rush hour moments in the morning and evening, the Underground is heavily congested and dominated by the sounds of footsteps, whereas at night, it can feel totally sparse and eerily dangerous when walking alone (although it is usually well-lit at all times of the day and night).

As stated above, through these listening encounters, recordings and discussions that follow the soundwalks, I am interested in analyzing how Montreal's Underground City contributes to our notions of urban sound and how the recorded sounds from these walks can be used for purposes of sound reproduction and music making. In the solo and group walks that I have carried out so far, a variety of interpretations and listening responses have emerged from the discussions after soundwalking. Post-walk discussions allow for many voices and interests to contribute to a soundwalk and typically present a more diverse trace of sound and place, particularly if they are recorded as one can return to the recording for further listening and reflections. The recordings can also be used in a variety of mobile making contexts. Again, rather than relating sonic experience and audio recordings to a formal taxonomy and/or GPS pins like many of the sound maps detailed above, group discussions provide long-form impressions of a particular area and the possibility of a more varied listening profile. Here is a mixing of some of

the discussion comments that have been recorded from the nine preliminary group walks. The responses are from seven different listeners, recorded following six different soundwalks in the fall of 2015 and winter of 2016.

> It was strange to be so clearly and deeply under the city without feeling totally underground. For most of the walk, I still felt connected to what was happening on the surface … because it always seemed like a window or a pathway to the street was right around the corner, even if it wasn't. Or I could feel the wind coming from the street.

> It was like everything I heard was simultaneously made softer and more pronounced at the same time. I was contained by the reverb of the space. I could almost see it at times. The sounds were almost visual. They felt wet too.

> I didn't realize it was so big. Has anyone tried to stay inside all winter? There was so much reverberating sound that I wondered what sounds were being masked?

> It was so cold today. Once I got here, it felt so warm to go on an indoor walk. I took my jacket off midway through the trip. As I got warmer and warmer I enjoyed the walk and the sounds more and more. By the end I was sweating. I really liked all the music we passed by during the walk. The music kind of felt like our own moving soundtrack with changes every so often. Sometimes I wanted to stop and listen. It was always overlapping with the sounds that we made as a group.

> Coming here intentionally for a soundwalk felt so different even though I walk through here almost everyday. But it's usually such a functional space for me to get from A to B. There is so much happening with the sound but I've never really considered it. I really enjoyed hearing the skating rink, it was very refreshing after all of the footsteps and wind and people.

> The sounds change so much from one space to another. One moment it was like we were walking through an indoor swimming pool or giant aquarium with sound bouncing from the walls. Then the echoes would stop or the metro would arrive, or we'd end up somewhere with music playing, or we'd encounter someone busking. Or I would be aware of my own body because of how loud my footsteps were, and then I could barely hear them and I would be listening to an escalator.

The last two listeners' responses come from a sixty-minute group soundwalk conducted on a cold and wet day in early January 2016, in the early afternoon. The nearly thirteen-minute recording featured below ('Bonaventure Excerpt') is an excerpt from the walk, made using a small portable recorder with its built-in adjustable directional microphones. I am the recordist and I cut the excerpt from the longer sixty-minute recording with the open source audio software *Audacity*. The recording begins with the sounds from a Montreal metro car, followed by the three-note melody that is produced when some of the city's metro cars are departing from a platform. As the walk progresses, the recording registers voices and footsteps from passing pedestrians, the

looping mechanical sounds from the escalators leading to the street, the microphone clipping and rubbing against my clothes, high-pitched ringing from opening and closing automatic doors and the sounds from a small indoor skating rink on the ground floor of the city's highest building (*Le 1000 De La Gauchetière*), including piped in popular music, among other sounds.

"Bonaventure Recording Excerpt" – DAVID MADDEN

The second major objective of the project is to move beyond the current emphasis on web-based applications and GPS tags in locative sound art by way of exploring differing approaches to sound reproduction, including music making, soundscape composition and performance. As stated above, not only do many sound maps represent a narrow record of outdoor, public sounds; they also tend to incorporate a limited, and strikingly similar, range of techniques for recording and producing sound. Online sound maps typically consist of uploaded recordings of a particular place and time with almost no additional sound editing, or further possibilities for downloading or file sharing. In addition to soundwalking and the qualitative data collected through the recorded discussions, I am attempting to expand on these practices by using recordings from the Underground for the purposes of music production and performance. Many of the nine group and four solo soundwalks conducted in the Underground were recorded in their entirety using a portable audio recorder with built-in microphones and sometimes using binaural microphones placed in my ears. These sound recordings are now being edited into smaller samples to be used for producing a series of musical works and in situ

performances throughout various parts of the Underground City with a mobile sound system. One of these pieces, which is entitled *Bonaventure Parade*, is included with this article below. It is named after the two metro stations marking the east and west borders of where the recordings come from—*Place Bonaventure* and *Place d'Armes*.[7] Fragments of these recordings were edited into shorter samples using *Audacity*, with final edits and mixing carried out in *Ableton Live*, which will also be used as the software interface for performing the pieces.

Recorded samples from the abovementioned January 2016 soundwalk are also included in *Bonaventure Parade*: the echoing and blurry voices at the one-minute mark of the piece; the sequenced, looping percussive pattern that comes just before two-minutes was edited with samples of an escalator; the layered high frequency beeping at four-minutes are the aforementioned ringing from opening and closing automatic doors; and, some ambient room textures from the skating rink is added at the end of the piece to mimic the always changing atmospherics of the walk. As one listener from that particular walk remarks, "the sounds change so much from one space to another. One moment it was like we were walking through an indoor swimming pool or giant aquarium with sound bouncing from the walls." I also mixed considerable levels of reverb into particular moments of the piece and fast-moving panning to some of the individual tracks in an attempt to recreate the echoic feeling that is present throughout various parts of the Underground City and as a way to respond to this listener's comments.

"Bonaventure Parade" – DAVID MADDEN

In the coming months, the collaborative aspects of the project will develop further with plans for more recorded group soundwalks and post-walk discussions and the production of more sound works, leading to the performance components of the project. In fall 2016, I plan to carry out a series of performances in the Underground City using the abovementioned sound works and a mobile sound system that I am currently constructing.

I will also make the recordings of the soundwalks and source material available for other soundmakers who might be interested in making creative contributions to the project, broadly defined. I want to know how other soundmakers, professional, amateur or otherwise, might work with sound recordings from the Underground City and how they might creatively represent and relate to these sounds. Without being able to rely on GPS tracking and surveillance, how might other soundmakers make connections between sound, listening and Montreal's subsurface development? And, what are some other understudied areas and practices that might extend our understandings of urban soundscapes and mobile making? It is worth mentioning that in our efforts to map any particular urban territory using sound, practitioners must attempt to avoid the same processes of visual cartography that unduly flatten landscapes and leave little room for broader sensory interventions. For, as Thulin (2014) argues, "together sound mapping and locative audio reveal a vast range of possibilities for understanding relationships between people, mobile technology, sounds and places" (p. 233). Of course, in order to

reveal these vast interconnections soundmakers and listeners must continue to develop the practices, places and possibilities of engagement.

Notes

1. For example, on sound and urban settings refer to Arkette (2004), Augoyard and Torgue (2006), Labelle (2004), Thibaud (2004); listening (Bull 2005; McCartney 2014); and mobile media (Beer 2007; Bull 2007; McCartney 2004).
2. For a gendered critique of this binary, see for instance McCartney (2010), who posits: "the ideal of hi-fi seems to be related to ideas of authentic experience, of solitude, and of control of the environment" (p. 4).
3. It is worth mentioning that although access to these technologies has increased tremendously in recent years, there remains heavy institutional and economic barriers which belie the presumed widespread accessibility. For instance, although Canada is one of the most networked nations in the world, it also maintains some of the most expensive Internet and smart phone rates. I currently pay just over $140 per month for Internet and mobile phone services through Bell Canada–one of the largest telecommunications conglomerates in the country.
4. Waldock estimates that the contributors to sound maps are over 70% male and are limited by a "growing professionalism" that will "discourage new contributors or amateurs to contribute" (p. 6).
5. Similarly, Zacharias (2000) posits that understanding the behaviour and flow of pedestrians moving through the space presents a heavy interdisciplinary challenge for scholars, urban planners, engineers and architects because of this complex mixing of systemic agents.
6. For a creative sounding project that uses various underground public transportation systems as sites—London, Paris, Mexico City—and sounds selected by commuters during their commute, please refer to Alarcon (2013) and the Sounding Underground project (http://soundingunderground.org).
7. *Place Bonaventure* and *Place d'Armes* are clearly marked on the "ligne orange" on the map of the Underground.

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