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[P]ersonal stereos [are] a critical tool for users in their management of space and time, in their construction of boundaries around the self, and as the site of fantasy and memory. (Bull, 2000: 2)

We mustn't be mistaken – the Walkman listener is not entirely cut off from the urban environment. His [sic] being rooted in the urban space leans more towards an instability of perceived forms. [There is] a precarious balance ... create[d] between what he hears and what he travels through, between what he sees and what he listens to, between what he perceives and what he expresses.... (Thibaud, 2003: 330)

The ubiquity of mobile personal sound media should be obvious by now to any city dweller. One cannot walk down a street, sit on a patio or take a bus without encountering people whose ears are either covered or filled by little audio speakers, people who seem intent on shutting out the sounds of the city and listening instead to their own private urban soundtrack. While no doubt a useful tool, as Bull (2007, 2000) argues, for constructing personal boundaries, from another perspective we might say that this is also an exercise in personal isolation, a practice that seeks to cut off the individual from the urban soundscape they are inevitably a part of. But as Thibaud reminds us this practice never fully achieves its intended goal. The sound of the city – the traffic, the people, the sheer aural chaos – inevitably intrudes through one's

headphones. This reality opens up many possibilities for reconceiving how we might use such mobile technologies to produce audio work and listening strategies that integrate us into, and augment our aural experience of, city life. Rather than presume that personal stereos are used simply to shut out the sounds of the city, how might we deploy the technology in a way that draws upon, and draws us into, our everyday world of sound?

This paper explores the idea of deploying mobile personal sound media (MPSM) as a means of integrating users into the soundspaces they inhabit. It counters a tendency to consider MPSM as a means of isolating oneself from the sound environments people inhabit and inevitably contribute to. This tendency, and the way it finds expression in the research into MPSM use by Michael Bull (2007, 2000), is predicated upon the idea of a noisy urban soundscape. It is an idea that implicitly borrows from, and hence shares many consonances with, the traditional model of acoustic ecology originally forwarded by R. Murray Schafer (1977). While perhaps logical from a particular point of view, the idea of the noisy soundscape is grounded in a weak theorization of technology and space that positions the observer as detached and separated from the soundscape itself. This tendency clearly reinforces the consumer strategies of MPSM use explored by Bull, strategies based on uninterrogated assumptions of MPSM as consumer audio devices intended for the construction of personal soundscapes. My own creative binaural sound projects such as *YOU ARE HERE* and *Toronto Transit Soundscapes*, both described in this paper, seek to overcome this sense of detachment by exploring the potential connections between listeners and their sound environment afforded by MPSM use.

Both seek out the possibilities of MPSM beyond their traditional consumerist conception.

The scholarly touchstone for considering mobile personal sound media, as has already been mentioned, is the work of Michael Bull. Bull's ideas, developed through ethnographic study first of the portable audio cassette player (2000) and later applied to the iPod (2007), are predicated on the idea that MPSM are deployed by users primarily to provide them with a personalized soundtrack as they move through urban space. It is an approach that understands the city in a way that appears to separate the visual and the aural, rendering the city a form of cinematic experience that consumers navigate in a somewhat detached and abstracted way. While Bull's conclusions are indeed well supported by his extensive ethnographic research, one of the dangers of such research into such consumption-oriented technologies is how it takes their intended use at face value. For example, most users of such technology often fail to look beyond their standard and prescribed uses, in this instance understanding the context of MPSM use as anything other than part of a "mobile" lifestyle. Individual agency in this regard often gets reduced to something akin to a customization activity (see, for e.g. Perlman, 2003). Developing playlists, buying skins or using third-party headphones here substitutes for meaningful action and hence represents a similar act of misplaced agency.

Bull's methodologically problematic reliance on consumer ethnographies takes for granted the designed and designated consumer use of these devices, and ends up reifying technological forms and practices along the lines determined by the commercial

manufacturers of the technologies themselves. In other words, Walkmans, iPods and the like are intended for the consumption of popular music and other related media content. As such, this sort of ethnography can overlook the *possibilities* new technologies might embody; alternative configurations and conceptualizations not intended by the designers, manufacturers and any other commercial interest involved in the provision of a particular consumer electronic form. We have to be open to understanding these contemporary technologies in the terms drawn from the variantology of Siegfried Zielinski (2006), seeing them as impossible or improbable media. In other words, we must look beyond what we are told these technologies are for to what we imagine they might become.

Bull's apparent acceptance of the conventional form and use of MPSM is problematic for a number of reasons. First, it uncritically assumes a very particular audile technique (Sterne, 2003) based on the consumption of popular music (or other similar aural commodities such as podcasts and audiobooks) and with it in turn reproducing a traditional set of conditions of audience (Kaye, 2012). As well, it ultimately reifies the object itself by emphasizing the technology's personal use over its networked organization, a tendency that downplays the device's innate sociality. Lastly, it conceives of headphones as a barrier between the personal soundscape of the iPod and the public soundscape beyond, as if the only thing heard when listening to a personal stereo is the music. Technically speaking, iPods, Walkmans and the like cannot operate in this fashion. On one hand, this tendency to think of headphones as *de facto* aural barriers between the outside and inside may well be a byproduct of an uninterrogated

visual bias whereby the iPod becomes a device intended to supplement the visual spectacle of city life with a customized and personalized musical soundtrack. But more importantly, we must consider the headphones themselves as permeable membranes, or what Samuel Thulin (2011) in his presentation at the conference from which this special issue of *Wi* was compiled referred to as their "porosity". This is not simply a conceptual observation but a basic aural fact. We don't just hear what comes out the speakers inside the headphones, we also hear what comes through them as well. The "personal soundtrack" MPSM provide exists within, and is fundamentally conditioned by, the broader social rhythms (such as the daily commute) of urban sound that provides the sonic context of their use.

Aside from these methodological and materialist problems, what is also fascinating about Bull's work is how it appears to rely upon an understanding of the noisy urban soundscape that is very much in line with the way the soundscape was originally conceptualized by R. Murray Schafer and deployed in early formulations of acoustic ecology. Briefly stated, Schafer and his colleagues in the World Soundscape Project formulated acoustic ecology as both an intellectual and political movement, arguing the sound environment was an important area of social, political and cultural concern (Schafer, 1977). Of key interest was a concern with noise, and the detrimental social and cultural consequences of the thoughtless proliferation of unwanted sound. Bull (2007, 2000) appears to understand the sound of urban life in much the same way, as a noisy and intrusive soundscape, and MPSM are used as tools for a strategy to overcome this. What is so fascinating about this correspondence is how Bull's idea,

while in some ways faithful to Schaferian acoustic ecology model, nonetheless proposes a solution to the noisy soundscape that is fundamentally at odds with the latter's overarching environmental goals. Rather than attempt to make the urban soundscape less noisy through cultural education and political activism, Bull explains mobile audio technology as a means of shutting it out, an approach that would appear to be antithetical to the ideas of Schafer and his followers.

The question arises, therefore, as to how this apparent contradiction has come about. I argue this problem stems in part from the theoretical frailty of Schafer's conceptual foundations of acoustic ecology, and in particular with the very concept of the soundscape itself. While no doubt a crucial and profoundly evocative concept in terms of the social studies of sound and aurality, its original conceptualization by Schafer and others in the World Soundscape Project is distinctly weak on two critical points: a rigorous theoretical treatment of the concept of space and a rigorous theoretical treatment of the concept of technology. On the former Schafer et. al. are almost completely silent, defaulting it seems to an uncritical assumption of space as a neutral and empty container of things, an idea forcefully countered by Henri Lefebvre in *The Production of Space* (1991). On the latter, technology is reduced to a neutral toolset to be used for either good or bad, a conceptualization stated rather bluntly by Schafer's colleague Barry Truax (1977) and an idea critiqued by many different scholars from a wide range of theoretical perspectives (see, for e.g., Kline, 1985; Hughes, 2004). This weak theoretical formulation and foundation gives rise to a concept that lends itself to confusion, incompatible application and at times even outright misappropriation, as

Andra McCartney in her conference presentation with David Paquette (2011) noted about the work of both Steve Goodman (2010) and Michael Veal (2007).

Given these problems, it is not surprising there appears to be some consonance between the ideas of Bull and Schafer. For instance, we can note in each how technology comes to be seen as both the cause of and solution to a noisy urban soundscape. After all, the "noise" that Bull's MPSM users seek to escape is the same sort of sound that some acoustic ecologists seem to decry: the sound of vehicular traffic, construction, aircraft, honking horns, blaring radios, people gabbing away on their mobile phones, and so on. Yet we must always be careful to acknowledge that what we are reacting against here is not simply the obtrusive and unwanted sound of technology acting on its own but the sound of *other people*. After all, technology is merely the mechanical embodiment of human intention and action. In other words, technology and humanity are not separate features of the soundscape. Ultimately, this means we do not live apart from the soundscape. It is not something "out there" but a social space we inhabit, a reality that Jody Berland (2011) so eloquently noted in her keynote speech to the IASPM-Canada conference. It is a social space we cannot simply remove ourselves from through the particular use of a particular technology.

The very thought that MPSM can be used to separate ourselves from our sound environment is ideal in its formulation. It both overstates the technology's capabilities while simultaneously understating its fundamental sociality (how we acquire and share music, for e.g.). We have already noted that at a simple technical level headphones are

generally permeable or porous membranes. Indeed, to try to use them as complete barriers against the sound of the (social) world requires volume levels that aside from risking damage to one's hearing also makes their use a fundamentally antisocial act. The sound bleeding from your headphones is inflicted on others in a way that makes you part of the noisy soundscape you are trying to remove yourself from. More to the point, however, is how this strategy creates a disjuncture between hearing and listening. Indeed, it counterposes one against the other in an almost antagonistic way: *we listen* (to MPSM) *so that we do not have to hear* (the city and each other).

This is a proposition, an antagonism, I refuse to accept. It begs the question of whether strategies can be developed that reconcile practices of hearing and listening, of how we might use MPSM as a means of integrating a user/listener into their urban sound environment rather than isolating them from it. This is precisely where media art, sound art and research-creation practices (Chapman and Sawchuk, 2012; Sawchuk and Crow, 2007) can play a vital role. Specifically, sound art projects utilizing site-specific binaural audio recordings have the potential of deploying MPSM in a way that allows listeners to explore and learn about their everyday urban sound environments. Binaural audio, which typically uses an "artificial head"-style recording technique with microphones in the ears (although other microphone configurations can provide similar results), captures a stereo signal that when played back on headphones provides a very realistic 3D sound experience. Binaural recordings, when played back and listened to on headphones, mimic the way we encounter sound naturally, maintaining and reproducing the psychoacoustic cues that allow us to locate sounds in space. This

technique would seem ideal for use with MPSM, as the latter technology represents an excellent vehicle for an audio technique that demands headphone use in order to achieve its aural verisimilitude.

Binaural audio is in fact a much researched audio technique, however generally not from the perspective of urban sociology, media studies or even sound studies. Much current research on binaural sound is of a technical nature. Liu and Meng (2008), for example, attempt to map the idea of binaural hearing to electronic sensory systems with the goal of developing more sophisticated aural interfaces for autonomous robotic systems, while Mair (1999) considers binaural audio in terms of its potential application in telepresence systems. The most interesting, and perhaps relevant, example of such technoscientific work comes from Trapenskias and Johansson (2007) who concern themselves with the question of accuracy in terms of spatial location of binaurally recorded and presented sounds. Blauert and Genuit (1993) are similarly concerned with the technicalities of binaural audio perception in the practice of what they term "sound-environment evaluation", an approach perhaps most directly related to the issues at stake in this paper. Blauert and Genuit's ideas were proposed specifically within the context of an evaluation of the Japanese soundscape. Their conclusions are very much in line with acoustic ecology's call for soundscape designers to take an active role in sculpting the sound environment.

All of this work is still quite heavily biased towards quantitative evaluation and analysis. Very little is to be found that is concerned with the experiential,

phenomenological or aesthetic dimensions of binaural sound. However, a broader consideration of mobile media as platforms for artistic creation does seem to offer a useful launching pad. Baker et. al. (2009), for example, discuss a nascent form of media practice they call Mobile Media Art. What makes this perspective so appropriate to the ideas discussed here, despite the fact that Baker et.al. fail to consider binaural audio (or sound as anything other than a notification service or supplement to visual material) is how it is grounded first and foremost in creative media practice. It is just these sort of elements that binaural sound art seeks to explore.

To this end, I have developed a number of creative projects that use binaural audio and MPSM to explore the aesthetics and experience of urban sound. The first, prepared for Toronto's first Nuit Blanche festival in 2006, is entitled *YOU ARE HERE* <<http://www.ccca.ca/nuitblanche/nuitblanche2006/artists/d1.html>>. The project consisted of 30 MP3 soundscapes, each prepared from binaural location recordings made at each Nuit Blanche exhibit location. The intention was to make available to the audience "aural introductions" to the evening's sites, playful sonic peeks into the crevices of the city the installations and artworks of Nuit Blanche would come to inhabit. Each track was designed to be experienced where the original recordings were made on the night of Nuit Blanche itself. The permeability of the listener's headphones would allow the realtime soundscape of the event to flow through and mix with the everyday soundscapes of the location I processed and mixed in my compositions. Each composition thus became part of a real time soundtrack for a specific location and installation: temporally displaced and diaphanous acoustic layers born of, and sympathetic with, the living sound that surrounded the listeners.

The second project, and one that bears much in common with Sam Thulin's project *There to Hear: Placing Mobile Music* presented during the IASPM-Canada conference, is entitled *Toronto Transit Soundscapes*. Similar to *YOU ARE HERE*, the project consists of a number of binaural MP3 soundscapes developed for MPSM distribution. This project attempts to refocus the listening habits of subway commuters on the latent musicality of the transit experience. By providing them with a processed binaural recording of the same route they are taking to accompany their voyage, I wanted to give the listener with an opportunity to experience common soundmarks superimposed on top of each other. Different conversations, the presence or absence of different numbers of people and their movement, different patterns of traffic, and the inevitable variance of travel time all contribute to the singular experience of a specific commute. By combining the sounds of a recorded commute with the listeners own, the temporal juxtaposition caused by this superimposition allows for the creative confusion of sound events, revealing the complexities and nuances of the aural experience of public transit.

These two projects represent a creative response to what I perceive as two related theoretical problems: how do we understand the possibilities of MPSM beyond simple media consumption models that seek to isolate the individual from their sound environment, and the problem of under-theorized conception of the soundscape advanced by Schafer in his early formulation of acoustic ecology. They are also an attempt to develop creative strategies that are actually medium specific in that they offer

audio programming specifically designed for headphone-based media. This medium specific creative strategy is intended as an antidote to the prevailing understandings of MPSM use that inform the ethnographic work of Michael Bull, and seeks to counter the claim that cities are merely noisy places not worth attending to.

The urban soundscape is a fascinating and wonderful thing. If we pay attention to it critically, there is much for us to learn about human activity and community. We must resist the tendency to view urban sound as a collection of unwanted noises, an idea that can easily extend to technically naïve strategies for mobile personal sound media that conceive of them as little more than devices used to shut out these noises. Even so, if there was a safe technical way to fully reject the aurality of others there remains the normative question of whether we should use them in such an isolating and individuating way. Traditional Schaferian acoustic ecology, for all its theoretical weaknesses around questions of space and technology, still points us towards the meaningful goal of a more socially attuned aural sensibility. As a critical scholar, I share this normative aim. As an artist, the projects I've outlined in this paper represent a modest attempt to deploy MPSM in creative ways in order to help us think about how personal audio is inevitably and fundamentally social.

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