Big Sounds, Little Screens:
Considering Sound and Headphone Use in the Mobile Cinema

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> To study film sound is to take seriously
> the multiplicity of possible determinants
> of any given audience perception.[1]

—Rick Altman

Introduction

Over the last few decades "on-the-go" screening practices, ranging from the viewing of in-car and in-flight movies to the use of laptop computers and handheld video devices, have steadily been on the rise. While little attention has been paid to how these activities might challenge longstanding notions of film spectatorship, even less consideration has been given to new techniques and technologies of soundtrack reception. The increasing popularity of headphones in particular—a technology widely considered to be the iconic equivalent to the "micro-screen" in the portable video market—has yet to have been met with much critical attention from the film sound studies community; this is despite the ability of such devices to offer a unique listening experience, difficult to account for within traditional conceptions of sound in the cinema. This paper represents preliminary efforts to begin to come to terms with the specific nature of this experience using a distinction between "in-theatre" and "in-head" acoustic space.

From the arrival of the talking pictures in the 1920s to the coining of the term "sound designer" in the 1970s, film sound professionals—and audiences—have primarily modelled their expectations of film sound on the "theatrical release." This is what Altman understood when he wrote, "the history of cinema sound may conveniently be divided into five periods, each featuring a different speaker configuration designed to match cinema sound to current standards of how sound should sound."[2] Even as cinematic practices made their lateral move to the private home in the 1970s and 1980s—a place where hi-fi headphones had long been in domestic use—the soundtrack continued to be considered something to be listened to through speakers and not personal audio devices. Today, the push by studios and consumer electronics manufacturers to turn every home into a "home theatre," marks a continued privileging of the "in-theatre" sonic experience over other possible modes of film sound reception.[3]

Seen in this light, it is hardly surprising that headphones and portable video devices have largely been perceived as inferior, or at least marginal, within dominant cinematic discourses. Even as scholars like Altman have pressed researchers to begin thinking more carefully about where and how sound is experienced, there is still a sense that film sound studies remains constrained by a kind of "in-theatre bias," which assumes that sound must always arrive via external speakers, located at a distance from the body. I invoke the term "in-theatre" to describe any cinematic environment that is modelled on the idea that film sound is best experienced when it is made to surround, immerse, or otherwise engage the body "from without." Taking headphones as a primary (rather than peripheral) object for consideration, this essay briefly maps out a few of the necessary differences between "in-theatre" and "in-head" listening in the context of mobile cinema.

"In-Theatre" vs. "In-Head" Acoustic Space

There have been a few noteworthy studies produced over the last few years that have begun to shed light on some important differences between external and "in-head" listening in everyday practice. Sterne's preliminary work on the evolution of headphones has been particularly instructive. Tracing personal listening devices back to nineteenth century medical practices and the invention of the binaural stethoscope, Sterne argues that "by providing sound to both ears, [the stethoscope] helped to isolate physicians from other sounds and concentrate the sound in their auditory fields."[4] This ability to essentially bracket out noise in favour of isolating a single sound source is one of the key breakthroughs associated with early stethoscope/headphone use. Another important distinction is one Stankievech makes between "*listening to* an interior space of the body and *creating* an interior space in the body" (original emphasis).[5] Building on Sterne's work, Stankievech argues that stethoscopes do more than simply allow a doctor to explore the body through sound; they also create *new* spaces by mapping those sounds from one place (a patient's chest cavity) to another (a physician's head). Otherwise known as "in-head" acoustic imaging, he describes the phenomenon this way: "With the use of the binaural stethoscope (and subsequently with headphones) a sound field can be virtually located within the head. More accurately, *space is created within the mass of the body where sound masses float in an impossible space*" (original emphasis).[6] By thinking through some of the ways sound has been discussed by film researchers to this point, we may begin to understand how this perspective might raise serious questions regarding the directionality, corporeality, and immersiveness of film sound in the way it has traditionally been conceived.

One of the distinctive features of the "in-theatre" perspective is a reference to sound as creating a heightened viewing experience through an essential "filling in" of the area between a viewer's body and the screen. As Kalinak puts it, "Film is a two-dimensional representation of a three-dimensional world…[Film m]usic, however, like any sound, is carried as waves *through* the viewing space" (original emphasis).[7] While this statement effectively describes the relationship of sound to spectators seated within a traditional theatre space, it is not as useful in a discussion of headphone use in mobile cinema; here sound is never permitted to pass through a viewing space—which can be anywhere from a city park to a busy airport—and instead remains isolated within the ears of individual listeners. Indeed, the explicit directionality of Kalinak's approach makes its limitations to our object of study more clear. "This 'front to back' quality of the music (music is perceived as emanating from the front of the auditorium and travelling to the back)," she writes, "creates a sense of depth for the spectator, and through a kind of transference or slippage between sound and image, the depth created by the sound is transferred to the flat surface of the image."[8] Unable to project sound in such a "front-to-back" manner however, headphones instead rely on a side-to-side orientation. This means that the experience of spatial depth

through headphones depends less on how sound physically *travels* from one place to another within a particular viewing space (i.e., "from the front of the auditorium to back"), but more with where sound *appears,* from left to right within a listener's headset. This is not to say that headphones cannot effectively recreate an *illusion* of a front-to-back sonic experience, but that this effect is dependent on the distribution of sound within the stereo mix, and has little to do with the eventual position of spectators relative to the screen. This distinction is important because it explains why headphone-supplied sound is often experienced as being "closer" or more centred in the head, than that encountered in the traditional theatre-space. Indeed there is a sense in which, with headphones, it is not the sound that is made to surround the body, but rather *the body that is made to surround the sound*. The result is an "in-head" acoustic event that is qualitatively different than the "in-theatre" experience most cinemagoers—and film researchers—are accustomed to describing.

One could perhaps summarize these remarks by saying that the most significant limitation of the "in-theatre" bias is its insistence on separating the spectator's body from the source of a sound. As can be recalled from the example above, the film sound experience described by Kalinak is completely bound up by a corporeal assumption that audience members will *only* experience cinematic "depth" if sound is permitted to physically "wash over their bodies" within an enclosed sonic space. Others, like Celeste, have contributed to a kind of naturalization of this position by discussing film sound as operating primarily through a process of "externalization" or "double conversion." As she puts it, "[cinema sound] converts abstract internal experience outward, establishing it as spatial territory, and it converts this spatial territory back into the interior…In this gesture, it creates that elusive thing called *atmosphere* that stands somewhere between mood and setting" (original emphasis).[9] To be clear, the point here is not to detract from the work of Celeste, Kalinak, and others who have written specifically about the traditional theatre-space, but rather to caution against importing this work uncritically into questions of headphone use and mobile cinema. Because headphones operate under circumstances where sound is never "converted outwards" in a traditional sense, and is instead made to emanate from a seemingly impossible space confined within the body, we are forced to re-think the nature of such processes in important ways. Thus, while notions of atmosphere, mood, and spatial territory remain crucial to the study of film sound more generally, it is my contention that the relationship of the body to a film's soundtrack changes when the source of sound moves from the perimeter of a theatre to the interior of the ear itself. In the next section, I will briefly suggest ways film sound researchers might begin to consider the headphone sound experience separately and in its own terms.

Sonic Distance and Aural Presence

[N]ow, in the midst of [the modern world's]
far-flung ruins and debris, we calmly and
adventurously go travelling.[10]

– Walter Benjamin

No longer restricted to the public theatre-space, cinemagoers today have an opportunity to experiment with novel viewing environments in ways that were not before possible. This raises questions, not only of how and why mobile viewing practices are taking place, but also where and when. Consider for a moment watching a horror flick on a laptop computer while camping deep in the woods on a dark summer's night. Because the

viewing location would intensify the experience in distinct sensory ways (e.g., the surrounding darkness, the smell of the outdoors, a soft wind against the skin), the experience might end up feeling a little too "real" for comfort. Furthermore, by using headphones, the spectator would effectively be limiting their ability to be aurally "present" in the world immediately around them, making the experience more intense—and even dangerous. While there is still much to be considered in terms of thinking about film sound outside of the traditional theatre-space, the remainder of this paper will focus only on two concepts which relate to the nature of headphone sound specifically: the first is that of sonic "distance" and the second subjective aural "presence."

As we recall, a person experiencing film through headphones is no longer placed in the centre of its soundtrack, as with traditional theatre-space, but rather serves as, albeit in an abstract sense, the physical limit of those sounds. This creates a unique sonic experience, which Kallinen and Ravaja articulate in terms of "distance." "When audio is listened [to] with speakers," they write, "the sound comes from a distance. With headphones, the surrounds are more isolated and the sound comes closer to the listener, and may thus create a more intimate and immersive listening experience."[11] Bull displays a similar understanding of the "closeness" of headphone-supplied sound, describing how Walkmans and other portable audio devices "may give an added physical presence to a subject's sense of interiority often achieved through the very physicality of the music, while at the same time displacing the sounds associated with the movements and activity of the everyday."[12] Determining the extent to which mobile listeners interpret, but also *manage* this sonic distance (using volume controls, EQ settings, sound-isolating headphones, etc.), becomes crucial to understanding how it is that film is mediated and controlled within mobile environments. Indeed, one of the biggest challenges facing film sound scholars in the age of mobile cinema is how to continue productively generalizing about uniform sound "effects" as the range of possibilities for personalized mobile listening greatly expands.

One possible starting point is to introduce the concept of aural presence into the film sound studies vocabulary. This Steuer defines as "the extent to which one feels to be present in the mediated environment, rather than in the immediate physical environment."[13] While ultimately impossible to measure in any quantitative sense, this concept does have much to offer in terms of helping to gain a better understanding and appreciation of strategies adopted by users to help control their simultaneous existence within two distinct sonic worlds: the mediated world of the film on one hand, and the immediate physical environment on the other. In other words, like the distinction between diagetic and non-diagetic space, which allows film scholars to distinguish between the sonic realities and non-realities of a particular film-world, the notion of aural presence allows for a deeper consideration of the extent to which spectators *themselves* become divided between parallel sonic environments while in the process of viewing/hearing a film.

In framing the experience in this way, many new and interesting questions come to light; for example, what is it specifically about the isolating power of headphones that might heighten or disrupt a film's "potential to immerse"? How might one's immediate physical surroundings affect or alter a personal relationship to a film, particularly in situations when the very "reality" of a sonic environment may be tested or called into question? What possible effect might *other* sounds, leaked into "the mix" by way of more unpredictable viewing environments, have on the overall cinematic experience? How might we begin to account for this new kind of "sonic slippage," and how is it understood and/or managed by those who encounter it? By asking these questions, we begin to grasp, not only the importance of considering the role and function of sound in mobile cinema, but also the value of a specifically headphone-centred approach. For, once spectators decide to take cinema outside of the traditional theatre-space, the overall experience depends less on a screen's ability to command the gaze or a surround-sound system's power to engage the body, than on the capacity of headphones

to allow users to negotiate sonic distance—and aural presence—through the selective use of sound. Although it may still be too soon to begin making any definitive statements as to how headphone use might change the way films are seen or heard in the future, there can remain little doubt that considering headphone listening as a distinct sonic practice will only enhance our ability to truly "take seriously the multiplicity of possible determinants of any given audience perception."[14]

ENDNOTES

1 Rick Altman, "The Material Heterogeneity of Recorded Sound," *Sound Theory, Sound Practice,* Rick Altman, ed. (New York: Routledge, 1992), 31
2 Rick Altman, "The Sound of Sound," *Cineaste* 21 (1995): 68
3 See Barbara Klinger, *Beyond the Multiplex: Cinema, New Technologies and the Home* (Berkeley: University of California Press, 2006)
4 Jonathan Sterne, "Mediate Auscultation, the Stethoscope, and the 'Autopsy of the Living': Medicine's Acoustic Culture," *Journal of Medical Humanities* 22.2 (2001): 122
5 Charles Stankievech, "From Stethoscopes to Headphones: An Acoustic Spatialization of Subjectivity," *Leonardo Music Journal* 17 (2007): 56
6 Ibid.
7 Kathryn Kalinak, *Settling the Score* (Madison: University of Wisconsin Press, 1992), 44
8 Ibid.
9 Reni Celeste, "The Sound of Silence: Film Music and Lament," *Quarterly Review of Film and Video* 22 (2005): 115
10 Walter Benjamin, *Illuminations,* Harry Zohn trans., Hannah Arendt, ed. (New York: Schocken, 1969), 236
11 Kari Kallinen and Niklas Ravaja, "Comparing Speakers versus Headphones in listening to news from a computer—individual differences and psychophysiological responses," *Computers in Human Behaviour* 23 (2007): 303
12 Michael Bull, "The World According to Sound: Investigating the World of Walkman Users," *New Media & Society* 3.2 (2001): 188
13 Kallinen and Ravaja, 304-305.
14 Rick Altman, "The Material Heterogeneity of Recorded Sound," *Sound Theory, Sound Practice,* Rick Altman, ed. (New York: Routledge, 1992), 31