"Listening"

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I.

The OED defines listening as "the action of the verb 'to listen', meaning 'to hear attentively; to give ear to; to pay attention to (a person speaking or what is said)." Unlike hearing, then, listening is understood to involve a deliberate channelling of attention towards a sound. It is not so much that listening is somehow separate from or opposed to hearing; indeed, the distinction between listening and hearing is often unclear and the two are frequently equated or conflated. Listening, though, is generally considered to involve "making an effort to hear something" (to invoke now obsolete terms, "hearkening" or "giving ear"), while hearing is generally considered a more passive mode of auditory perception (Truax 2001: 18). Hearing may also be regarded as a kind of sensory substrate in which listening is grounded: "[1]istening requires hearing but is not simply reducible to hearing" (Sterne 2003: 19).

The term 'listening' encompasses a wide variety of modes, qualities or types of auditory attention. Thus, a person (I use a human listener as the default here, though non-human animals, objects and technologies may also be said to listen) may be "listening for" or "listening out for" a particular sound, meaning that they are alert to and endeavoring to hear it. There is a sense here that sound is subtle, masked, easily missed or difficult to pick up, not necessarily declaring itself or imposing itself on a person's hearing, so that he or she must attend closely and carefully. The importance of effort and a conscious direction of auditory attention are foregrounded. "Listening to" a sound or a piece of music, however, implies that a person, having moved beyond the detection

and/or location of the auditory stimulus, is attending to it with a degree of focus. Importantly, the intensity of that focus may vary considerably. A person may listen to something intently, absorbed in the sound, but distracted, indifferent, deconcentrated or even unconscious listening is also possible (Goodman 2010).

Types of listening and terms for listening have developed in tandem with the creation of sound technologies (an idea which is at the heart of much sound studies research and which I explore in greater detail below). The expression "listening-in," for instance, is thought to have become commonplace following the emergence of radio broadcasting and the attendance of radio hams and audiences to signals and programmes (Douglas 1999). "Listening-in" also came to refer to secret listening to telephone conversations that became possible following the creation of the telephone exchange and the party line. Indeed, listening often carries general connotations of secret or surreptitious activity, be it through clandestine eavesdropping on private conversations, military listening (in listening galleries or posts used to discern the position, movement and communications of enemy forces), or the monitoring of telephone conversations and other communications carried out by government or police as part of broader programs of surveillance.

In conversational (rather than musical) listening, "listening to" a person may refer to paying close attention to what that person has to say and often describes a compassionate, sympathetic and/or empathetic mode of engagement (Back 2007).

Numerous sources, for instance, point to the importance of empathetically attuned listening in therapeutic interactions in psychotherapy and psychoanalysis (e.g. Freud 1912, Reik 1951, Schwaber 1983, Chessick 1989, Jackson 1992). However, there is a sense in which auditory attention may be demanded by a sound or by an individual or

group of people. Thus, to listen to a person may mean giving heed to that person: "Listen up!" is a commonplace imperative to pay attention, particularly to a set of instructions that are about to be issued. Listening to a person may also imply allowing oneself to be persuaded by what he or she says. Different senses of the term listening, then, imply subtle shifts in acoustical agency, which reference nuanced varieties of active-receptive and passive-receptive auditory attention.

Listening involves the allocation of attention or awareness. However, in contemporary usage the term does not always refer to *auditory* attention. The meanings of listening have proliferated into non-auditory spheres. For instance, in contemporary popular discourse, "listening to your body" means attending to signals or signs that indicate the body's condition or needs. A company's claim that its representatives are "listening to their customers" might mean that the business is responding directly to vocalized complaints or comments made by patrons; however, this "listening" could also mean that the company is attending to written complaints, or is taking into account customers' views as revealed in sales patterns. Notions of the "third ear" also refer to the possibility of listening to something that "has no actual aural existence," gesturing to listening as a mode of consciousness that reaches beyond the merely auditory (e.g. Rozak 1993: 41, cf. Reik 1951, Kochlar-Lindgren 2004: 229).

The term listening, then, carries a wide variety of associations. Below, I identify a (by no means comprehensive) set of broad analytical approaches to listening in sound studies. I suggest that each of these approaches has tended to emphasize certain aspects or qualities of listening, with particular consequences for the framing of listening practices and listening subjects. I conclude by describing my own ethnographic research into ways of listening in a hospital setting, as a context in which a multiplicity of

listening modes co-exist. I point to the necessity of enlisting a variety of sound studies perspectives in order to reveal the density of meaning in medical listening practices.

II.

Considered from an evolutionary perspective, listening is a valuable survival skill. It facilitates the avoidance of danger and the seeking of food; it enables communication. In order to understand the physiological and cognitive mechanisms through which human listening is made possible, psycho-acousticians have experimented with, for instance, the facility of sound location, exploring how listeners stream auditory attention and information in order to recognize particular aspects of a complex sound or assemble sonic elements into an integrated whole (e.g. Moore 2003). The psycho-acoustical approach frames listening as a perceptual process that, broadly speaking, occurs in the same way for people everywhere. Sound studies research, on the other hand, typically emphasizes the role of social and cultural context in auditory attention. This literature, while recognizing listening as a general process of perception, situates it in specific practices strongly shaped by local culture, history and environment.

Feld's (1990, 1991, 1996, 2003) canonical work on the Kaluli of Papua New Guinea shows how Kaluli listening is shaped and directed by a highly culturally particular set of interpretive practices, so that the cries and songs of certain birds in the rainforest are understood to be the voices of ancestors calling to their living relatives (see ACOUSTEMOLOGY). In Feld's analysis, Kaluli ways of listening form part of the "everyday 'body hexis' (Bourdieu 1977: 8), the naturalized regime of 'body techniques' (Mauss 1979 [1935]) basic to routine Kaluli encounters in their world" (1996: 100). Here, then, rather than being a universal set of sensory aptitudes, ways of listening are an aspect

of "habitus," a set of culturally informed bodily and sensory dispositions (Mauss 1979 [1935], Bourdieu 1977). In a similar way, archaeologies and cultural histories of sound point out the historical particularity of listening practices and examine how communities in the past have attributed meaning to musical and sonic environments (e.g. Johnson 1995, Corbin 1998, Picker 2003, B. R. Smith 1999, 2003, 2004, M. M. Smith 2001, 2004). These approaches suggest that listening practices must be understood by reference to the broader cultural and historical context within which they are formed.

Practices of listening are also shaped by technologies and their interfaces and affordances, which have extended the reach of listening and multiplied its possibilities. Sound studies research has explored how, for instance, the telephone, gramophone, radio, personal stereo and iPod have all generated new bodies of audible sound as well as related listening techniques (Gitelman 1999, 2006, Bull 2000, 2007, Sterne 2003, Katz 2010). Technology has also greatly increased the scope of what it is possible to listen to. To use a simple example provided by Ihde, "[t]he ocean now resounds with whale songs and shrimp percussion made possible by the extension of listening through electronic amplification" (2007: 4-5). Listening practices are generally not regarded as technologically determined, but as malleable and capable of being developed, directed and refined through engagements with technologies. At the same time, listening technologies are recognized as emerging within culturally and historically particular contexts, which carry accompanying sets of sensory priorities, possibilities and predispositions.

Listening is often described and experienced as a solitary and individuated practice, sometimes deeply personal and private. However, musical listening in particular has also positioned the listener as involved, consciously or otherwise, in wider processes

and communities of musical consumption, interpretation, circulation and production (DeNora 2000, Tacchi 2003, Novak 2008, Bergh and DeNora 2009). Sociological perspectives have identified listening practices as markers of group membership and indexes of knowledge, taste and social distinction. An archetypal example is the silent, reverent listening of classical music audiences, where obedience to a convention of stillness and the suppression of coughing, talk and laughter are markers of cultivated musical sensibility and social respectability (Johnson 1995, DeNora 2003: 84). The public exhibition of dedication and discipline in the acquisition and application of listening skills is closely bound up with the performance of knowledge and virtuosity. Ostentatious performances of listening, linked to bodies of esoteric auditory knowledge, help negotiate in-group status and hierarchy in both amateur and professional circles of musicians, technologists, and medical professionals (Porcello 2004, Horning 2004, Krebs 2012, Rice 2013).

Adorno (1991 [1972]) famously considered serious, concentrated listening (necessary, he believed, to an authentic engagement with music) to be under threat from a "regression of listening," which he associated with the radio. Writing on early radio use, Goodman relates how the over-listening (in terms of time) and under-listening (in terms of attention) that radio was perceived to make possible "stood in a clear moral contrast to the kind of deliberate, calm, rational, fully attentive and time-bounded listening that was always recommended by experts" (2010: 33). Listening practices, then, can serve as indicators of moral, social, civic, psychological and even spiritual wellbeing or decline (Schafer 1977, Berendt 1983, Adorno 1991 [1972], Hirshkind 2004, Oliveros 2005). However, sound studies research has moved beyond the sharp dichotomy between what Herbert (2012) calls "directed" listening ("in depth," "heavy," "profound") and

undirected or "distracted" listening ("casual," "lightweight," "superficial"), creating scope both for a more subtle and nuanced categorization of listening modes and for a detailed appraisal of the possibilities, values and moralities of forms of "ubiquitous listening" (Kasabian 2013).

Although listening might be regarded as a sensory process that involves the isolation and intensification of auditory attention and experience, several authors emphasize that listening involves a close interplay or collaboration with non-auditory senses (Leppert 1995, Bull 2000, McCartney 2004, Kochlar-Lindgren 2004, Lewis-King 2013). Indeed, listening can engage the whole of the listener's body, and in some listening contexts, such as dancing, it is the physicality of listening and the fullness of the body's response to sound (for instance, through rhythmic entrainment and corporeal vibration) that is foregrounded (BODY (this volume), DeNora 2003, Henriques 2003). The sensory dimension of listening, however, might be understood as only one aspect of its wider cognitive and affective engagements. For instance, introducing his ecological approach to music listening, Clarke (2005) argues that the listener's prior musical knowledge - as well as memory, imagination, mood, and his or her relationship with the musical environment -- is integral to the listening experience and the diverse opportunities for self expression and exploration which music may afford the listener.

Numerous writers have sought to deconstruct listening as a single mode of sensory engagement by identifying a plurality of modes of listening or types of listener (e.g. Schaeffer 1968, Adorno 1976 [1962], Chion 1994, Stockfelt 1997, Douglas 1999, Truax 2001, Huron 2002, Tuuri *et al* 2007, Mailman 2012, Pinch and Bijsterveld 2012, Bijsterveld *et al* forthcoming). In a famous instance of this approach, Chion distinguishes between three modes of listening: causal listening to a sound "in order to gather

information about its cause (or source)" (1994: 25), semantic listening, which "refers to a code or a language to interpret a message," and reduced listening which "focuses on the traits of the sound itself, independent of its cause and of its meaning" (ibid: 28, 29).

Truax (2001) also proposes three listening modes, Mailman (2012) offers seven metaphors relevant to music listening and Huron (2002) puts forward a non-exhaustive list of twenty-one listening styles and strategies for music. These taxonomies set out to express a diversity of modes and qualities of attention, whilst also specifying a range of distinct listening purposes, functions and techniques (music listening, radio listening, listening to sonic displays and so on). I would suggest, however, that these taxonomies of listening have also created what can feel like an infinite regress, where modes of listening continually proliferate without necessarily interlinking or building upon one another in productive ways.

The approaches to listening (cultural/historical, technological, sociological, multi-sensory/corporeal and so on) that I outline above represent particular orientations toward listening, all of which illuminate different aspects of listening as a sensory practice. In the following section, I show how my own research required me to draw together a multiplicity of perspectives in an attempt to unpack the complexities of listening I encountered in the context of a hospital.

III.

My research has focused on some of the different forms of listening practised in hospitals, and has involved fieldwork in the Edinburgh Royal Infirmary in Edinburgh, Scotland, and St Thomas' Hospital in London, England (Rice 2003, 2008, 2010a, b, 2012, 2013a, b). The hospital is a space in which several modes of listening are

experience coexist. In addition to patients' experiences of the sound environments that characterize hospital wards, there is also monitory listening as practiced by nurses as they manage those patients, and diagnostic listening is conducted by medical students and doctors. Indeed, stethoscopic listening or auscultation – the technique of listening to the body's internal sounds – became a particular focus of my research. I studied the different types of listening in the hospital setting in an attempt to reflect some of the sonic intricacy and diversity of a modern hospital, and to explore how listening practices can both underpin and undermine the production of medical knowledge. My research examined how sonic skills are taught to new medical students, and hence how those skills are reproduced in new generations of doctors. I spent time on wards interacting with patients and nurses at St Thomas', but also took part in classes at which medical students were given instruction in stethoscopic listening and shadowed doctors whose work required them to use auscultation.

Sterne (2003) argues that sound technologies and their accompanying techniques of listening emerge within a wider cultural milieu that makes them not only possible but also desirable. Considering the development of stethoscopic listening in Western medicine, he suggests that the practice emerged as part of an "Ensoniment" - which, he argues, took place contemporaneously and in conjunction with a wider Enlightenment -- in which "people harnessed, modified, and shaped their powers of auditory perception in the service of rationality" (ibid: 2). Auscultation was part of wider drive in the late eighteenth century to improve medical understanding of anatomy and the signs, symptoms and progression of disease. At a time when autopsy and dissection were considered central to the advancement of medical knowledge, the stethoscope allowed

doctors, through careful listening, to detect physiological changes inside the bodies of living patients. Auscultation, then, emerged as an anatomically informed and scientifically rigorous practice within the medical profession. Grasping this cultural/historical context was essential in making sense of auscultation's presence and ongoing significance within the medical culture I encountered during my fieldwork.

The stethoscope is a technology for the amplification of quiet sounds, enhancing the audibility of - and so allowing access to -- previously muffled or silent corporeal processes. The instrument extends the doctor's sensory reach and creates a private auditory space in which the doctor is able to listen intently, undisturbed by the wider sound environment. However, the stethoscope has acquired a significance that far exceeds its practical purpose. The medical students I observed took great pride in wearing and displaying their stethoscopes, often performing auscultation in an ostentatious manner, as a self-conscious performance of the medical habitus. Carrying and using a stethoscope was for them an important symbol of their medical identity. Proficiency in auscultation was also a marker of status and position in the professional hierarchy of doctors within the hospital. Indeed, from a sociological perspective, auscultation created multiple opportunities for the articulation of medical knowledge and professionalism whether among students, within the doctor/patient interaction or in interactions between doctors.

I found in my own experience of auscultation that the stethoscope created a private auditory space, sealing me in an acoustic bubble, rather as Bull (2000) suggests is the case with personal stereo listening. But lessons also emphasized the importance of looking and touching, not only in placing of the stethoscope but also in checking for diagnostic signs that might create the expectation of hearing particular sounds in the

patient's body. The act of auscultation, then, involved a close interplay between the senses, which followed from its historical emergence alongside practices of medical gazing related to autopsy and dissection. The fact that auscultation required close tactile and visual contact between doctor and patient (listener and listened-to) also meant that it created what some doctors saw as a valuable point of human contact between themselves and their patients. There was some consensus that auscultation produced an intimate, personal and humane type of medical interaction. Looking to the future, some doctors to whom I spoke were concerned that new technologies, in particular the introduction of hand-held ultrasound devices for use at the bedside, might lead to a phasing out of auscultation and a subsequent consolidation of what they saw as an already growing distance between doctor and patient, produced by a increasing dependence on more sophisticated technology in diagnostic work. In this context, listening was harnessed as an index of sympathetic and empathetic medical practice. For some doctors, auscultation became a symbol of the kind of doctors they felt themselves to be, and of the way they felt medicine should be practiced. Their adherence to auscultation became a means of articulating both their own ethical standpoints as doctors and the moral obligations of their profession.

It is well recognized that auditory engagement is a key component of ethnographic fieldwork (Forsey 2010). Cohen and Rapport, for instance, point out that "Geertz's famous answer to the question 'What does the anthropologist do? He writes,' is a curiously thin description of what actually happens.... Above all, they listen" (1995: 12). For them, the auditory attention of ethnographers should, first and foremost, be directed towards understanding the words spoken by those under study. My own hospital research certainly involved a good deal of verbally orientated listening in interviews

conducted with doctors, patients, medical students and others, but my listening was also directed towards non-verbal (and, for that matter, non-musical) sounds that occurred within the hospital. I found a carefully situated and emplaced listening - an immersion in the sound environment of the ward -- to be essential to developing an empathetic understanding of patient experiences of hospital sounds. At the same time, taking an "ears on" approach in my apprenticeship in stethoscopic listening required me to apply both monitory listening, which Pinch and Bijsterveld describe as listening 'used to determine whether something is wrong' and diagnostic listening, which which 'reveals what is wrong' (Lachmund 1999: 440, Pinch and Bijsterveld 2012: 14). I found thinking in terms of listening modes was useful as a strategy for imposing conceptual order on the flux of sounds and approaches to sounds I encountered during fieldwork. It was useful too in linking listening to practical tasks and tangible outcomes in both medicine and ethnography.

The working environment at St Thomas' - a busy, inner city hospital - was fast-paced. For many of the doctors there was a constant need to move forward, to keep up, to hurry. I began to realize that my research methods would have to fit into the doctors' working patterns. It wouldn't be possible to have frequent periods of sustained interaction. Instead, my research must involve brief yet focused moments of contact. I was struck by the analogy of stethoscopic listening here. The use of the stethoscope almost invariably involves short spells of intense concentration and careful, considered listening; my research would require the same. Stethoscopic listening, it seemed, also created an interesting tension between proximity and distance. The technique requires doctor and patient to get close to one another, but also ensures a degree of physical separation and diagnostic detachment. Again there is a parallel here with ethnographic

fieldwork, where ethnographer and subject come into close contact while the ethnographer tries to keep some reflexive distance. In addition, the balance of subjectivity (in the experience of sounds) and objectivity (in constituting those sounds as perceptual objects about which rational judgments may be made) that occurs in stethoscopic listening resonates with the balance of subjectivity and objectivity that defines the conduct of successful ethnography. In reflecting on medical listening both as an object of research and a method of conducting ethnographic work, then, seemingly discrete or distinct modes of listening were brought close together and began to overlap; they even seemed to become integrated, dissolving into each other. I was reminded that a preoccupation with identifying and separating specific modes of listening, as is such a strong trend in sound studies, may not always be productive. Certainly, thinking in terms of distinct listening modes may not accurately reflect, and indeed may at times distort, the perception of listening as it occurs within the holistic context of lived experience. Should 'sound students' continue to conceptualize listening practices in terms of modes (Sterne 2012: 3)? Is there another direction we might take?

References

Adorno, Theodor. W. 1976 [1962]. *Introduction to the Sociology of Music*. (trans. E. Ashton). New York: Continuum International Publishing Group.

Adorno, Theodor. W. 1991 [1972]. *The Culture Industry: selected essays on mass culture*. London and New York: Routledge.

Back, Les. 2007. The Art of Listening. Oxford and New York: Berg.

Berendt, Joachim-Ernst. 1983. *The World is Sound: Nada Brahma*. Rochester, Vermont: Destiny Books.

Bergh, Arild and Tia DeNora. 2009. From wind-up to iPod: Techno-cultures of listening. In *The Cambridge Companion to Recorded Music* (eds) Nicholas Cook, Eric Clarke, Daniel Leech-Wilkinson and John Rink, 102-115. Cambridge: Cambridge University Press.

Bjesterveld, Karin., Alexandra. Supper,. Stefan Krebs, Joeri. Bruyninckx, Melissa Van Drie and Anna Harris. *Sonic Skills: sound and listening in science, engineering and medicine*. Forthcoming.

Bourdieu, Pierre. 1977. *Outline of a Theory of Practice* (trans. R. Nice). Cambridge: Cambridge University Press.

Bull, Michael. 2000. Sounding Out the City: personal stereos and the management of everyday life. Oxford and New York: Berg.

Bull, Michael. 2007. Sound Moves: ipod culture and urban experience. London:

Routledge.

Chessick, Richard. D. 1989. *The Technique and Practice of Listening in Intensive Psychotherapy*. Northvale, New Jersey: Jason Arondson.

Chion, Michel. 1994. *Audiovision: sound on screen*. New York: University of Columbia Press.

Clarke, Eric. 2005. Ways of listening: an ecological approach to the perception of musical meaning. Oxford: Oxford University Press.

Cohen, Anthony P. & Nigel. Rapport. 1995. Introduction. In *Questions of Consciousness* (eds) Anthony .P Cohen & Nigel. Rapport, 1-20. London: Routledge.

Corbin, Alain. 1998. Village bells: sound and meaning in the nineteenth-century French countryside. New York: Columbia University Press.

DeNora, Tia. 2000. Music in Everyday Life. Cambridge: Cambridge University Press.

DeNora, Tia. 2003. *After Adorno: Rethinking Music Sociology*. Cambridge: Cambridge University Press.

Douglas, Susan J. 1999. *Listening In: Radio and the American Imagination*. Minneapolis: University of Minnesota Press.

Feld, Steven. 1990. Sound and Sentiment: birds, weeping, poetics, and song in Kaluli expression. Philadelphia: University of Pennsylvania Press.

Feld, Steven. 1991. Sound as a Symbolic System: the Kaluli drum. In *The Varieties of Sensory Experience: a sourcebook in the anthropology of the senses* (ed.) David Howes, 79-99. Toronto: University Press.

Feld, Steven. 1996. Waterfalls of Song: an acoustemology of place resounding in Bosavi, Papua New Guinea. In *Senses of Place* (eds.) Steven Feld & Keith. H. Basso, 91-135. Santa Fe: School of American Research Press.

Feld, Steven. 2003. A Rainforest Acoustemology. In *The Auditory Culture Reader* (eds)M. Bull & L. Back, 223-39. Oxford: Berg.

Sound and Sentiment: birds, weeping, poetics, and song in Kaluli.

Freud, Sigmund. 1912. "Recommendations to Physicians Practicing Psycho-Analysis." In *The Standard Edition of the Complete Psychological Works of Sigmund Freud*. London: The Hogarth Press.

Gitelman, Lisa. 1999. Scripts, Grooves and Writing Machines: representing technology in the Edison Era. Stanford, California: Stanford University Press.

Gitelman, Lisa. 2006. *Always Already New: media, history and the data of culture.*Cambridge, Massachusetts and London, England: The MIT Press.

Goodman, David. 2010. "Distracted Listening: on not making sound choices in the 1930s." In *Sound in the Age of Mechanical Reproduction* (eds) D. Suisman and S. Strasser, 15-46. Philadelphia: University of Pennsylvania Press.

Henriques, Julian, Jul. 2003. "Sonic Dominance and the Reggae Sound System Session." In *The Auditory Culture Reader* (eds) Michael Bull & Les Back, 451-480. New York: Berg.

Herbert, Dr. Ruth 2012. "Modes of Music Listening and Modes of Subjectivity in Everyday Life." *Journal of Sonic Studies* 2(1).

Hirschkind, Charles 2004. "Hearing Modernity: Egypt, Islam, and the Pious Ear." In

Hearing Cultures: essays on sound, listening and modernity (ed) Veit Erlmann, 131-151.

Oxford and N York: Berg.

Horning, Susan Schmidt 2004. "Engineering the Performance: recording engineers, tacit knowledge, and the art of controlling sound." Social Studies of Science 34(5): 703-31.

Huron, David 2002. "Listening Styles and Listening Strategies." *Society for Music Theory 2002 Conference*. Columbus, Ohio. http://www.musicog.ohio-state.edu/Huron/Talks/SMT.2002/handout.html.

Idhe, Don 2007. *Listening and Voice: phenomenologies of sound*. Albany: State University of New York Press.

Jackson, S. W.(?) 1992. "The Listening Healer in the History of Psychological Healing." The American Journal of Psychiatry 149(12): 1623-1632.

Johnson, James. H. 1995. *Listening in Paris: a cultural history*. Berkeley: University of California Press.

Kassabian, Anahid 2013. *Ubiquitous Listening: affect, attention, and distributed subjectivity*. Berkeley, Los Angeles and London: University of California Press.

Katz, Mark. 2010. *Capturing Sound: how technology has changed music*. Berkeley, Los Angeles, London: University of California Press.

Kochhar-Lingren, K. 2004. "Performing at the Edge of Hearing: the Third Ear." In *Aural Cultures* (ed) J. Drobnik, 229-239. Banff: XYZ. P

Krebs. Stefan. 2012. "Sobbing, Whining, Rumbling": listening to automobiles as social practice." In *The Oxford Handbook of Sound Studies* (eds) Trevor Pinch & Karin. Bijsterveld, 79-101. Oxford and New York: Oxford University Press.

Lachmund, Jens. 1999. "Making Sense of Sound: auscultation and lung sound codification in nineteenth-century French and German Medicine." *Science, Technology, and Human Values* 24(4): 419–50.

Leppert, R. 1995. *The Sight of Sound: music, representation and the history of the body*. Berkeley, Los Angeles, London: University of California Press.

Lewis-King, M. 2013. "Touching and Listening: Pulse Project." *Journal of Sonic Studies* 4(1). http://journal.sonicstudies.org/vol04/nr01/a12

Mailman, J. B. 2012. "Seven Metaphors for Music Listening: DRAMaTIC." *Journal of Sonic Studies* 2(1).

Mauss, Marcel. 1979 [1935]. "Body techniques." In *Sociology and Psychology: essays by Marcel Mauss* (trans. B. Brewster), 97-123. London: Routledge & Kegan Paul.

McCartney, A. 2004. "Soundscape Works, Listening and the Touch of Sound." In *Aural Cultures* (ed) J. Drobnik, 179-185. Banff: XYZ.

Moore, B. C. J. 2003. *An Introduction to the Psychology of Hearing*. London: Academic Press.

Novak, David. 2008. "2.5 x 6 metres of space: Japanese music coffeehouses and experimental practices of listening." *Popular Music* 27(1): 15-34.

Oliveros, Pauline. 2005. *Deep Listening: a composer's sound practice*. New York, Lincoln, Shanghai: iUniverse Inc.

Picker, John. M. 2003. Victorian Soundscapes. New York: Oxford University Press.

Pinch, Trevor. & Karin Bijsterveld (eds). 2012. *The Oxford Handbook of Sound Studies*. Oxford and New York: Oxford University Press.

Porcello, Tom. 2004. "Speaking of Sound: language and the professionalization of sound recording engineers." *Social Studies of Science* 34(5): 733-58.

Reik, T. 1951. Listening with the Third Ear: the inner experience of a psychoanalyst. Garden City, New York: Garden City Books.

Rice, Tom. 2013a. *Hearing and the Hospital: sound, listening, knowledge and experience*. Canon Pyon: Sean Kingston Press.

Rice, Tom. 2013b. "Broadcasting the Body: the public made private in hospital soundscapes." In Georgina. Born (ed.) *Music, Sound and Space: transformations of public and private experience,* 169-185. Cambridge: Cambridge University Press.

Rice, Tom. 2012. 'Sounding Bodies: medical students and the acquisition of stethoscopic perspectives.' In Trevor Pinch and Karin. Bijsterveld (eds) *The Oxford Handbook of Sound Studies*, 298-319. New York: Oxford University Press.

Rice, Tom. 2010a. "The hallmark of a doctor': the stethoscope and the making of medical identity." *Journal of Material Culture* 15(3): 287-301.

Rice, Tom. 2010b. "Learning to listen: auscultation and the transmission of auditory knowledge". *Journal of the Royal Anthropological Institute*. Special Issue 2010: S41-S61.

Rice, Tom. 2008. "Beautiful Murmurs': Stethoscopic Listening and Acoustic Objectification." *The Senses and Society* 3(3): 293-306.

Rice, Tom. 2003. "Soundselves: An Acoustemology of Sound and Self in the Edinburgh Royal Infirmary." *Anthropology Today* 19(4): 4-9.

Roszak, T. 1993. *The Voice of the Earth*. London, New York, Toronto, Sydney, Auckland: Bantam Press.

Schafer, Murray. R. 1977. The Tuning of the World. New York: Knopf.

Schaeffer, Pierre. 1968. Traité des Objets Musicaux. Paris: Editions du Seuil.

Schwaber, E. A. 1983. "A Particular Perspective on Analytic Listening." In *The Psychoanalytic Study of the Child* (eds) A. J. Solnit, R. S. Eissler and P. B. Neubaer, vol 38, 519-546. New Haven: Yale University Press.

Smith, Bruce. R. 1999. *The Acoustic World of Early Modern England*. Chicago: University of Chicago Press.

Smith, Bruce. R. 2003. "Tuning into London c.1600." In *The Auditory Culture Reader* (eds) Michael Bull & Les Back, 127-136. Oxford: Berg.

Smith, Bruce. R. 2004. "Listening to the Wild Blue Yonder: the challenges of acoustic ecology." In *Hearing Cultures: essays on sound, listening and modernity* (ed.) Veit Erlmann, 21-41. Oxford: Berg.

Smith, Mark. M. 2001. *Listening to Nineteenth-Century America*. Chapel Hill: University of North Carolina Press.

Smith, Mark. M. (ed.) 2004. *Hearing History: a reader*. Athens and London: University of Georgia Press.

Sterne, Jonathan. 2003. *The Audible Past: cultural origins of sound production*. Durham and London: Duke University Press.

Sterne, Jonathan. (ed.) 2012. *The Sound Studies Reader*. London and New York: Routledge.

Stockfelt, O. 1997. "Adequate Modes of Listening." In *Keeping Score: music, disciplinarity, culture* (eds) D. Schwarz, A. Kassabian and L Siegel, 129-146. Charlottesville and London: University Press of Virginia.

Tacchi, Jo. 2003. "Nostalgia and Radio Sound." In *The Auditory Culture Reader* (eds) Michael Bull & Les Back, 281-295. Oxford: Berg.

Truax, Barry. 2001. *Acoustic Communication*. Westport, Connecticut and London: Ablex Publishing.

Tuuri, K., M.-S. Mustonen, and A. Pirhonen. 2007. "Same Sound – Different Meanings: A Novel Scheme for Modes of Listening." In *Proceedings of Audio Mostly 2007 2nd Conference on Interaction with Sound* (ed) H. Köhler, 13–18. Röntgenbau, Ilmenau, Germany: Fraunhofer Institute for Digital Media Technology.