



The Ever-New Then – On the Materialisation of Historic Sound Forms

Author(s): Jeff Benjamin

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The Ever-New Then — On the Materialisation of Historic Sound Forms

Jeff Benjamin

ABSTRACT As environmental and climate change calls into question the wisdom of continued global industrial expansion, the material remains of past industrial activity beckon for more careful consideration. While structures and spatial configurations persist tangibly into the present, the sound environment of the past is a more elusive subject of inquiry. Industrial processes projected an acoustic message that cannot be dismissed, spreading far beyond the line of sight, and the archaeological record is replete with traces of compliance and escape. Material and vocal interventions by composers and archaeoacousticians working within both industrial-historic and prehistoric space serve to reanimate sounds of the past, pointing to the need for a conceptual transition and acceptance of sound as artifact in and of itself. A sonic artifact, or sonifact, as I am terming it, is a cultural or ecological sound-form: a repeatable, reproducible sound that endures through time, with negligible variability.

KEYWORDS

sonifact, host-artifact, archaeoacoustics, sound studies, sound art

Introduction

As an elemental component of the kinetic past, sound is intrinsically biased to elicit notions of immediacy, transience, and ephemerality; but it is an enduring material entity, as sure as stone. A ‘unit’ of sound, a *sound-form*, deserves serious consideration as an object in and of itself; as a distinct thing separate from its initial instrument of production.

The assumption that sound is fully bound by time as a moment of subjective perception has been challenged by the work of archaeologists (Deetz 1967; Witmore 2006; Benjamin 2013), as well as historians and musicologists (Rath 2003; Schaeffer 2012). Research undertaken by archaeoacousticians is based on the premise that historic and pre-historic sound is “a recoverable category of information critical to understanding past ways of life” (Mills 2005). In asserting the existence of sonifacts, I am simply trying to explic-

itly state what underlies the work of archaeoacousticians: while the spaces and sound producing objects of the past are artifacts that endure through time, so are the sounds themselves.

In *In Search of Concrete Music*, Pierre Schaeffer relates a question he once posed to his peers: “Between the moment when the composer finishes his work and the moment when a listener perceives it, is there, yes or no, a zone that is objective... where the music exists in itself, either as a score or as a performance?” Schaeffer’s “sound object” is directly analogous to the concept of *sound-form* introduced in this paper. A *sound-form* is an individual sound, an objective entity that can be perceived but which also exists independent of perception. In *The Phenomenology of Internal Time Consciousness*, Husserl states: “Every tone itself has a temporal extension: with the actual sounding I

hear it as now. With its continued sounding, however, it has an ever new now..." (Husserl 1973:43). The illusion of temporality evoked by sound, or the reason that sound is set apart from other material objects as being more "ephemeral", is one of scale: *all* material objects are indeed bound by time, but the "decay-time" for an individual sound is simply much faster than for tangible objects. A sonifact can be repeatedly reintroduced into the environment through material interactions with the tangible *host-artifacts* that produce the sound (if they have been preserved) through the compression and rarefaction of air molecules. As an example of this, during the recent excavation of a copper stamp mill in Clifton, Michigan, archaeologists and students of Industrial Archaeology at Michigan Technological University uncovered the white pine floor of the mill (**Fig. 1**), which was well preserved under a layer of copper-saturated stamp sand and soil. Now and then, someone would walk across the floor, which still had some hollow space beneath it. I would assert that this particular,

unique sound of "human footsteps walking across the Cliff Mine stamp mill floor" is a *sonifact* – produced by the *host-artifacts* of the floor structure, the landscape, and the nearby rock cliff, and, of course, shoes – a sound which would be immediately recognisable by a stamp mill worker from the 1850s, if any of them were alive to hear it. The argument posed here for the existence of sonifacts is also an argument for – or simply a reminder of – the sensitivity of human hearing as a primary mode of perception. Because sound is enveloping and omni-dimensional, it can carry with it an undeniable quality of immediacy and alarm, but when it comes to historic sound, I would qualify Husserl's observation to suggest that a repeated, recognisable sound of the past, a sonifact, is an 'ever-new *then*'.

Admittedly, this is contentious territory, as it was demonstrated to me during a recent conference devoted to sound art (*The Status of Sound*, CUNY Graduate Center, 2012). A great deal of time at this conference was spent debating the theoretical question



Figure 1. Excavation of stamp mill at Cliff Mine (Clifton, Michigan). Photograph by Mark Dice.

whether sound is “object” or “event”. At the heart of this issue is an ontological dialogue that exists between phenomenological and materialist interpretations of reality. The phenomenological stance may argue that sound is perceiver-dependent, while a materialist may argue that sound (as well as the act of perception) has a demonstrable and material form, independent from perception.

Initially, the contemplation of sound as artifact poses a challenge within a paradigm of archaeological analysis founded upon tangible objects with discreet, easily (and visually) definable form, but the impasse dissolves upon the realisation that the only way to preserve and analyse an aural artifact is to preserve the actual forms and spaces that produce and sustain it. Everyday environmental sound wraps an attentive listener in a complex interwoven sonic cloth of new and old: sounds that originate from and within new forms and structures, historic sounds that spring from preserved forms and structures, and pre-historic sounds: the sonic material that existed long before historic awareness but persists into the present. The contemplation of sound as artifact (or ecofact) suggests a theoretical shift from a reliance upon representation or digital reproduction to lived experience: toward the apprehension of the myriad and simultaneous physical manifestations of past sounds all around us. This shift in reliance from representation to *presence* has been examined at length by Dr. Ewa Domanska in “The Material Presence of the Past” (Domanska 2006).

In particular, this essay is concerned with the phenomenon of industrial sound, since the genesis of the industrial project unleashed a multiplicity of new sounds of unprecedented variety and intensity, while displacing or obscuring others (Fitch 1972:132; Schafer 1977:71). Sound and music are media through which an understanding of the industrial era can expand and deepen. The creative effort of sound artists and musicians working within industrial space is a form of investigation that can complement archaeoacoustic research. Within the resonant expanses of empty industrial space, sound becomes a subject of interest for its own sake (Friz 2007), and deserted industrial structures enjoy a natural transformation into laboratories of aural perception. Theoretical approaches toward ar-

chaeological sites vary and lead to different methods regarding the subsequent study and use of the sites. Underlying heritage values informing archaeological work span disparate disciplines, such as preservation, education, and interpretation, as well as economic and historic concerns (Lipe 2009:47). The visceral immediacy of the apprehension of an industrial site makes it difficult to dismiss an aesthetic appeal, and upon discovery, such landscape features give reason for at least momentary appreciation and consideration. Industrial archaeologists investigate above-ground structures stratigraphically (Palmer & Neaverson 1998:78), and since most industrial sites retain traces of a complex and layered multiplicity of processes, their structural components are placed at different locations by elevation, water, or transportation needs.

Given this abundance, a plurality of theoretical responses to these structures could logically follow. For some, the aesthetic power of an empty factory interspersed with trees is the expression of a deeply felt need for integration of the built environment with the natural world, where autonomous ecological principles and purposeful human activity coexist. In its forgottenness, an abandoned factory creates an opening for the return of previously excluded sensory and emotional states, generating a synthetic inclusiveness that alludes to the possibility of social and ecological healing. No longer reserved for nostalgic musing, bereavement, or solemn memorialising, such locations frequently become active destinations of sonic pilgrimage for the experience of industrial silence: a very particular kind of silence.

A Perceptual Shift

Venturing to act upon a moment, a space, a thing with the hope that it will conform to one's will may be met with limited success. There is no certain formula for the “successful” adaptation of historic sites for contemporary study or use, and such efforts are prone to error: a contemporary logo superimposed upon a two-century-old stone building can read like a forced smile. Another approach is to awaken the subject, to take an active role in perception and the sensory richness it offers. Conventional social attitudes toward perception

offer formidable opposition to this kind of 'sensitivity training,' often in the form a casual or off-handed dismissiveness toward the 'lesser senses.' In *The Eyes of the Skin*, Juhani Pallasmaa (2005:22) offers a potent critique of the all-pervasive ocularcentricism informing design considerations of the built environment:

The hegemonic eye seeks domination over all fields of cultural production, and it seems to weaken our capacity for empathy, compassion and participation in the world. The narcissistic eye views architecture solely as a means of self-expression, and as an intellectual-artistic game detached from essential mental and societal connections, whereas the nihilistic eye deliberately advances sensory and mental detachment and alienation.

Pallasmaa's perspective that architecture could have "an emancipating or healing role" (34) in society implies an affective association with artists working within the acoustic laboratories of abandoned industrial space. Addressing these environments specifically, he observes (Pallasmaa 2005:51):

Anyone who has become entranced by the sound of dripping water in the darkness of a ruin can attest to the extraordinary capacity of the ear to carve a volume into the void of darkness. The space traced by the ear in the darkness becomes a cavity sculpted directly into the interior of the mind.

Describing a particularly magical and somewhat disorienting experience of listening to the cavernous resonance within an abandoned grain silo in Montreal, sound artist Anna Friz summarises the seductive quality of such spaces with the question: "Why should resonance feel so sublime?" (2007:17) Adopting a fresh approach, a perceptual shift, can imbue an object or space with new meaning, new life, even perhaps a synaesthetic response, as when the somewhat arbitrary division of the senses becomes magnificently blurred when one is immersed in a beautiful scene or fantastic event.

Buckminster Fuller has stated that the difficulty faced by anyone studying the history of industrialisation stems from its overwhelmingly "comprehensive" nature (Fuller 1962:2) suggesting that the study of industry is, for most of us, the study of the self, an elusive subject indeed. The de-industrialised individual is an orphan, nostalgic of the past or completely unaware of it – consigned to placeless remembering – sometimes harboring illusions of a futile return to past practices, sometimes resentful of abandonment. The unprecedented industrial development of the past century has come hand in hand with unprecedented cultural and ecological trauma, resulting in a tentative ambivalence regarding an objective assessment of its history. Vacant industrial spaces offer a seductive allure to those who wish to gain a greater understanding of the era of "carboniferous capitalism" (Mumford 1934:156). Edensor has eloquently expounded upon the generously accommodating nature of industrial ruins as "exemplary, experimental spaces from which to broadcast possible alternative ecocentric, artistic, and social futures of the city" (2005:50), but activities of urban and post-industrial exploration also tend to be characterised by a stubborn ahistoricity: "urban explorers harbour no temporal or typological constraints to an appreciation of the past" (Garrett 2011:1050).

The following observations are borne from experiential evidence demonstrating that the presentism of artistic/exploratory pursuits and the historical awareness of historical/archaeological examination are not mutually exclusive. The work of sound artists is particularly relevant to achieving a greater understanding of the industrial past, as well as a vision of the built environment of the future, with industrial ruins serving as a platform for architectural rebirth. Through active physical interventions (singing, humming, whispering, striking or tapping different surfaces), archaeoacousticians and composers demonstrate the remarkable capacity of historic and prehistoric sound to spring back to life and reenter and blend with the contemporary soundscape. As stated earlier, all artifacts are temporally bound by their material nature, but this is dramatically true with individual sonifacts, whose 'decay time' occurs over a matter of seconds, not years. However, these same sounds can

reemerge from their slumber with the attentive assistance of active physical intervention. The distinction between a sound and its electronically amplified reproduction is an important one. Schafer pointedly describes the modern state of acoustic experience as “schizophonia”, where technological devices are “splitting sounds from their original contexts” (1977:88). Archival practices of electronic recording have created a situation of, to borrow a colloquialism, ‘putting the cart before the horse,’ where electronic capture is seen as the only way to preserve and listen to historic, lost, or rare sounds.

Environmental historians have paid particular attention to the history of sound (Coates 2005; Smith 2007) and scholars of the history of technology have studied the effects of technology upon the soundscape (with particular focus on noise abatement campaigns) (Bijsterveld 2001), but one passage in particular helps to form a strong theoretical base for the inclusion of sound into the discipline(s) of material culture studies. In *How Early America Sounded*, historian of sound Richard Cullen Rath insightfully observes:

Soundways belong to a world set aside rather than lost. The material culture of soundways is much more permanent than scholars of orality would allow sound to be. Old rings of bells, for example, produce sound in the same ways now as then. Such things provide a record as useful as a text. Changes over time in their design, importance, and uses provide us with a means of better understanding early Americans’ mental worlds. (Rath 2003:48)

An important distinction needs to be reiterated, however: any particular historic sound occurring in the present moment is not a distant memory, a mere reproduction or an unscientific approximation of a past sound. It is, quite literally, *the same sound*: a sonifac, contextually dependent upon host-artifacts for its definition. Another discussion (albeit tentative in its conviction and focused solely on the phenomenon of speech) also helps provide a foundation for an acceptance of *word as sonifac*:

Artifacts, like words, are the products of human motor activity, made through the action of muscles under mental guidance on the raw material involved [...] there may be structural units in artifacts which correspond to phonemes and morphemes in language, a correspondence which goes beyond simple analogy, reflecting an essential identity between language and objects in a structural sense. If this is true, in view of the close similarity between the way in which words and artifacts are created, might not words be but one aspect of a larger class of cultural products which includes all artifacts as well? (Deetz 1967:87)

Sound artists and archaeoacousticians working non-schizophonically through active physical interventions within historic and prehistoric sites demonstrate the remarkable capacity of sound-forms to re-enter the contemporary soundscape. The stress placed upon eschewing electronic intervention through the introduction of electronic sounds is an attempt at achieving historical accuracy by avoiding any unnecessary layers that may obscure a direct apprehension of any particular sound-form.

The Resonance of the Past

Hildegard Westerkamp (Vancouver, B.C.) is a composer and one of the original members of the World Soundscape Project at Simon Fraser University in Vancouver. Westerkamp’s discipline combines artistic composition with a scientific analysis of the soundscape. In her essay “Soundwalking” (2001), she delineates methods and approaches for training oneself for a direct and experiential apprehension of environmental sound: “Wherever we go we will give our ears priority. They have been neglected by us for a long time and, as a result, we have done little to develop an acoustic environment of good quality.” Her sound composition *-At the Edge of the Wilderness-* (2000), presents a rich constellation of discovered sounds, interspersed with voices and narration, personal reflections and impressions of selected abandoned mining communities in British Columbia. The crisp, brittle sonority of

footsteps moving through the grass, branches and undergrowth – repeated and layered over the deep bass resonance of empty storage tanks being struck – the strings of an old piano ringing out like a harp, the lingering tones of many other unknown objects that are touched and tapped repeatedly, blended with the voices of Westerkamp and others. Certain tangible objects and remnants of industrial processes are described in selected phrases, words, repeated and overlapping, emerging from the distance or close by: ‘It’s just lying around here like a memory – Water, water, water, everywhere – Whatever traces are left – The wilderness simply grows over it again when all the people have left.’ At one point a voice says: ‘I love places like this,’ followed by the dragging of a metal object over stone or concrete, the resulting tone as pure and clear as a tuning fork. Sometimes one hears insects buzzing close to the microphone and departing, and at other times a crow calls in the distance. The composition allows the sounds to arrive and decay just as they occurred without distortion or interruption, and gradually one can discern the emergence of historic sound, hinting at the aural experience of the industrial workers of the site. The simultaneity of sounds – voices or motifs repeating as a refrain or chorus, sometimes whispering and quiet, sometimes declaratory and loud – move around the listener, creating a multi-dimensional space that seems to fold upon itself and flow open, where time is suspended. The overall tone is that of mystery, foreignness, like going far back into time or visiting a distant land:

Whether the sounds came from an old steam engine or an out-of-tune piano with broken strings, they became the musical instruments for ‘At the Edge of Wilderness.’ Exploring their acoustic/musical properties in their dilapidated state brought them to life in surprising ways [...] They are the sounds that carry us from the presence of the existing ghosttowns into the imagined past of these places, and they delineate the particular edge that has been created between nature and this form of civilization all over the North American con-

tinient. Turning the industrial structures into musical instruments may be a way of exorcising the damage that has been done and is still being done [...] a way to make peace or find a balance between the destructive and the creative forces that tend to work side by side in adventurous explorations. (Westerkamp 2000, italics added)

Westerkamp’s composition seems to momentarily capture and then release sounds, creating an unobtrusive aural experience with ample space between sonic forms, allowing the listener to find one’s way through them, to journey with the composer and to contribute in the discovery. At one point in the composition, the ringing presence of these mysterious objects is momentarily contrasted with an abstracted archival recording of the faded sounds of an actual factory in operation, introducing the rhythmic, insistent echo of the industrial imperative as a distant memory.

Both a scholar and performer of vocal and acoustic resonance, Igor Reznikoff has achieved the most difficult of all tasks facing archaeoacousticians in his establishment of an *intentional* awareness and use of particular spaces for their resonant qualities within Palaeolithic cave sites in France. This was done through the introduction of vocalisations within the spaces: the creation of sonifacts that contextually related to visual artifacts (painted red dots on the walls):

Our explanation is that since they progressed almost in darkness, they had to make sounds, or in a narrow tunnel just to hum with a closed mouth (on a sound like mm or hm) [...] Reaching the location of maximum resonance (the acoustical main antinode) is very impressive: the whole tunnel resonates to a simple hm and the sound can be heard outside the tunnel, in the main cave....Progressing further inside the tunnel, one naturally finds oneself pausing at this remarkable sound location. And the dot shows precisely where this living sound point lies, possibly identifying it for use later on. (Reznikoff 2006:80)

While listening to Reznikoff demonstrate the vocal techniques (2012) used for this investigation in the lecture hall at the University of Oulu during the NTAG conference session “Archaeology of the Auditory Past” (Rainio 2012), I was transported into the acoustic space of an avant-garde music concert because of its bold performative aspects. The methodological approaches of both Westerkamp and Reznikoff show a level of comfort with allowing musical composition/performance and scientific analysis to share a common arena within resonant spaces and structures of the past. This work provides invaluable insights into the actual lived acoustic experience of past peoples, through the active ‘resurrection’ of past sounds and resonances. In many ways, Reznikoff’s work within cave settings offers insight into possible future use or inhabitation of vacated industrial settings, an activity that has already seen progress in many industrial sites, especially those demonstrating unique acoustic properties. It suggests that awareness of sound, and in particular a concern with sound as it relates to structure, is a predisposition shared by people throughout time.

Discussion

“All finished paintings, whether a year or five hundred years old, are now prophecies, received from the past, about what the spectator is seeing in front of the canvas at the present moment”. (Berger 1984:2)

The above passage from *And Our Faces, My Heart, Brief As Photos*, by John Berger strikingly addresses the power of artifacts to inform the present moment. Although pertaining to the visual realm, it is just as true for sonifacts, embedded within the materials and spaces all around us, awaiting physical interventions to be reacquainted with the world. There are many deafening examples of such, but the fainter, less obtrusive sounds scattered throughout daily life also qualify: the opening or closing of a door, a dinner bell, a song played on a musical instrument, footsteps moving up a staircase in an historic building. As a listener, one’s physical being is wrapped in a complex interwo-

ven sonic material, and we may safely think of the many strands of this material as individual heirlooms, sonic keepsakes, sounds of the past, reanimated: the clinking of a teaspoon on a teacup, the sliding of a book across the table, a rattling pane of glass in a window – *they have all been here before us*. The squeaking, groaning, clicking and thumping of stressed structural components of buildings; the breathing, whistling, hissing of air moving through cracks in doors and windows, moving through passageways; all of these sounds bear witness to the possible aural experience of past peoples through their particular “aural architecture” (Blessner & Salter 2007:67).

Sound is a structural component of the built environment, but this structure comes largely as a by-product through the interaction of tangible forms. The sonority of the built environment is particularly unique in an abandoned structure – largely because of the silence it contains; creating a blank canvas for the isolation of discreet sounds – where one is immersed into a rich sonic world, where historic sounds of structural stress and motion are allowed to reverberate through the emptiness, often composed of reflective materials such as concrete and sheet metal. The sound of such a structure is anomalous in the wider acoustic realm; it is simultaneously old and new, for it incorporates the immediate nearby sounds, automotive traffic, human voices, and distributes and orders them through a prefigured physical arena. Heard within such a space, even the contemporary sound of a car horn honking or a person singing becomes a hybridised sonifact because it is isolated and augmented by the particular historic structural and spatial eccentricities of the site.

In its decades of productive activity, one may safely conclude that the casting shed structure located at the smelter of the Quincy Mining Company in Hancock, Michigan (**Fig. 2**), rarely heard a moment’s silence, so as an individual wandering through its vast openness, the opportunity to listen to the space itself constituted a privilege for me. While working on a separate project locating, documenting, and recording artifacts from the nearby carpenter’s shop, I spent time listening to and recording the sounds within. Dur-



Figure 2. Casting shed. Quincy Mining Company (Hancock, Michigan). Photograph by Mark Dice.

ing an earlier tour of the site in the fall of 2010, I had found the acoustic experience to be viscerally enchanting, and perhaps the most fascinating aspect of the structure's acoustics was how it incorporated exterior sounds of the wider environment and gave them a new 'flavor.' This was one dramatically resonant example of an historic structure giving contemporary sounds an historic *character*.

Conclusion

The ramifications of this conceptual transition are manifold, but perhaps the most pressing need is the creation of an adequate descriptive language of sound, a project that may very well necessitate the invention of new words. The study and descriptive discussion of individual sounds is underserved by language and currently relies largely upon the use of onomatopoeic expressions. Schafer has created a system of classification based on source of origin (1977:139), and others

have compiled glossaries of acoustic properties and phenomena (Truax 1978; Augoyard & Torgue 2005), but the pantheon of sound-forms has a variety, repeatability, and predictability comparable to botanical or geological forms on the landscape, warranting a comparably intricate taxonomic language. While elusive and certainly prone to absence, sound as artifact also possesses a certain elegance in the sense that it maintains the same dynamic qualities in the present moment as it had in the past, because it can only exist as a kinetic phenomenon. Sound *must* travel. As orphans of the industrial project in the midst of a dramatic and somewhat contentious denouement, or "bad hangover" (Sieferle 2010:64), perhaps it makes sense now to retrieve the orphaned senses, driven from the human organism as a "condition of survival" (Mumford 1934:181). Laying claim to the physical reality of historic sound may serve this transition, and archaeologists, as well as all scholars of material culture, are uniquely positioned to engage in this effort.

References

- Augoyard, J. F. & Torgue, H. (eds.), 2005. *Sonic Experience: A Guide to Everyday Sounds*. McGill–Queens University Press.
- Benjamin, J. L. 2013. Sound as Artifact. MA-thesis. Michigan Technological University.
- Berger, J. 1984. *And Our Faces, My Heart, Brief as Photos*. New York, Pantheon.
- Blessner, B. & Salter, L.-R. 2007. *Spaces Speak, Are You Listening? Experiencing Aural Architecture*. Cambridge, Massachusetts Institute of Technology.
- Bijsterveld, K. 2001. The Diabolical Symphony of the Mechanical Age: Technology and Symbolism of Sound in European and North American Noise Abatement Campaigns, 1900–40. *Social Studies of Science* 31:1, 37–70.
- Coates, P. A. 2005. The Strange Stillness of the Past: Toward an Environmental History of Sound and Noise. *Environmental History* 10:4, 636–665.
- Deetz, J. 1967. *Invitation to Archaeology*. New York, The Natural History Press.
- Domanska, E. 2006. The Material Presence of the Past. *History and Theory* 45, 337–348.
- Fitch, J. M. 1972. *American Building: The Environmental Forces That Shape It*. New York, Schocken Books.
- Friz, A. 2007. Vacant City Radio. In C. Ripley, M. Polo & A. Wrigglesworth (eds.), *The Place of Sound: Architecture/Music/Acoustics*, 15–26. Newcastle, Cambridge Scholars Publishing.
- Fuller, R. B. 1962. *Untitled Epic Poem on the History of Industrialization*. New York, Simon & Schuster.
- Garrett, B. L. 2011. Assaying history: creating temporal junctions through urban exploration. *Environment and Planning D: Society and Space* 29, 1048–1067.
- Husserl, E. 1973. *The Phenomenology of Internal Time-Consciousness*. Bloomington, Indiana University Press.
- Lipe, W. 2009. Archaeological Values and Resource Management. In L. Sebastian & W. D. Lipe (eds.), *Archaeology and Cultural Resource Management: Visions for the Future*, 41–64. Santa Fe, School for Advanced Research Press.
- Mills, S. 2005. *Applying Auditory Archaeology to Historic Landscape Characterization: A pilot project in the former mining landscape of Geevor and Levant Mines, West Penwith, Cornwall*. Cardiff, Cardiff School of History and Archaeology.
- Mumford, L. 1934. *Technics and Civilization*. New York, Harcourt, Brace & Co.
- Pallasmaa, J. 2005. *The Eyes of the Skin: Architecture and the Senses*. Chichester, Wiley & Sons.
- Palmer, M. & P. Neaverson. 1998. *Industrial Archaeology: Principles and Practice*. London & New York, Routledge.
- Rainio, R. 2012. *Archaeology of the Auditory Past*. Nordic Theoretical Archaeology Group at the University of Oulu, Finland.
- Rath, R. C. 2003. *How Early America Sounded*. Ithaca, NY, Cornell University Press.
- Reznikoff, I. 2006. The Evidence of the Use of Sound Resonance from Paleolithic to Medieval Times. In C. Scarre & G. Lawson (eds.), *Archaeoacoustics*, 77–84. Cambridge, MacDonald Institute for Archaeological Research.
- Reznikoff, I. 2012. On the Sound Related to Painted Caves and Rocks. In *Archaeology of the Auditory Past*. Session organised by Riita Rainio. Nordic Theoretical Archaeology Group at the University of Oulu, Finland.
- Schafer, R. M. 1977. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, Destiny Books.
- Schaeffer, P. 2012. In Search of a Concrete Music. Berkeley, University of California Press.
- Sieferle, R. P. 2010. *The Subterranean Forest*. White Horse Press.
- Smith, M. 2007. *Sensing the Past: Seeing, Hearing, Smelling, Tasting and Touching in History*. Berkeley, University of California Press.
- The Status of Sound=Writing Histories of Sonic Art, Graduate Center, City University of New York, Friday, November 30, 2012. Martin E. Segal Theater, 365 Fifth Avenue, NYC.
- Truax, B. 1978. *The World Soundscape Project's Handbook for Acoustic Ecology*. Vancouver, ARC Publications.
- Westerkamp, H. 2000. *At the Edge of the Wilderness 2000*. <http://www.sfu.ca/~westerka/installations/edgewild.html>
- Westerkamp, H. 2001. *Soundwalking*. <http://www.sfu.ca/~westerka/installations/edgewild.html>
- Witmore, C. L. 2006. Vision, Media, Noise and the Percolation of Time. *Journal of Material Culture* 11(3) 2006, 267–292.