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EDITORIAL

Rethinking Acoustic Ecology: Sound Art and Environment

Gascia Ouzounian
In encountering various sound art works over the last decade, I’ve had the occasion to hear a rocky hillside sing; listen to what a companion described as the “ür-tone of civilization” emerge from beneath a traffic island in Times Square; spend hours inside a sparse room in Lower Manhattan bathed in magenta light and filled with a dense, synthesized drone that seemed to change with every slight movement of my head and body; hear geometries of sound — distinct lines and shapes — form inside a stairwell in the Technical University in Berlin; sit inside a “sound laboratory” outfitted with an acoustically transparent floor and several dozen loudspeakers while listening, perhaps improbably, to recordings of whale song; plug my headphones into the side of a building in order to hear sounds that were generated by the infrastructure of the building itself; ride the S-Bahn in West Berlin while listening to electromagnetic frequencies emitted by objects and architectures around me; and walk through Central Park while listening, through headphones, to Janet Cardiff recount a fantastical story that somehow seemed to correspond with random happenings in the park that day.¹

These various encounters represent only a fraction of the myriad genres of sound art that have emerged since the late 1960s that foreground the relationship of sound to environment, site, and place. These genres include sound installation art, site-specific sound art, soundscape composition, sound walks and audio walks, sound maps, mobile and locative sound art, and works that are concerned with environmental processes. Together, these various genres encompass a striking range of approaches to
conceptualizing, articulating, and reconfiguring place through sound. Some works, like Walter Fähndrich’s *Music for a Quarry* (1999), wherein a marble quarry emits sine tones at the precise times of astronomical sunset and sunrise each day, give voice to a place. Other works, perhaps most famously Max Neuhaus’ sound installation *Times Square* (1977–1992, 2002–ongoing), reconfigure the soundscapes of public spaces. Artists have conceived of acoustic environments as “living environments.” La Monte Young describes *Dream House*, a sound-and-light installation that has existed in various forms in Lower Manhattan since the early 1960s, as a “living organism with a life and tradition of its own.” By contrast, the Austrian sound artist Bernhard Leitner conceives of sound in architectural terms and understands sound specifically as building material. Leitner has written of his work *TON-RAUM TU-BERLIN* (1984), installed in a stairwell in Berlin’s Technical University, that “the cubic, static metal architecture [of the stairwell], in whose walls and ceilings 24 broadband and 18 high-frequency loudspeakers are installed, is the supporting structure for dynamic, sound-plasmic spaces. … Sound is … sculptural material. Sound is the construction material for space.”

Numerous sound works make audible architectures and environments that are normally inaudible. Mark Bain and Arno Brandlhuber’s *BUG* (2009) enables people to “listen to a building” through the use of seismic sensors embedded into the building’s infrastructure. For Christina Kubisch’s *Electrical Walks* series (since 2004), listeners are given headphones that have built-in coils that respond to electromagnetic waves, thus enabling listeners to hear frequencies that reside beyond the normal range of human hearing. As such, *BUG* and *Electrical Walks* entail an “audification” process; they transduce inaudible acoustic energy into audible sound. Similarly, numerous sound works, including a dozen or so projects described in “Environmental Sound Artists: In their Own Words” (eds. Bianchi and Manzo, 2016), entail a process that is known as “sonification” and translate non-acoustical information into sound. Andrea Polli’s *Heat and the Heartbeat of the City: Central Park Climate Change in Sound* (2004), for example, sonifies data related to climate change.

Countless sound works entail walking. Sound walks, listening walks, audio walks, and, more recently, mobile and geo-locative audio walks invite people to navigate an environment while listening to real or composed sounds. In locative audio walks, audio recordings are typically triggered according to a listener’s position in GPS space. A listener can therefore create
his or her own “mix” of these works by navigating a site in a particular way. Other audio walks use fixed audio recordings that are heard (for example) using CD or MP3 players. In Janet Cardiff and George Bures Miller’s *Her Long Black Hair* (2004), a listener is given a CD player and headphones and navigates Manhattan’s Central Park by following Cardiff’s footsteps, the sounds of which are audible on the recording.  

Some environmental sound works invite people simply to listen to the sound of a place, using minimal intervention. For Akio Suzuki’s *oto-date* series (since 1996), pictograms of footprints that resemble ears are painted onto the ground (or other surfaces) in various locations, signaling that a person should stand in a certain place and listen. After some time, these pictograms simply fade away. 

Certainly there are many other works and artistic approaches that could be added to this preliminary list. What emerges from this multitude of activity is that over the last fifty years sound artists have undeniably turned their attention — and ours — to place and environment as rich sources of artistic inspiration and acoustic fascination. For this special issue of *Evental Aesthetics* then, a journal that invites philosophical and critical perspectives on art and aesthetic experience, we might ask how environmental sound art in its myriad and evolving forms can bring new insights to philosophical discourses and how philosophies of place and environment might influence how we make and think about sound art. Or, as I propose to do in this brief introduction, we might consider the ways in which sound art works themselves embody and enact philosophies of place and what can we learn by attending to these philosophies wrought at the intersection of site and sound. 

**Rethinking Acoustic Ecology**

A common area of convergence between philosophical inquiry, sound art, and sound studies is in the realm of acoustic ecology, a term that is most often used to designate an environmentalist approach to acoustic environments. On the most basic level, acoustic ecology invites us to pay attention to the sounds of a place. The very act of “listening to place” was
once regarded as transgressive in relation to occularcentric cultures that have historically privileged visual understandings of place. Today however this idea has been complicated by what some theorists view as overreliance on an outdated term, “soundscape.” For Tim Ingold (2007), the idea of soundscape suggests an “emplacement” in listening — a fixity in place that is antithetical to sound. In his widely cited essay “Against Soundscape,” Ingold pointedly identifies a “place confinement” in soundscape studies, a kind of positioning that he views as “a form of deafness.” He argues that sound “flows … along irregular, winding paths, and the places it describes are like eddies, formed by … movement around rather than a fixed location within.” Therefore, in order to listen or (in Ingold’s conception) to “follow sound,” one must “wander the same paths [that sound follows]. Attentive listening, as opposed to passive hearing, surely entails the very opposite of emplacement.” It must be said that Ingold’s particular critique, while useful in recuperating a sensorially integrated approach to the experience of sound, does not take into account the various “mobile” modes of listening that many soundscape artists and researchers engage. The composers Hildegard Westerkamp and Luc Ferrari for example respectively use the terms “moving ear” and “wandering ear” in describing their particular approaches to recording environmental sounds and creating soundscape compositions.

Acoustic ecologists who have followed in the footsteps of R. Murray Schafer and the World Soundscape Project are typically concerned with understanding how acoustic environments are affected by environmental change, including, most commonly, increasing noise pollution. Some acoustic ecologists aim to preserve or conserve acoustic environments and might intervene in an environment in order to maintain or increase the “health” of its soundscape. Markers of healthy soundscapes, according to key studies in acoustic ecology, include the density and diversity of “biophonic” and “geophonic” sounds, which respectively refer to sounds produced by biological organisms and geological processes; the ability to hear distant sounds; and what Schafer famously characterized as a “hi-fi” soundscape, referring to an acoustic environment that boasts “a favorable signal-to-noise ratio.”

Attending to environmental health is certainly laudable, and indeed it is a pressing concern in the context of a global environmental crisis. Still, what is often lacking in conventional approaches to acoustic ecology is a recognition of the complex socio-cultural factors that contribute to shared
understandings of “sound” and “noise.” Put simply, many studies in acoustic ecology fail to recognize that diverse social and cultural groups — or even different individuals — experience sound and noise very differently. Further, the very idea of “noise pollution,” which has historically propelled acoustic ecology and likewise underpinned efforts in noise legislation, presumes that certain sounds — or even certain sound levels (as measured in decibels) — are acceptable while others are not and suggests a single, dominant model for distinguishing desired sounds from unwanted noise. What often follows from this is a binary division whereby “natural” sounds are considered desirable while “man-made” are deemed noisy. Acoustic ecology has therefore justifiably been criticized for subscribing to a now-dated Man-versus-Nature binary whereby nature and culture are framed in oppositional terms. Jonathan Sterne has identified a specifically “antimodernist” thread in Schafer’s philosophy of soundscape, writing that “[f]or Schafer … soundscape is meant to invoke nature, and the limits and outsides of industrial society. Even as it reaches into the modern world to describe its ambience, Schafer’s soundscape carries with it a fairly strict — if sophisticated — antimodernist politics.” Others have traced anti-urban leanings within Schafer’s conception of acoustic ecology.

While my account here is necessarily an oversimplification of this debate, it is clear that blunt divisions between “sound” and “noise” cannot account for the variety of sounds that characterize modern life. Nor are such divisions necessarily helpful in appreciating the wider ecological and socio-cultural systems within which sounds operate. For example, in determining what constitutes a “vibrant” urban environment — one that would evidently include people, whose absence would conversely indicate urban decline — a healthy urban soundscape would necessarily include the sounds that people make, including those sounds that are ubiquitous in cities but that are almost always deemed undesirable — like the sounds of traffic. This is not to say that the sounds of traffic should be celebrated but rather that traffic sounds in and of themselves do not possess positive or negative attributes; they are only meaningful in relation to the particular environmental, social, cultural, political, and economic contexts in which they are heard.

In parallel to the work of acoustic ecologists working in the realm of applied acoustics, soundscape artists and researchers have developed alternative approaches to acoustic ecology that trouble easy distinctions between sound and noise. In her project The Welsh Streets (2012), the British
artist and scholar Jacqueline Waldock discovered that residents of the Welsh Streets, a low-income housing community in Liverpool that came under a compulsory purchase order as a result of an urban renewal scheme, drew comfort from the “noisiness” of their neighborhood and the ability to hear through the walls of their own homes the sounds that their neighbors made.\textsuperscript{16} Nina, a resident of the Welsh Streets housing community who partnered with Waldock and other residents on the project, lamented the decline of neighborhood noise, observing that “I miss people calling their cats in, or shouting at each other or just talking to each other.”\textsuperscript{17} Nina’s perspective, which was echoed by many other residents of the Welsh Streets, contrasted sharply with normative ideas about sound and noise. Waldock writes, “Nina’s comments . . . challenge the [city] council’s assumptions about desirable homes as well as challenging an established aesthetically moralistic norm that the sound coming from neighbours is negative.”\textsuperscript{18} The Welsh Streets project speaks to the ways in which social and economic factors — in this case, complex intersections of class and power — contribute to understandings of sound and noise and the perceived desirability or undesirability of certain sounds and soundscapes. It is notable that in Waldock’s study, members of a disenfranchised group reported an altogether different politics of noise than the one that is typically promoted by city officials, revealing how a politics of noise can be used to empower or disempower communities. Waldock’s work further shows how studies of acoustic environments can productively extend to domestic and private spheres, spaces that have historically been underrepresented in soundscape studies.\textsuperscript{19}

\textbf{Instruments to be Played by the Movement of the Earth}

In Schafer’s conception of acoustic ecology, the acoustic environment is seen as an entity that is ruined by human activity and that requires human intervention to “fix.” Other artists have pointed towards alternative models of environment whereby environments themselves are seen as possessing agency and voice. An example is Terry Fox’s \textit{Instruments to be Played by the Movement of the Earth} (1987). For this work, Fox installed a number of objects inside a gallery such that these objects could be acoustically “activated” by
the movements of the earth. In an announcement for the exhibition, Fox wrote:

There is no “fixed” installation. Rather, the gradual accumulation of instruments that will sound by vibrations of the earth. These instruments are to be played only in this way. No sound in the absence of vibration. Potential sound. The sounds created by the instruments will correspond to the sounds heard during an earthquake; objects falling, rolling across the floor, rumbling, glasses and plates breaking, glasses shattering, an alarm going off, etc.20

For this installation, then, Fox did not collect or exhibit environmental sounds but instead established conditions whereby the earth itself could generate acoustic activity. According to a reviewer who was present at the exhibit, Fox’s own preference “was for the instruments to remain silent ... his interest [was] in investigating the tension caused by the expectation and imagination ... as much as in investigating the potential for possible sound.”21 Thus, for Fox, the primary focus of the installation was not the sounds that were produced or experienced therein but instead the sensitization to the heightened perception inherent in attentive listening: an attunement not to “sounds of the environment” but to listening itself as a way of being in the world. We can find resonances with this idea in “Imagined Drone Ecologies,” Owen Coggins’ contribution to this issue of Evental Aesthetics — a performative essay on listening that enacts the tensions and relationships between drone music and environmental sound.

Sonic Facts and Fictions

In acoustic ecology, field recordings (recordings of soundscape) are almost inevitably treated as evidentiary documents, as containers of acoustic “facts”: accurate or near-accurate representations of an acoustic environment at a given moment in time. The presence of the sound recordist is thereby typically diminished or effectively erased in these recordings, a topic that Mark Peter Wright deftly unpacks in this issue by introducing the figure of the “noisy non-self” and thus recuperating those identities that have been long submerged, erased, or ignored within soundscape recordings. The use of spectrograms, “soundtopes,” and other computational tools for
quantifying, measuring, visualizing, and analyzing data pertaining to soundscape recordings has further helped to establish a scientific basis for acoustic ecology. Conversely, soundscape artists are typically understood as producing sonic “fictions” by creatively altering, processing, editing, mixing, and re-situating environmental sounds in the form of compositions, performances, installations, and myriad artistic interventions. What is lost in this duality between acoustic fact and fiction — between the dual poles that have been erected between soundscape science and soundscape art — is that they obscure a more fundamental fact: that all recordings of soundscape are partial and subjective documents, subject not only to the many choices made by the sound recordist and the affordances of the particular technologies that are used to measure, record, store, transmit, and reproduce sound but equally to a politics of listening that (consciously or unconsciously) informs various “hearings” of place.

The dualism between art and science in acoustic ecology also masks the idea that soundscape artworks can sometimes reveal profound truths about acoustic environments, realities that cannot be easily measured or quantified. For his 2003 album Weather Report for example, the sound recordist Chris Watson created three eighteen-minute tracks that were each derived from hours- or days-long recordings of various environments in Kenya, Scotland, and the Norwegian Sea. Although these compositions do not pretend to act as documentaries and are clearly time-compressed and highly edited, they nevertheless offer numerous insights into the acoustic environments they represent as well as qualitative information about these environments that would be impossible to glean from spectrographs or other quantitative tools for measuring sound. For this issue of Evental Aesthetics, David C. Jackson considers discourses in acoustic ecology in relation to philosophies of the Anthropocene and identifies a “dark acoustic ecology” in the work of soundscape artists whose compositions reveal aspects of environmental change and degradation. Jackson analyzes the track “Vatnajökull” from Watson’s Weather Report, showing how a dark acoustic ecology — one that “listens in on the sonic conditions and effects of accelerated climate change” — operates therein.
In proposing the idea of acoustic design — a project that he conceived as an aural analogue to the industrial design project of the Bauhaus movement — R. Murray Schafer suggested that the aim of acoustic design would be to *improve* the world’s soundscapes: to give “form and beauty” to acoustic environments that were otherwise chaotic, harmful, and in some cases facing the threat of extinction. As an aesthetic project concerned with beautifying acoustic environments, however, acoustic design can sometimes miss the mark. Forty years after the publication of Schafer’s landmark text *The Tuning of the World*, there are numerous examples of sound installations in public spaces that are intended to beautify or improve acoustic environments but that are so incongruous with the particular environments they inhabit (recordings of ocean surf or birdsong played at park benches in Berlin) or so misguided in their aims (recordings of classical music deployed in urban centers in order to discourage “anti-social behavior”) that it is questionable whether anything resembling the aesthetic revolution Schafer imagined — or even anything of artistic merit — has actually been achieved.

Far more compelling than these ill-advised attempts to “improve” soundscapes (to my mind) are those public sound art projects that are deeply informed by the histories, cultures, and politics that shape an environment and that invite people to newly experience and appreciate these dimensions of place. For Mendi+Keith Obadike’s *Free/Phase: An Intermedia Suite in Three Nodes* (2014–15), a project that commemorated the 150th anniversary of the American Civil War, the artists collected one hundred and fifty African American freedom songs — spirituals and protest songs rooted in the struggle for emancipation from slavery and subsequent civil rights movements in the United States — from the archives of the Center for Black Music Research (CBMR) at Columbia College, Chicago. From this collection of freedom songs, the Obadikes created a three-part project that comprised a public sound art installation, “Beacon”; a video-and-multichannel-audio work titled “Overcome”; and “Dialogue with DJs,” a community engagement project wherein the public was invited to take part in private listening sessions and discussions of freedom songs with prominent DJs in Chicago.
For the original installation of “Beacon,” the Obadikes installed a large parabolic loudspeaker on the rooftop of the Chicago Cultural Center. This loudspeaker projected melodies from spirituals and freedom songs at 9 a.m., 12 p.m., and 7 p.m. on each day of the exhibition. According to the Obadikes, each spiritual that was chosen for “Beacon” “contains musical & lyrical messages that could have been used for pre-emancipation navigation on the underground railroad or inspiration.”

By making audible and indeed “beaming” into public space melodies from spirituals and freedom songs that emerged out of the experience of slavery, subjugation, and persistent social injustice, the Obadikes recover histories that are normally obscured, ignored, or denied within the public sphere. Further, they directly “call” people to come into contact with and contend with these histories. From video documentation of “Beacon,” it is evident that the Obadikes chose to present freedom songs in strikingly resonant and ringing yet unadorned and unembellished ways, such that the melodies might be easily identified and clearly heard. In their arrangement of the song “Woke up this Morning with my Mind Set on Freedom” for example, the Obadikes used original recordings they created of various bell sounds, which they blended with overtones from guitar harmonics. In their installation, each note of “Woke up this Morning” clearly rings out into the public square facing the Chicago Cultural Center, a building that itself pays homage to the American Civil War. As such, “Beacon” recalls the church bell, a recurring figure in sound studies and one that Schafer discusses at some length in *The Tuning of the World*. However, “Beacon” profoundly transforms the function of the church bell. By ringing out freedom songs into public space, “Beacon” invites people to connect historical struggles for racial equality with contemporary ones and simultaneously to imagine a different future. The Obadikes write that their work on archives in general “reflects on the information that sometimes vanishes from view, whether because it is ephemeral or because it has been buried. We hope our sounding the archives invites new ways of listening to the past and the future at the same time.”

*Free/Phase* also stands out among public sound art works in terms of how it imagines, enacts, and enables community. In soundscape studies, the term “acoustic community,” introduced by Schafer in *Tuning of the World*, is typically used to describe a group of people who share a social bond as well as a common “acoustic space” (Schafer defines “acoustic space” as a physical
space that delimits audibility). In Schafer’s words, “[t]he house can be appreciated as an acoustic phenomenon, designed for the first community, the family. Within it they may produce private sounds of no interest outside its walls.” After the family home, the second acoustic community described by Schafer is the church. He writes, “A parish was also acoustic, and it was defined by the range of the church bells. When you could no longer hear the church bells, you had left the parish.” This idea of acoustic community as defined by the physical limits of audibility has persisted within soundscape studies and sound studies. In the book *Spaces Speak. Are you Listening? Experiencing Aural Architecture* (2006), Barry Blesser and Linda Ruth Salter develop a similar model of acoustic community, using the term “acoustic horizon” in a way that recalls Schafer’s idea of “acoustic space.” They write:

The concept of virtual sonic boundaries leads to a new abstraction, *acoustic horizon*, the maximum distance between a listener and a source of sound where the sonic event can still be heard. ... The acoustic horizon is ... the experiential boundary that delineates which sonic events are included and which are excluded. The acoustic horizon also delineates an acoustic arena, a region where listeners are part of a community that shares an ability to hear a sonic event.

In *Spaces Speak*, “acoustic community” is once again conceptualized as a sociality that is bound by the physiological and physical limits of hearing. By contrast, in *Free/Phase* acoustic community encompasses a complex sociality anchored within social identities, shared histories, collective memories, lived experiences as well as a common purpose. Listeners who are part of this community are not necessarily those who can literally hear the sounds of the installation but rather those who appreciate the deeper meanings encoded in freedom songs and spirituals. Following on the work of Cheryl Boots (2014), this community is an “ethical community” as well as an acoustic one; it is bound by ethics and shared ideals and not only by the physics of sound and the physiology of hearing. In her thesis *Creating Community in the American Civil Rights Movement: Singing Spirituals and Freedom Songs* (2014), Boots suggests that the singing of freedom songs produced an “egalitarian resonance” for African American activists, a “shared experience of singing or listening to music together that creates a mutual respect and appreciation.” Boots examines the distinctive power of freedom songs, writing:
In the mid-twentieth century crucible of nonviolent protest, some “sorrow songs” were transformed into “freedom songs” — affirmations of identity, autonomy, and justice in the mouths, throats, and hearts of a new generation leading its elders. Built on the layered meanings and tunes of the spirituals, newly adapted and spontaneously created freedom songs established a common bond among singers. In a “war” where nonviolence was the strategic imperative of the Civil Rights Movement leaders and trained followers, spirituals and freedom songs were non-violent “weapons.” They affirmed the identity of African Americans, offered hope to the persecuted, and enacted the communal ideal of a peaceful society where all people would be mutual participants regardless of race. That ethical community — a “common ground” as Howard Thurman saw it, or “the beloved community” as Martin Luther King, Jr., envisioned — continues to be a work in progress, a goal not yet fully achieved in twenty-first century America.37

In Tuning of the World, Schafer describes a soundscape study he carried out at a French fishing village, Lesconil. The village was surrounded by sea on three sides, and the daily rhythms of its inhabitants were governed by the various sounds that would arrive by sea or by land at different times of the day, subject to wind, temperature, and other conditions that affect the propagation of sound. The sounds that governed daily life in Lesconil, according to Schafer’s study, included the village’s church bells, farming noises, the sound of puffer buoys at sea, the motors of trawlers, foghorns, and the church bells of various nearby villages. In recounting this study, Schafer suggested that “a consideration of the acoustic community might also include an investigation of how vital information from outside the community reaches the ears of the inhabitants and affects their daily routine.”38 In Schafer’s conception then, the daily lives of an acoustic community are governed by specific aural cues or what Schafer calls “sound signals.” By contrast, in Free/Phase “sound signals” operate in altogether different ways. The “vital information” contained in freedom songs and spirituals was vital both in a literal sense, providing information to people who risked their lives to gain freedom, and in a spiritual sense, acting as a lifeline for survivors, activists, and black communities. Further, the “sound signals” in “Beacon” do not function by signaling tasks; rather, they generate community through signaling a shared sense of history and equally a shared sense of purpose among listeners.

Nandi Marumo’s review of the Free/Phase project, published on the CBMR website, reflects on the relationship between the individual and the collective within this acoustic community. Marumo reviewed Free/Phase when it was re-exhibited from June 4–18, 2016, at the Rebuild Foundation’s Stony Island Arts Bank in Chicago. She writes:
As I was arriving [at the “Beacon” installation] around noon, I could hear pieces of the song “Woke Up This Morning With My Mind Set on Freedom.” I had heard the song before, but what I found so moving and wondrous was the way that it seemed to transform the space around the Stony Island Arts Bank. The neighborhood around the Arts Bank is “underinvested” and underserved, with many unused buildings and empty dirt lots where something used to be, like so many black communities across the country. Hearing that freedom song carried through the wind all around the block changed the feeling of the space from one of a certain kind of defeat to one of pulsing determination, from questions about how we get free under all this weight to an assuredness in our capacities to build ourselves and each other up, an urgency that still takes enough time to tend to our hopes and dreams. It reminded me not only of the importance of music as a way to frame our struggle for freedom, but also as a way to pay attention to the smaller, more intimate parts of our lives that inform and shape our movements for liberation.

Marumo’s response to *Free/Phase* speaks to the ability of sound to utterly transform an environment — in this case, transforming an “underinvested” neighborhood characterized by “unused buildings and empty dirt lots” into a place of resolve and hope; of “pulsing determination.” This transformation does not take place merely on the surface level of “beautifying” a soundscape; rather, it entails a kind of profound transformation that occurs on the level of history, memory, and society and how individuals and communities are shaped in relation to these.

When considered through the lens of works like *Free/Phase*, the questions that have underpinned so many studies in the realm of soundscape and acoustic ecology are fundamentally reconfigured. A recurring theme in acoustic ecology is the imperative to become “attuned” to our acoustic environments: to notice and observe the sounds around us. But we must also ask — is listening in itself enough? Or is listening only meaningful if it goes beyond the surface level of “hearing” and “sensing sound” to reach other dimensions of acoustic experience? How are histories of inclusion and exclusion inscribed within the soundscapes of public spaces? What would it mean to become “attuned” to these dimensions of soundscape? What would a socially aware listening or an activist listening entail? How are acoustic communities formed along socio-cultural and political lines, and how can the terms of acoustic ecology expand to include these dimensions of community? What would an ethics of soundscape entail, and how would our conception of listening change if listening was understood in relation to an ethics and politics of soundscape?
Notes


8 For this work Andrea Polli uses an atmospheric model of New York City developed by climate researchers. Polli writes, “The model allows [the researchers] to predict how climate change will affect New York and the surrounding suburbs. I created a series of sonifications attempting to convey the physical experience of the increasing temperatures … As you listen to the compositions, you will travel forward in time at an accelerated pace and experience an intensification of heat in sound.” See Andrea Polli, “Sonifications of Global Environmental Data,” in *Environmental Sound Artists: In their Own Words,* ed. Frederick Bianchi and V.J. Manzo (Oxford: Oxford University Press, 2016), 3–8.


12 Ibid., 12–13.

13 See for example Bryan C. Pijanowski et al., “Soundscape Ecology: the Science of Sound in the Landscape,” *BioScience* 61, no. 3 (2011): 203–216. In Schafer’s terminology, a “hi-fi” soundscape is one in which sounds may be heard clearly. By contrast, a “lo-fi” soundscape is characterized by an “unfavorable signal-to-noise ratio. Applied to soundscape studies a
A lo-fi environment is one in which signals are overcrowded, resulting in masking or lack of clarity” (Schafer, *The Soundscape*, 272).


17 Ibid., 160.

18 Ibid., 160–161.


26 Following the exhibition at the Chicago Cultural Center in 2015, *Free/Phase* was re-exhibited in June 2016 at Rebuild Foundation’s Stony Island Arts Bank in Chicago.


In Schafer’s conception, “The acoustic space of a sounding object is that volume of space in which sound can be heard” (*The Soundscape*, 214).


Ibid., 215.


Ibid., 10–11.


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