



Soundscape

VOLUME 15 NUMBER 1 | FALL / WINTER 2016

SOUNDS EMERGENT: DIVERSE ECOLOGIES

The Journal of Acoustic Ecology

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Soundscape is an English language publication of the World Forum for Acoustic Ecology (WFAE). It is conceived as a place of communication and discussion about interdisciplinary research and practice in the field of Acoustic Ecology, focusing on the interrelationships between sound, nature, and society. The publication seeks to balance its content between scholarly writings, research, and an active engagement in current soundscape issues.

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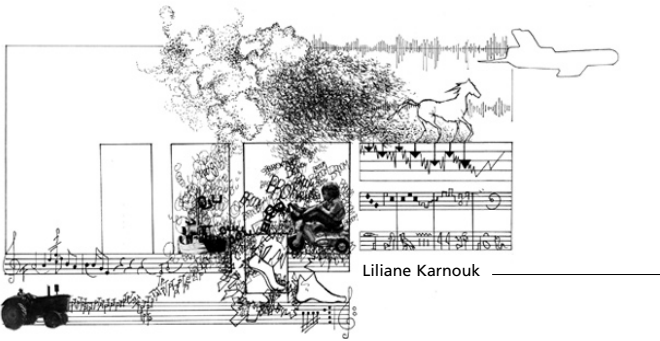
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Editorial

ON HEARING POETICS, PROSE & PECULIAR PLACES: Jay Needham's Curatorial Gift to *Soundscape*

S*oundscape: The Journal of Acoustic Ecology* is pleased to welcome this themed issue, with essays by Professors Timothy Morton and Sara Lewison, photographic art work by Lewison and Todd Birdsong, and an insightful review by Scott Smallwood closing out this symposium, initiated and led by Sound Professor Jay Needham of Southern Illinois University, Carbondale (SIUC), Illinois, USA. A former ASAE president, Professor Needham has spent a lifetime unifying voices across diverse ecologies, particularly in his role as SIUC Director of the Global Media Research Center, and a long-time board member of The Fuller Dome, preserving the Dome Home of R. Buckminster in Carbondale Illinois, a project that has brought together brilliant minds from diverse ecological perspectives.

The invitation to Professor Needham to serve as guest editor began two years ago when his term as ASAE president expired, intended as a means to transition and rethink the design of *Soundscape* in preparation for what would be its first of two solely digital editions. This issue focuses on Diverse Ecologies. The next, soon enough as you will see (and hear), evolved from this issue.

For our international readers, Carbondale, Illinois is likely not on your radar so some history might provide context. It was birthed in the lower Midwestern, rural United States, downstate near the Ohio and Mississippi rivers, closer to Nashville than Chicago. It began as a railroad town, carved out among the woods and hills of the Shawnee National Forest. As a native New Englander, I connected to this region in an odd transcendental way because of my appreciation for the symbiotic, evolutionary, historical relationship of nature and technology.

That understanding matured when more than a decade ago, I took my family to Walden Pond, the site of Henry David

Thoreau's cabin. Stone markers encircle the site where his wood cabin once stood. About that time, I was conducting sound surveys in my classes (inspired by Gary Ferrington), with regards to students' favorite soundscapes. The theme that surfaced can be summarized in three words: woods, wind and water. Todd Birdsong's poetic images tell the story of a tree in Southern Illinois, in a region that I lived for more than 25 years, only recently moving to Northern California.

We all have stories, cross-roads and intersections, moments where we rise above the technology that tries to define, enclose or imprison our senses. I was in search for such a space, and, for a while and may be still so, it became an obsession. It surfaced as a theme for a conference paper that I was writing with my then graduate student Joseph Benso.

On a winter morning in late February 2006, we journeyed across back roads of Pomona within the Shawnee National Forest to find a space comparable to Thoreau's Walden, which is now a tourist attraction; the howl of the Fitchburg train there competes with local traffic on the road that passes by its entrance way. Our own journey on this morning was an interesting one that led us to Jerusalem Hill Road, then left on Macedonia. We found ourselves on a gravel road on our way toward a "sacred" space where we imagined how Thoreau felt when he heard the Fitchburg train intersect across the sonic terrain of Walden.

We walked, listened and observed. A gentle dusting of snow rested on the remaining autumn leaves. We stood still on the rocky edge of a hill cliff, leaning forward. The microphones didn't capture what we heard, as if the wind hid this moment intentionally. We heard the train approaching; its howl reverberating and magnifying within the canyon. We searched, but could not find

its origin. The stark trees made it easy to hear for miles. The recorder was deaf to all sounds but the wind.

To find a new Walden, one might contemplate new metaphors and juxtapositions of soundscapes. They represent internal and external spatial musings of continuity and dichotomy, in which we might transcend the borders of our mind by reconsidering our points of sonic reference. Sometimes this journey begins with a walk around the neighborhood. These days, I might walk into my computer monitor, within a virtual world, sit and listen on a rock, by a stream, under the shade of my tree. Imagined? My emotional and intellectual investment makes it real. Sometimes we find our point of reference in our office, as Professor Lewison writes in her essay, "HVAC, or Political Ecology as Facts of Pressure" and other times it takes significant planning as Paul G. Ratcliff states in his article, *Baby, It's Cold Outside!: Lessons from making audio-recordings of wildlife in urban/semirural environments*.

Thoreau was born 200 years ago, 12 July 1817 (WLD is July 18!) What technological metaphors would haunt his philosophies in present day? Both he and Timothy Morton are among those who had envisioned the path long before our contemplation of a journey. We must travel deep within their words to follow their earworms. There will always be impediments and obstructions that defy our path. Earworms call attention to our perceived inability to tune within the nuances at the cross-roads of technology, nature and our own inhibitions and fears with the unknown.

The metaphor conveyed by a single tree, in all its moments, as illustrated wonderfully in this edition by Todd Birdsong, lives within these pages, bravely and rooted yet vulnerable, dedicated to poets, philosophers and practitioners. What is your wood song? What tree sings on your path?

Every now and then, I hear that piece of Walden in my head, a

symphony of sonic impressions, often triggered by another's wood song that brings me back to when I heard my tree...

I am the tree in the Shawnee Forest.
My arms, branches, raised.
I give into the rush
of the wind carrying my covenant
of praise and peace.

Rustling leaves like fallen tambourines
line the sacred path, muffled,
the silence of dreams
stirred by the roar
of passing trains, on their way
to Spring, to Walden Pond.

Enjoy your travels through the many ideas and voices brought into harmony by a very gifted curator, Guest Editor Jay Needham, who extends airspace for tree songs, that disperse and converse in the sunlight and shadows of epoch extinction; he too hears the passing locomotive, as both tamed and unruly beast, where artist, scientist, naturalist and futurist cohabit and challenge the acoustic geographies and diverse ecologies of flora and fauna, and insects and robots, in a cabin called *Soundscape*.

PHYLIS JOHNSON, PHD, is Director and Professor of Journalism and Mass Communications at San Jose State University, San Jose, California. She is author/co-author of four books, machinima reviews editor for *The Journal of Gaming and Virtual Worlds*, and has extensively presented and published internationally. She is the immediate former editor of the *Journal of Radio and Audio Media*, and Editor-in-Chief of *Soundscape*. She writes on sound, new media, and virtual reality as culture and practice.

you are invited to participate in

World Listening Day 2017

LISTENING TO THE GROUND

a global community event
July 18, 2017

“Sometimes we walk on the ground, sometimes on sidewalks or asphalt, or other surfaces. Can we find ground to walk on and can we listen for the sound or sounds of ground? Are we losing ground? Can we find new ground by listening for it?” —Pauline Oliveros (1932-2016)

World Listening Project

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Report from the WFAE President

This issue of *Soundscape: The Journal of Acoustic Ecology* “Sounds emergent: diverse ecologies” is the WFAE’s first step away from print into a digital form we may call an “e-journal.” This initiative germinated in 2012, in discussion with members of the Journal Editorial Committee and WFAE Board, at the Global Composition conference at the Media Campus of Hochschule Darmstadt, Germany. Core considerations were cost, inclusion and accessibility.

The move to a digital journal became necessary as a cost-saving measure. Printing and mailing physical copies to our members and library subscribers cost more than what WFAE received from its affiliate groups, who constitute the major part of our membership, in addition to support from our library subscribers.

Not only will a digital journal save time and money, not having to print and mail physical copies unburdens our volunteer guest editors and Editor-in-Chief—highly skilled professionals that volunteer their time and expertise—along with other WFAE members who can amplify content through the website, newsletter, and social media. They can redirect capacity towards curating content and extending the reach of the publication. The shift from print to digital distribution makes the journal accessible to a larger readership, hopefully further integrating our professional practices, creative research and scholarship into the editorial process and the content itself.

The transition will happen in a series of steps. Our goal is to advance beyond a mere PDF of *Soundscape*. Having an extensible platform will enable us to enhance the capacity of the journal with each subsequent edition as it transitions into a more robust and functional digital form. Internet connectivity with cross-platform readability, streaming audio and video content, DOIs, online translation tools, and print-on-demand are among some of the possible features we may integrate. The format should be engaging for broader audiences, providing an opportunity for the WFAE membership to consider new models and new audiences in the future. New media in the digital realm can and should connect acoustic ecology to activists and others outside of academic institutions; for example, families with elementary and pre-school children, school teachers and teaching artists who may be working with limited resources. These digital media features may remove a significant translation barrier for non-native English speaking writers and audiences and help move the WFAE’s mission forward.

I want to emphasize that the WFAE and its journal depend on the support of affiliate members and library subscribers. While this edition of *Soundscape* is offered free to individuals, dues-paying members of our Affiliate Organizations and library subscribers are the ones who finance production, ensuring the journal remains a key instrument for realizing the WFAE’s mission.

Another way the WFAE fulfills its mission is through endorsing relevant conferences and projects conducted by our affiliates, associated organizations, and individuals. The protocol for gaining WFAE endorsement is being streamlined to be more effective

and timely. As this edition of *Soundscape* is delivered through the WFAE’s new website, it is my expectation that it will provide new tools for providing endorsements, such as a visible, clear description of the process, links to sample MOUs, agreement forms, and promotion of those events WFAE has endorsed in the past. I am eager to learn from artists, scientists, and others in Asia, Europe, and South America who have expressed interest in starting their own WFAE affiliate groups, how useful they find the new website, and how we can best serve unique and new needs. As we look forward to three WFAE endorsed conferences—Invisible Places (www.invisibleplaces.org) in the Azores, and Sound + Environment and Balance-Unbalance in the UK, my hopes are high that we may attract a wider community of people with an interest in acoustic ecology. The guidance of the WFAE Executive Board has proven to be essential in this effort. I thank Leah Barclay, Christopher DeLaurenti, Nigel Frayne, and Eric Powell for their creativity, effort, and good humor in making all this possible.

This edition of *Soundscape* invites us to remember two artists who contributed a lifetime to courageous teaching, innovation, and community building. WFAE members reflect on the life and legacy of Pauline Oliveros, the influential composer, improviser, and creator of a practice called Deep Listening, who died at age 84, on 26 November 2016; and Jed Speare, a WFAE member and Boston-based sound artist who died at age 62, on 22 March 2016.

Pauline provided the theme of “Listening to the Ground” for the annual World Listening Day on 18 July. It is my hope that this day and really every day will be a time for more people to learn and engage our networks, or to consider the irreducible gap between the essence and the appearance of any sound, as Timothy Morton suggests. Or, just listen deeply with your earworms.

ERIC LEONARDSON, a Chicago-based audio artist, serves as the Executive Director of the World Listening Project, founder and co-chair of the Midwest Society for Acoustic Ecology, and President of the World Forum for Acoustic Ecology. He is Adjunct Associate Professor in the Department of Sound at The School of the Art Institute of Chicago (SAIC). As a performer, composer, and sound designer, Leonardson created sound with the Chicago based physical theater company Plasticene (1995–2012). Leonardson performs internationally with the Springboard, a self-built instrument made in 1994 and often presents on acoustic ecology to new audiences. As an artist and educator Leonardson’s practice inhabits the elusive lines that separate art media and disciplines; the promise of technology to enable new possibilities in art, discovering connections between physical action, sound, images, and ideas through artistic collaborations and research. With Professor Sabine Breitsameter at Hochschule Darmstadt, he co-edited *Ways of Listening, Figures of Thought: A Festschrift for R. Murray Schafer On the Occasion of His 80th Birthday* (2013). Additional recent articles appear in *The Journal of Radio and Audio Media, Volume 22, Number 1*, *The Journal of Urban Cultural Studies, Volume 2, Numbers 1–2*, and *The Conrad Grebel Review, Volume 33, Number 2*.



WORLD FORUM
for ACOUSTIC ECOLOGY

MEET OUR NEW LOGO! As part of WFAE’s communications strategy, the logo, designed by Chicago artist Dan Mohr, is core to a fresh and easily recognizable digital identity across our platforms, including *Soundscape*, now a color publication, our newsletter and our new website, wfae.net.

Sounds Emergent: Diverse Ecologies

Guest Editorial by Jay Needham

S*ounds Emergent: Diverse Ecologies* is a small measure within a continuing historical record, a core sample taken from the global art and science dialog when we collectively arrived at another eco-critical turn and shift towards urgent action. The messages in this edition of *Soundscape: The Journal of Acoustic Ecology* forecast the need for our species to shift our perceptive modalities, to be intersubjective. It is the Holocene and our epoch of time is about the whole of everything. An ecology of everything might bend the sound barrier in a way that suggests our work might not depart or arrive from any singular point of audition. This implies that art and science collaborations are fuzzy places where both ideas and disciplines burrow and uplift, zones where science, arts and polity toil, a brackish place of continual change.

In her essay “HVAC, or Political Ecology as Facts of Pressure”, artist, educator, activist and writer Sarah Lewison lucidly assays the cultural conditions of labor and microbial life present in the air-handling equipment of an office space. It is within the micro climate of the everyday that she considers the exchange of atmospheres as a compelling opportunity to consider that we are all enmeshed in a dynamic exchange of vibrations. Her narrative is also an important critical inquiry about the boundaries we humans occupy and the need to remain open to varying levels of perception. For Lewison, complexity is not distracting, nor is it noisy; we are being encouraged to tune anew and complicate and expand our own empathic relations to the world around us, sonic or otherwise.

This expanded edition of *Soundscape* also features a new and significant contribution by one of today’s leading philosophers of ecology, Timothy Morton. In “Earworms”, Morton begins by entangling us (through kind invitation) into considering that sounds are independent entities and thus, need a kind of host, or us as a vector. To think in Morton’s soundscape mode is to receive sound as a virus and this is where his writing is both transformative and meaningful for the discipline of acoustic ecology. The earworms provided therein are a kind of mnemonic gift but they also haunt in ways that are stunning in what they reveal to us about language, art, science and ultimately, as a profound example about how current ecological thinking can be invigorating as those viral ideas converge into something that Morton hopes we all will catch, a *flu* that also happens to serve as a remedy.

This edition also contains Scott Smallwood’s nuanced review of Jordan Lacey’s new book *Sonic Rupture: A Practice-led Approach to Urban Soundscape Design*. Lacey’s research is richly detailed and his arguments about affect (Affective Sonic Ecologies), provides fresh insights into the current state of



1/27/15, 10:12 AM, Photo by Todd Birdsong

the built environment. His contribution has arrived during an influential time when urban spaces are being considered not for their orthogonal order but for what part they will play in supplementing the hertzian imagination.

Acknowledgements

MANY THANKS TO PHYLIS JOHNSON for her continued support and to Sarah Lewison for all our good conversations and cups of tea on her porch. Additional thanks to Honna Veerkamp, Rob Spahr and Jennifer and Miranda Needham.

JAY NEEDHAM, MFA, is an artist, professor, scholar and interim director of the Global Media Research Center at Southern Illinois University Carbondale. He utilizes multiple creative platforms and his works often have a focus on recorded sound, archives and the interpretation of artifacts. His sound art, works for radio and visual art have appeared at museums, festivals and on the airwaves worldwide. Through applied aspects of his research, Needham strives to affect positive change and bridge the gap between the arts and the sciences. His most recent sound installation is on permanent display in the BioMuseo, designed by Frank Gehry in Panama.

His research is published in the journals: *Exposure*, *Soundscape: The Journal of Acoustic Ecology*, *Leonardo Music Journal*, and in the book *Hearing Places: Sound, Place, Time, Culture*. He has been invited to speak and present his work at many notable programs including the Amsterdam School for Cultural Analysis, the Department of Techno-Cultural Studies, University of California, Davis, California Institute of the Arts and the School of the Art Institute, Chicago.

Needham is a member of the boards of the World Forum of Acoustic Ecology, the Institute for Neotropical Conservation and Carbondale Community Arts. He received his MFA from The School of Art at California Institute of the Arts. www.jayneedham.net

HVAC, or Political Ecology as Facts of Pressure

by Sarah Lewison

All things and beings in the universe are connected with each other—visibly or invisibly—and through vibrations a communication is established between them on all the planes of existence.¹

Do. Pretend to. Sit with me in a basement office and listen to the small universe we occupied for 7 years as a university worker. The office opens onto a hallway. A plaque on the door names the worker who is remunerated for her time in this office. She, or me, this working subject on university payroll, is joined by myriad bacterial and fungal beings that co-constitute her by virtue of inhabitation, thus the pronoun, “we.” They/we also work, feel, and react, doing their/our own thing and multiplying aural reception to the room, pushing beyond a singular. Together we hear the pressure of air as it moves through a metal duct. More distantly, behind a thin wall, a motor is working hard. It turns a cirlet of blades that click-whirr, accelerating airflow through metal ducts. It sounds innocuous, even soothing, like noise generators that parents use to put their babies to sleep, or that therapists place outside the clinical door. The pipes are strapped into the space above a vertically suspended grid of compressed paper panels that occasionally jiggle. The blowing hovers just in the background of consciousness as we sit typing at the desk, a shadow in the corner, and certainly this was the intended design. Eventually, however, the sound of forced air emerges from the background fierce and fidgety, until the office becomes crowded with the clamor of numerous relations, many parts working together, well or badly. Metal ducts, corrosion, rust, seams, dust bunnies, dust, galvanized coating, strapping, fan blades, fungal colonies, gratings, barricading filters, motors, and coils shout out their existence, “listen to me!” “I am here too!” The air itself shunts in irregular rhythms as it collides with the duct’s concave interior surface. Operational flaws float in and out of recognition of our narrow human perceptual range. Terrible sounds emerge, inharmonious ones, such as the “diabolic” chord produced by an augmented fourth- a dissonant note in the middle of an otherwise harmonious chord, the stinkbug in the raspberry.

It seems noisy in here, but it’s not the same as other work-related sounds, like jackhammers and vacuums that cause eardrum damage to humans, sounds so loud they lead to deafness. It is a more complicated psychological aural entanglement with and within the office. For one, although it’s loud, we can’t be certain about what we hear because we can’t visually verify the relationships that generate these sounds. The HVAC collectivities produce a siren-like chorus that seems to amplify and change in feeling over time. Its songs slowly intrude upon the space, the body, an ambience that inducts, takes hostage by degrees, an always coming that never arrives. We are unable to gauge the spatial relationship this clamor has to us, to measure its distance, nor to keep them at bay. Whether I listen consciously or not, I take the sound personally as an affront that shrinks me in its presence. It feels like something inside is squeezed out. Its wind is drying, dehydrating, even in being heard it is felt. My subjectivity in relation to this sound, office, what this office does, and whatever I am supposed to be doing there becomes muddled, dislocated, diluted. Who is doing and what is it being done to? Timothy Morton writes about how the blurring of foreground and



Arctic glitchscape 2646, by Sarah Lewison

background disrupt anthropocentric orderings between subject and object.² This blurring is inevitable once we reject the idea there is a background, that there is any blank space at all. The HVAC, background to all life in the basement, is not a blankness; it bears not only an ecology in the form of its mysterious mechanical life and its phlegmatic winds, but also exemplifies an ecology in its constant mixing of the elements of itself, including, in my office, me and my biological inhabitants. In moving air between offices, it expands its reach, sucking up and relocating the exhalations of my colleagues in the building as well. In meditating on these inter-nestled ecological niches, it’s my intention to disturb lines drawn around the edges of the human, and to problematize the conditioning that allows us to tolerate conditions that remove us from the animals that we are.

With every sound we listen to, from lullabies to police sirens to sonic weapons to birdsong, we learn a little more about what kind of animal we are. As a trigger that draws out involuntary biological and emotional responses from organisms, sound messes with ontological borders. In her exploration of the embodied affectivity of sound, Salome Voegelin explains that because sound lacks the benefits of vision, which affords distance and the option to turn away, it has a different psychological effect. In giving shape to sound’s indiscernibility, she suggests hearing is always troubled by questions; “the phenomenological doubt of the listener about the heard and himself hearing it. Hearing does not offer a meta-position; there is no place where I am not simultaneous with the heard.”³ In this respect, it is like the mouse scratching in the wall, or a highway that is always coming yet never arriving. The HVAC, always arriving and never there; the dominant sound of our environment, is always a fugitive, even as it also “sits in my ear.”⁴

More complicatedly, listening does not only occur in the ear. The membranes of our bodies vibrate in response to pressure at many

scales and registers with tiny waves that have consequence in the moment, awakening and associating memories of other vibrational pressures. For myself, and perhaps others in offices like mine, the operating HVAC recalls—in the sense of calling up— anxiety and loops of neurological trauma. I feel attacked as the sound insinuates itself into the situation as a fact of pressure. I am the object it gathers up and takes along in a physical exchange that exceeds the system's designated function of circulating air. In the presence of its call, that which I call myself deflates. Voegelin characterizes this diminishment of subjectivity in her own observations; "Noise exaggerates the isolation of my sensorial engagement and tightens the reciprocity between the listener and the heard."⁵ Reciprocity I take here to mean an exchange that instantiates mutuality between two or more through some kind of material transference. This exchange rhythmically infiltrates bodies as energy itself in the form of waves of pressure, or vibration.

Vernacular notions of "listening" imagine the body as a container perforated by holes into which sound waves are directed by ears and/or reflected or amplified by microphones, hearing aids, headphones, spatial structures, at infinitum. Such "listening" performs and situates a kind of boundary traceable to Enlightenment notions of individualism and autonomy, along with contemporaneous imperatives for verifiable scientific evidence. Biologist Peggy Hill, writing on vibrational communication in animals, remarks that this kind of research was suppressed by assumptions that "substrate-born vibration could not convey any biologically meaningful information..."⁶ Second listens within the field reveal evidence to the contrary, especially as researcher inferences of 'biological meaningfulness' continue to evolve. Sampling from a range of research on animals' use of vibration in her book, Hill summarizes evidence that animals do in fact use vibration to communicate sonically through various substrates.⁶ On the microbial scale, molecular microbiologists Hyland and Norris cite "intercellular communication involving coherent collective vibrational modes" among bacteria and there has been more recent work about bacterial communication and crowding dynamics.⁷ Jim Gimzewski and Andrew Pelling's "Dark Side of the Cell" project digitally amplifies the sound of nano-scale yeasts moving around proteins and other molecules, and responding to manipulation by the scientists.⁸ While such interventions make ambiguous the question of who or what is being communicated with, the recordings afford a route to imagining cellular acoustics. Listening, I think the sound is a little like a factory, or like my HVAC, but then I must pause to remember my own body is necessarily profligate with noisy singing yeasts, proteins, molecules and microbes.

The deaf percussionist Evelyn Glennie, speaks about hearing "through my hands, through my arms, cheekbones, my scalp, my tummy, my chest, my legs and so on." As she relates her journey of learning to hear, she shows how the dynamics of her vibraphone respond to her grip on the wooden sticks. In "opening her body up" to sound as vibration, she makes perceptible a roster of material substances and qualities: bone, wood, air, mucous, cartilage, moisture, flexion, etcetera, that can be detected as tone, pitch, timber.⁹ Glennie's sticks articulate the physics of pressure moving through various substrates and its capacity to agitate our substrate-bodies at a cellular level, a gradient of pressure that moves between substances with no ecology police guarding the door. Glennie says "we have to listen to ourselves first of all," an echo of the "Corpo vibrátil" or "resonant body" described by Brazilian psychotherapist and theorist Suely Rolnick, as the capacity by which all sense organs expand to "allow themselves to be affected by the impact of otherness."¹⁰ Such a sensory dilation that intensifies the affective potential of perception could be imagined as the core of aesthetics and indeed, Rolnick describes this resonant body as the aesthetic experience itself, a vibrational plane of entanglement that accounts for all the

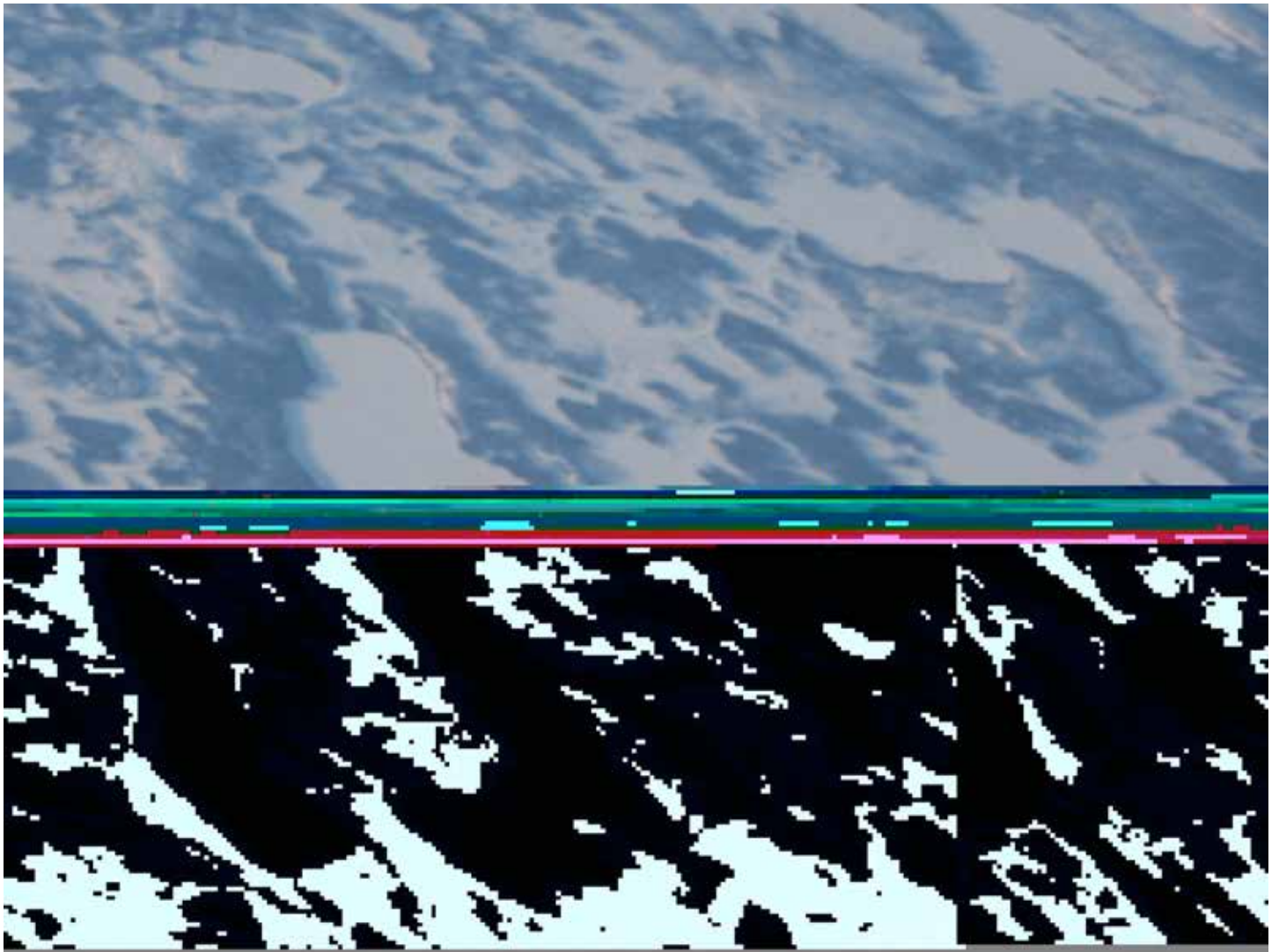
materials we handle and surround ourselves with.

Where does this resonance take place? Although Rolnick describes a singular resonant body, complex organisms such as we animals are truly evolutionarily symbiotic aggregates of millions of species of bacteria and fungi, many of which once lived independently in substrates like mud and water. Lynn Margulis, the biologist whose work on mitochondrial DNA opened up this long abandoned field of evolutionary symbiogenesis, speculated late in her career that microorganisms were capable of perception, memory, and forms of knowledge, including emotions. Returning to the sounds in my office, I wonder how they resonate in the bodies of my bacterial and fungal co-constituents and inhabitants. I wonder if they are immersed in an aesthetic experience that leads to my own subjective sense of being crowded out.

It's certain that the way the HVAC affects me is incidental to the functioning of the system, a misunderstanding. I listen and it turns on my paranoia. JJ Gibson, the 20th century psychologist who studied perception, describes the process an organism uses to make a distinction between what is meaningful as an "affordance," something like a recognizable semiotic handle one can grab onto, regardless of subject object positioning. Affordances "enable both semiotic and material comprehension of the environment as embodied and within environmental constraints."¹¹ For Gibson, the reliable horizontality of the ground provides an environmental cue that invites us to crawl/walk, exemplifying perceptual learning that expands as it is prompted by environmental cues. Gibson claimed that environment is what motivates and determines perception, with meaning emerging from that which the environment visually "affords" the observer.¹² The microwave bell telling us that food is ready might also be thought of as an affordance, although we will still need to see or feel it to be sure. Again, when we hear something, seeing helps us determine what it is and its spatial relationship to us. But Voegelin suggests that such visual verification also locks us into a semiotic field of language.¹³ Does this deny us an imagination of the vibrations of the microbial, the nameless thousands of bacteria that are part of that process? Excluding parts of a world or system is a pragmatic strategy for classification, but it leads to other kinds of misunderstandings, such as barricading the inevitability there is more than can be accounted for. Misunderstanding then is a cue of ecological complexity, as it offers an outline of cultural expectations of communication—and the recognition there is always more, even something messy, outside of that data set.

In 1910, Hazrat Inayat Khan sailed from India to the west to disseminate the teachings of Chishti Sufism, and their emphasis on a practice he thought deeply resonated in all religions, which was the use of breath and sound. Khan's embrace of sound emerged from his own practice as a musician, leading him to assert that all bodies vibrate and produce sound. In mystical Sufism, Zikr (or dhikr) refers to the meditative recitation of short devotional phrases affirming the existence of the beloved/God. Phrases are spoken or sung aloud or in silence, alone or with others, in which case they orchestrate layered and over-tones. The drone of zikr is a profound example of reciprocal sound production that has the effect of diminishing the sense of separation and individualism, as participants tune their instrument-bodies toward each other. Misunderstanding and anxiously snared within the office chorus, I begin to sing with it, attempting to align it with zikr, but there is no beloved to be found. The HVAC's song is the song of a thing, of many things.

Graham Harman, a philosopher who thinks about the constitution of things, suggests we might describe all those parts that constitute my HVAC as an ontography, a list of objects that share liveliness as well as relationships between each other that may be unavailable to me.¹⁴ As an unordered list that through juxtaposition, proposes new relations, Ian Bogost points out it is inevitable poetry: coils,



Arctic glitchscape 2647, by Sarah Lewison

ducts, corrosion, rust, seams, dust, galvanized coating, strapping, fan blades, gratings, barricading filters, dust, a motor, lungs, alveoli, moisture, spring, crimps, and so forth. The intentional function of the system is to move, filter and adjust air temperatures which indeed also move through me and take my exhalation elsewhere. The sound it makes is incidental, as it performs its work as a conditioner. The HVAC office complex conditions me, my cells, my mucus, you too, as well as my sense of what constitutes companionship as daily I tune to it, and as it tunes to me. To condition is to produce regularity. As conditioning, media are confined, filtered, dehumidified, regularized, separated— events of conditioning conducted inside my own body mucus membranes, bones, numbing.

If language is intrinsically connected to the visual, as Voegelin attests, the HVAC might be translated into a representational image, a flow chart that describes its operation. Understood only as noise, it identifies its alien nature through sounds that are intelligible but unfamiliar in the sense of uncanny. If I contextualize this sound as a social phenomena, there is much to learn from it about what is a job or an office, about the lives of materials and substances that are only incidental to my work, about the building construction and the time spent “earning a living.” If it seems these questions are too obvious or irrelevant or difficult to acoustic ecology, we miss a modest opportunity to grapple with the intrinsically auditory—and ecological nature of any environment. In an essay called the “Language of Things,” Hito Steyerl invokes the spirit of Benjamin in order to demote the representational power of the documentary. “How do humans relate to the world?” she asks, arguing that it is not the realism of what is portrayed

in a scene that matters as much as the relations between objects that undergo experience. She calls this relationism “presencing” in order to underscore its movement and capacity to “transform the social, historical and also material relations, which determine things.”¹⁵

Steyerl asks that we make something of our noticing, to move beyond listing in order to note misunderstandings and to ask questions about the texture of relations, perhaps the feeling of being pulled into the drone of the machine. What indeed are the stakes when the clamor takes place at a molecular scale? Sound orients us, and when we can’t turn away from a sound, the biological vulnerability of our bodies comes to the fore as anxiety until we can see what it is, give it a name. The turbulent rushing sound in the office is always presencing, registering our own liquidity to the degree that we are in suspension, bodies within bodies, not unlike what is in other contexts described as sublime: the sounds of tornados, death metal, turbines and hygiene up close. Like potty training, I conjecture we experience this pressure as a form of infantilizing discipline that conceals an understanding of meaningful environmental boundaries. But where is our understanding of this margin concealed? Going outdoors in order to listen to, perhaps record birds, trees, grass in the wind, the spatiality of outdoors, the distant train or refinery, even the bark beetles is to extend our imaginations into the lives of communities. Reaching into the vocalizations of others from afar, we imagine their experience and exercise empathy. It is possible, however, this practice keeps political urgency at a distance too. Morton would say we think there is a world out there instead of a blur we are inside of, because a background lets us imagine the solidity our own edges.¹⁶ From a safe

position we can speculate without suffering. To listen within the office is to be confronted by conditioning as a boundary of the knowable, a political line that muffles the many: fungi, plants, humans and animals, inanimate objects, ten thousand bacterial species, the casual positioning, badly tuned, conditioned discomforts—and pressurized facts of relationship of all the others that are not human. The risks are in the possibility of aesthetic—as feeling—and resistance.

About the Author

SARAH LEWISON is an artist, writer and activist concerned with political ecology. Her research based projects use play, dialogue and media to direct attention to instrumentalization and power, and to the affective presences of labor, materiality, gendered performance, law, and the mattering non-human. Her work has been presented and published in the US and internationally, including Documenta13, Smart Museum, Wattis Institute, MOCA Detroit, and Den Frie Udstilling. She collaborates with the Compass collective in the midwest US, and her son, performance artist duskin drum. Her essays about media, sustainability and culture appear in *An Atlas of Radical Cartography, Failure!* (LA:JOAAP Press), *Tema* (Denmark), *Journal of Northeast Studies* (Hamburg), *Area* (Chicago), *Journal of Aesthetics and Protest* (LA) and *Third Person* (MIT Press). Currently she is Associate Professor in the College of Mass Communication and Media Arts at Southern Illinois University.

Endnotes

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Arctic glitchescape 2626, by Sarah Lewison

Earworms

By Timothy Morton

This essay will argue that musical sounds are independent beings in their own right, just like worms. Indeed, it is going to use the example of the earworm to demonstrate this. In turn, the fact that the earworm is an independent entity in some sense has profound implications for how we listen to, compose and analyze music, and in particular on how to think what is called *soundscape*. And the fundamental detail here is that this new thinking will be strongly ecological.

While the essay does this, it will become clear that the differences between sound, noise and music, the differences between foreground and background, and the differences between a single thing and a group of things—a tune and a city, part of a city and another part of a city, and so on do not evaporate into nothing at all. Rather they become “weird”: that is to say, they cease to be thin, rigid and metaphysical. So do the differences between listening, playing, hearing and composing—between tunes and tuning.

Moreover and likewise, it will become impossible to sustain thin or rigid differences between being active and passive; between being a person and being a thing; between life and nonlife. At the Tuned City Brussels sound art event in 2013, Felicity Ford was right to say “Thanks to Brussels for all the sounds.”¹

We have all heard earworms, those irritating tunes or parts of tune that seem to live rent free in our heads. Why do they do that? Answering that it is because they are so compelling begs the question. How and why are they so compelling? This essay is going to explore the strange, loopy logical structure of earworms, and explain why it is better not to try to get rid of them, but rather to coexist with them and possibly embrace them.

Edmund Husserl demonstrated that sentences are independent beings. Biologically reductionist psychologism was asserting in the nineteenth century that logical sentences were symptoms of healthy brains. And what is a healthy brain? One needs sentences to describe it. And what is a sentence? A symptom of a healthy brain. We have an infinite regress. So sentences cannot be symptoms of healthy brains. They must exist from their own side. The sentence—*This sentence is a symptom of a healthy brain*—cannot be a symptom of a healthy brain.²

Likewise, promising, hating, hoping, aspiring, fearing... a “phenomenon” is precisely this manifold of data and the mode in which that data is interpreted. In turns this means that ideas don’t just plop naked from the sky. Ideas always have a color and a flavor. When I think about a piece of chalk, I am thinking in chalk mode. When I hear Debussy’s *Trio for Flute, Viola and Harp*, I am hearing in Debussy mode. This manifold is an “object” insofar as it is autonomous. An object stretched “between” traditional notions of subject and object, rather like a worm. This worm-like manifold floats like a specter ontologically distorting the realities of which it is the appearance. Although it is real, we cannot locate where this distortion or twist begins and where the reality starts. This strongly suggests that things are not capable of being pointed to directly, even by themselves; rather, they are intrinsically curled or twisted

or “veering” (a term I use later), exemplifying what Heideggerian deconstruction calls *nothingness*. A thing is dappled, rippling, undulating, spectral, flickering with shadows, stuttering, phased, crackling, noisy.

A sentence has its own logical DNA, then, and it is mind independent. A sentence is a kind of entity, an “object” in the terminology used by Object-Oriented Ontology (OOO). A sentence has its own grammatical, syntactical and sonic genome. In this sense, a sentence is like a virus. Viruses are chronologically subsequent to bacteria, in evolutionary time. But they are logically prior, since they encapsulate the strange loop that exists between a physical system and a semiotic one, a loop between what OOO calls *appearing* and what it calls *being*. This loop is intrinsic to things such as bacteria as well as things such as viruses. Although they require bacteria to reproduce, viruses tell us something true about bacteria.

In the same way, what is called a riff (shruti, lick, chop) has its own logical, semiotic and physical DNA. A sound, considered in this sense, is like a virus—which is why the term *earworm* is highly appropriate. We could think of ideas as viral structures for which minds are vectors. In the same way, earworms are spread by humans and other related vectors, such as MP3 players. Riffs are logically prior to the tunes (and so on) in which they find themselves.

This logical priority of the riff or virus implies that distinctions such as natural/unnatural, sound/noise and so on fail when subjected to enough analytical or musical pressure. This failure is not due to the fuzziness of (human) perception or subjectivity, or the context in which sounds appear. The failure has to do with the deep ontological structure of entities as such: they are riven from within between what they are and how they appear, even to themselves.

It would be better to think sounds as entities in their own right, coexisting in an ecology of sonic hosts and parasites, in which the host/parasite distinction is neither thin nor rigid. Entities that in some strong sense display something like agency and something like affect. Earworms. This essay examines the implications of thinking this way. So-called “ambient” phenomena are an ideal way to probe this thought.

Every Sound Is a Loop

First let us examine the loop quality of the sonic entities that I now start to call earworms. A sound is a physical entity. Yet it is also an aesthetic appearance. Naturally the aesthetic appearance of a sound can also act as a carrier wave for semiotic signals. But even without an explicit meaning or semiotic quality, a sound is internally riven. That is to say, a sound is split between its essence and its appearance: what it is and how it appears. There is a certain sound wave of a certain frequency. To me, a human sitting in a Boeing 777 at 35 000 feet, it sounds like the deep roar of an engine.

How can I know that there is a gap between being and appearing? I can, for instance, note the difference between *counting* and *number*. *Counting* is something that appears—I can show you counting on my

fingers (one, two, three). But when you ask me to show you number, I can't do it—all I can do is resort to counting again, pointing to fingers that represent numbers. Yet counting depends on number. There is a gap between number—the essence—and counting—the appearance.

How perfect that the esoteric Buddhist analogy for emptiness, the lack of inherent identity out of which everything arises, is sound. Where does a sound start? Where does it stop? Consider a bell. In what part of the bell does the sound inhere? The clapper? The metal cylinder? Where does it start and stop? This doesn't mean that there is no sound at all, but that we can't point directly to sound. There are car alarms and piano pieces by John Cage, and they are different. Yet we can't point directly to car alarm sounds and to a performance of *Sonatas and Interludes*. When I hear a sound, I discover myself in a totally interconnected, entangled interspace, a place that some call the aesthetic dimension. This dimension is strictly where causality lives—and so it is a magical, slightly dangerous at the best of times, demonic dimension. Despite its seemingly ancient provenance, this notion that causality is part of the aesthetic is a deep implication of modern—that is to say, post-Humean, which is to say two hundred years old—causality theory.

I use the term *entanglement* because it is evident that sounds tell stories about the physical objects that make them—and there has to be more than one physical object in order for a sound to arise.

Consider the most basic sound: a beat. A beat is made when one wave intersects with another wave. Thus in order for there to be a beat, there must also be $1 + n$ waves occurring. A sound is an elegy to what OOO calls the *withdrawal* of these $1 + n$ waves: the fact being that they cannot be accessed in their entirety by anything, including themselves. A beat is the footprint of a present absence. A beat is the ghost of a thing. There is something intrinsically spectral about sound. And on this view, just one beat is already a kind of earworm. It has all the properties we have been examining so far. This means that there is no fundamental atom of sound to which one can reduce anything. A symphony could be an earworm. A small fragment of the symphony's first movement could be an earworm. A chorus in a pop song could be an earworm. A part of that chorus could be an earworm.

The palpable physicality of the sound as an explicit being with a certain size and shape withdraws from access—yet I hear this sound, just this actual sound, the roar of this jet engine surrounding me, slightly behind me, as the plane skirts the edge of Newfoundland. The sound as appearance is the uncanny doppelganger of its physical facticity. This is the sound of a jet engine, not the sound of a rubber band going boing, boing. A sound is an isotope of a thing—like it, but unlike it.³ A sound is therefore uncanny: familiar yet strange; familiarly strange; strangely familiar.

Yet I cannot locate the gap between the essence of the thing and its appearance anywhere at all in my given, ontic, phenomenal space. Things fail to come with a little dotted line on them and a little picture of scissors that says “cut here”—we have no idea where to cut to separate the being of a thing from its appearance. Up until the modern age, which is to say the later eighteenth century—which is now to say the beginning of the Anthropocene, the moment at which humans by releasing carbon compounds into the atmosphere in sufficient quantities become a geophysical force on a planetary scale—up until this contemporary age, the task of philosophy was construed to be locating the dotted line and cutting. But this is strictly impossible? Why? Because whenever I look for the gap between essence and appearance, all I discover are more appearances. The gap is ontological, not ontic, which is to say not given: I cannot point to it.

Thus a sound is a strange loop, like a Möbius strip. A Möbius strip is a very strange object. It has *less* dimensions than it seems to—it

only has one edge and it only has one side, whereas it appears to have two. A Möbius strip is a *non-orientable surface* in the topological terminology. That means that I cannot locate its front or back, its top or bottom, anywhere. I am unable to find where the twist in the strip begins, the famous twist that forces my finger onto the “other” side of the strip when it traces the strip. The twist is everywhere. There is no dotted line. On the one hand, a sound is a physical thing. On the other hand it is a semiotic thing. But we cannot locate where the physical stops and the semiotic starts anywhere on the surface of the sound. A sound is a Möbius strip—a strange twisted loop whose twist is everywhere.

A sound is therefore a self-contradictory, weird entity. Just like DNA: a physical structure that is also a semiotic one, in the right kind of environment. A sound talks about the physical entities that made the sound. And yet it doesn't talk about them. This is fundamentally because a sound is always a collusion between $1 + n$ things. We don't hear the wind in itself. We hear the wind in the trees. We hear the wind in the doorway.⁴ The sound we hear is a story about trees, wind, human ears, distance, this hood I'm wearing over my head, and so on.

Mal-Functioning

Consider *Air Pressure Fluctuations*, by Felix Hess. Hess places contact microphones on the window of his New York apartment. Then he presses *record*. For several weeks the recording happens. Then he speeds up the sound three hundred and sixty times. When Hess does this, the sound of traffic in the street becomes the tinkling of tiny insects. A new sound becomes audible. It is a sound like the hum of a distant lawnmower. A faint yet palpable vibration. It is the sound of the standing wave of air pressure over the Atlantic Ocean.⁵

What is being heard here? A sound that is beyond the normal range of human hearing to be sure, but a sound that is happening, functioning, executing, nevertheless. The vibration of a pressure wave. What is being heard is the functioning of a thing—this functioning is normally impossible to detect. The environment is what we call the functioning of things that are invisible to the extent that the way they function—their appearance—is so habitual to us as to have disappeared.

This disappearance is only relative to our habitual perception of a thing. But this habit is only covering up the gap between how a thing appears and what it is. When you think about an environment, you are thinking about a host of functions, things that execute their specific being—a tree rustles, grass waves, buildings echo. To function is constantly to mal-function, because of the gap between what a thing is and how it appears.

To function is to mal-function, because to function is not to exhaust the gap between phenomenon and thing, but rather for that gap to be in a state of suspension. This state is just like musical suspension, the coexistence of $1 + n$ melodic lines that shift over one another in such a way that they are related, yet distinct. They are out of phase with one another such that for instance we hear one changing, while the other one appears still.

It is possible to detect a spectral word within *malfunctioning*, namely a strange new term, *mal-functioning*. A slightly evil functioning, insofar as the aesthetic dimension, which just is the intersection and clash of appearances and appearances, suspended over the deeper clash between appearances and things, is a total dimension from which it is impossible to extricate myself, physically (employing very good acceleration for instance) or cognitively (employing some concept of metalanguage). I find myself among sounds, glued to them: they are viscous, when I pull away they stick to me. This means that, for instance, the snippets of speech about Tuned City 2013 that participants heard in the daily wrap-up documentation are immediately folded into the sonic space, rather than floating above

it—we cannot achieve escape velocity. “Layering different sounds on top of each other” (The Orb) does not mean that one sound is enabled to explain fully all the others.⁶ There is no top level.

When I say “slightly evil” what I do not mean is *actually evil*. What I mean is that the gap between being and appearing cannot be reduced, so I am left in a realm of ambiguity that much Western philosophy has called evil, in particular the kind of evil Plato thinks. Plato sees art as an earworm from some demonic beyond that is causal—it infects your head with all kinds of thoughts—and like dirty candies lying in the street, you don’t know where they’ve been before they ended up in you.

Because functioning is mal-functioning there is no way to achieve what Alvin Lucier says he wants to achieve in *I Am Sitting in a Room*: the smoothing out of irregularity. Instead, what that piece gives birth to is a demonic realm of appearance that floats ontologically in front of things.⁷ A palpable, bell-like gauze of rainbow sound wafting like a theatrical curtain. An irreducible viscous medium. A thing, with its own gap between being and appearing.

The script of *I Am Sitting in a Room* is its own commentary. A metalanguage is folded back into an object language, like the speech folded back into the sonic fabric in the Tuned City documentation just mentioned. Alvin Lucier is so beautifully explicit, so honest about his intentions, about how he wants the piece *I Am Sitting in a Room* to function:

I am sitting in a room, different from the one you are in now. I am recording the sound of my speaking voice, and I am going to play it back into the room again and again, until the resonant frequencies of the room reinforce themselves, so that any semblance of my speech, with perhaps the exception of rhythm, is destroyed. What you will hear then are the natural resonant frequencies of the room articulated by speech. I regard this activity not so much as a demonstration of a physical fact, but more as a way to smooth out any irregularities my speech might have.⁸

The act of sitting in a room is itself an innocent seeming functioning of a human body. Yet what Lucier achieves is an astounding, spectral sonic gauze, an undulating froth of sound like peeling bells. Sitting in a room is not so innocent. Functioning is mal-functioning.

An earworm is a special entity that is part of the general environment—that is, the general atmosphere of mal-functioning that makes up the environment. We call it an earworm because for some reason, we have become susceptible to this particular entity, just as one might get the flu, or not, depending on one’s resistance to the flu virus. We notice the environment when it ceases to function smoothly, when we get some kind of flu. An earworm is a strange, inside-out reminder that we inhabit a sonic environment.

What we perhaps imprecisely call *atmosphere*, then, is better described as a nest of worms. A host of mal-functioning entities. Consider tools—like an earplug or an ear or a car or a street on a special sound walk—that lose their obviousness, sometimes by being used “properly.” Even to function, on this view, is to mal-function. Functioning is a rare form of mal-functioning. What is highly significant is how biologically and ecologically accurate such a term is. What we call *environment* just is a host of lifeforms and their extended phenotypes—the ways in which their genomes operate on beings that are different from them. The term *environment* contains a modification of the word *veer*, a verb that is hauntingly situated between activity and passivity, and that suggests a curvilinear, per-ver-se movement. When a ship veers, is it moving of its own accord or being pulled by the current? An environment is not a neat encircling: it is intrinsically twisted, mal-functional.

Vectors

Now we are in a position to think about earworms in a precise way. An earworm is a mal-functioning loop that has a specific,

determinate structure. Such a loop can only exist if it is reproduced, for instance by a human mind.

An earworm has the same form as a virus. A virus is a physical entity that is also semiotic. It is a loop of code, RNA or DNA, that can only exist on the inside of another entity that it has forced to reproduce itself.

We are earworm vectors. From a certain point of view, then, a human being is an entity whose task is to reproduce a certain musical phrase by Katy Perry over and over again, for no reason.

What is susceptibility to earworms? Why do we become earworm vectors? Because earworms want to be reproduced—and this means, in the absence of a metaphysics of consciousness and volition, that the earworm is a strange loop that is inherently unstable, constantly trying to cancel itself out. Consider the Liar, the sentence that says “This sentence is false.” On the one hand, it is false, is it lying—so it is not false, it is telling the truth. On the other hand, perhaps it is true, in which case it must be false, in which case it is lying. The Liar is true and false at the same time. In other words, it is *dialectic*, double-truthed. The trouble with double truth is that as Lacan says “What constitutes pretense is that in the end you don’t know whether it’s pretense or not.” If I could see through the double truth I could reduce it to one.

A thing is a Liar in this sense, because its appearance tells the truth about it—but its appearance is not its essence, so its appearance is lying. And yet we can’t check in advance to find out where the truth stops and the lie starts. We can only impose our will on appearing in hindsight, backwards. A profound ambiguity lies at the heart of appearing—which is to say how causality functions, which is to say how a bell sounds when it is struck. A sound is a ghost that haunts us. It haunts us precisely because it presents us with a riddle that begs to be solved—the riddle of the gap between being and appearing—but which cannot be solved. It is thus a futural riddle—it might be solved, or not, at some point. This possibility floats on top of a deep insolubility, in the same way that the predictable future floats on top of a radically unpredictable one, a futurity rather than some atomic now-point (its size is irrelevant) that is x atomic now-points away from this one that we call *present*.

In this regard *a sound is the past*, insofar as it is a story about two or more things that made it. The wind brushed against the leaves just so, listen... On the other hand, *a sound is the future*, insofar as it opens up this region of wanting-to-be-solved. A sound is not the present, if we think of the present as a definable atom of any size (one nanosecond, a century, a million years). What sounds evoke is oneness, a shifting, relative motion between past and future. This is what it means to think sound without the metaphysics of presence, which for reasons I shall give soon is the right way to think sound.

When we try to peel appearing away from being, we cannot do it, because there is no pre-given, obvious dotted line between being and appearing, and nothing like a pair of scissors in sight. So in trying to peel appearing away from being, we ironically create all kinds of appearances. Consider DNA. It is trying to unzip itself, to resolve its inner instability. Yet when it does so, it ironically ends up reproducing itself. The very act of trying to die is also an act of reincarnation.

An earworm has its own logical DNA: it has a structure that is independent of the mind that is its vector. How can we know this? We can know it because logical statements of any kind are mind independent. If they were not, then we would be stuck in an infinite regress. If logical statements were only brain firings, then that statement would also be a brain firing, and we could never check its veracity.

An earworm lives in your brain. You are its vector. We live in a symbiotic ecology. A fungus growing in a certain caterpillar forces the caterpillar to climb up a tree, where it will burst and allow the fungal spores to be released to maximum effect. *Toxoplasma Gondii*

is another kind of worm, an amoeba that lives in your head. This amoeba tunes you to cats. You try to seek them out, because cats are the main vectors for this amoeba. It is possible that a neurotoxin released in some people's brains by this amoeba could cause schizophrenia. An earworm is just like that, in a sense. You become susceptible to it. You allow it to live in your head, even when you don't consciously like it. This couldn't happen unless earworms were profoundly independent beings, in the same way that amoebae and viruses are independent beings. It is only that viruses, like earworms, need another entity to enable them to reproduce. They are parasites. But at a certain resolution, the distinction between host and parasite breaks down.

The Sick Rose

Reverse engineering from this thought about neurotoxins and symbionts that live in your head, we might speculate as to whether earworms are like hallucinations, a kind of proto-thought. It's quite possible that thinking as such is an emergent property of the kinds of hallucination we have learned to have by co-evolving with plants and mushrooms, as some ethnobotany is now beginning to explore. Perhaps this is why earworms are so compelling—why indeed we write music that contains them. Because they are like human made models of the kind of symbiotic entity that arose from other forms of symbiosis: namely, thoughts that arose from hallucinations that arose from plants. Isn't a hallucination a compelling, earworm-like thought that grows like a plant, without your will? Isn't that what is either wonderful or disturbing about it?

A hallucination, a thought, a flower, an earworm, a virus. None of them can exist without something else. But in a way viruses and thoughts and flowers are the logical precursors of the physical things that have them—brains and bacteria and plants, for instance. Brains and bacteria are the chronological precursors of viruses and thoughts. Bacteria came before viruses chronologically, but logically, viruses come before bacteria. They are as it were the condition of possibility for life forms: nonliving strands of code, foreign intelligences as Schopenhauer puts it that force other strands of code to go into a loop. Because isn't this what being a strand of code in a physical format means in the first place? DNA is an inconsistent molecule that is trying to unzip itself into nonexistence. In the very attempt to cease, it ironically reproduces itself, since as Schopenhauer and his follower Freud argued, the purpose of life is death, but in following that purpose, you make more of yourself and continue life.

I see a deep similarity between a flower and an earworm. We could call both *tropes*—that is why an anthology is a collection of poems, because *anthos* is Greek for *flower*. In the same way that hallucinations underlie thoughts, tropes underlie meaning. This in itself is weird, because a trope is a kind of meaning. A hallucination is a kind of thought. We seem to be in a loop, the strange kind of loop I have been discussing where there is a twist between physicality and significance that one cannot locate anywhere on the ontic surface of the loop.

A trope appears only to be the flower of rhetoric, as they say, whereas it is in fact its logical precondition. This is because rhetoric is about making people susceptible to arguments. Which is why it is really based not on words per se but on listening. Which is why Section II of Aristotle's *Rhetoric* is a powerful, comprehensive account of different kinds of affect. The affective environment is the susceptibility of the audience, and the job of the orator is to work directly on that susceptibility, to give them some kind of flu. There is no such thing as a totally empty, neutral or silent space. Silence in rhetoric simply means listening, which means susceptibility, and in the end music is a special kind of listening in itself, or as Miles Davis said, or rather as a rhetorical earworm often attributed to Miles Davis says, "You have to play a long time to sound like yourself."

The useless beauty of a flower or an earworm is thus not a cynical ruse to make more earworms. It just is a kind of viral code that serves no purpose, but which, when caught in another system—say a bee's search for nectar, ends up ironically reproducing itself. Thus viruses, flowers, iridescent wings, Kantian beauty, tropes, earworms and daft ideas that float around in my head all share something. They are symptoms of an irreducible gap between being and appearance that eats away at the metaphysics of presence from the inside. Eats away, like a parasite in a host, at the idea of a being as a stable, homogeneous chunk beneath appearances, whether we think that with Plato, Aristotle, or with contemporary atomists and reductionist materialists. And here I am arguing that not only might viruses and tropes and flowers share something, some kind of family resemblance. They might *actually* be part of the same physical family. So that when I hear an earworm, I really am hearing a trope. And when I use a trope, I really am reproducing a virus. And when I get a virus, I am flowering. Don't forget that an old definition of "parasite" concerns not animals but plants. And that plants require parasites, or as Schopenhauer says, "the foreign intelligent individual," to reproduce. It is like that poem by William Blake, "The Sick Rose." It nicely (for us) combines the themes of flower and worm in a single image:

O Rose, thou art sick.
The invisible worm
That flies in the night
In the howling storm

Has found out thy bed
Of crimson joy,
And his dark secret love
Does thy life destroy.⁹

Significantly, the worm flies through a sonic welter, a howling storm. A generalized environment of mal-functioning. Slightly evil, at least seemingly, because it just functions, executing its storminess without rhyme or reason. But thinking the storm as really evil, or the worm as Satan, would be going too far. The poem seems to want to dare us to do that. But Blake poems are like earworms, or thoughts in search of a suitable mind. The suitable mind in this case speaks a lie in the form of the truth, which is the case with all Blake's songs of experience. Shock horror; life involves sex and death, and it is difficult to tell them apart. Life must therefore be intrinsically evil and corrupt. And I, the one who thinks this, am pure at least in my thinking that thought. Pure me over here, evil life over there.

This attitude—pure me, evil world—is what Hegel calls the *beautiful soul*, and it exemplifies evil.¹⁰ The attitude that sees evil as a thing over yonder that I can somehow eradicate, this attitude is itself evil.

Against the cynical reason in the poem, which Blake appears to be satirizing by turning it into a cartoon of itself, we could assert that the rose couldn't be what it is unless this twisted worm—invisible because we can't directly see it but can only infer it by its results—could be its parasitic symbiont. The rose is susceptible. Which brings us to our final argument.

After Demystification

Symbiosis means that we can't determine in advance which organism has priority over which, which in turn means that relationships are predicated on the impossibility of a perfect relation.¹¹ To exist is to be susceptible to the kind of destruction that the worm causes the rose. Why? Precisely because to exist is already to not quite be yourself—to be caught in a loop between what you are and how you appear. To exist is to be *fragile*, in an ontological sense, whether you are a rose, a worm, Nelson Mandela or a black hole. Even a black hole eventually evaporates because it emits Hawking radiation. Nothing

can escape from a black hole—except for the black hole itself. Even the densest object in the universe is fragile.

Another way of saying this is that for every logical system, there must be at least one sentence that the system can create that the system can't prove, *in order for that system to be true on its own terms*. This is what Kurt Gödel did to Russell and Whitehead, which in a way is what earworms do to my head, or what invisible worms do to roses.¹² Even the most rigorous logical system must be able to produce sentences that say, "This sentence cannot be proved," precisely because of its rigor, not in spite of it. A logical system must be capable of making strange loops, just as RNA is capable of creating viruses, or music is capable of creating earworms. This also means that we will always be susceptible to at least one earworm. I'm sorry to break it to the purists. Because we are also fragile entities, we can accommodate things that are inconsistent with our being, on all kinds of levels: viruses, cancer, earworms and Justin Bieber.

The normative distinction between high critical art and kitsch thus breaks down. Every sound is an earworm. So the difference between the most unpalatable sound art, and the most disturbingly palatable Katy Perry, collapses. We had better not keep insisting, then, that we are making sounds that are all that different from Katy Perry. This business is sometimes called *modernity*. In modernity high art tries not to be an earworm. But since this is strictly impossible, we are left with impoverished sonic weapons against the perceived problem, namely the commodification of everything. It is the case that in an ecological age, the distinction between sophisticated and unsophisticated aesthetic judgment becomes blurred at the very least, because there is no one proper scale (the human one) from which to assess everything. This is what the collapse of anthropocentrism means for phenomena such as hearing and sound. So our analysis of sounds as earworms, as discrete phenomenological beings, is highly congruent with what comes after modernity, namely ecological awareness.

Anthropocentrism, *not anthropomorphism*. Whenever I hear a sound, my entire phenomenological style anthropomorphizes that sound, whether I intend to or not, because I have just this pair of ears, just these memories, just these ingrained sonic experiences, and so on. This is far less of a problem than we think, because just as I anthropomorphize the earworm, so the earworm is earworm-morphizing me. When I hold a cup, the cup is cup-morphizing my fingers as much as I anthropomorphize the cup. Who is in charge of whom? Things appear to be veering. The problem is located in thinking that *only* anthropomorphism (rather than that plus cup-morphism or earworm-morphism) is going on: that there is only one reference frame in which things are happening. Nonhuman entities have some kind of agency, even some kind of imagination: the wet sand makes a poem about my feet when I step through it. Imagination is marvelously cheap and pervasive—there is no teleology in evolution, and consciousness has been hugely overvalued as a special teleological bonus prize for being "complex" or "highly evolved." Cups, viruses, my hair, parts of me, all apprehend, other things apprehend things in a way that never quite coincides with them. I am anthropomorphizing Hess's *Air Pressure Fluctuations*. But the piece also -morphizes me. We cannot police the gap between being and appearing. We cannot restrict it to one place in the universe—the gap between humans and everything else. Reality is riddled with trillions of ontological cracks.

From this point of view, the criticism that capitalism reduces things to objects is disingenuously anthropocentric, because it is based on the idea that being an object is the worst thing that could happen to you, because objects underlie appearances and are bland and gapless. The commodification of everything is not the problem. The problem is *the metaphysics of presence*, namely the idea that a thing differs from its appearance in some uncomplicated way such that to exist is to be constantly present "beneath" appearance. Things

are lumps decorated with various kinds of accidental candy such as color or sound.

The notion of commodification as such relies on this metaphysics, which has five basic features. First, we have the idea that underlying an appearance is some deeper, more real, more substantial entity. Secondly, there is the idea that we can subtract appearance and get that entity. Thirdly, that such an entity consists in a constant presence, despite appearances. And fourthly, that philosophy consists in finding the dotted line between being and appearance, and the right kind of scissors.

But fifth and most importantly, the metaphysics of presence relies on a consistently accepted single reference frame; the anthropocentric one. Things only appear to be constantly "there" as a function of a certain (human) gaze. Transcending anthropocentrism thus implies transcending the metaphysics of presence.

Flu of Coexistence

The difference between high critical art and kitsch might then be a difference not in quality but of quantity: more or less earworms, more or less susceptibility to earworms, more or less earworm virulence. The idea that critical music is to be valued because it is hard to follow or remember has as its logical shadow the idea that kitsch is bad because it is easy to follow and remember. Because it has already stuck in your head. Because it is a successful earworm. On this view, critical music can only produce more or less impotent earworms. Elitist aesthetic judgment is not only politically violent, but also logically impossible. But acting as if one can delete pleasure and desire altogether, that the problem is *being compelling*, is also logically impossible.

Thus the tactic of opposing the aesthetic dimension with all one's might never works. The person who says, "I only listen to noise music because I can't remember any of it" is deluding themselves about what is happening, and about the political effectiveness of this tactic, if that is she or he is keen to transcend the world of commodification. As with spinach, or the idea of worthy or good art in general, impotent earworm production is focused on collapsing a rift that cannot be collapsed: the rift between existing and¹³ appearing, which constitutes the semiotic-physical loop of an earworm. Thus a striving towards non-existent Nature is still happening in the most supposedly anti-Natural, demystificatory, critical high art. This striving cannot be completed for reasons given, and it only reproduces an idea virus of its own, the metaphysics of presence. Such a striving seeks impossibly to resolve an implicit contradiction at the heart of what it means to be a thing.

Since as outlined (via Gödel) reduced susceptibility to earworms is only ever temporary, it would be better to concentrate one's attention on making more potent earworms, earworms that could overcome Justin Bieber, for instance. The struggle is not against the aesthetic as such, as if it could be stripped off of things. This is a magical war of spell and counter-spell. Rather than trying to get rid of its worm like nature, music might revel in it—it might simply try to be *more* compelling than Justin Bieber, to affect our susceptibility to a greater extent, which is to say, to work with our fragility—which in turn is to say exploit the invisible gap that worms within us between what we are and how we appear.

This tactic puts some detail into the idea that the trouble with capitalism is not that it is too pleasurable (the standard religious view of consumerism) but that it is *not pleasurable enough*. This is another sense in which commodification is not the problem. It is not that we now *desire* things where once we healthily *needed* things. Such a notion also recapitulates a metaphysics of presence—needing is wanting only what is proper, namely what appears within a rigidly defined reference frame. So the notion of need is caught in anthropocentrism. Once we allow other reference frames to be as valid

as the human one, it becomes unclear what propriety of any kind means anymore.

While capitalism itself is often held to have undermined much of the metaphysics of presence, the form this undermining takes leaves a striking part of that metaphysics intact—the form is demystification. High critical art shares with capitalism this demystifying urge: “All that is solid melts into air.”¹⁴ What they have in common is demystification, which just is the elimination of contradictions, most deeply at the level of being versus appearing. This eliminative strategy actually preserves the metaphysics of presence, by positing, however transcendental, beneath or behind appearances, a real that is more constantly present than appearance. A subtractive real.

The ideological mode of demystification is called cynical reason. But the persistence of earworms force us to question cynical reason. Earworms, however, are about susceptibility, which is about what one could call *ingenuousness or sincerity*.¹⁵ Sincerity means not that you must have a straight face all the time and never laugh. Sincerity means that you are always shrink wrapped in your phenomena. You cannot achieve escape velocity from them, because when you try, there you are, doing that—or in the words of the great phenomenologist Buckaroo Banzai, “Wherever you go, there you are.”¹⁶ Cynical reason thinks that it can achieve escape velocity from sincerity. But this is strictly impossible, because a thought requires a mind, and so on: there are intractable symbioses involved in existing and thinking.

The point then is not to try (and inevitably fail) to achieve escape velocity from things. The point would be to try to create earworms that we can live with. The point would be to examine the earworms we already have and, if we don't like them, try to create some kind of allergy medicine for tolerating them. In turn, philosophy should get out of the metaphysical boundary policing business, and into the allergy medicine business, if it is going to carry on in an ecological age.

An earworm is a profoundly environmental entity, because it is a physical being that is also a story about $1 + n$ other physical beings. Thoughts, minds, earworms, ears and worms coexist in an aesthetic-causal configuration space. Ecology, which just is post-modernity, means: preserving as many entities and relationships as possible. And this means preserving as many gaps between being and appearing as possible. This means attuning ourselves to the difference between what things are and how they appear—which when we do it not just in thought but in physical practice, amounts to preserving the beings that currently exist on Earth. The job of philosophy in all this is to make us susceptible to susceptibility, which is the ability to tune. We can become more and more susceptible, catching the flu of nonviolent coexistence.

About the Author

TIMOTHY MORTON is Rita Shea Guffey Chair in English at Rice University. He gave the Wellek Lectures in Theory in 2014 and has collaborated with Björk, Haim Steinbach and Olafur Eliasson. He is the author of *Dark Ecology: For a Logic of Future Coexistence* (Columbia, 2016), *Nothing: Three Inquiries in Buddhism* (Chicago, 2015), *Hyperobjects: Philosophy and Ecology after the End of the World* (Minnesota, 2013), *Realist Magic: Objects, Ontology, Causality* (Open Humanities, 2013), *The Ecological Thought* (Harvard, 2010), *Ecology without Nature* (Harvard, 2007), eight other books and 160 essays on philosophy, ecology, literature, music, art, architecture, design and food. Blog: www.ecologywithoutnature.blogspot.com. Twitter: @the_eco_thought

Endnotes

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- 7 Alvin Lucier, *I Am Sitting in a Room* (Lovely Music, 1990).
- 8 Alvin Lucier, text of *I Am Sitting in a Room*.
- 9 William Blake, *The Complete Poetry and Prose of William Blake*, ed. David V. Erdman (New York: Doubleday, 1988).
- 10 Georg Wilhelm Friedrich Hegel, *Hegel's Phenomenology of Spirit*, tr. A.V. Miller (Oxford: Oxford University Press, 1977), 383–409.
- 11 Jacques Derrida, “Hostipitality,” tr. Barry Stocker with Forbes Matlock, *Angelaki* 5.3 (December, 2000), 3–18.
- 12 “On Formally Undecidable Propositions of *Principia Mathematica* and Related Systems,” tr. Martin Hirzel, <http://www.research.ibm.com/people/h/hirzel/papers/canon00-goedel.pdf>, accessed 3 April 2014.
- 13 I capitalize Nature precisely to de-nature it, in other words to highlight the fact that we are dealing here with a concept rather than with a reality.
- 14 Karl Marx, *The Communist Manifesto*, in *Selected Writings*, ed. David McLellan (Oxford: Oxford University Press, 1977, 1987), 12; William Shakespeare, *Macbeth* (New York: Washington Square Press, 1992), 19.
- 15 José Ortega y Gasset, *Phenomenology and Art*, tr. Philip W. Silver (New York: Norton, 1975), 63–70; Graham Harman, *Guerrilla Metaphysics: Phenomenology and the Carpentry of Things* (Chicago: Open Court, 2005), 39, 40, 135–143, 247.
- 16 W.D. Richter, dir., *The Adventures of Buckaroo Banzai across the Eighth Dimension* (20th Century Fox, 1984).

Currently, Eight Hundred Landscapes

Biographical Statement from Cover Artist Todd Birdsong

Currently, my work can be divided into several approaches and disciplines: analog and digital photographic processes, sound and transmission art and object-making using found items and electronics. Execution of my work takes the form of conceptual installations and performances. Concepts of family, memory, journey, indeterminacy and randomness are used to examine the ideas of mindfulness and being present in the moment of witnessing, understanding and decoding our daily lives which seem to be interrupted and thrown into a seemingly constant state of distraction.

My concern for the permanence of photographic images and their inherent frailty and transient nature eventually influenced my personal work. My work deals with how our most personal and important memories, like photographs, will shift, fade and become something altogether different from the original. Over time, the image and the memory it recalls are only vague facsimiles of our past. As wonderful as photographs are, they're like little emotional time bombs. They bring up wonderful memories, but also remind us of what will never be again.

I reflect ordinary life and its ups and downs. I am attracted to the simple ebb and flow of daily life, whether it be curious, carefree or even boring. I look for the unusual and in-between moments in the everyday and attempt to capture simple moments, or "gifts", as the photographer Elliott Erwitt calls them. I endeavor to create images that are natural and mysterious, old and new, shared and unique.



1/27/15, 10:12 AM, Photo by Todd Birdsong

About this Issue's Cover: *Currently, Eight Hundred Landscapes*

The tree mosaic is foremost a durational piece. There are over 700 individual images that were collected over a period of five years. The tree itself sits at a crossroads in southern Illinois where two main interstate highways converge. I began photographing the tree in August 2010 and am still documenting it today through every season. The images began as an exercise in focus and transformation, but soon took on a more insightful and resonant meaning for me. I had started a journey that intersected with this place and the tree seemed to define my circumstances: solitary, resolute and unswerving while change was happening all around it.



3/29/11, 4:52 PM, Photo by Todd Birdsong



5/3/11, 5:00 PM, Photo by Todd Birdsong

Review

Sonic Rupture:

A Practice-led Approach to Urban Soundscape Design

The first time I experienced *Times Square*, the acclaimed urban sound installation by Max Neuhaus, it was a busy weekday in early spring 2003. Located under a non-descript steel grate on the median between Broadway and 7th Ave at 46th Street, unmarked, I was afraid that the piece would be difficult to find. Upon arriving, I found it easily because it was covered with children, at least a dozen, all down on their hands and knees, ears to the grate, with pedestrian traffic flowing around them. The haunting, metallic, harmonious drone resonated underneath and flowed around them into the busy Manhattan soundscape; a sonic rupture in an otherwise ordinary, if hectic, urban space.

In his new book *Sonic Rupture*, by Bloomsbury Academic, Jordan Lacey wonders about the soundscapes of our cities, the so-called “urban crust,” and its place in the larger dialog on sound studies, acoustic ecology, and the experience of public art in the Anthropocene. He posits that the sound installation, as an artistic medium, has great power to create new experiences, or as he describes them, “new dreamings” in the urban setting. Lacey presents his theoretical concepts as outcomes of practice-led research, describing several of his own artworks and the outcomes of their creation and deployment. As a whole, the book seeks to add to the general theoretical and philosophical dialog on the modern urban experience, through a lens of creative practitioner and city dweller.

The book begins with a note of warning to acoustic ecologists: that the contents of the book may feel, at times, at odds with the environmentalist nature of the acoustic ecology project. Here Lacey speaks of potential “anti-urban tendencies” that some may feel the original World Soundscape Project may have engendered, justified or not. He assures us that he is not advocating that we minimize the very real problem of noise pollution. But he takes the opportunity to explore other ways of understanding the urban soundscape, and the possibility of



10/2/13, 9:30 AM, Photo by Todd Birdsong



3/20/13, 10:30 AM, Photo by Todd Birdsong

Jordan Lacey (NY: Bloomsbury Academic, 2016), 224 pages

Reviewed by Scott Smallwood

intervention through artistic means, such as the “sonic rupture,” diversifying the urban sonic experience, and creating a space in which “new creative human experiences can unfold.”

Chapter 1 and 2 are the most theoretical, and serve to both orient the reader to current philosophical concepts in sound studies and to provide a general overview of the terminologies that are in use in the text. Chapter 1 teases out the concept of the sonic rupture and the general usefulness and traps of the term soundscape. It is here that Lacey is most comprehensive in his consideration of the acoustic ecology project and its critics, its outcomes, its original intentions, and its possible futures. Ultimately, he manages to both interrogate and defend its contributions and its language, while suggesting new ways to think about some of its original tenets. Chapter 2 interrogates the term and concept of “nature,” and the tendencies for creating disconnections between society and the world—of thinking of nature as everything that doesn’t involve an overpopulated us. He defines the term “Affective Earth,” derived from the Deleuzian concept of smooth and striated space: nature’s random sproutings as opposed to the linear scratches and grooves of agriculture; the grids of cities. He advocates for thinking about the world as a continuous mixture of the two, one in which a balance is constantly at play, and in this play, perhaps the overly ridged can be smoothed by the rupture of artistic addition rather than merely subtraction.

The real meat of the text is found in chapter 3, which Lacey suggests can be read independently from the other chapters as a description and reflection on his own artistic work. The chapter describes five site-specific sound installations that illustrate his concept of sonic rupture, as well as providing context for the theoretical musings of chapters 1 and 2. Each of the works were designed and deployed in the city of Melbourne, which is also the author’s home. Included are numerous images and illustrations, as

well as several sound examples (available through a companion website). The pieces are described in meticulous detail and include comprehensive discussion on the pre-compositional planning of the works, as well as findings on the outcomes of the work.

The final chapter is a companion to chapter 3, as it gathers together the research findings and artistic outcomes of Lacey’s sound installations. It is here that the sonic rupture concept is defined and modeled, emerging from a reflective process revealed after the creative process of making had occurred. The model brings together five approaches to urban soundscape design, with 10 “intentions” for soundscape design, which were culled upon reflection of the intuitive creative act and subsequent interviews with visitors of the five works described in chapter 3. In his discussion, Lacey advises us to regard the model not as a device that predetermines the creative act, but as a way to reflect upon the “diversity of relationships that occur between creative practitioners and affective sonic ecologies.” He also suggests that this model is expandable and flexible, and while derived from reflections on his own work, the descriptions of approaches and intentions are peppered with examples of sound installations by other artists. In doing this, he brings his own work and the concepts learned into dialog with works by other artist practitioners.

As an artist who has also worked in urban settings, I find the model that Lacey proposes interesting, even illuminating, while also feeling that it covers a limited amount of ground. I think Lacey admits as much, reminding us that its development comes from a personal reflection of outcomes, and should not be read as a prescription for making urban sound installations. I do feel, however, that it is extremely useful as a kind of working taxonomy of approaches that might be particularly useful for students, and the large number of sound works by other artists discussed help to solidify its usefulness as a general tool for considering sonic ruptures.



Overall, I found the book to be an honest and refreshing take on the urban side of the acoustic ecology equation. His theoretical leanings reveal a view that sympathizes with the traditional voices of anti-noise activism, while recognizing the possibility of a more nuanced way of understanding the urban soundscape. The reader unfamiliar with expanded concepts of nature, of the philosophical concepts of virtuality and affect, will find Lacey’s discussions approachable without being pedantic. Beyond the theoretical content, the book’s overall project is one that is grounded in an artistic inquiry, and much of its research content and knowledge is informed by the intuitive act of making by an urban dweller. It is an excellent example of research-creation, and a welcome addition to the growing body of work in sound studies.

About the Author

SCOTT SMALLWOOD is a sound artist, composer and musician who creates works inspired by discovered textures and forms, through a practice of listening, field recording, and sonic improvisation. He frequently creates works using custom instruments, software, and site specific environments. He has collaborated with musicians, dancers, video artists, sculptors and others, and regularly performs as one-half of the duo Evidence (with Stephan Moore). He has written instrumental works for numerous ensembles and musicians, including recent works for Continuum Ensemble (Toronto), the New York Virtuoso Singers, the Nash Ensemble of London, and the Princeton Laptop Orchestra. Smallwood lives and works in Edmonton, Alberta in Canada, where he serves as Associate Professor of Music Composition at the University of Alberta.

Baby, It's Cold Outside!: *Lessons from making audio-recordings of wildlife* *in urban/semirural environments*

by Paul G. Ratcliff

Abstract

This article considers the adaptations required by the time-restricted wildlife sound recordist, who only has access to semirural environments, to achieve recordings. More than 200 experimental recordings and reflections have been made, advice pages reviewed, experts questioned, texts scrutinised and specialist talks attended to inform this articles' findings. The overall lessons learned will be of use to those who only have easy access to semi-rural environments and would wish to include nature sounds in their compositions that are either symbolic of a piece or characteristic of an environment. The article starts by comparing the differences in recording approaches used between a studio practitioner and the wildlife field recordist and latterly considers the tacit knowledge and skills employed by these wildlife-recording practitioners and the field-craft considerations, which underpin the successful projects. Subsequently it focuses on the barriers to recording in semi-rural environments and how the tacit knowledge of the experts can best be exploited to tackle these difficult recording domains. It includes first person observational accounts to illuminate what it is like to be immersed in these variable recording environments. It concludes by forming recommendations, which are based on tested approaches, that have yielded some success in these semi-rural environments. It is envisaged that the content and findings will be of use to those moving to record species and environment in the field, such as musicians, students studying soundscapes or composers exploring new environments.

Keywords: field recording, tacit knowledge, field-craft, wildlife, urban noise, sound editing

Introduction

Imagine being sent on your first wildlife-recording project and your producer compares the experience you are embarking on to recording an artist in a purpose-built sound recording studio:

The things you are going to record are often not visible, if they see you they will either hide, shut-up or move away quietly, that's if they were there in the first place. We are not always sure which area they might be in, which can be a bit of a problem, nor exactly what they will sound like and some imitate each other to add to the confusion! What's also strange is they will often only make noise at certain times of day and at a particular time of the year. Typically the place you will be recording will be near dark, often cold and wet, and take a long time to get to on foot. Don't forget to take all your equipment either, but pack wisely because you will be carrying all of it on your back. Oh did I tell you it could be dangerous too; it's not often artists will physically attack you, and if the animals being recorded don't, something else might. Normally, the quality of the recordings you might get will be affected by wind, rain, wave noises, river sounds, and traffic and aircraft noise. If you are lucky enough to actually make a recording you will be amazed how quiet their 'calls' can be, even if you can hear them reasonably well with your headphones off. Another thing is they rarely 'sing' directly into the microphone, except when you have wound the gain right up that is! And usually if all of the above happens to work out for you, someone will appear from nowhere and will start talking to you in the middle of your recording.

Although fictional the above does attempt to allude to some of the difficulties of recording wildlife; difficulties that are compounded, when recording wildlife in urban and semi-rural environments, by the sonic impact we have on our world.

Although the notion of tacit knowledge is explored in this article, it should not be assumed that these exponents were withheld intentionally. To the contrary, those choosing to embark on this branch of field-recording are positively encouraged by the professional and practiced amateurs of the Wildlife Sound Recording Society (WSRS) and through the information presented on their web pages and at their meetings.

Semirural, within this article is considered to be the countryside in close proximity to urban conurbations, and 'close' is defined as up to 4 kilometres. In some of the experiments, sounds were recorded in what most would class as the 'genuine' countryside so that a comparison could be established. Other occasions warranted experimentation in large urban parks, 5 km north of the city centre, but surrounded by busy roads or housing developments. Further recordings were made in suburban gardens. Within the article are first-person reflections cognisant of the immersive experience natural-history field-recording can be and included to illustrate the said practice.

Theory

Margochis's (1977) text, *Recording natural history sounds*, although seminal and still of use to the field-recordist venturing into natural history recording today, introduces many of the problems encoun-

tered and suggests some very practical solutions, which remain valid. Krause's (2002) in *Wild Soundscapes*, has a similar practical approach including exercises preparing the would-be practitioner. Yet both, despite their pragmatism talk little of modern DAW based editing or filtering, the purpose for which the recordings are intended, or to those recordists who cannot escape the sounds of human creations, and it is these latter issues which feature in this study.

Yet despite the aforementioned problems, anecdotally delivered in the introduction, there are recording specialists (recordists), both professional and amateur, to whom these are just some of the challenges and who overcome all of these challenges to make high quality recordings. Moreover some of these recordists almost revel in the challenge of recording rare species, to make the task in hand even more difficult.

Subsets of tacit knowledge have become apparent, knowledge that the practitioners have learned experientially or through sharing practice, which can be thought of in three interdependent categories (Field-craft, Recording, Context), with all being obligatory and none taking precedence. Yet participation and reflexion form the strongest theme of enquiry, and as the work progressed through the various projects the author developed skills, sometimes through experimenting and sometimes through informed creative practice, which have built upon read methods employed in the field.



Figure 1: The interdependency of the Field-craft, Contextual species knowledge and recording methods

To understand this interdependence further, consider the parameters impacting on the recording of badger *Meles meles* vocalisations. The recordist in the example does not have the time to make multiple visits to the site, so has to optimise their chance of a recording at the first visit to the location, and his strategy is mostly verified by Margochis' seminal text (1977, p. 18):

It's 10 p.m. on a warm June evening and I'm sitting on the edge of small disused and very overgrown quarry, in Warwickshire, listening to two separate monitoring signals from two recording configurations. The quarry sides are steep and my feet are resting on a branch, which is stopping me sliding down the banking. My companion and I have cut our way through brambles to form this perch. Currently briars are poking us and it's relatively uncomfortable even after a few minutes of sitting still... About 40 meters away from my position is the entrance to a badger den, and I am staring now into the shadowy area, looking desperately for any signs of badgers...the tell-tale white markings moving in the gloom, or if I'm lucky a call....I wait, monitor, listen and wait...

Firstly the recordist needs knowledge of the species and their habitat (the Text and the Context). Most would know that badgers are mostly (but not exclusively) nocturnal, and omnivorous; further enquiry suggests that they are dependent on their smell for navigation and for identification of others, and have like most mammals a

keen sense of hearing. Simplistically put; they come out to forage for earthworms at night and are shy creatures. They are also powerful animals, as evidenced by their self-dug tunnels and further reports suggest they can be dangerous when cornered. Finally they travel on known centred routes often to find water sources. Their vocalisations range widely (www.wildcru.org, 2013) and indicate various types of communications from greetings to alarm calls. However, detailed reading, as with listening to first hand observations, will reveal more, such as during the height of summer they often appear before dusk and after dawn, breaking their perceived night-time curfew. Finally, entering forums online to seek advice needs to be treated carefully as the political divide caused by this creature attracts groups who might wish to extract location data from internet exchanges for criminal purposes.

Secondly consider the field craft considerations. In short this is the reading of the locations to optimise the recordings given the above species knowledge. To set up too close to the badger's set would be worthless as they would not emerge with humans present, meaning any human recordist typically needs to be a significant distance so as not to be smelled or heard. This leaves two options—remote microphone placement (parabolic dishes or hyper-cardioid directional microphones) or close microphone placement using either long leads or recorders left running close by. Most recordists would not wish the species to be harmed or their equipment to be damaged; if left near, it should be placed out of the “chewing zone.” Additionally wind considerations prove problematic, as the recordists need to be down wind to prevent being smelt yet this means the microphones will typically be pointed into the wind, causing potential overload of the microphones' capsules/diaphragms. Thus, a relatively windless, but not still, night is required. To add to the complications, wind, particularly near large water bodies, often changes in direction and strength near to sunset, thus a set up made during the day would not likely be appropriate for the time when the species might emerge. For those lucky-enough to witness a badger set they will be aware that mature locations can have many entrances to their sets, so with limited equipment the choice to place microphones aimed at the hole (set entrance) with the most recent disturbance seems logical. Finally, but not obvious to those new to wildlife recording, sounds made by the recordists, either voluntarily (e.g. talking, equipment adjustment noises) or involuntarily (e.g. breathing, foot falls, clothing rustle) need to be avoided.

Thirdly, the recording equipment primarily consists of battery operated mixers, microphones (powered by the mixer) and recorders. To optimise the chance of recording in stereo, omni-directional microphones are placed in a small tree suspended along with 50 metres of cables also in trees and plugged into a field recorder. Secondly a reflector dish and a directional microphone, both placed on the rim of the quarry where the badgers inhabit, are connected to a second recorder. All this needed to be set up before the expected arrival of the badgers in the viewing area/location of the recorders so that it is possible to observe activity without detection by the badgers. Early recordists would sometimes just press record and move away from the area; however in this case the directional nature of the parabolic dish and cardioid microphones might need adjusting and recording levels similarly monitored/adjusted if necessary. Unlike musicians in a studio these *unwilling performers* could be either very close or some distance away from the microphones, or face straight at or sideways on, causing very different signal levels. They can vary their voices' volume too to add to the complexity. Battery-operated radio microphone placement is normally ruled out as returning to a unit with failed batteries close to the species would warrant an additional invasion of their territory and possible further disturbance.¹

As the Figure 1 suggests, the creative process of placing microphones will depend on a combination of the species and its vocalisation, the control needed over the recording equipment and

the field craft of knowing how to interpret the placement of both the recordist and the microphones in relation to the species. Change one of these variables, such as the recording equipment available or the species, the field craft considerations need to be adjusted to offer up the best chance of recording.

Watson (2012) and Elliot (2013) would no doubt, suggest a different approach to the one outlined above, where recordists rushed by access limitations would attempt to optimise their chances by using several recording methods at once. Their approach would be to initially observe the environment to try to establish patterns of behaviour of the species, or at least obtain 'local' information prior to the investigation, so that this knowledge could inform both the equipment choice and placement. Whilst their approach has produced a catalogue of high quality recordings, the question arises how a recordist with less time available could optimise their chances at obtaining a reasonable recording? To address this, a more precise definition is required of 'acceptable recording' and what factors other than time and access are barriers to this recording.

Within the experiments that have informed this article, the recordist has used a combination of high-fidelity sound-recording equipment and simple budget hand-held recorders; yet it is the convenience and non-directional properties of the latter that have yielded equitable results in some instances. For example when recording Tawny owls *Strix aluco* calling that were not visible to the recordist, the omnidirectional microphone configuration of the hand-held recorder caught a more true representation of the birds-call than an off-axis directional expensive microphone and inline mixer,² although in this latter scenario the recorder was placed some distance from the recordist to avoid unnecessary recording of human sounds. However, higher fidelity omnidirectional equipment would be the best arrangement.

What makes a 'good' wildlife sound recording?

For most, a 'good' wildlife recording is one true to its source and has no unwanted additional sounds. The question of what is wanted or unwanted in a recording is not one that has straightforward answers. For example, Krause (2012) sees the whole biophone or habitat (all the species calling as in a soundscape) as a being the target for recording, and typically captures his soundscapes using mid-side configurations, yet others see a single species with their many variations in their vocalisations, as their focus (Elliot, 2013), and would use close microphone placement techniques. Most would concur that traffic or aircraft noise is an undesirable accompaniment to a species recording, yet even this depends on what the sound is actually for. For example a recordist capturing sounds for including in a game would avoid any 'background noise' and typically aim for single species recordings, yet a recordist demonstrating how a city-bound red fox adapts to its urban environment might even wish to include city noises including traffic.

Further qualitative judgements are made when considering the amount of editing of a piece. The Wildlife Sound Recording Society (WSRS) differentiates between those sounds which have been 'edited' and those which have 'not been edited or have minimal editing'; even this distinction is subjective as all recordings are subjected to having their microphones placed specifically and this placement is arguably a form of *editorialising*, albeit not in post-production. Normally, however, a good recording is where the species exhibit a clear true-to-life sound, where the sound is unusual (hence the search for rare species) or where the sound conveys some narrative, such as the mating calls of rival males. Like most recordings' dynamic range of spatial fields, depth perception is also considered with the preceding points.

Most listeners would be able to differentiate between subjects recorded with closely placed microphones and those recorded from



Figure 2: Recording red deer November 2012; just beyond, the busy road causes unwanted traffic noises

a distance, however for these listeners the former due to its presence and clarity will be preferable, despite the fact that most do not naturally listen to species at this proximity and this close proximity is to a great extent unnatural. Their preference will stem from their experiences of other recordings that will typically be closely placed microphones in studios or in other controlled environments. Thus recordings reviewed *out of the context in which they are intended*, can be inappropriately criticised due to their apparent lack of presence even though this might be a desirable aim of the recordist.

Barriers to recording in semirural environments

Contextual knowledge of most, but not all, species reveals that many vocalisations occur around dawn and dusk for birds and during mating seasons for mammals. Nevertheless this general principal can be easily challenged, for example kites, buzzards, and eagles all call readily during the daytime, as do many song birds. As the British seasons advance and daylight grows in spring and contracts in autumn, the first major hurdle to the semi-rural recording is that often these sunrise and sunset times co-exist with rush hour commutes. A distant car engine may not seem too much of a problem when recording particularly loud-featured sound, but unfortunately most of our native creatures have relatively quiet voices, unless recorded in very close proximity.³ For those new to wildlife sound recording the additional knowledge barrier about the subject or species should not be underestimated.

I park my car and put on my rucksack as the walkers return to their vehicles and take off theirs; it's dusk on a winter's evening and the ground is hard-packed snow. The path ahead loses what little light there is from the sky quickly as it and I disappear into the trees. The temperature and frost seem to penetrate the number of clothing layers I have on more as I progress, but by the time I emerge into the paddock and the last of the day's light illuminate the place where the deer could be, I have warmed slightly. I stop, unpack the field mixer, recorder, directional microphone, and headphones, put the equipment on and move into the grassy clearing, replace my gloves and listen. I check the connections and recording levels. Nothing at first, except the whoosh of car wheels on a road 2km from the location, so I walk on. The topography of the land forms natural acoustic barriers, but eventually after a further 10 minutes of walking some of these banks give way to reveal a view of grazing shadows about 200m away—these are the deer, with two large stags either end of the herd identifiable by the



Figure 3: Winter recording of Red Kites, March 2013, using the tree to disguise the recordist and standing on insulating mat to protect the recordist from the -5c degree ground

relative size and antlers. I pause and listen, watching the meters on the recorder as one of the stags' moans, more interested by his rival and females nearby, than me. The stag is quiet for a further five minutes, then calls again; the meters registering his groan against the -25db of the road noise, probably peaking at -15db; to the recorder hardly a difference, yet to my ears a clear distinguishable moan. I've been still on the frozen ground for about 20 minutes and I decide to walk on to another location as the herd is gradually moving away from my position. In my second location I capture two more calls, seconds of recording, for what is now two hours of one session, then it goes quiet and I wait....nothing. Eventually it's time to leave, I leave the recording apparatus on standby until I reach the wooded path leading back to the car. Two more moans and snorts! I turn quickly and start recording.....a loan stag is now only 50m away with his back to me, muffling the sound. I will him to turn, his outline is just visible as all of the light has nearly gone...he does turn, but does not call, once more I wait....10 minutes more....nothing. I fumble for my head torch with frozen fingers and walk the mile back though the wood only illumined by a small beam of light and reflected light from the snow on the ground. The roar of the roads grows uncomfortably loud as I approach the car, emerging from audible subtleties of the world of the deer.

Location studies will reveal naturally-occurring acoustic barriers where, given particular wind directions and the willingness of the subject to call, a reasonable recording can be made, especially with microphones that exhibit directional properties and are pointing away from the traffic noise. Additionally these barriers can both hide the recordist from species and also, for example, act as a shield from the noise created by a river when a song post is above the river, allowing the microphone to record bird calls with less river noise (Tombs, 1980).

Those familiar with the editing capabilities of some digital audio workstations (DAWs) might simply suggest post-production filtering solutions to remove the invasive traffic noises, and to some extent these methods do need to be exploited by the recordist operating in these environments, yet the results often leave "thin" sounds, with many sub-harmonics of the desired sound being removed with the unwanted noise, when compared to the dynamically rich offerings of the professional who often records in more remote locations.

In experiments when recording over 2km from roads and at quiet times for traffic, another man-made intrusion that becomes surpris-

ingly invasive into the world of recording wildlife is aircraft noise. Within a 10km range of an airport, the problem becomes particularly difficult to surmount and a constant menace. What makes recording these sounds in the field even more problematic is that most people subconsciously filter out air-traffic noise, a skill of which the microphone is rarely capable. Like traffic noise, the noise of the aircraft cuts across the frequency spectrum making it also difficult to remove through filtering in a DAW. The author when once asked by a student what is the best position for actually recording aircraft taking off and landing, given that they were unlikely to get access to the airports for safety reasons, did resist the retort of suggesting that all the student had to do was to sit in a wood and try to record a bird song. Knowledge of the flight-times can also be advantageous, although this knowledge in itself will not allay the frustrations of the semi-urban recordists in some locations where frequency of flights will be too intrusive.

Elemental Considerations

With wind, rain, cold, tidal rushes, running water all acting as deterrents to productive expeditions, these elements do not only impact the actual sound recorded, but also the recordist doing the recordings. The semi-rural recordist, like their professional counterparts, will need to overcome these natural barriers.

Warm protective clothing not only keeps the recordist comfortable, but will also impact on the ability of the recordist to stay longer in the field and increase the chance of recording a species. Most reading this and who engage in outdoor activities will be familiar with clothing layering methods and other clothing technologies designed to keep them comfortable whilst outdoors, however most of these 'systems' are designed for active people, people on the move, whereas by definition the recordist needs to be inactive. To counteract these difficulties a useful, light and versatile piece of equipment that should live in the recordist's bag is a closed-cell foam mat, which can be stood on or sat on, thus prolonging the time spent in the field and increasing the chance of recording. Once again when asked, most recordists used these artefacts, yet few actively bestow its essential nature, 'assuming' all know of it. If the recordist needs to be in the environment where the species vocalise they will need to be still for 15 to 20 minutes before the environment becomes use to, or tolerant, of their presence, and ideally wearing discrete clothing and maybe even camouflaging their human outline, using hides manmade or natural, which can include bushes, trees, and rocks, but can also be umbrellas, walls or motor vehicles.

Some of the environmental factors which impact equally on our semi-rural recordists and our experts alike are insects such as midges and mosquitoes, which if not protected against can cause most to abandon their post. As experiential learning remains a recurring theme throughout this study it's interesting to note few need reminding after their first abandoned session to protect against biting insects.

*It's a warm June evening, almost 16 degrees Celsius even though the sun has just dropped below the horizon and as I enter the wood the increase in humidity becomes apparent and the midges (small biting insects) are more noticeable despite earlier applying liberal amounts of insect repellent. The path weaves along the lakeshore to a clearing. With no previous knowledge of the area and unsure of what to expect in this ancient oak forest I locate a suitable branch on which to place the 'sit-mat' and listen. Secure that my equipment would be safe, I move into the clearing and place the hand-held recorder on a rock about 30m from my original position and midway between where I would sit and the other side of the clearing, having already pressed record and 'guessing' the appropriate recording level. I return to the log as the dampness of the location and the cold air funnelling off the lake causes the temperature to drop to single figures....quickly I put my coat on and listen and watch. A pair of common ducks fly across the clearing after about 10 minutes further waiting, then the usual singers of the wood start their evensong as the light dims further: blackbirds, robin, wren and a distant cock coo, now a rare sound in England. As their calls subside the midges intensify their attack on me and I retreat further into the warm coat. Then it's quiet, again....The stillness and lack for traffic noise, even in the distance, is hypnotic, I can hear my own shallow breathing. As darkness finally comes to the wood, a Tawny owl (*Strix aluco*) starts to call, but not its well know call, but instead a 'kewitt, kewitt' sound, followed by more silence, then from 3km away across the lake there is a classic call from another owl, its sound travelling across the still water into our forest clearing. Almost immediately the owl, perched somewhere on the other side of the clearing to me in the darkened branches, calls back in a similar manner...for a few seconds, then nothing. I wait for another 30 minutes before retrieving the recorder from the rock, hopeful to have captured the bird's sound. I return to the tent a few kilometres from the recording location, planning to return the next night with a more elaborate recording set-up... [It did call the next night but the undisclosed perch and large time lapses between calls made it hard to use the directional recording equipment.]*

Although the semi-rural recordist will endeavour to find locations a distance from human noise it does not always follow that humans will not be close. One project was nearly abruptly curtailed when two fast moving mountain-bikers only narrowly missed the recordist's 'hide'. Another occasion found the recordist being shelled by falling shotgun pellets being illegally fired across a bridleway (permissive path). A third when he came between two rutting stags whom had circled each other, and approached the recordist apparently silently during twilight. Like cities, it seems, rural and semi-rural environments are not without their hazards.

Further thought needs to be given in semi-rural locations to humans interfering with or stealing equipment, especially if used at a distance by the operator. (Most recordists operating in the mode are likely to have budgetary constraints as well time and access barriers and not wish their equipment tampered with or taken). Like recording in the true wilderness, semi-rural/urban recordists should look for signs of species; song-posts, droppings or footprints to help them locate the species.

Some recordists might focus on recording naturally occurring sounds which don't originate from species, such as wind, thunder, rain or waves or river noises for inclusion in games, films, radio productions or installations; and see these environmental sounds as their prime object, rather than factors to contend with, and it is in these cases that the species recordings might actually be seen as the intrusions to the environment.

With the developments in short-term local weather forecasting now available online, in one respect the time-restricted recordist has the information available to make a decision as whether to tackle an impromptu recording session, or to avoid what might turn out to be a wasted trip.

Conclusions

After reviewing over 200 recordings⁴ of varying length from minutes to hours and with most being in what could be described as semi-rural environments, listening and talking to the expert practitioners whom have extensive recording experience and have made many high-quality recordings, to what advice does this article offer and how does this advice differ (if at all) to those following the guidelines of the professionals practising in rural environments?

Firstly, if at all possible tackle the recording project following the recommendations of the professional recordist, which normally include, researching, observations, planning, and then recording species, setting your microphones close to, and keeping yourself at a distant from, the subject and record in human-free environments protecting your recordings, equipment and yourself from the environment, as well as restricting your impact on this environment.

However if faced with time pressures, transport limitations and only being able to access semi-rural locations, the following methods, often in addition to the above, have yielded some success:

Guerrilla tactics

1. Have your equipment ready (packed) and pre-checked: batteries, connectors, settings, configurations, formats; as you will need to optimise your time in the field and not miss opportunities due to equipment preparation time.
2. Always carry or have-to-hand simple, quick to set-up recording equipment, so that you can capture opportune recordings. Typically the recorder should be put down/hung or isolated using a simple tripod to avoid handling noise and other noises from the recordist.
3. Unlike longer recording projects where the chance at a second session might be reasonably expected, do some playback checks in the field, as often a second chance at a recording might not be available.
4. Know your area and environment by reviewing distance from roads, wind directions and popular times for aircraft; from simple internet searches so that you can best capitalise on the limited available time for a given location.
5. Although large amounts of time on a recording might not be possible, consider multiple short trips to a local environment, each time recording and each time learning about the species, their context and how to shield against unwanted sonic intrusions of the said environment. However total project times need to be considered especially if initial visits do not yield promising results and the only option is to plan trips of longer durations in more favourable environments.
6. Be prepared to spend appreciably more time editing these recordings than you might want and especially in comparison to those recording made in more favourable situations,

even though editing will not normally fully compensate for less-strong recordings.

7. Reference your recordings against those completed in more favourable conditions for although it's likely you will not achieve the quality, it still remains a desirable aim.
8. Consider full disclosure of the editing process used as well as the equipment specification, as like the professionals have found the recordings might be intended for one purpose but are used elsewhere.
9. Review the field-craft approaches of the recording process for a given species in a particular location, for your equipment limitations, to optimise your chance of success, recognising the interdependence of these variables. Also note that some species rarely inhabit the urban or semi-urban environments.
10. Alter your regular routine to take in walks that bring you through woodlands or parks, and stop and listen, as it is surprising what is active in semirural environments and what you might be able to record, but note you are seen as an intruder to the animals' environments so they might take some time to emerge or vocalise.

Experiential learning and learning from the practice of wildlife sound recording in the field, in keeping with Nelson's (2013) *Practice based Research* approach, underpinned the methodology of this work. However it is the unpredictability of these recording environments and the need to constantly review and consider the field-craft, environmental context and recording approaches as these habitats unveil their variability that makes these recording conditions constantly challenging to the recordist.

Notes

- 1 Battery life rarely matches manufacturers' claims especially when used in cool and/or damp conditions.
- 2 The budget equipment (£300, \$470 US) was approximately a tenth of the price of the more expensive configuration (£3,300, \$5000 US).
- 3 Most experts would take the time, if at all possible, to place microphones close to the species vocalising to ensure a strong signal.
- 4 In total over 500 separate recorded files were made, many quickly discarded and 200 reviewed, however the 'successful' yield from these is much less than 10%.

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Memorial

A Tribute to Jed Speare, Composer and Phonographer (1954–2016)

By Christopher DeLaurenti

“Sound gives us the city in matter and memory,” writes Fran Tonkiss in her essay “Aural Postcards: Sound Memory and the City.” Later she suggests that “not listening in the city makes spaces smaller, tamer, more predictable.”

As a phonographer—someone who makes field recordings—Jed Speare insisted on listening to the city, finding music in the matter and memory of urban spaces, from cable car barns to sewage treatment plants and everywhere in between.

The Struggle

Long before field recordings were easy—I can record eight hours of 48kHz/24 bit sound on my Sony M10, which is about the size of a smartphone—Jed lugged an immense amount of recording equipment to make one of the landmark albums of phonography, *Cable Car Soundscapes* (Folkways, 1983). He documented the distinct bell ringing and the viewpoints of the conductors (“You could almost get a degree in psychology doing this job,” avers one) as well as a typical journey aboard a cable car.

The Frame

Speare fused ethnographic investigation with composition; interviews are edited with phrases carefully sequenced not only for “the story” but for the mood, humor, and

the irony inherent in the then-imminent phasing out of San Francisco’s iconic cable cars. We hear one recessed voice sell something while others cackle as the car rattles on the tracks and the bell rings. This is composing by framing, by the carefully chosen and executed edit.

Beyond such composerly choices lurks the immense technical knowledge required of anyone who makes high-fidelity field recordings, which includes setting (or, gasp, riding) the input level, pointing (and dexterously swiveling when needed) the microphone, and sensing how much longer you can go before batteries die or the reel of tape runs out. Oh, and a good, patient ear is essential.

“They’re going to take all the history out of it,” laments Andy, a 15-year-old cable car groupie, one of the many remarkable voices on *Cable Car Soundscapes*. But Jed got there just in time to create an alluring sonic memorial to a forgotten profession and bygone soundscape.

A Composer’s Mettle

Mettle of Metal is the final track of *Cable Car Soundscapes*. Although composed in 1982, this piece is in mono which immediately connects to another work devoted to the rails, Pierre Schaeffer’s “Etude aux Chemins de fer.” As an exploration of texture and the transcendent power of transport,

Mettle stands with other rail classics such as Ellen Band’s *Railroad Gamelan*, *Train de nuit* (Noord 3-683) by Lionel Marchetti, and “Pendlerdrøm” by Barry Truax.

Mettle begins *in medias res*, an elegant reminder that the soundscape of the city never stops, we only stop listening. Wheels roll, surging and pumping: the rhythms enunciated as glistening abrasions of wheel against track. There’s a bold segue at 50” where an undertow of rumbles garlanded with melodic squeaks and creaks seep into the soundscape. The blunt cut at 2’08” immerses the listener in cavernous space where distant clanks surge and coalesce into a vituperative chorale of gongs, ratchets, and other rhythmically rebounding metal surfaces.

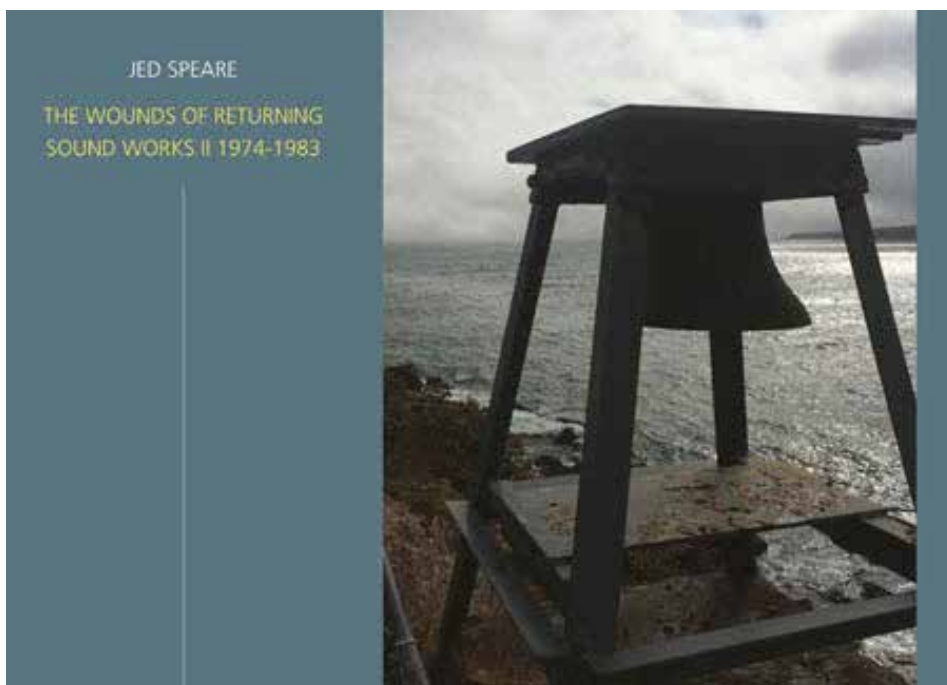
Mettle’s conclusion returns to the cavernous space. Slowed squeals and pitch-shifted rumbles dissolve into a distant, almost siren-like drone. Gossamer trails of hiss emerge and recede as if peeling flecks of rust from thin, shivering panels of brushed aluminum.

Historical and Future Contexts

Who might be brave enough to write a history of artists who compose with field recordings? The lineage ostensibly starts with Pierre Schaeffer, though Respighi has a place, or at least an asterisk. The final panel of the 1924 symphonic triptych *Pines of Rome* requires a recording of a nightingale issued by the Concert Record Gramophone Company, catalogue number R6105.

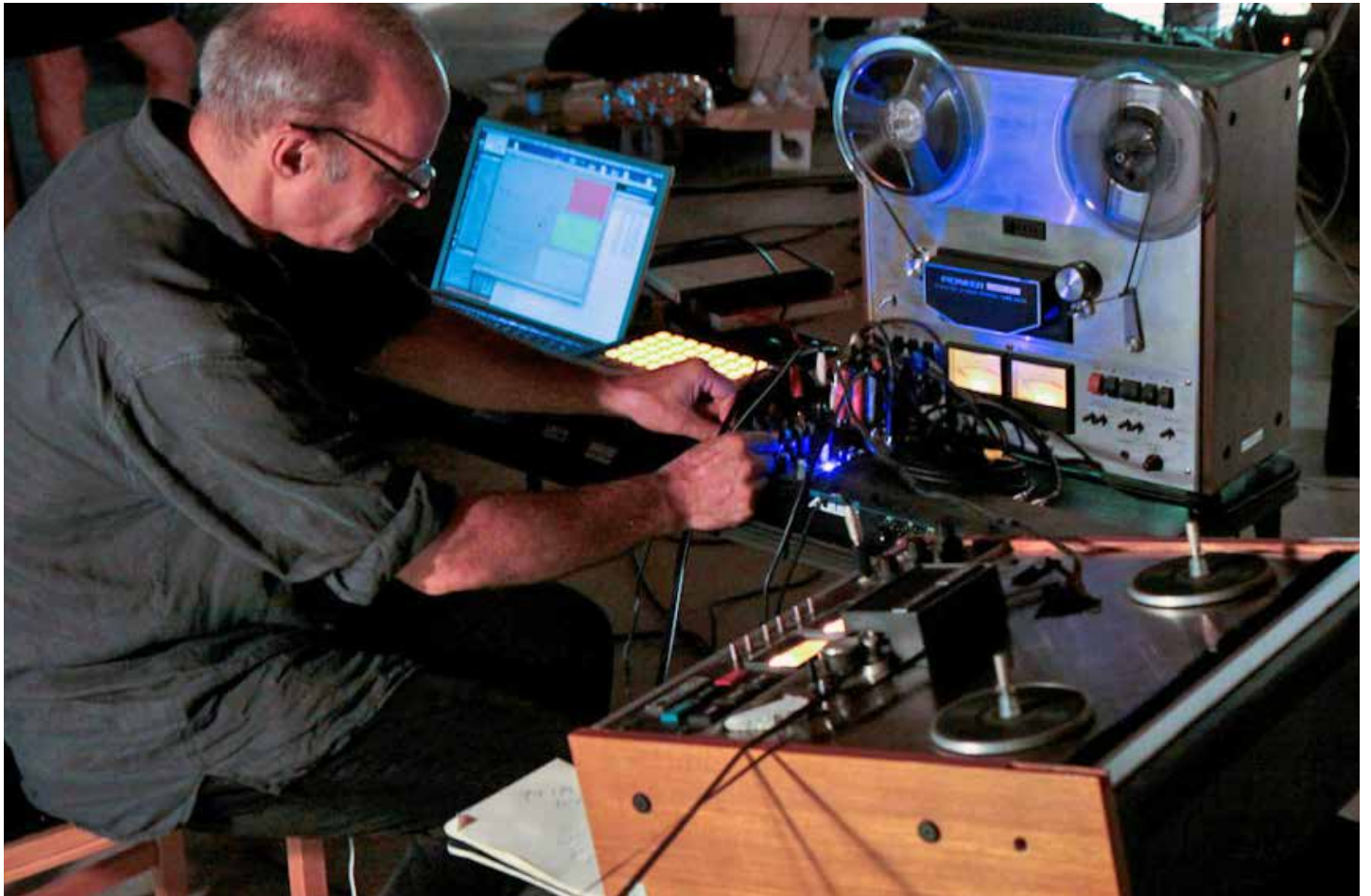
Jed Speare is a crucial link in the chain of urban phonographers, perhaps beginning with Tony Schwartz, who recorded on the streets of New York starting in the 1940s, to Irv Teibel [especially the side-long *Be-In* (1969 *Central Park*) on his *Environments 3 LP*] and the World Soundscape Project of the 1970s then to phonographers like me (and countless others) who started making urban field recordings in 1990s with the advent of the MiniDisc.

Interviewed by Boston.com in 2011, Jed echoed the questing cry of composers since Busoni (if not earlier), stating that “the next great collection of sounds could come from the river behind your house or even your cellphone.” Phonography is now everywhere: Field recordings, mostly made with smartphone cameras, permeate YouTube, SoundCloud, Facebook, and other social media.



CD cover courtesy Farpaint Recordings; photograph by Jed Speare

Memorial (continued)



Jed Speare, *Strange Attractor*@StudioSoto; photograph by Kristophe Diaz

I will always remember Jed's notion of listening to learn the story of a space. In an email to me he wrote:

[T]he practice of alluding to or evoking a site through composition with the twelve chromatic tones is not very satisfactory, after what is available to us in recording different sounds and sound environments that are (closer to) the thing itself as music material. Creating a new music from a phonographic basis seems to confound the musical and environmental in a compelling way.

Jed will be remembered for much more than *Cable Car Soundscapes*. Two anthologies devoted to Jed's work, *Sound Works 1982–1987* (Family Vineyard, 2008), and *The Wounds of Returning—Sound Works II 1974–1983* (Farpoint Recordings, 2015), document a formidable, visionary composer. Farpoint Recordings plans additional releases of Jed's work in Fall 2017 and beyond.

Thank You

I only met Jed once, when Jed, Ernst Karel, and I were preparing for a performance of the New England Phonographers Union in January 2015. As a veteran music journalist, I'm seldom intimidated by the famous, however I imagined the conversation going like this:

Me: "Um, hithere... (speaking really fast) Your Seminal Album Foreshadowed Just About Every Aspect Of My Work In A Brilliant And At Times Whimsical Way. And I'm sorry to say seminal, it's a stupid adjective. People who say seminal are time-travellers from 1981 or plain stupid."

Jed: "Who are you?"

Instead, Jed was a nice guy and happy to meet someone who admired his work from so long ago. Later that night, I did work up the nerve to ask him about the fate of the source tapes of *Cable Car Soundscapes*. "Those were gone

a long time ago." He shrugged and added, "It was another life."

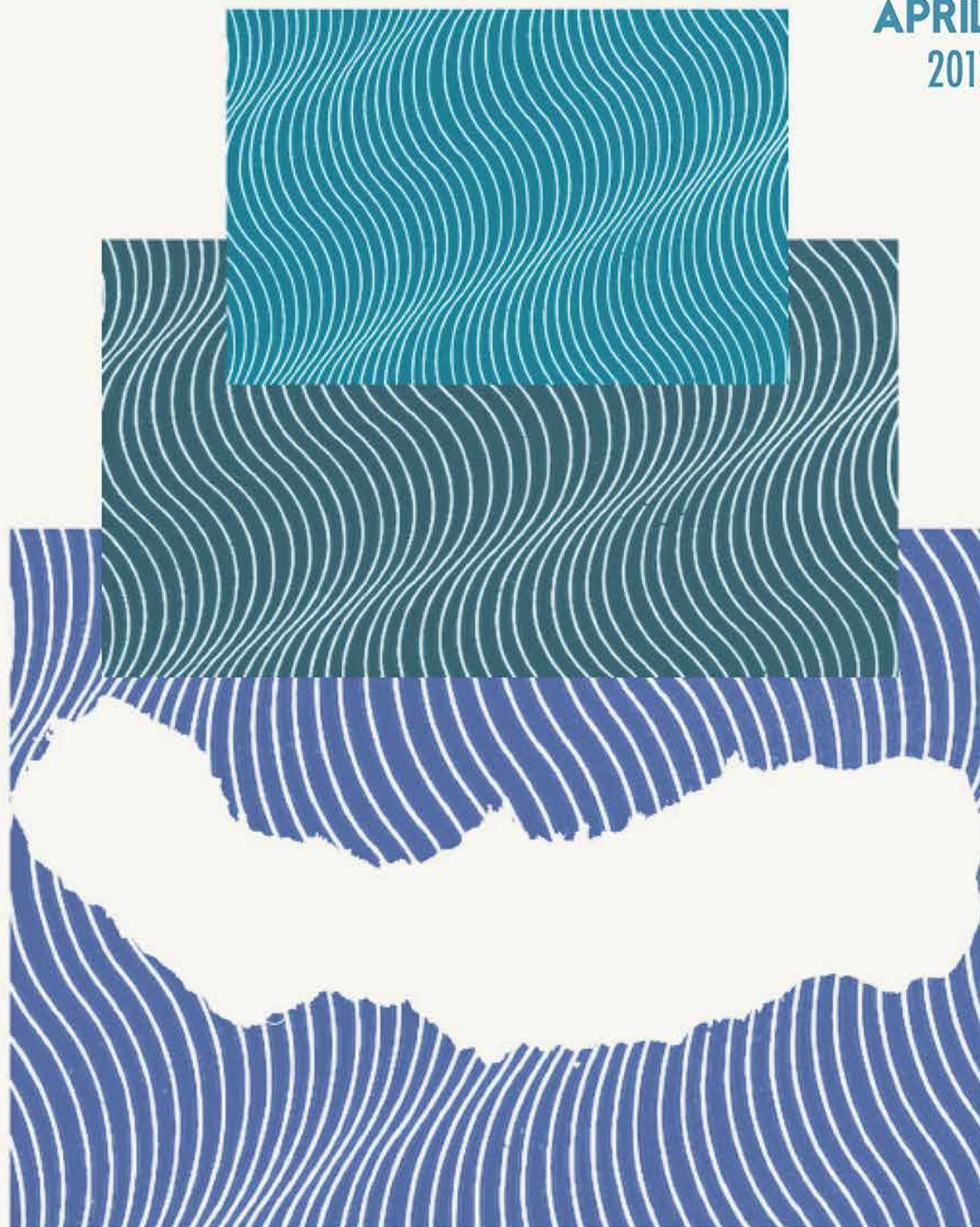
Jed's music will have another life as well, far into the future for anyone who loves listening.

CHRISTOPHER DELAURENTI follows his microphones into unusual confluences of sound, silence, music, and speech, including political protests, tunnels, digital audio forensics, and orchestra intermissions. His albums include *N30: Live at the WTO Protest November 30, 1999* (American Archive, 2000); *Favorite Intermissions* (GD Stereo, 2007); *Fair Use Music 1993–2013* (Alterity 101, 2013); and *To the Cooling Tower, Satsop* (GD Stereo, 2015). Presentations of his work include Radio National (Australia, 2015), Goldsmiths (London, 2014), Third Practice Festival (Richmond, 2013), and the Whitney Biennial (New York, 2012). He is Senior Lecturer of Sound and Music at the College of William & Mary in Virginia. Much of his work is free and online at <http://delaurenti.net>.

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