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*Breathe in, Breathe out*  
*Listen to your surroundings, in its entirety*

*Breathe in, Breathe out*  
*Listen to an animal's sound, sing the sound to yourself*

*Breathe in, Breathe out*  
*Listen to a tree's sound, sing the sound to yourself*

*Breathe in, Breathe out*  
*Listen to a land sound, sing the sound to yourself*

*Breathe in, Breathe out*  
*Listen to a person-made sound, sing the sound to yourself*

*Repeat until it feels right to end*

If you've just completed the above listening meditation, you've possibly activated your sensibility of bird or cricket for a short while, or perhaps inhabited leaves, a train's whistle or airplane flying, in sound. This listening meditation was part of a 50-minute sonic meditation, a composition I presented in fall of 2017. The piece was commissioned by the Russel Wright Foundation for the designer's woodland garden, Manitoga, in Garrison, NY. Titled *Resonance & Resemblance*, it had two phases: a guided soundwalk in the woodland, followed by a sonic meditation at the quarry pool. The sonic meditation featured four recorder performers in kayaks within the pool, while I was onshore, playing electronics. Together we performed a fixed improvisation amid Manitoga's acoustic ecology, and created a musicking rhizome that arose out of the environment we were in.

*Resonance & Resemblance* was also a research site, designed to study compositional strategies that privileged sound's reception over projection, and its effects. The piece investigated what role listening, sound, and musicking might play in emphasizing co-dependent arisings between people and the rest of the material world.<sup>1</sup> Through the production of *Resonance & Resemblance*, and its final engagement, I triangulated data from my own experience, and that of others, with analysis techniques to

1 I use the term musicking as established by Christopher Small to establish a verb that recognizes music as a process, as opposed to a noun. Christopher Small, *Musicking: The Meanings of Performing and Listening* (Middleton: Wesleyan University Press, 1998).

support my belief that listening, in the act of musicking, fosters a heightened awareness of presence that allows us to know the nonhuman world as agential. I also established that, in listening, participants' sensibility of separateness from the nonhuman world was diffused, and their material enmeshment was amplified. In order to stage this experiment, I needed a viable research site and strategy. The strategy was an implementation of music making that placed an equal emphasis on listening and sounding in a relatively realistic setting. The setting was Manitoga, a 79-acre landscape restoration project by renowned designer Russel Wright.<sup>2</sup>

**RUSSEL WRIGHT AND MANITOGA**

Russel Wright (1904–1976) was an American craftsman, industrial designer, and naturalist best known for creating a distinct line of commercially produced tableware in the mid-20<sup>th</sup> century. His designs also included furniture, architecture and landscape, and in each sphere of production Wright emphasized the natural environment. He was committed to nature, perhaps inspired by his upbringing on a farm in Ohio by Quaker parents. His devotion was expressed in his work in the "simplicity and natural materials and forms" of his designs.<sup>3</sup> He also applied a philosophy of ecology to his work in that he saw his designs as an ecosystem: Each piece had unique attributes that informed each other, as well as unifying characteristics that noted its ties to its collection, and the environment overall. He carried his ecologically minded design philosophy over to Manitoga, a 79-acre restoration project that is considered to be "a temple to ecological design."<sup>4</sup> It is located in Garrison, NY, just north of New York City, and was purchased by Wright in 1942. The land parcel was thought to be destroyed by its history of lumbering and quarrying, but Wright made it his life's work to restore the ravaged land. He eventually turned the woodland garden into the dramatic living illustration of native trees, ferns, mosses and wildflowers that is now Manitoga.

Wright wasn't familiar with the region and recognized that the restoration required an education of his own. After purchasing the property, he spent some 12 years in the site learning its "plants, rocks, soils, water, climate, and creatures," before he began the slow restoration process.<sup>5</sup> In acquainting himself with the land, he noted the behaviors, effects and dramas of its inhabitants in the "great sculptural boulder formations, cliffs, small ravines, large areas of ferns, and some giant trees," and by climbing the trees he "discovered great vistas of the river."<sup>6</sup> In the restoration, Wright contended with what looked to most like a cavernous wound in the earth, a gaping cavity left behind by the extraction of granite. But Wright saw a resplendent cynosure: "it is impossible to say what is the most beautiful part of this bit of the hill, but its most distinctive characteristic is the rock, the gray granite of the quarry pit itself, and the surrounding boulders. The curving of the cliff walls is so noble that we must be careful of everything we do."<sup>7</sup>

This is where he chose to build his home and studio, on an area "where man met nature via a chasm between the natural formations of a cliff and the man-made edges of the quarry."<sup>8</sup> With these structures, he intentionally blurred divisions between outside and inside through a number of strategies. In the

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2 The word manitoga is Algonquin for 'place of great spirit.' Specifically, the land that is now Manitoga was originally inhabited by the Lenape, a tribal identity belonging to the larger Algonquin Native American people who occupied a part of the North American Atlantic coast. Robert S. Grumet, *Manhattan to Minisink: American Indian Place Names of Greater New York and Vicinity*, (Norman: University of Oklahoma Press, 2013), 3-7.

3 Ian McHarg, "A Temple to Ecological Design" in *Russel Wright: In His Own Words*, (New York: Universe Publishing, 2001), 104.

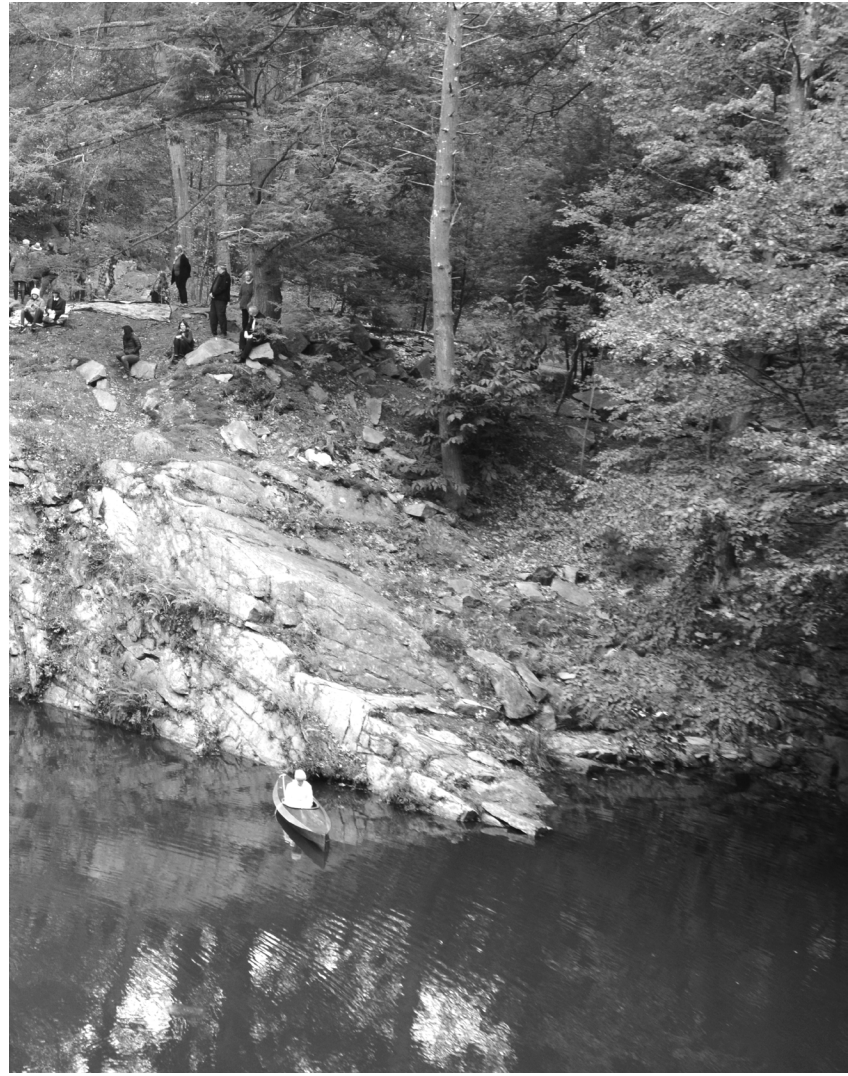
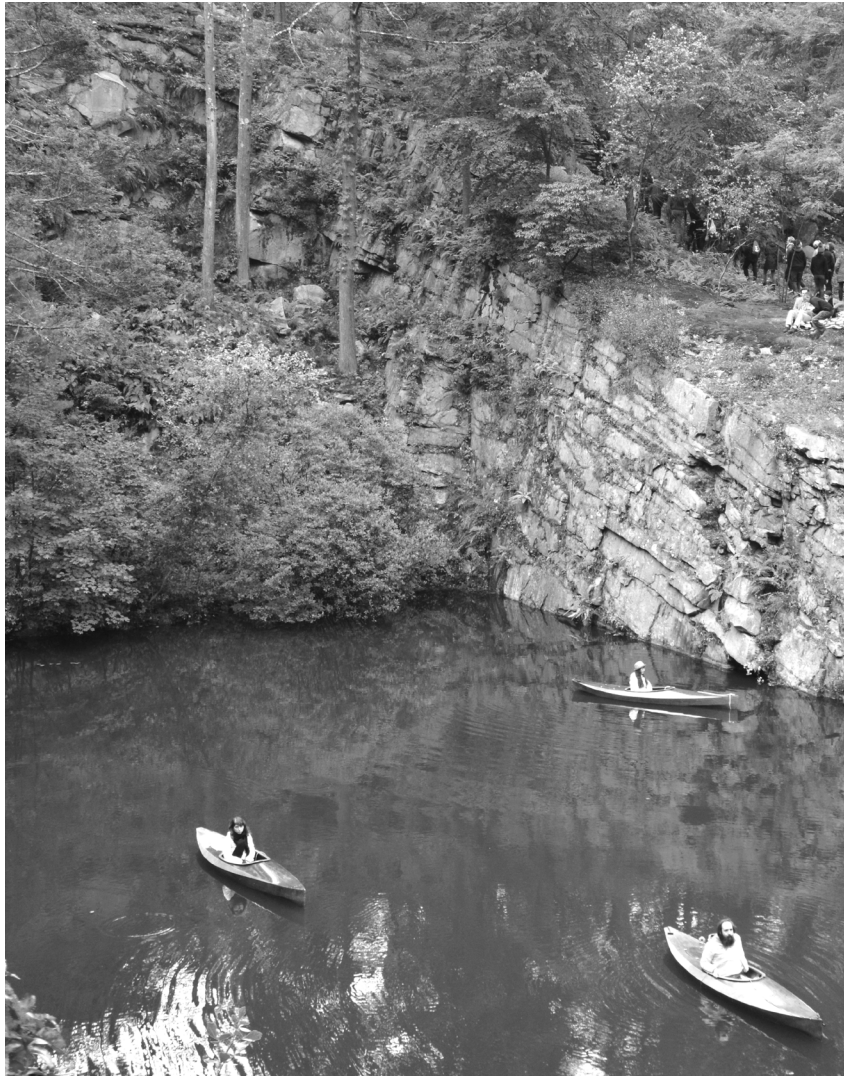
4 McHarg, *Ecological Design*, 105.

5 Ibid.

6 Russel Wright, "Philosophy of the House" in *Russel Wright: In His Own Words*, (New York: Universe Publishing, 2001) 67.

7 Wright, *Philosophy of the House*, 69.

8 Ibid., 67.



construction of the house he used rock and lumber found on the site and covered the roof with vines native to the region. Other design choices included south facing walls of glass that visually extend the inside to the outside quarry, flagstone flooring that extends from house to terrace, a fireplace in a granite wall that connects to the cliffs below, and an uncut cedar trunk that supports the main roof. Carlton Lee, Senior Vice President of the New York Botanical Garden observed of the house that "to be in it is to be in the landscape, to experience snowfall and rain, morning sun, driving leaves...the ever-changing vitality of the seasons."<sup>9</sup> The quarry evolved into a lush centerpiece when Wright diverted a small stream, which fell over a cliff and filled the quarry to make a pool. He also encouraged the regrowth of eastern hemlocks on the quarry's perimeter that matured into a sky-reaching halo of sorts. And below the hemlocks Wright fostered native ferns and moss, all of which combined to create a habitat for a vibrant and active ecosystem to emerge.

To draw attention to the natural grandeur of the site Wright delineated a 2-mile pathway system out of trails made by local wildlife. Each derive-like path is meant to be walked at a particular time of day or season, such as the Morning Trail which travels east, into the rising sun, or the Winter Trail, which features local evergreens. Each trail also features little dramas, such as views of the Hudson River framed by branches, moss rooms that are tree encircled areas with soft moss flooring, and a delicate handful of birch trees dubbed the Martha Graham Girls for their collective and graceful sway. On the highest point of the shortest path you can "step out on the crown of a sheer granite cliff which drops straight down to the water of the pool thirty feet below."<sup>10</sup>

By observing and (co)operating with the environment's behaviors, Wright created opportunities for visitors to engage with the environment's complex and changing dynamics, and experience how they intertwine with their own. His restoration gently directs our attention and reminds us that we are just one factor in a lively and active ecosphere. As a sound artist commissioned to create a piece for Manitoga, I was tasked to continue Wright's design philosophy. And so I set about to design a musical engagement that enacted the sonic ecology as a whole, and figured human participants as merely one part.

#### LISTENING IN(TO) MANITOGA

To design *Resonance & Resemblance* I applied what I call an eco-logical form of composition. I define an eco-logical mode of composition as a musicking strategy that embodies philosophies of emergent complexity, environmental ethics and cosmologies of holism. This method of musicking assumes a priori that music is a dynamic, generative process, and an emergent whole comprised of heterogeneous parts. An eco-logical composer recognizes that their sound production interacts with, and results from, everyone's entanglements within an environment. In this way an eco-logically minded composer sees their musicking as relational, as its production is rendered via affordances and environmental contingencies.

Attentive listening is foundational to an eco-logical mode of musicking, because in listening we are concentratedly in the evolution and process of sound. We are aware of sound's being



Photograph of Manitoga, morning trail.  
Image courtesy of author.

<sup>9</sup> Ibid., 69.

<sup>10</sup> Russel Wright, "Designing with Nature" in *Russel Wright: In His Own Words*, (New York: Universe Publishing, 2001) 126.

with us, and with that which is around us, as it entangles with, and reflects from, our bodies, and those among us. Focused on the motion of molecules that are sound, we are the lively dynamics of existence, along with the other earthly occupants involved. In listening, an ontological slippage occurs, one that deviates from our customary subject/object stance. Philosopher Jean Luc Nancy calls this phenomenon an “ontological ascent” into a body of resonance, one of “infinite tension and rebound, the amplitude of sonorous deployment and the slightness of its simultaneous redeployment.”<sup>11</sup> In sound’s oscillating waves we are the expansions and contractions of being, and, as sound somatically interpolates with us, it brings to bear other beings within us. In listening is an enmeshed amplification of vibratory resonance through which we know that which is around us.

*“Take a walk at night. Walk so silently that the bottoms of your feet become ears.”*  
*-Pauline Oliveros, Sonic Meditations (1974)*

11 Jean-Luc Nancy. *Listening* (New York: Fordham University Press, 2009), 22.

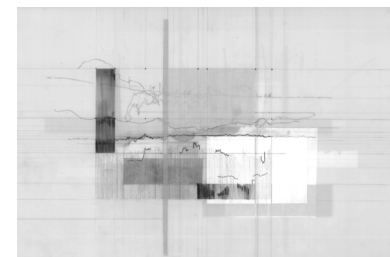
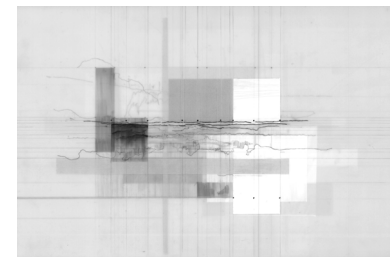
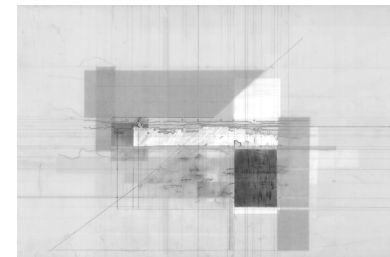
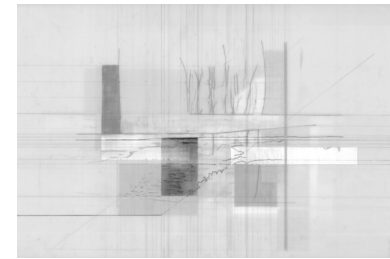
12 Pauline Oliveros, *Deep Listening A Composers Sound Practice*, (Lincoln: iUniverse Inc., 2005) xxiii.

13 A soundwalk is a walking excursion “whose main purpose is listening to the environment,” as defined by World Soundscape Project co-founder Hildegard Westerkamp. Hildegard Westerkamp, *Soundwalking*, originally published in *Sound Heritage*, Volume III Number 4, Victoria B.C., 1974.

14 Wright, *Designing with Nature*, 127.

The listening techniques I employ are in part adopted from my study with composer Pauline Oliveros (1932-2016), who formalized the Deep Listening practice. Deep Listening cultivates a conscious awareness of the sonic environment through various auditory, oral, somatic and imaginary strategies. It strengthens our ability to be voluntarily attentive to sound through body work, sonic and listening meditations, interactive performance, dreams, memory and listening to listening itself. Deep Listening locates an individual’s experience of sound in context with their environment, in its entirety. While listening deeply, for Oliveros, the experience of sound is a focal point in “the whole space/time continuum,” where we encounter “vastness and complexities as much as possible.”<sup>12</sup>

In early September, 2016 I began the first of many listening residencies at Manitoga. I conducted several soundwalks through the mountainous, rocky and tree-covered terrain.<sup>13</sup> These walks taught me the acoustic behaviors and sonic signatures of each path, and confirmed that Wright, too, listened in his process. On a few paths there were dramatic acoustic features: the soft hush of the moss rooms, the rush (or trickle, depending on the season) of water under a log bridge, and the dramatic transition of the sound of my footsteps as I walked from granite stepping stones into “deep deposits” of leaves that were, as Wright observed, “soft and quiet for walking.”<sup>14</sup> One path had two 20 foot boulders side by side, with a gap big enough for a person to fit between. I stood in the gap, listening and vocalizing with the heft of my rock companions. As the boulders directed sounds around their bodies and mine, I realized their massive presence was performing a conduction I couldn’t ignore. And, when I turned my attention to the quarry pool, my listening experiments continued to reveal granite as a prominent sonic actor. I lay on its strong surface and sang. I waded in the stream that fed the quarry and heard how Wright, in the tradition of Japanese gardening, had positioned large boulders to enhance the sound of the water. I kayaked onto the pond and listened. I played instruments to hear their effects, and hocketed with the rock, water, crickets, and birds. I initiated impulse responses from shore, to record granite’s reflection response and acoustic decay. I documented these experiments



Heather Holle, *movement in the landscape*.  
 Master’s Research Project, Spring 2019. Chair:  
 Martin Gundersen; Co-chair: Lisa Huang.

to analyze later, searching for resonant frequencies of the quarry. All of these activities led me to clearly know the vociferousness of granite, and to the conclusion that it was one of the most active contributors to Manitoga's aural consciousness.

### ECHOES, REFLECTIONS, AND RESONANCE

In the quarry pool the granite's scarred, smooth, yet chunky, gray face is prominently displayed for all to see. It encompasses about two-thirds of the pool area, and in some spots reaches 30 feet. Its jagged surface holds the heat of the sun and diffuses the chill of shade. In sounding it was remarkably active and presented a tutorial in assumptions. Because of its hard surface I fell into the assumption that it would reflect back what it had received, equally and without changes or contributions. These are characteristics we typically ascribe to echoes. We expect historicity from an echo, what sounded, a sonic memory of an event that has passed. As historian Mark M. Smith notes, "an echo is nothing if not historical. To varying degrees, it is a faded facsimile of an original sound, a reflection of time passed."<sup>15</sup> But an echo is not an exact replica of a singular event. Like anything else in motion, an echo is a confluence of then *and* now. If we listen to an echo's presence, we can also hear difference: additions and subtractions rendered by a sound's passing. In the differences that are the now of an echo, we hear tales, stories of time and distance, and material entanglements along the way.

Listening into the echo-of-now I was able to detect subtle transformations in sound as it interplayed with granite. A ping generated by a pure sine tone, without much audible rhythm of its own, returned to my ears with a slight waver, sometimes to the point of warble. And with closer attention I was able to hear what didn't return. I could sense what overtones of a frequency were absorbed by the granite to ever-so-slightly change our rebounding sound. Again, these behaviors challenged my assumption of granite's matter. Instead of knowing granite as an unmovable edifice, I considered its possibilities of pliability. In listening to the now-of-granite's-echo I was presented with its ability to absorb and engage energy, and perhaps change it, at its own velocity.

I began to contemplate granite's resonant rate. Like its cousin, the distinct sonic echo, resonance features that which has passed, as it is a re-sounding, but also a fusion of contemporaneously shared traits. Resonance is where the outside meets the inside, where, as musicologist Veit Erlmann observes, "signifier and signified can no longer be kept apart."<sup>16</sup> It is where we have access to the common conditions of our matter, as the "collapse of the boundary between perceiver and perceived" is dissolved.<sup>17</sup> Resonance is the excitation of shared frequencies amongst bodies, which, when combined, animate into greater amplitude and intensify to expand their presence together. Out of this collective action, as electronic musician Daphne Oram proposes, "an emergence into being of something beyond the original" occurs and radiates outward.<sup>18</sup> In this collective action we are each other's affinities, and then some, as resonance emphasizes our kinships and evolution.

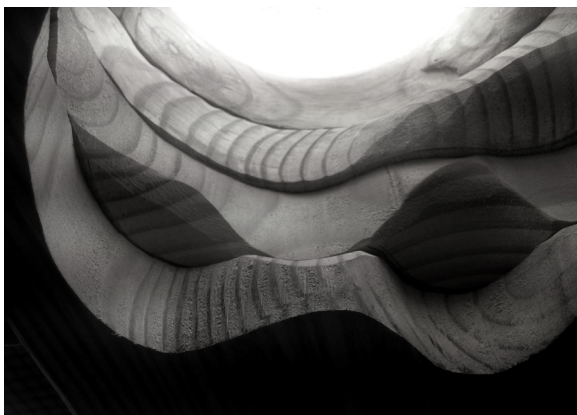
Knowing the world in resonance is considered by some to be an old way of being. Anthropologic psychiatry scholar Walter J. Ong proposes that sound for early humans revealed the interior

15 Mark M. Smith, "Echo" in *Keywords in Sound* ed. David Novak and Matt Sakakeeny, (Durham: Duke University Press, 2015) 55.

16 Veit Erlmann, *Reason and Resonance: A History of Modern Aurality*. (Cambridge: MIT Press, 2014) 17.

17 Ibid., 10.

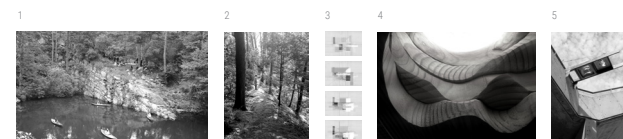
18 Daphne Oram, *An Individual Note of Music Sound and Electronics* (London: Gallard Ltd., 1972) 14.



Russel Wright's, approached me to say how much he enjoyed the piece, stating that "Russel would have approved" because *Resonance & Resemblance* was an experience of the landscape. With these responses, it became evident that in musicking, focused on listening, we have the ability to slip a little deeper into the act of being, and be more attuned to the being of others in our surroundings. In listening to the call and response of bodies, the echoes of now and the unions of reverberation, we experience the resonant materializing of an inter-material world, relationally co-constructed amid its own ecology.

#### Illustrations:

1. Photograph of Manitoga, *Resonance and Resemblance*. Image courtesy of Suzanne Thorpe.
2. Photograph of Manitoga, *morning trail*. Image courtesy of Suzanne Thorpe.
3. Heather Holle, *layering of movement in the landscape*. Master's Research Project, Spring 2019. Chair: Martin Gundersen; Co-chair: Lisa Huang.
4. Calvin Meyer, *1:1 construct detail*. Graduate Design 01, Fall 2017. Professors Lisa Huang and Bradley Walters.
5. Calvin Meyer, *1:1 construct*. Graduate Design 01, Fall 2017. Professors Lisa Huang and Bradley Walters.



events of a thing. Hearing was understood as "listening to the voice of the spirit of a thing or space," and, when a thing's sound was heard, in one's self, a connection was made to that thing's spirit.<sup>19</sup> But modernity didn't completely abandon sound in our epistemological inquiries. Again referring to Erlmann's research, which highlights examples from Descartes to Helmholtz, relatively contemporary Western philosophers and physiologists were on parallel, and sometimes intertwined paths as they explored the "strikingly similar problems concerning the foundations of subjectivity, truth, and sensation" through reason and resonance.<sup>20</sup> It may just be that we have become overly focused on framing listening as an insular, internal experience. Perhaps we've come to identify listening as only a phenomenon of self, forgetting those outside who are part of our aural being.

In *Resonance & Resemblance* I encouraged myself, and others, to listen outward, to meet sounds beyond ourselves. In listening outward, I found the trails of vibratory action that would become the terms of navigation for the eco-logical musicking experience I set out to make. I learned the activity of living in the quarry pool, and its contingencies. This was heard in buzzing cicadas that disappeared the moment the sun left the quarry pool; the gulp of fish feeding at just the right temperature for the hatch of bugs that was their dinner; or the trickle and rush of the waterfall, which came and went with the rain. When my listening radiated further outward, I met the ebb and flow of traffic streaming on a nearby interstate, and could hear the voices of kids, dogs and their adult companions now and then as they traversed the mountain. These were a few of the sounds of living I met that could become part of *Resonance & Resemblance*, and us.

### RESONANCE AND RESEMBLANCE

To encompass Manitoga's sonic possibilities I crafted a simple, elastic musicking system informed by a year of listening to its echoes and resonance. I designed soundwalks that invited participants to acquaint themselves with Manitoga's timbres, amplitudes and rhythms. I chose the wooden recorder for our musicking, because its amplitude and frequency range allowed it to be both a feature, and a part of, the acoustic environment. I created a simple, flexible scored system for the musicians that featured pitches matched to the prominent resonances of the quarry. It instructed players to listen for, and meet, sounds in the environment as they arose, and music beyond themselves. Some parts of the score were designed to emphasize and activate the resonant features of Manitoga's aural architecture, while others functioned as background to its dynamic song of existence.

After their soundwalks, participants were given text meditations to perform at any time during the event, and invited to sit around the quarry pool. They draped themselves on prominent plateaus, dangled legs off of long drops, and lay under the hemlocks, and listened. Musicking in the echoes and resonances of their surroundings, participants became more aware of the agency and interconnectivity of their material world. In a post-performance survey, one declared that "sounds all around, near and far, became inter-connected and seemed to respond to each other." Another reported back that the musicking led them to be "part of the external & internal, playing off one another." After the performance, a gentleman who was a long-time friend of

19 Barry Blesser and Linda-Ruth Salter. *Spaces Speak, Are You Listening? Experiencing Aural Architecture* (Cambridge: MIT Press, 2009) 72.

20 Erlmann, *Reason*, 12.