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# Nature Music: Prerecorded Nature Sounds in Electroacoustic Composition

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## ABSTRACT

Nature Music: The Use of Prerecorded Nature Sounds in Electroacoustic Composition

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Since Ottorino Respighi included the recording of a nightingale in his *Pini di Roma* (1924), composers have used prerecorded nature sounds, or field recordings, to help establish a specific sense of place. The purpose of this project is to examine how modern composers utilize field recordings to create natural-world settings, as well as how prerecorded nature sounds influence the melody, harmony, rhythm, and texture of their compositions.

After a brief overview of nature sounds in twentieth-century composition, two contemporary composers and two works for electronics and wind ensemble are discussed in greater detail. In *Beneath*, Alex Shapiro creates an underwater atmosphere by composing with the recording of a humpback whale song; in *Rusty Air in Carolina*, Mason Bates uses recordings of insects and birds to bring listeners on a musical journey to a Southern summer night. These discussions illuminate how melody, harmony, rhythm, and texture are generated from recordings of the natural world. The concluding chapter draws connections and distinctions between each composer's use of field recordings.

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Finally, I thank my teacher, Mallory Thompson, for whom I hold the utmost respect and gratitude. I appreciate the care, wisdom, wit, and energy that you have shared generously throughout my education.

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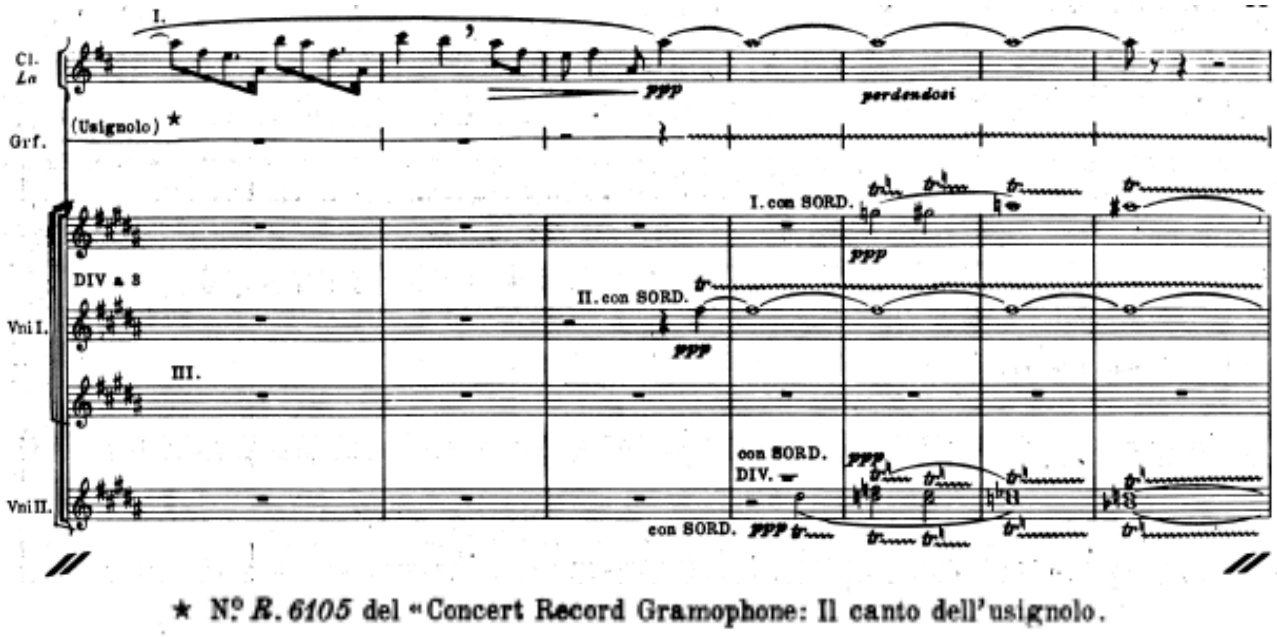
## Part 1: INTRODUCTION & STATEMENT OF PURPOSE

Included in the 1924 score to Ottorino Respighi's *Pini di Roma*, the following instructions were at the time both innovative and controversial. They are believed to be the first documented use of prerecorded sounds, or field recordings, in an orchestral composition:




[Translation: "Record No. 6105 from Gramophone Records: The Song of the Nightingale."]
Figure 1: Ottorino Respighi – *Pini di Roma*, movement 3, measures 56-62

Respighi anticipated that Italian audiences would not welcome the inclusion of an amplified phonograph alongside the orchestra, but this did not deter him. During rehearsals for the premiere performance, Respighi stated: "Let them 'boo!' What do I care?"[1] In truth, he prided himself on the precision of his musical depictions.[2] Though

[1] Redwood Symphony Program Notes on Barbwired website, "Ottorino Respighi: The Pines of Rome," accessed May 30, 2016.
http://www.barbwired.com/barbweb/programs/respighi_pines.html

many who attended the premiere did shout in disgust at the prerecorded birdsong, the overall performance was ultimately applauded and praised. Afterward, Respighi commented in regard to the third movement: "No combination of wind instruments could quite counterfeit the real bird's song."[3] Respighi had successfully carried nature sounds into the concert hall by employing the prerecorded track of a singing nightingale.

- Audio 1: Hear Respighi's original nightingale recording.
- Audio 2: Hear the *Pini di Roma* excerpt with the Gramophone recording.

Despite the inherent contradiction, audio technology had allowed Respighi to establish, in his opinion, a more authentic sense of place.

Since the 1920s, technology has been greeted in the concert hall with ample skepticism and controversy, particularly in regard to electroacoustic works. The use of prerecorded tracks is often critiqued for sounding artificial when played beside live musicians. However, many contemporary composers are employing technology to compose electroacoustic music that incorporates sounds from the nature. In the case of Respighi's *Pini di Roma*, field recordings reinforce and enhance the pastoral environment. The purpose of this project is to examine how modern composers utilize field recordings to create natural-world settings, as well as how prerecorded nature sounds influence the melody, harmony, rhythm, and texture of their compositions.

After a brief overview of nature sounds in twentieth-century composition, two contemporary composers and two works for electronics and wind ensemble will be discussed in greater detail. In *Beneath*, Alex Shapiro creates an underwater atmosphere

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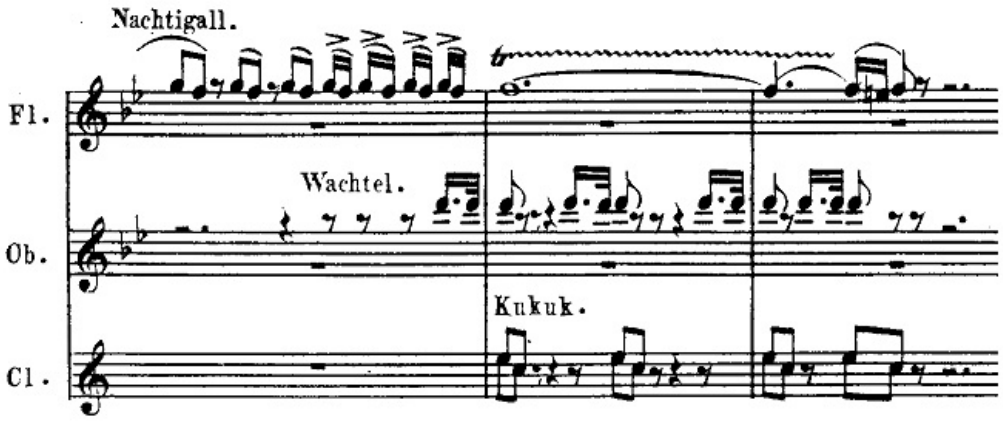
[2] Taruskin, "Music and Totalitarian Society" in *Music in the Twentieth Century: The Oxford History of Western Music* (Oxford University Press, 2009).
[3] Redwood Symphony Program Notes on Barbwired website, "Ottorino Respighi: The Pines of Rome," accessed May 30, 2016.

by composing with the recording of a humpback whale song; in *Rusty Air in Carolina*, Mason Bates uses recordings of insects and birds to bring listeners on a musical journey to a Southern summer night. Though they have distinct compositional styles, both composers use prerecorded nature sounds in evocative ways. These discussions will illuminate how melody, harmony, rhythm, and texture are generated from recordings of the natural world.

## Part 2: PRERECORDED NATURE SOUNDS IN THE TWENTIETH CENTURY

For centuries, composers have emulated nature in their instrumental works. Music of the pastoral genre often depicts scenes of rural landscapes and idyllic life in nature.[4] In his Symphony No. 6, the "Pastoral Symphony" completed in 1808, Beethoven composed a cadenza in which woodwind soloists imitate birdcalls. Specific species are even identified in the score:




[Translation: "Nightingale" (flute), "Quail" (oboe), and "Cuckoo" (two clarinets)]
Figure 2: Ludwig van Beethoven – Symphony No. 6, movement 2, measures 129-131

Similarly, Richard Strauss created a purely instrumental imitation of nature sounds in *An Alpine Symphony* (1915). In the section, "On the Alpine Pasture," he scored birdsongs alongside distant cowbells and interrupting sheep bleats, realized by flutter-tongued gestures of the E♭ clarinet and oboe.

- Audio 3: Hear Strauss' pastoral setting from *An Alpine Symphony*.

[4] Chew and Jander, "'Pastoral' Symphony" in *Oxford Music Online*, accessed August 10, 2016.

In addition to works by Beethoven and Strauss, Debussy's *Prélude à l'après-midi d'un faune* (1894) and Ravel's *Daphnis et Chloé* (1912) are two well-known examples of orchestral compositions in which nature sounds are beautifully depicted.

Through the twentieth century, composers continued to recreate natural-world sounds by purely instrumental means. Prominent examples include Olivier Messiaen's birdsong-inspired *Oiseaux Exotiques* (1956) and George Crumb's *Vox Balaenae* (1971), a work for electric flute, cello, and amplified piano inspired by recordings of whale songs. At the same time, however, an evolution in the use of electronically recorded and amplified nature sounds progressed since the premiere of *Pini di Roma*. This progression was fueled in part by advancements in engineering and computer technology. As the sophistication of audio processing improved, composers enjoyed greater control and more possibilities in regard to the integration of electronic elements with live music performance. By the 1970s, many mainstream composers were experimenting with prerecorded nature sounds in electroacoustic works.[5]

John Cage, already renowned for composing with indeterminant elements, introduced prerecorded nature sounds in his 1973 piece *Etcetera*. The work is scored for winds, strings, six percussionists, and two pianos. The musicians are asked to move at will between three stations, each with different musical gestures to read. In addition to playing their instruments, the musicians tap and scratch on non-resonant cardboard boxes, resulting in an acoustic effect much like the rustling of leaves as wind moves through a forest. Accompanying all of these sounds is a tape of prerecorded birds, wind, and distant traffic.

- Audio 4: Hear an excerpt from John Cage's *Etcetera*.

[5] Schwartz, *Electronic Music: A Listener's Guide* (London: Praeger Publishers, Inc., 1973), 34.

In 1972, Finnish composer Einojuhani Rautavaara completed his best-known work, *Cantus Articus: Concerto for Birds and Orchestra*. Each of the three movements features a different set of prerecorded birdsongs. In the first section, "Suo" ("The Marsh"), Rautavaara combines the chatter of springtime bog birds with gestures by woodwinds and trombones (see Figure 3). The instrumental lines mimic different bird sounds on the accompanying field recording.[6]

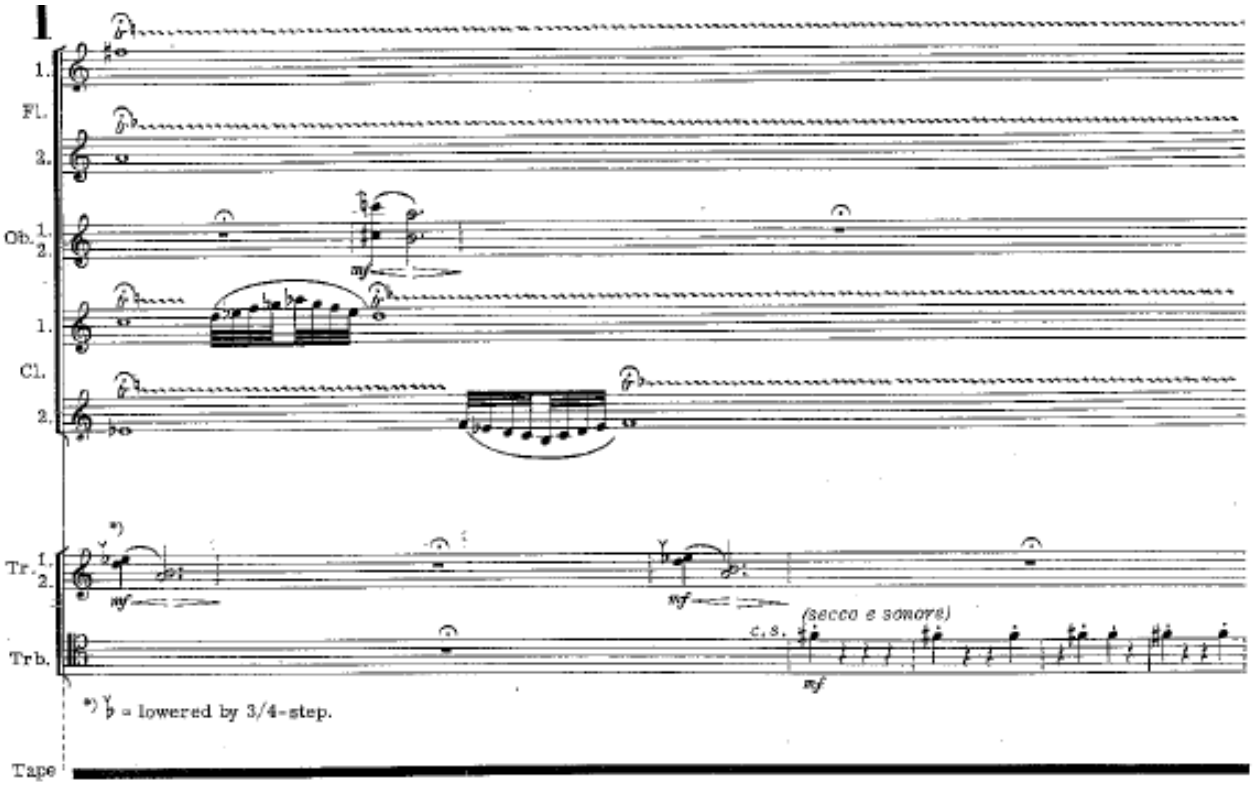



Figure 3: Einojuhani Rautavaara – *Cantus Arcticus*, movement 1, measures 2-3

- Audio 5: Hear the Figure excerpt from *Cantus Arcticus*, "Suo."

"Melankolia" ("Melancholy"), the second movement, features the song of a shore lark that Rautavaara processed to sound two octaves lower, creating what the composer refers

[6] Morrison, "*Cantus Arcticus* (Concerto for Birds & Orchestra)," *AllMusic*, accessed August 1, 2016.

to as a "ghost bird."[7] A quiet string melody eventually enters above the continuous electronic track:

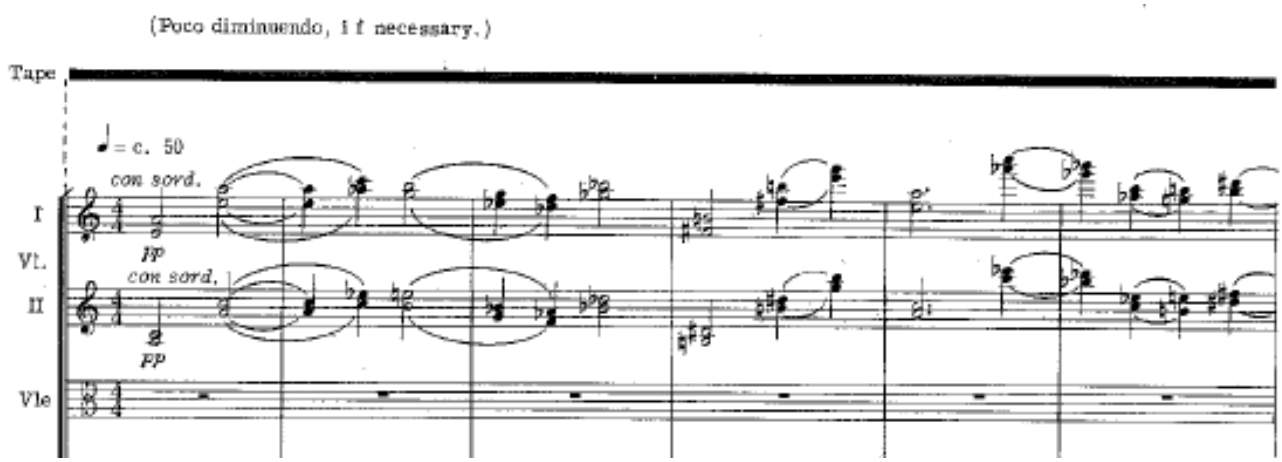



Figure 4: Einojuhani Rautavaara – *Cantus Arcticus*, movement 2, measures 2-7

- Audio 6: Hear the Figure excerpt from *Cantus Arcticus*, "Melankolia."

The final section, "Swans Migrating," begins with the quiet entrance and slow build of a whooper swan recording. As the birdsong grows louder, the orchestra enters with tremolos and flurries of scalar passages. The movement takes the form of a dramatic crescendo and decrescendo, representing a great bird slowly approaching and then flying into the distance.

In a similar fashion to how Rautavaara used birdsongs, American composer Alan Hovhaness composed *And God Created Great Whales* (1970) by sampling underwater field recordings of humpback whales. The composer uses some recordings in their original, natural versions; in one section, he modifies the sample by slowing it down to one-quarter speed, lowering the pitch of the whale song by four octaves. The piece also features aleatoric passages in which orchestral musicians are asked to improvise. Hovhaness describes this work:

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[7] Morrison, "*Cantus Arcticus* (Concerto for Birds & Orchestra)," *AllMusic*, accessed August 1, 2016.

> Free rhythmless vibrational passages suggest waves in a vast ocean sky. Each string player plays independently. Undersea mountains rise and fall in horns, trombones, and tuba. Music of whales also rises and falls like mountain ranges. Song of whales emerges like a giant mythical seabird. Man does not exist, has not yet been born into the solemn oneness with Nature.[8]

- Audio 7: Hear an excerpt from *And God Created Great Whales*.

These whale recordings were collected off the coast of Bermuda by bio-acousticians Frank Watlington and Roger Payne. The two whale enthusiasts later released an album of their recordings, *Songs of the Humpback Whale*, which is currently the best-selling environmental album of all time.[9] By raising awareness and interest in these large creatures, their album helped spawn a worldwide "Save the Whales" movement. The same samples used by Hovhaness have been employed in many contexts, including the soundtrack of *Star Trek IV: The Voyage Home* (1986).

One of today's most environmentally-minded composers is John Luther Adams. His recent Pulitzer Prize-winning orchestral piece, *Become Ocean* (2013), is inspired by the effect of melting polar icecaps and rising sea levels on the oceans of the Pacific Northwest.[10] In many of Adams' works, he employs prerecorded nature sounds to bring his listeners closer to different environments, often to harsh climates and terrains. His 1994 electroacoustic album, *Earth and the Great Weather*, is subtitled "A Sonic Geography of the Arctic." In each movement, the composer uses ambient nature recordings to set a scene on which instruments or narrating voices then enter and

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[8] Rothenberg and Ulvaeus, *The Book of Music and Nature: An Anthology of Sounds, Words, Thoughts* (Middletown, CT: Wesleyan University Press, 2001), 241.
[9] "Humpbacks: Their Mysterious Songs," *National Geographic*, January 1979.
[10] Rothman, "Letter from the Archive: John Luther Adams," *The New Yorker*, April 18, 2014.

perform. The nature sound samples on this album include rushing water, melting glaciers, wind on the tundra, thunder and rain, and arctic seabird calls.

- Audio 8: Hear an excerpt from *Earth and the Great Weather*, "River With No Willows."

The following two chapters look more closely at two contemporary composers' use of prerecorded nature sounds in electroacoustic works for wind ensemble: Alex Shapiro's *Beneath* and Mason Bates' *Rusty Air in Carolina*.

## Part 3: WHALE OF A SONG
## Alex Shapiro – *Beneath*

Composer Alex Shapiro was born in 1962 in New York City and raised in downtown Manhattan. In her own words: "Growing up, I'd save money I earned from babysitting to attend everything from opera, ballet, and classical concerts to jazz, rock and alternative events in equally alternative [music] venues around the city like CBGB's and Studio 54."[11] As a teenager, she received her first composition lessons from Leo Edwards while enrolled in the Mannes College of Music summer program. It was here that Shapiro first studied electronic music, which would ultimately become a central component of her compositional output.

In 1978, Shapiro became the youngest composition student accepted to the Aspen Music School where she worked with Michael Czajkowsi and George Tsontakis. She writes about this transformative time in her musical development:

> In addition to master classes with Elliott Carter and Erich Leinsdorf, my time at Aspen also had me participating in workshops with jazz greats Freddie Hubbard and Toshiko Akiyoshi. It was life-changing to be exposed to the professional worlds of classical and jazz while continuing my electronic music studies and living in a rural setting where, for the first time in my life, I could see the night sky.[12]

This intersection of classical music, electronic music, and the natural world later came to define Shapiro's artistic endeavors.

Her formal training continued in New York City, first at The Juilliard School as a pre-college composition student of Bruce Adolphe and Craig Schuler, then at the

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[11] Shapiro, "Alex Shapiro: Narrative Overview," Alex Shapiro composer website, accessed August 10, 2016. www.alexshapiro.org/AlexShapiro_NarrativeBio.pdf
[12] Ibid.

Manhattan School of Music with Ursula Mamlok and John Corigliano. Early successes with commercial music and film scoring projects eventually led Shapiro to relocate to Los Angeles. For the next decade, she continued to compose soundtracks for film and television. Shapiro writes about how this period in her life came to an end with a few dramatic changes:

> After thirteen years of writing music for mostly unmemorable projects, the joy I felt in composing a chamber orchestra score for a feature film, *Horses and Champions*, led me to soon decide to shift my career back to concert music. It was 1996, and since leaving the conservatory all those staff lines earlier, I had only composed soundtracks. I had no concert music catalog, and knew no one in the concert music world. But I loved chamber music, so despite logic and common sense, I began composing music I wanted to hear. . . . With my career firmly anchored to my web presence, I realized that I could conduct my music life from anywhere on the globe. Drawn by a love of nature and the joy of having composed in the woods at Aspen as a teenager, I moved from the disquiet of Los Angeles to Washington State's San Juan Island, a serenely beautiful place devoid of a single traffic light.[13]

Though Shapiro shifted her musical focus entirely to the concert world, her immense interest and dexterity with electronic music continued to grow, expressed in the creation of electroacoustic works. Simultaneously, her passion for the sights and sounds of the natural world found its way into her music in more essential ways. The convergence of these elements is evident in her 2010 work for wind ensemble and electronic track, *Beneath*.

The creation of *Beneath* begins with an earlier composition by Shapiro. *Below*, a work for contrabass flute and electronic track, was composed in 2008 for flutist Peter Sheridan. Shapiro describes how she first encountered a special recording that became

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[13] Shapiro, "Alex Shapiro: Narrative Overview," Alex Shapiro composer website, accessed August 10, 2016. www.alexshapiro.org/AlexShapiro_NarrativeBio.pdf

the main source for *Below*'s accompanying track and the primary inspiration for both *Below* and *Beneath*:

> I had been very unexpectedly trolling around the Internet listening to whale sounds when I came across the [National Oceanic and Atmospheric Administration (NOAA)] site, and they had all kinds of sounds. Not just whale sounds, but underwater volcanoes (which are also in that track), and I was just fascinated. It was all so beautiful… And then I came across that one whale song that ended up in *Below*, and now *Beneath*, as a key theme. It's a male humpback, I believe. I'm told that it's the males who do that particularly beautiful (to our human ears) song. There are a lot of whale experts here on San Juan Island. We're in a whale-intensive area. We have humpbacks and orca pods, the killer whales. Literally, often as I'm writing, the orcas pass by every day in the summertime. It's quite thrilling. It's quite inspiring and beautiful to watch them. You'll see them jumping up in front of me, lulling around and fishing, just a few yards off the shoreline from where I am.[14]

- Audio 9: Hear the original humpback whale recording from the NOAA archives.

The composer continues:

> When I turned [the original whale song] on and listened to it, I went straight to the piano and started playing along... It was completely tempered! It was a "whale-tempered piece," as I like to say. I didn't have to do any phrase correction, which was amazing. As I started harmonizing with it, I realized: this is it. *This* is what I want to do [in regard to *Below*]. It was really the first time that I solidly started a piece by using that kind of raw source material.[15]

- Audio 10: Hear an excerpt of *Below* that features contrabass flute with recordings of water sounds and whale song.

Two years later, in 2010, Shapiro was commissioned by a consortium of wind ensemble conductors to write an electroacoustic piece for band. The work is titled *Immersion* and takes the listener on a musical journey through underwater scenes. For the final movement, now published and performed separately as *Beneath*, Shapiro

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[14] Higgins, *Interview with Alex Shapiro*. See Appendix 1.
[15] Ibid.

returned to the same humpback whale song she discovered while composing *Below*. "The song was so haunting, I just had to use it as the centerpiece of the music. . . . It is a heart-wrenchingly beautiful song."[16]

Shapiro began by cleaning up the original track, removing the scratches and humming distortions caused by microphones being used under water. These clicks and scratches can be heard on the original track (see Audio 9). Although adjustments were made to achieve greater clarity, Shapiro ultimately decided to maintain the slightly blanketed, underwater sound of the whale for a more authentic atmosphere. Additional processing would have significantly brightened the whale song, but she believed the cloudiness to be a more realistic and evocative texture for the music.

In addition to the prerecorded whale song, other nature sounds play important roles in creating *Beneath*'s underwater setting. Audio samples of gurgling, bubbling, and whooshing water are heard throughout the piece. As heard in Audio 11, Shapiro includes the recording of a volcano erupting on the ocean floor. She uses this volcano audio sample, also collected from the NOAA archives, as structural bookends; it is utilized on the electronic track both in the opening and closing measures of the piece. This beneath-the-waves earthquake creates an otherworldly effect, transporting the listener to a mysterious, murky scene. Measures 3-6 also feature a "floaty metal" effect, which is an example of how Shapiro incorporates electronic synthesized sounds alongside a prerecorded nature sound sample.[17] The "underwater earthquake" is a found audio artifact, while the following "floaty metal" effect is a digital creation of the composer.

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[16] Shapiro, "Whales in Music: An Interview with Alex Shapiro, Composer," *The Natural World*, June 1, 2013.

[17] The terms "floaty metal" and "underwater earthquake" is included in Shapiro's score to *Beneath*.

From very different origins, these sounds come together seamlessly in the context of the composition.

- Audio 11: Hear the underwater earthquake and "floaty metal" from the opening of *Beneath* (mm. 3-6).

Shapiro borrows more from humpback whales than just their songs. In the following excerpt, prerecorded samples of whale blowhole sounds and breath blows are applied on the electronic track to accompany more "floaty metal" effects:

- Audio 12: Hear whale blowhole sounds and a breath swoosh.

As discussed, the electronic-track component of *Beneath* helps to create a specific natural-world atmosphere, but the prerecorded whale song serves many other crucial functions within the composition. In fact, the main theme of the piece is the whale song itself. *Beneath* begins with a brief fifteen-measure introduction, followed by the whale song theme heard in its entirety. Figure 6 presents the theme as it appears in the score (on the upper staff of the "electronic track" staves), a visual representation of prerecorded nature sounds as transcribed by Shapiro.

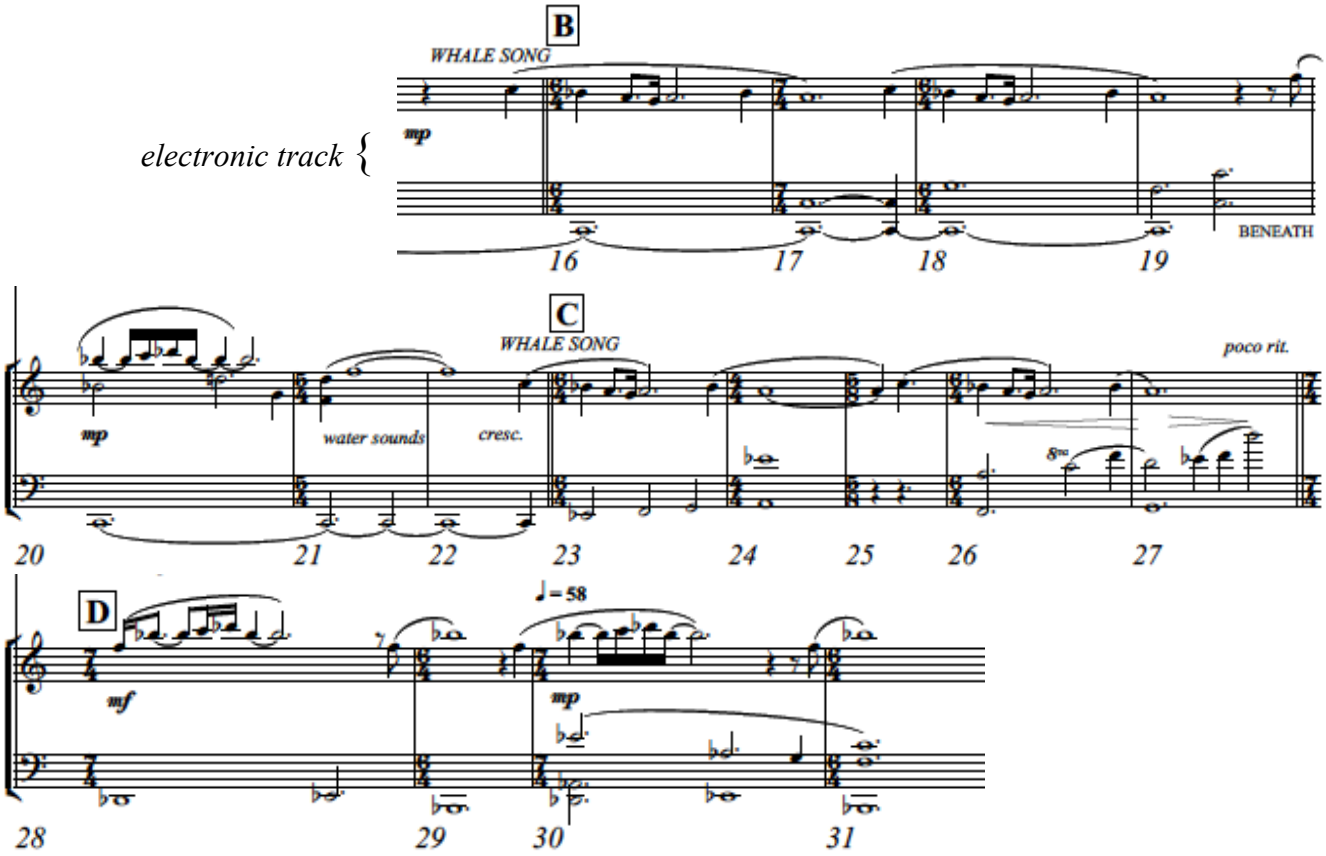


Figure 5: Alex Shapiro – *Beneath*, measures 15-31 (electronic track)

- Audio 13: Hear the above main theme excerpt from *Beneath*'s electronic track.

The first-phrase melody (mm. 16-19) features overall descending motion from pitches C5 to A4 (C➔A), which occurs twice. This "a" section is followed by the "b" section (mm. 20-22), a shorter phrase characterized by rising F➔B♭ motion. Both phrases are then restated with some rhythmic variation, and the "b" section is extended (mm. 28-31). The overall structure of the song may be represented as a double binary form ("abab" or a-b-a'-b'). When considered in terms of traditional music analysis, the formal structure of the whale song provides a structurally balanced main theme.

In the context of *Beneath* as a whole, the whale song functions as the main theme by providing primary melodic content for the piece. After this first complete statement,

the theme returns throughout the piece in excerpts of varying lengths. Shapiro extracts portions of the original whale song and employs them as melodic motives in other sections of the electronic track and in different instrumental lines. For example, the whale's melodic F➔B♭ gesture at the beginning of measure 28 (see Figure 6) is then echoed in the piccolo and flute countermelody at the end of the same measure:

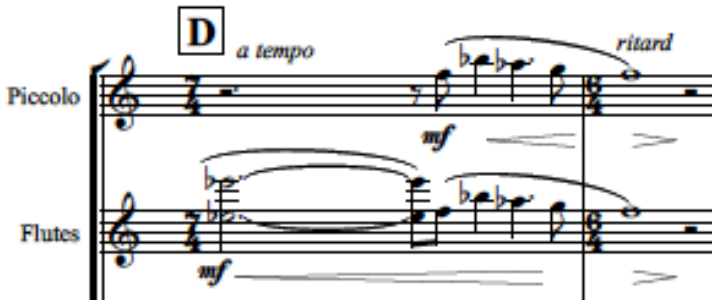


Figure 6: Alex Shapiro – Beneath, measures 28-29 (piccolo and flutes)

- Audio 14: Listen again to the same main theme excerpt (mm. 15-31), this time in live performance with the electronic track and full wind ensemble.

The same ascending F➔B♭ motive returns numerous times, often at climactic musical arrivals; it is included seven times on the electronic track (mm. 36, 129, 136, 146, 148, 150, 155). It is also the last whale sound heard in the final moments of the piece.

Much like the melodic content, the harmonic content of *Beneath* is derived from and inspired primarily by the same prerecorded whale song. The downbeats of both phrase "a" and "b" of the main theme arrive on the pitch B♭ (see Figure 6); therefore, as might be expected, B♭ major becomes a harmonically-significant tonality. In the opening measures of *Beneath*, Shapiro composes a short introduction suggesting a B♭ major harmony, though no tonic chord is provided. This section is characterized by unison-octave gestures that descend a minor third from F➔D. No B♭ is included, so an F➔D➔B♭ triad is not completed. Eventually, a low G follows one of the F➔D gestures (measure 11); this G acts as a deceptive substitute for a would-be tonic B♭. In the next

measure, the unison-octave F moves to an F minor-seventh chord, further obscuring the tonality. When a substantial B♭ pitch does eventually arrive, it is in the first statement of the whale song; however, the music again evades B♭ major because the accompanying bassline shifts to a C pedal (see Figure 6, measure 16).

Throughout the piece, the key of B♭ major continues to be suggested, though there is no explicit cadential motion or sustained tonic triad until the final four measures of the piece: after the last underwater earthquake in measure 156 (as seen in Figure 3), the ensemble plays three tolling B♭ major chords that slow and fade into silence. All earlier hints toward B♭ major are obscured by sustained non-tonic pedals, such as the previously-mentioned low C beneath the first phrase of the main theme.

In addition to melodic and harmonic elements, prerecorded nature sounds drive the rhythmic content of the piece. The time signatures seen in Figure 3, along with Shapiro's chosen tempos, are a result of her attempt to harness the irregular motion of the whale song for use in an electroacoustic piece. As naturally beautiful as the original whale song may be, it is necessary that the composer impose some degree of metric organization. Shapiro explains that this process was not dissimilar from her usual composition process:

> The way I always work with meter, and in my case, mixed meters, is this: I hear the music and will often notate it in abstract ways, without using bar lines. And then it comes time to actually notate it, so that other human beings can actually play it and know what chaos was in my head. At that point, I just decide where natural downbeats are, where obvious downbeats are, and that determines what the meters are going to be. In this way finding a tempo and meter for the whale was no different.[18]

[18] Higgins, *Interview with Alex Shapiro*. See Appendix 1.

The composer follows a different process when composing the work's central section, which is at a faster, more regular tempo. Shapiro inserts excerpted samples of the whale song around the metric scheme, as opposed to composing with the implied meter of an unedited sample. In order to properly align the whale excerpts, she uses processed nature sounds, editing the durations of sounds and silences to fit with the more regular meter:

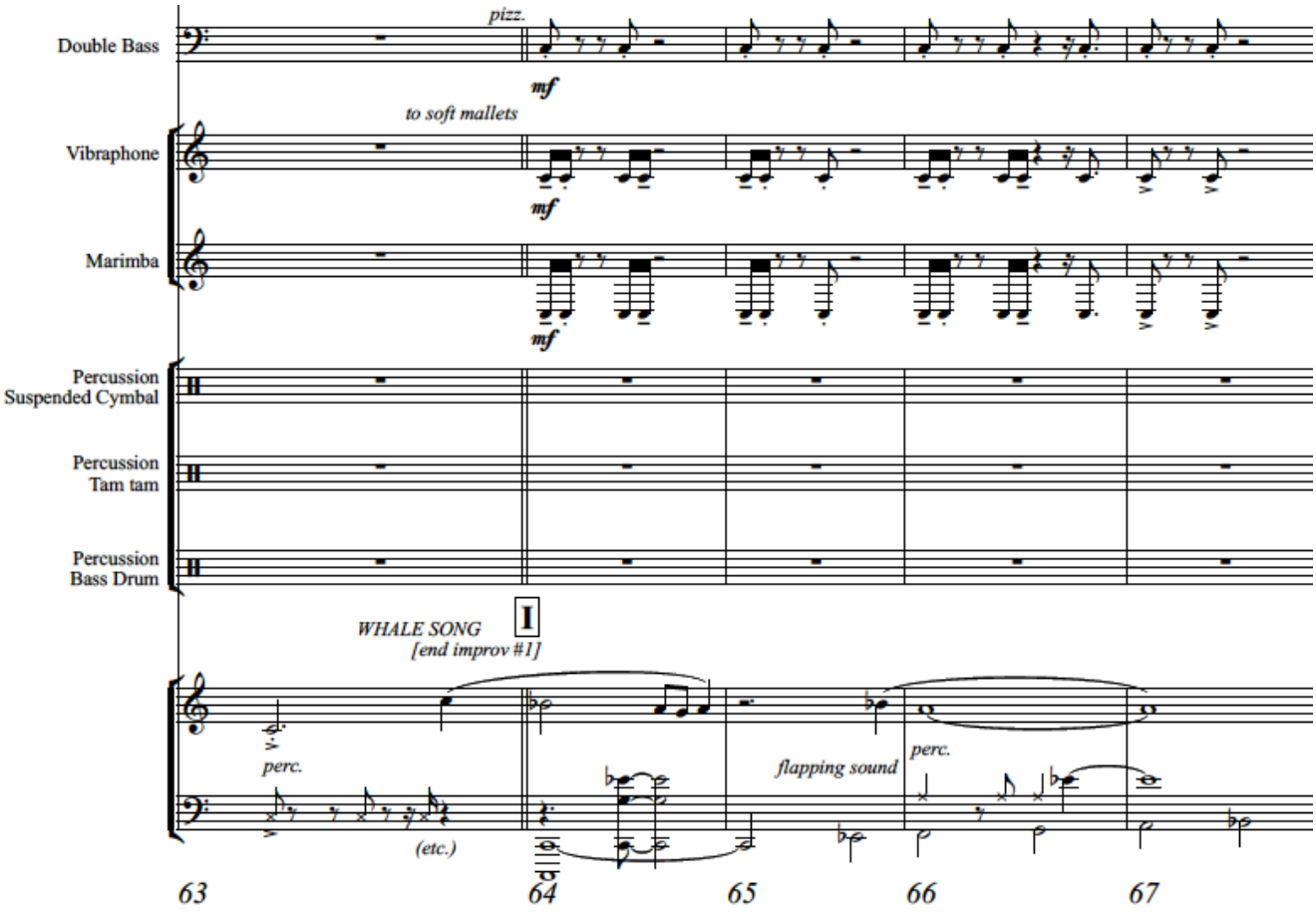


Figure 7: Alex Shapiro – *Beneath*, measures 63-67 (bass, percussion, and electronic track)

For Shapiro, prerecorded nature sounds are a source of unique atmospheric effects as well as melodic, harmonic and rhythmic material. The smooth coalescence of synthesized sounds, prerecorded samples, and acoustic instruments in her music make

Shapiro a prime example of how composing with prerecorded nature sounds has evolved since the 1920s.

## Part 4: HEARING CRICKETS
## Mason Bates – *Rusty Air in Carolina*

Mason Bates is currently the second most-performed living composer in the United States, second only to John Adams.[19] While this statistic refers to performances by six hundred of America's largest symphony orchestras, Bates' music is also growing in popularity with chamber musicians and university wind ensembles. He served as composer-in-residence with the Chicago Symphony Orchestra (CSO), worked closely with Michael Tilson Thomas and the San Francisco Symphony, and is currently the first composer-in-resdience of the Kennedy Center for the Performing Arts. In 2016, Bates scored the soundtrack for Gus Van Sant's feature film with Matthew McConaughey, *The Sea of Trees*; released the live recording of his symphony *Anthology of Fantastic Zoology* with Riccardo Muti and the CSO; and began work on his first opera, *The (R)evolution of Steve Jobs*, commissioned by the Sante Fe Opera and scheduled to be premiered in July 2017.

- Audio 15: Hear an excerpt from *Anthology of Fantastic Zoology.*

Among the many successful composers who use electronic elements in various ways, Bates has become the foremost creator of modern electroacoustic music, blending electronic dance music (EDM) sounds and styles, which he refers to as "electronica," with classical instrumental writing.

Bates was born in 1977 and raised on a farm in Richmond, Virginia. His father was the first person with whom Bates shared a deep passion for music, introducing him to jazz and big band vinyl records of the 1950s. Bates remembers his father as his first

[19] O'Bannon, "By the Numbers: Living Composers," *Baltimore Symphony Orchestra*, April 20, 2015.

music teacher and traces his fascination with "jazz harmonies and low bass sounds" to those early listening experiences.[20] He attended St. Christopher's School, a private preparatory school for boys, and began formal music training with private piano and composition lessons. As a teenager, Bates attended the Summer Music Institute in Brevard, North Carolina. At Brevard, Bates befriended assistant conductor Robert Moody, who would later become a close friend and collaborator.[21]

Upon graduation, Bates left the South and moved to New York City where he enrolled in the Columbia University-Juilliard School dual-degree program, earning degrees in English literature and music composition. At Juilliard, Bates' primary teacher was John Corigliano; he also studied with David Del Tredici and Samuel Adler. Corigliano recalls Bates' mature compositional process, even at an early age:

> Mason's a very independent guy. He doesn't just start at the beginning of a piece and not know where he's going (like most young composers); such is the case with a lot of pieces. But [Mason]'s very dedicated, a real composer. He'll talk it all over abstractly first.[22]

With many options available following his time at Juilliard, Bates made a somewhat unexpected decision: he moved to California and began studying with composer Edmund Campion at the University of California, Berkeley. Campion is a past resident of the Institute for Research and Coordination in Acoustics/Music (IRCAM), a French institute focusing on the science of avant-garde electroacoustic music. By choosing to work with Campion, Bates embraced his long-held interest in the possibilities of composition with electronic elements.

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[20] "Alive and Composing: Mason Bates," *Innova Interviews*, April 9, 2014.
[21] Bates, *Rusty Air in Carolina* program notes. See Appendix 3.
[22] Midgette, "A composer offers the field just what it needs" *Washington Post*, April 2, 2015.

It was during his first years in San Francisco that Bates began to work professionally as an electronic dance music DJ. Under the pseudonym DJ Masonic, he developed a reputation spinning and mixing electronica on turntables at nightclubs and large-scale gala events.[23] Central to his activities as DJ Masonic was the *Mercury Soul* project, a "post-classical rave" that brings together dance clubs and symphony orchestras from around the world in collaborative, electroacoustic performances. Just as his classical music training influenced his direction as a DJ, these new electronica experiences significantly influenced his compositional style. As previously mentioned, the blending of electronica and instrumental music is now a defining characteristic of Bates' music for the concert hall.

- Audio 16: Hear and EDM sample from DJ Masonic.

In 2011, Bates was commissioned by Michael Tilson Thomas to compose a new work for the premiere performance of the YouTube Symphony Orchestra. The resulting piece, *Mothership*, is scored for orchestra and electronica. It features improvised solos by four instrumentalists; these solo sections alternate with ensemble ritornellos in a formal structure that mirrors that of a classical scherzo and a double trio. Bates maintains an interest in the interaction of traditional symphonic forms with modern sounds and electronic-music idioms.

- Audio 17: Hear an excerpt from the world premiere performance of *Mothership*.

His works most often employ electronics to incorporate EDM-associated sounds or to extend the colors of the orchestra's traditional percussion section, what he refers to as a "super-percussion toolbox." But Bates is increasingly using his electronic track to

[23] Kaliss, "Mason Bates: Musical Transporter," *San Francisco Classical Voice*, August 8, 2011.

integrate prerecorded nature sounds. In an interview with the San Francisco Symphony, Bates describes his interpretation of the pastoral symphony genre, another traditional symphonic form with which he has a great interest:

> Pastoral music is maybe one of the oldest kinds of music, music that emulates nature. When you can bring electronic sounds into the concert hall that emulate natural sounds, it sort of flips everything on its head. So, much of my music, in a way, has a great deal of influence from pastoral music that has made up the symphonic canon, but it enters through the digital sounds of our age.[24]

In *Liquid Interface* (2008), Bates' Ph.D. dissertation from UC Berkeley, he uses radio-journalist Daniel Grossman's field recordings of glaciers breaking in the Antarctic. These samples, along with processed storm sounds, create a cold atmosphere of brutal nature upon which orchestral sonorities are scored.

- Audio 18: Hear the opening of *Liquid Interface*, movement 1: "Glaciers Calving."

Perhaps the most intriguing example of Bates' use of prerecorded nature sounds is his 2006 pastoral tone poem for orchestra and electronica, *Rusty Air in Carolina*[25]. Robert Moody, who Bates knew from their shared time at the Brevard Music Institute, commissioned the piece for the Winston-Salem Symphony. Bates writes about his initial inspiration for the piece, noting its connection to Beethoven's Sixth Symphony and Respighi's *Pini di Roma*:

> [*Rusty Air in Carolina*] is a very meaningful piece for me. Not only is it an early work of mine, but it also harks back to my life in the South. I grew up in Virginia and spent a lot of time in the Carolinas. The work uses electronics to bring the white noise of the Southern summer into the concert hall, pairing these sounds with fluorescent orchestra textures that float gently by. … In this case, unlike the

[24] "Mason Bates," *San Francisco Symphony Media*, February 19, 2016.
[25] A version of *Rusty Air in Carolina* for wind ensemble and electronica was later completed by the composer and premiered by the 2009 Honor Band of America.

> Beethoven Sixth Symphony or *Pines of Rome*, the natural sounds are primarily insects and not birds.[26]
>
> The task of conjuring up the rich summer noise of the South and pairing it with orchestral textures should be a job for an authentic Southerner… The memories are so vivid from that summer in Brevard, North Carolina - where I spent several months at the music festival there as a teenager - that some sort of homage seemed necessary. Not only did the thick buzzing of cicadas and katydids always accompany the concerts there, but sometimes it was the music itself: on more than one occasion, I remember sitting on the porch of 100-year old Nan Burt and listening to the sounds of summer while she told stories from her long life.[27]

*Rusty Air in Carolina* is organized into four movements, which are performed without pause. The first movement, "Nan's Porch," features the prerecorded sounds of three insect choirs: katydids, crickets, and cicadas (or locusts). According to the composer, this musical scene begins at dusk as night bugs begin to chatter in the trees.[28]

- Audio 19: Hear an unedited katydid sample.
- Audio 20: Hear an unedited cricket sample.
- Audio 21: Hear an unedited cicada sample.

The unique pitch and texture of each insect sample allows Bates to use the three voices as separate musical components. Beginning with the katydids, each insect choir swells and recedes in long, overlapping gestures. The resulting listening experience is much like walking through the woods at night, passing through groves of different insects and amphibians; as one grows louder, another fades.

- Audio 22: Hear an excerpt of *Rusty Air in Carolina* in which the electronic track features subsequent swells of katydids, crickets, and cicadas.

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[26] Bates, *Pittsburgh Symphony Orchestra video statement*. See Appendix 2.
[27] Bates, *Rusty Air in Carolina* program notes. See Appendix 3.
[28] Ibid.

The nature of insect choir sounds, to rise and fall in grand undulations, is reflected in how Bates structures the music of the first movement. In his words: "Three orchestral clouds – each inhabiting a different harmony, register, and orchestration – hover in the heavy air, and they ultimately begin to meld together when the cicadas finally start their singing."[29] The three clouds to which Bates refers are different bodies of the orchestra: the bright, metallic percussion; flutter-tongued gestures in the trumpet and flute (that sound much like cricket sounds); and, finally, a brass chorale, which is meant to represent the humidity rolling through.[30] These groups enter softly, crescendo, and then fade into the background, mirroring the motion of the ongoing prerecorded insect choirs.

In the second movement, "Katydid Country," Bates features the sample of a single katydid call. As opposed to the choirs of insects, which contribute primarily to the texture and atmosphere of the composition, the solo katydid functions as a rhythmic element. First, the solo katydid is introduced in isolation as a quick five-note rhythmic motive.

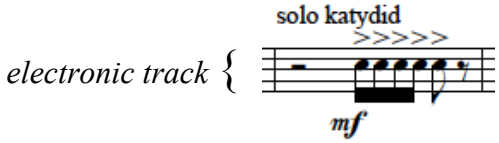


Figure 8: Mason Bates – *Rusty Air in Carolina*, measures 89 (electronic track)

- Audio 23: Hear the first appearance of the solo katydid.

Bates then uses this sample as a rhythmic cell, splicing and combining it with EDM-style sounds to create what he refers to as an "electronica-insectoid groove."[31] In the composer's earlier works, his super-percussion toolbox of electronic sounds featured only

[29] Bates, *Rusty Air in Carolina* program notes. See Appendix 3.
[30] Bates, *Pittsburgh Symphony Orchestra video statement*. See Appendix 2.
[31] Bates, *Pittsburgh Symphony Orchestra video statement*. See Appendix 2.

electro-percussion or synthesized effects; however, with *Rusty Air in Carolina*, a key component of the groove is the solo katydid, a prerecorded nature sound. This groove continues beneath the ensemble's blues-infused melody (see Figure 10). The clicks of the katydid have become a beat track over which Bates writes jazzy instrumental riffs.

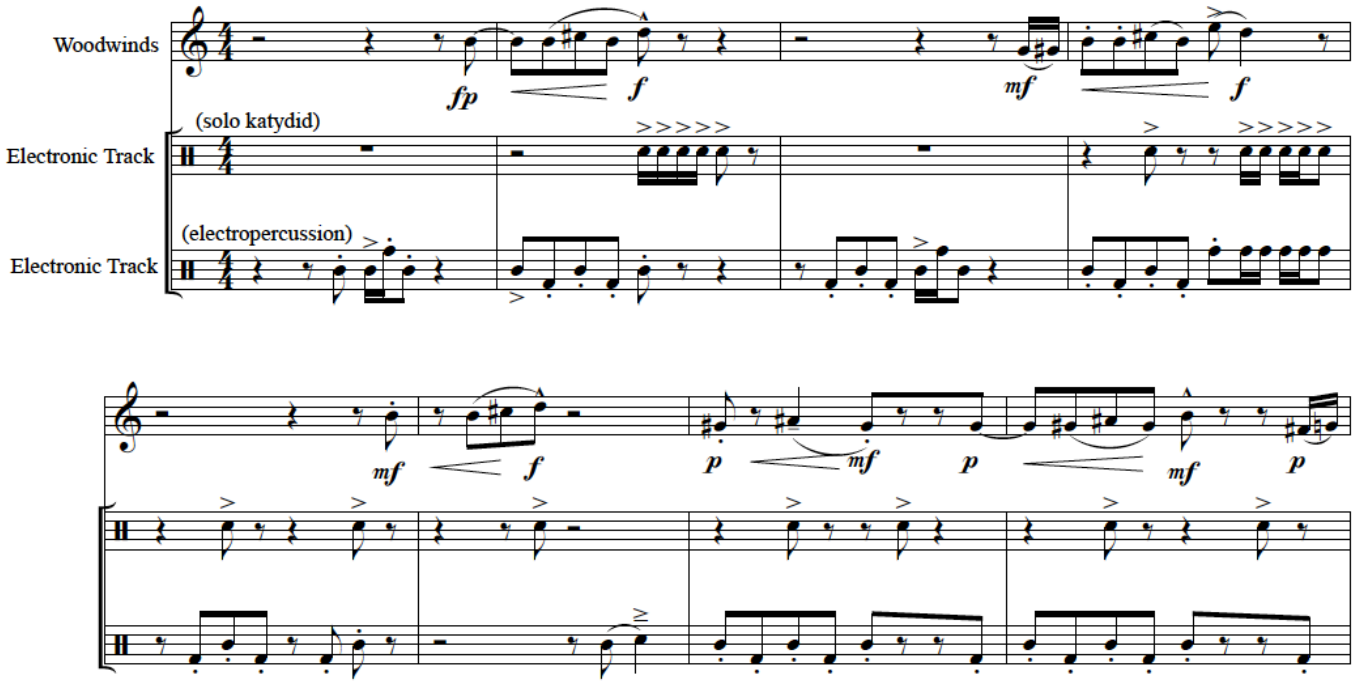


Figure 9: Mason Bates – *Rusty Air in Carolina*, measures 91-97 (woodwinds and electronic track)

- Audio 24: Hear the solo katydid function in an electronica-insectoid groove.

In addition to influencing the texture, structure, and rhythm of *Rusty Air for Carolina*, prerecorded nature sounds provide realistic effects that suggest specific natural-world settings. For example, as the purely acoustic third movement, "Southern Midnight," fades and transitions into the final movement, "Locusts singing in the Heat of Dawn," the music evokes a scene at daybreak. Two prerecorded nature sound samples are introduced: whooshing wind and rustling leaves, and a field recording of birds calling at sunrise. The rise of quiet rustlings and birdsongs at this point in the piece is reminiscent of how Respighi uses the nightingale recording in *Pini di Roma*. In both

cases, the gentle tweeting of prerecorded birds is used to bridge one movement or scene to the next. Bates describes the opening of "Locusts Singing in the Heat of Dawn":

> At the close of the lyrical [third movement], we hover in that strange space between night and day, when only the singing of the first bird alerts us to the approaching dawn. But it is a hot, Southern dawn, both sparkling and heavy, with the air made rusty again by the buzzing cicadas (popularly called locusts). The bluesy tune begins to creep back into the middle register, while above and below figuration buzzes about in different tonalities.[32]

- Audio 25: Hear the "pre-dawn rustle" and "birds calling for sunrise" enter at the end of the third movement, as described above by the composer.

Throughout *Rusty Air in Carolina*, Bates uses varying degrees of electronic processing to integrate and modify the prerecorded nature sound samples. The insect choirs in the first movement are minimally processed, only enough to control their relative volumes as each swells and recedes. Similarly, the prerecorded rustling wind and singing birds of the fourth movement do not sound overtly processed or enhanced. The field-recording quality of each sample is maintained. In both cases, Bates aims to create a naturalistic atmosphere that invites listeners into the world of a Southern summer night.

In contrast to these naturalistic samples, the solo katydid of "Katydid Country" is highly edited and computerized by the composer (see Figure 10 and Audio 24). It is sampled, spliced, and equalized alongside synthesized EDM sounds from Bates' electronic arsenal. In context, the solo katydid functions much like an electro-snare or electro-cymbal from his super-percussion toolbox. It is in this audibly-processed aesthetic that Bates chooses to end *Rusty Air in Carolina*. At the end of the fourth

[32] Bates, *Rusty Air in Carolina* program notes. See Appendix 3.

movement, after the work's overall dawn-until-dusk trajectory has run its course, Bates closes the piece with a final swell of "processed katydids."[33]

- Audio 26: Hear the "processed katydid."

This final katydid sample is overtly computerized, edited to move back and forth in stereo between the left and right stage speakers while fading to silence. Rather than end *Rusty Air in Carolina* with a final swell of the same realistic katydid choir that opens the piece, Bates instead draws the audience's attention to the computerized and processed aspect of the music with this highly-modified sound sample.

[33] Bates includes the term "processed katydids" in the *Rusty Air in Carolina* score (measure 275) to distinguish this sample from previous katydid sounds.

# Part 5: CONCLUSIONS

## A Comparative Discussion of Alex Shapiro & Mason Bates

The purpose of this project was to determine how modern composers utilize field recordings in innovative ways and how nature-sound samples are now affecting musical elements beyond the general atmosphere, including the melody, harmony, rhythm, and texture. Parts 3 and 4 examined how two contemporary composers employ prerecorded nature sounds in new and evocative ways. One work by each composer was observed in detail: Alex Shapiro's *Beneath* and Mason Bates' *Rusty Air in Carolina*.

Shapiro and Bates share many similar musical experiences. The composers were both students of Juilliard professor John Corigliano, and both began their compositional careers after relocating from New York to California. Additionally, they each recount experiences from their lives when music and the natural world intersected. Bates recalls how the nature sounds of summer nights at Brevard Music Institute blended with live musical performances happening onstage. His memory of this nature-music confluence is the impetus for *Rusty Air in Carolina*. For Shapiro, summers spent studying at the Aspen Music Festival proved to be a transformative combination of classical masterworks, jazz performances, electronic music studies, and a beautifully rural setting. Now a resident of Washington State's San Juan Island, many of her works are closely tied to the surrounding natural environment. *Beneath* is a prime example, written to recreate the underwater world just beneath the waves outside Shapiro's house.

In both *Beneath* and *Rusty Air in Carolina*, the composers selected authentic field recordings to use as sound samples. These prerecorded nature sounds were initially edited only for improved clarity, maintaining their natural qualities. Some samples were

used simply as atmospheric effects, including the underwater earthquake and whale blows in *Beneath,* and the birdcalls and wind rustlings in *Rusty Air in Carolina*. In these cases, the composers employed prerecorded nature sounds just as Respighi used his nightingale recording: to provide specificity in the creation of a natural-world setting without greatly affecting the melodic, harmonic, or rhythmic content.

As discussed in Part 3, the primary sound sample used by Shapiro is the song of a humpback whale. This prerecorded nature sound serves as the main theme for *Beneath*, and the composer derives much of the work's melodic material from its pitch and intervallic content. The same whale song also guides the harmonic and rhythmic elements of the piece. Many examples were described in which Shapiro's instrumental musical gestures are inspired by or directly generated from this prerecorded nature sound.

As discussed in Part 4, the primary sound samples used by Bates in *Rusty Air in Carolina* are field recordings of katydids, crickets, and cicadas. He first uses these insect sounds in large choirs, where they serve as textural elements that swell and recede in overlapping gestures. This natural undulation of the prerecorded insects also informs the structure of the first movement, in which the orchestra is scored in three clouds of sounds that rise and fall in long waves.[34] In the second movement, Bates' use of a single katydid recording generates much of the rhythmic content. The short sound sample becomes an important rhythmic cell in the underlying groove pattern.

When composing *Beneath* and *Rusty Air in Carolina*, each composer integrated the use of prerecorded nature sounds into their own unique compositional style and process. For example, Mason Bates sampled, spliced, and equalized a solo katydid recording so that it might be linked with synthesized EDM sounds from his electronic

[34] Bates, *Pittsburgh Symphony Orchestra video statement*. See Appendix 2.

arsenal; this katydid was blended with the electro-percussion sounds that Bates developed during his career as a composer and DJ. The resulting electronica-insectoid groove displays Bates' characteristic application of EDM styles.

Similarly, Shapiro created meters, harmonies, and countermelodies around the whale song recording in the same way she would compose with a melody of her own creation. Like Bates, she used synthesizers to create her own electronic sounds, such as the underwater floaty-metal effects. However, while it is a distinctive aspect of Bates' style to use electronic sounds that are meant to sound processed, Shapiro aims for a more seamless blending of all electronic and acoustic elements. She describes the ideal relationship between these sounds:

> You just can't tell where the real sounds (the [wind ensemble]) and the electronic track begin and end. And with the track, you can't tell where the whale recording and the synthesized sounds begin and end. That's my goal in all of my electroacoustic pieces, that you can't tell where one ends and the other begins… The track is just an extension, in this case, of the band. It's an equal section - an additional section - and an equal member, sonically and volume-wise, to the ensemble.[35]

The long and rich history of pastoral music, in which outdoor scenes are depicted and nature sounds are imitated, continues to evolve. With composers such as Shapiro and Bates, prerecorded nature sounds now play an important role in bringing natural-world atmospheres to the concert hall. Since composing *Beneath*, Alex Shapiro has created many such works, including *Liquid Compass* (2014) and *Even Deeper* (2014). Mason Bates has also returned to natural-world settings and environmental ideas in his most recent pieces, which use electronica and prerecorded nature sounds in varying degrees: *Liquid Interface* (2007), *Desert Transport* (2010), and *Alternative Energy* (2011).

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[35] Higgins, *Interview with Alex Shapiro*. See Appendix 1.

## A Look to the Future

The world is facing many important environmental issues, from climate change and overpopulation to water pollution and resource depletion.[36] As concerns about man's relationship to the natural world become more crucial, artists will engage with these issues with their paintings, plays, sculptures, buildings, novels, and compositions. In regard to musical endeavors, audio and recording technology now enable composers to create melodies, rhythms, harmonies, and textures that are influenced by and generated from field recording samples in more diverse ways than ever before. Musicians inspired by nature and empowered with modern technology will continue to find new ways to incorporate the natural world into their compositions.

[36] "Fifteen Current Environmental Problems," Conserve Energy Future website, accessed September 1, 2016.

## RECITAL PROGRAM & RATIONALE

The concert portion opens with John Coriliano's *Antiphon*, an antiphonal work for two brass quintets. The antiphonal aspect of *Antiphon* provides an acoustic introduction to the spatial stereo-sound quality of the two electroacoustic works, *Beneath* and *Rusty Air in Carolina*, both of which utilize left/right speaker amplification. *Antiphon* also connects the two central works since both Bates and Shapiro studied composition with Corigliano at the Juilliard School. The program concludes with the third and fourth movements of Ottorino Respighi's *Pini di Roma*, which feature the original innovative birdsong recording and provide a climactic concert finale.

Pre-Concert Lecture by the Conductor, 20:00

*Antiphon* (1994), 4:30 — John Corigliano (1938-)
Arranged by Jack Hyatt

*Beneath,* from *Immersion* (2010), 12:00 — Alex Shapiro (1962-)
Denis Diblasio*, bass flute*
Electronic track created by Alex Shapiro

*BRIEF PAUSE*

*Rusty Air in Carolina* (2006/2007), 14:30 — Mason Bates (1977-)
I. Nan's Porch
II. Katydid Country
III. Southern Midnight
IV. Locusts Singing in the Heat of Dawn

*Pini di Roma* (1924), 14:00 — O. Respighi (1879-1936)
*I pini del Gianicolo:* Lento — Arranged by Y. Kimura
*I pini della Via Appia:* Tempo di marcia

*Scheduled to be performed at 8:00pm on December 8, 2016, by the Rowan University Wind Ensemble in Pfleeger Concert Hall (Glassboro, NJ)*

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# APPENDIX

## 1. Alex Shapiro Interview: Full Text

The interview was conducted on Sunday, August 28, 2016, by phone. Alex Shapiro was speaking from her home in Friday Harbor, Washington, and Joseph Higgins was speaking from his home in Collingswood, New Jersey. [*Joseph Higgins* ("H"); *Alex Shapiro* ("S")]

…

H: Are whale songs or bird sounds or nature sounds in general… Are these something that you've always found intriguing, or when you were writing BELOW, did that bring you to those sounds?

S: I probably have always found it intriguing, but I'd say that BELOW was the first time that I really used that kind of a concrete sample. I had been very unexpectedly just trolling around the Internet listening to whale sounds. I had come across the NOA site and they had all kinds of sounds, not just whale sounds, but underwater volcanoes (which are also in that track), and all sorts of things, and I was just fascinated. And they're all public domain, and I double-checked with that, as well. And I just thought, you know, this is so beautiful. And I just came across that one whale song that ended up in BELOW, and now BENEATH as a key theme, and when I put it on and listened to it, I just went straight to the piano and started playing along with it. It was completely tempered. It was a whale-tempered piece, as I like to say. (*Laughs*)

H: (*Laughs*) Right, I read that phrase you wrote.

S: I didn't have to do any phrase correction! And it was amazing, and I started harmonizing with it, and I realized: that's it. That's what I want to do. As Peter [Sheridan, contra bass flutist for whom BELOW was composed,] once said, it was an amazing duet partner that he had, when he was playing the contrabass flute and he had this amazing duet partner in this whale. And so that was really the first time that I had really, solidly started a piece by using, by knowing I wanted to use that kind of material.

H: I read, I believe it was in your WASBE article, you were writing about how you compose vertically…

S: Mmhmm.

H: And I was wondering if there was any difference when you have a found object like that, that is this horizontal fixed thing? If that was different than your normal process, or if that just worked organically with how you're writing?

S: Yeah, uh, that's a good question, and it was actually the same vertical process even though it was a horizontal line, much the same way… Are you a composer, as well?

H: Yes, but…

S: Don't say "but!"

H: (*Laughs*) Well, that would be the fourth or fifth thing down my list. I don't have any pieces to prove it.

S: Well, that doesn't mean you aren't a composer. I often feel that most people who are real musicians could be composers, and often are. But very much the way that you'll hear a phrase or a thematic moment that's linear in your head, and you

write that down, and then of course start working vertically and creating the accompanying harmonies and textures that go with it. So the whale song was basically the same thing. It was a short enough song, and I did cut it up. I used the whole thing, and then I used motives from it throughout the track. So, that was no different that working with an oboe line or with a French horn line. So it was still vertical in that I pretty much always write a few measures horizontally, and then I'm fleshing out vertically what I'm hearing along with it. So, the process is the same.

H: Yeah, that makes sense. I assumed that even when you're writing vertically, there has to be some horizontal thought, at least through a melody.

S: Right, of course, it has to be both directions at once. But sometimes people think, and maybe in my case it's erroneous, but sometimes they think, "Oh, you just write the whole melody first, then you go back and line it up with stuff and create the counterpoint and harmonies." And I never work that way. I don't know a lot of composers who do. I think it's always done sort of all at one time. You're hearing the whole thing unfold. And you go back, you know? You're writing a sketch and then you go back and flesh things out. Often what I do is I tend to be so excited about what I'm writing that my first pass on the thematic material will have too much stuff in it. Which is fine! Then I'll go back and thin it out, and then bring back all of that stuff maybe toward the end. You get so excited about the possibilities that… (*shouts*) You just blurt it all out. And then you listen to it and you think: wait a minute, I've got way too much stuff in here! But that's the fun part, when you're thrilled about something, you can't wait to get it all on paper.

And that's also a really great thing, I have to say, about working digitally and working on computers as opposed to, let's say, old-fashioned pencil and paper, is that it makes it easy when you have… Let's say, if I've over-orchestrated something, but I know I'm gonna want to get to that place in four minutes, or something. I can grab everything I've done and copy and paste it a mythical hundred measures later or whatever I want. You just stow it away, and then I can spin out like thinning an apple tree or something. It's a nice way of storing away one's musical nuts.

H: That's great. It's like brainstorming in form. With this specific whale song sample, a technical question: so, you have one whale song sample that you present in full, which is that first theme statement…

S: Right.

H: And then everything else we hear from the whale is something that you processed from that?

S: Pretty much yes, exactly. I think everything's in that opening theme. And sometimes you'll hear throughout the piece that I'm using aspects of that motive, sometimes the whole thing comes back and other times just parts of it.

H: I had read that humpback whales sing the same song over and over, so I was curious if you had used different recordings of versions of the same whale's songs, or if this was all worked out from the same recording.

S: Yes, it's all the same one, and it's a male, I believe. I'm told that it's the males who do that particularly beautiful, to our human ears, beautiful song. There are a lot of whale experts here on San Juan Island. We're in a whale-intensive area. We

have humpbacks here, and most of all, we have orca pods, the killer whales. Literally, as I'm writing, the orcas go almost every day in the summertime. And it's quite thrilling, it's quite inspiring and beautiful to watch them. You'll see them jumping up in front of me, lulling around and fishing, and they're just a few yards off the shoreline where I am…

H: Wow.

S: It's pretty amazing. And the humpbacks, too, sometimes they come very close. And they're huge. And it really gets your attention, no matter how many times you see them, you never stop to be in awe. And I never, ever take it for granted. There's never a time that one of these creatures go by that I don't stop what I'm doing and just stare out the window or pick up my camera and take pictures.

H: Um, the meter of the piece, this is something that I guess you constructed around the found object recording? You chose a tempo that worked with what you heard?

S: Yep, the tempo. And the way I work with meter and my use of mixed meters is: I hear the music, and I'll often notate it in abstract ways, without using bar lines. And then when it comes time to actually notate it so that other human beings can actually play it and know what chaos was in my head, right… At that point I just decide where natural downbeats are, where obvious downbeats are, and so that determines what the meters are going to be. And what I did eventually is, and you'll appreciate this as a conductor, but what I did in BENEATH is that (and I don't do in most of my pieces, but I certainly did it there): I used what is called a variable click, as opposed to a click that is always constant. Then I matched the

click to the ritardandos and accelerandi, and that's called a variable click. It gives more space and room for the conductor.

H: Yes, I noticed listening to the click track that it feels very free and natural coming in and out of each phrase.

S: Good, and you can still add your own rubato to it. You can always slow down at some place and make the time up shortly after somewhere else.

H: Some give and take.

S: Yeah, there's give and take. But in general, it is challenging that you do ultimately need to be in sync with the track for the most part for the harmonies to all work out, so that definitely is a taskmaster for any conductor.

…

H: Speaking of things that are outside the box, at which point did you decide to put the improvised solos in this piece?

S: Pretty early on. That was sort of my nod to… I always try to do something that is educationally enriching. I always think from the standpoint of someone younger. What opportunities can I give them to explore things that might not always be on their docket in other pieces? And one of the first things I noticed… Of course, I deal with this all the time in professional concert music, is that too many players, and this is from the time that they're young, they're taught somehow to fear improvisation and to only play the notes on the page and to not trust their own instincts, particularly classical classical players. This is just something that's too pervasive. And it's particularly the case for people who don't play particular jazz instruments. An oboist gets less opportunity to break out on a theme than a sax

player does. So I decided when I came up with that groove, I thought… And I do write, and I in fact I came up with that *ossia*, in case there's anyone who's too terrified to come up with something themselves. There is an alternative there! But I obviously really stress and encourage that people really should improvise. And it doesn't have to be the four more traditional improv instruments that I've included in the score. The band director can choose whoever the strongest or most interested people are in the band.

…

H: What is the source of the vocal sounds that happen for a few measures?

S: Oh! That's Peter, Peter's vocal sounds when we went into the studio. We recorded in Los Angeles, and, uh, I forget what year it would have been. I want to say 2008, but I can look it up. Anyway, we did the recording session, and we came to the improv section. I said to Peter… Peter is a fantastic player, and he's free, not always in the groove, per se, but he was doing fantastic sounds. So what I did as the producer of the session is I said: listen, just rock out, and I can do whatever after the fact. Just give me wonderful stuff. Just knock yourself out. Don't worry about staying with the beat and I'll work on it in my studio. And that's exactly what I did. So when I was doing the mix between the flute and the track, I was able to take the best parts of his sound and make it work for the album, for the mix with the contrabass flute and track version. Then, when it came time for me to create the track, and use the track for the band version of it, I decided to use a little bit of Peter's voice, especially on those… (*flute downward*

*gliss sound*) …effects. I just made him a part of the track. (*Laughs*) So he lives on!

H: Yes, he's immortalized in the piece.

S: Immortalized! He's a killer player. He's the king of the low flute world. He's done more to promote those, and he's a wonderful guy and a wonderful musician. We had a lot of fun in that session. When he just started to do all of those breath sounds, they really sound like whale blows. They sound so much like whale blows, and I listen to whale blows in real life every day. And it sounded so much like real whale blows that, again, I keep those in there, and people think that they're whale sounds.

H: Yeah, they're definitely a part of the same sound world.

S: You just can't tell where the real sounds, the flute track, and the electronic track begin and end. And that's my goal pretty much in all my electroacoustic pieces, that you can't tell where one ends and the other begins. And I always hope that the volume is identical. The track is just an extension, in this case, of the band. It's an equal section, an additional section and an equal member, sonically and volume-wise, to the band.

H: In researching this project, I'm finding that using the recordings of the natural world, in this case of the whales… It's such an immediate way to transport listeners in creating a… Obviously, that happens with pure instrumental music, too, but this is just so immediate. And then when it's such a cohesive part of the piece, blending organically with the other sections of the ensemble, you're just there as a listener. In this case, you're underwater. Or in the other piece, you're

surrounded my insects on a hot summer night. And I love being able to do things like with music, but this technological advancement of being able to use nature sounds in a way that is so… I can't think of a better word right now that "organic," but that's so connected to them. That is very interesting, and a very unique listening experience.

S: And a way to kind of promote environmental awareness in a subtle way, to bring people into an environment that is my everyday environment out here in relative wilderness, uh, to be able to share that with people just through pieces like this, it's incredibly special to be able to… For someone in Ohio to feel like they're swimming with the whales, or with the crickets or something. It's so beautiful.

H: Yes, one topic I'm trying to explore with my students through this is the inherent contradiction between modern technology and the natural world, that those spheres that seem very contradictory can actually interact in very interesting ways. And you're a prime example, with where you live and your art. That is really alive, the interaction between those two things. You have an active web presence, and all those things.

S: Exactly. If it weren't for the technology, I wouldn't be able to reach all these people with the nature, so that's pretty cool.

H: Right. I find that very intriguing. It seems like they should be contradictory, but you're right. There's no way a concert hall audience could experience the natural world as they can when technology is used.

S: And it can be contradictory. It can be both. The way the technology and nature can be at odds with each other… You see this all the time, you see people with

their faces in their phones as the walk with the natural world all around them. And I'll tell you where I just experienced this. It was kind of depressing.

…

S: I was really dismayed to see so many tourists just holding their phones and their selfie sticks, just staring at their screens, as opposed to looking up, and as opposed to taking in this unbelievable expanse of otherworldliness around us. They were not having the experience of being in Yellowstone. They were having the experience of looking at their phone in Yellowstone, and being unaware of their environment! To the point where so many people, despite the really big warning signs saying this will kill you, you could walk off the boardwalk and die, and people do die. And yet people walk off the boardwalk. They live in this world where they think everything is protected. They can just see it through a screen like a videogame. It's not real. They're gonna be fine. So they don't understand reality anymore, and they do incredibly stupid things.

H: It's very strange. My wife and I had a very similar experience and conversation recently at Niagara Falls. Standing on the precipice of this huge wonder of the world, or standing on the boat. It was remarkable how many people were on their phones the whole time, taking videos of the falls. I was trying to imagine what the experience will be like later watching this little video of the falls, when the sound and the rumble and feeling of being at the base of these falls, which is so overwhelming, when all of that is lost and you have only your phone video. All of that is there if you're available to experience it and not trying to record it.

S: They're not interested in it. They're not plugged in. They'd rather have the antiseptic experience, apparently. So that's an example where people are using technology and not paying attention in nature. But the good news is, there are then people like you and me who use technology to connect people to nature and to connect ourselves to it. Like many things, it's got the good side and the bad side, and it's just how you choose to use it. I'm never going to be anti-technology, but I'm always going to be skeptical of the way we use new tools. What I keep seeing is that all new tools, including nuclear energy, can be used for great things and can be used for evil. We've seen both.

H: We debate many related topics in education, also. How can technology enhance what we're doing, and when might technology get in the way of a student reaching their own creative potential? I think it's an important conversation. A lot of my colleagues are anti-technology in the music school, or just uninterested, and I'm trying to be a voice of: Let's not shun it, but let it be a force of good.

S: That's right. Show them how to be creative with it. You can be incredibly creative with it, but you can also be lazy, since it does so much for you, or can do so much for you. It's just like YouTube. This is the most popular way for people to receive music. Which is sad because it means that all this time we're spending mixing and editing is going out the window because people are listening to compressed files on ear buds. But will listening on YouTube ever supplant live music, a concert that hits you in the sternum for real if you're at a live concert? No! And yet there are a lot of people who don't get themselves to live concerts enough because they think they have everything they need at their fingertips, and that's transmuting the

experience of music to them as a very two-dimensional kind of thing. As opposed to what it really can be when we know it can be like to be completely bowled over by the sound waves, and they're missing that completely, missing the overtones. And they're missing all the things that compression weeds out, takes away.

H: Right.

…

H: Well, thank you so much for sharing all of this.

S: Oh, of course, thank you. You're so great, and I really appreciate your enthusiasm about all of this. I feel also very fortunate that you're such a hero for our field.

H: Thanks, and I can't wait for the students to meet you via video.

S: It will be great fun, it'll be wonderful. Great, and if more questions arise from your article, don't hesitate to contact me. Good luck with all of it. With the dissertation or whatever it is.

H: Thanks again.

**2. Mason Bates Video Statement: Full Text**

The video statement was recorded on September 19, 2014. Mason Bates was speaking at the Pittsburgh Symphony Orchestra in Pittsburgh, Pennsylvania.

…

Hi, I'm composer Mason Bates, and I'm honored to be returning to the Pittsburg Symphony this season as the Composer of the Year. Several of my pieces will be played, and the first piece is RUSTY AIR IN CAROLINA, which is a very meaningful piece for me. Not only is it an early piece of mine, but it also harks back to my life in the South. I grew up in Virginia and spent a lot of time in the Carolinas. This piece uses electronics to bring the sounds of nature into the concert hall, kind of turning the idea of a pastoral piece on its head a little bit. In this case, um, unlike say the Beethoven SIXTH SYMPHONY or the PINES OF ROME, the natural sounds are primarily insects and not birds. And you'll hear at the very beginning of the piece field recordings of katydids, crickets, and, um, cicadas, actually, integrating with this kind of fluorescent orchestral sonorities.

…

There really are three different kinds of clouds in the orchestra. There's this kind of, um, very bright, metallic percussion up top; there are these fluttertongue trumpet and flute sonorities in the middle that hark to cricket sounds; and then there's the humidity, which is this brass chorale that rolls through. Um, the cicada swells are what kind of propel this piece to a huge climax at the end of the first movement, and it leads without pause into the second movement, called "Katydid Country," which takes the sound of one katydid and turns it in to a kind of electronica-insectoid groove, over which the orchestra has a

very blues-infused theme. This then goes into “Southern Midnight” (The piece has a dusk-‘til-dawn trajectory.), and the orchestra plays alone without any electronic sounds, adding a melody that ties those three clouds of textures together. And at the very end of the piece, when we get to dawn, we hear, um, a combination of the bright sounds that you associate with dawn, such as, you know, metallic percussion and a lot of hazy strings, and also the humidity you get in the South, even in the morning, even at 6:00 a.m. The piece ends with the bluesy tune in the middle, finally finishing with the katydids kind of coming back through a kind of electronica process.

…

So, it’s a great honor to bring this piece here, and I do hope that you can make it to the concert and check it out.

**3. Mason Bates – *Rusty Air in Carolina* (2006) Program Notes: Full Text**

To begin with: I'm a Virginian. Perhaps to anyone in the Carolinas, the task of conjuring up the rich summer noise of the South and pairing it with orchestral textures should be a job for an authentic Carolinian. But the memories are so vivid from that summer in Brevard, North Carolina - where I spent several months at the music festival there as a teenager - that some sort of hommage seemed necessary, so state pride will have to take a back seat.

Not only did the thick buzzing of cicadas and katydids always accompany the concerts there, but sometimes it was the music itself: on more than one occasion, I remember sitting on the porch of 100-year old Nan Burt and listening to the sounds of summer while she told stories from her long life. This venerable lady was introduced to me by the assistant conductor at the festival, Robert Moody - who, a mere ten years older than me, would become a dear friend and collaborator. When Bob took the helm at The Winston-Salem Symphony recently and asked if I might write a new piece for him, perhaps his own return to the Carolinas inspired Rusty Air. Though he travels the world, he's a Greenville boy.

The work uses electronics to bring the white noise of the Southern summer into the concert hall, pairing these sounds with fluorescent orchestra textures that float gently by. "Nan's Porch" begins at dusk, while the katydids make their chatter. Three orchestral clouds - each inhabiting a different harmony, register, and orchestration - hover in the heavy air, and they ultimately begin to meld together when the cicadas start their singing. The climax of this movement sends us into 'Katydid Country,' when the ambience of the first movement evolves into a bluesy, rhythmic tune. The clicks of the katydids become a

beat track over which the orchestra, in a smaller, more chamber setting, riffs on a simple tune inspired by old-time blues. It is said that katydids are loudest at midnight, and as the work reaches its central point, the rhythmic katydid music at last finds its melody.

Soaring in the strings over the last breaths of the blues tune, this long-lined melody moves us into "Southern Midnight." The three distinct textures from the opening return, but now each is brought to life by a phrase of the melody. At the close of this lyrical section, we hover in that strange space between night and day, when only the singing of the first bird alerts us to the approaching dawn. But it is a hot, Southern dawn, both sparkling and heavy, with the air made rusty again by the buzzing cicadas (popularly called locusts). The bluesy tune begins to creep back into the middle register, while above and below figuration buzzes about in different tonalities.