

Spring 2014

The Universal Roar: Walt Whitman, John Muir, and the Song of the Cosmos

Jason Balseraït

Rollins College, jasonbalseraït@gmail.com

Follow this and additional works at: <http://scholarship.rollins.edu/mls>



Part of the [American Studies Commons](#)

Recommended Citation

Balseraït, Jason, "The Universal Roar: Walt Whitman, John Muir, and the Song of the Cosmos" (2014). *Master of Liberal Studies Theses*.
54.

<http://scholarship.rollins.edu/mls/54>

This Open Access is brought to you for free and open access by Rollins Scholarship Online. It has been accepted for inclusion in Master of Liberal Studies Theses by an authorized administrator of Rollins Scholarship Online. For more information, please contact rwalton@rollins.edu.

**The Universal Roar: Walt Whitman, John Muir,
and the Song of the Cosmos**

*A Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Liberal Studies*

by

Jason A. Balsera

May, 2014

*Mentor: Dr. Steve Phelan
Reader: Dr. Joseph V. Siry*

*Rollins College
Hamilton Holt School
Master of Liberal Studies Program*

Winter Park, Florida

Acknowledgements

There are a number of people who I would like to thank for making this dream possible.

Steve Phelan, thank you for setting me on this path of self-discovery. Your infectious love for wild things and Whitman has changed my life.

Joe Siry, thank you for support and invaluable guidance throughout this entire process.

Melissa, my wife, thank you for your endless love and understanding.

I cannot forget my two furry children, Willis and Aida Mae. Thanks for always making me smile.

Table of Contents

Introduction	1
I. Recognizing a Wild Orchestra.....	9
II. The Wild Trumpeter: Walt Whitman’s Interpretation of the Song of the Cosmos.....	30
III. An Influential Harmony: Burroughs, Whitman, and Muir.....	52
IV. A Temple of Music: John Muir’s Interpretation of the Universal Song.....	57
Conclusions: The Loss of a Song.....	78
Works Consulted.....	83

The poetry of earth is never dead:

When all the birds are faint with the hot sun,

And hide in cooling trees, a voice will run

From hedge to hedge about the new-mown mead;

That is the Grasshopper's—he takes the lead

In summer luxury,—he has never done

With his delights; for when tired out with fun

He rests at ease beneath some pleasant weed.

The poetry of earth is ceasing never:

On a lone winter evening, when the frost

Has wrought a silence, from the stove there shrills

The Cricket's song, in warmth increasing ever,

And seems to one in drowsiness half lost,

The Grasshopper's among some grassy hills. (31)

--John Keats, "On the Grasshopper and the Cricket" (1884)

Introduction

Music ultimately touches all individuals. Whether attending a concert, blaring a song in a car, or letting a tune silently float through one's head, music inspires individuals on a personalized basis. The recognition of music can serve as an outlet, of sorts, shedding away any falsehoods or misgivings from one's life. As music functions as a means of reconnection, it also remains highly interpretative; a specific memory, time, belief, or place from one's life becomes entwined with the immediate place of the recognition. Therefore, an individual's sense of place commonly applies itself to the recognition of a certain sound or song. However, the concept of music finds itself not solely limited to human interpretation, as harmonies are sewn into the cosmos. From vibrational patterns produced by tiny termites to waterfalls streaming down a mountainside, sounds and rhythms guide all natural objects. In essence, the patterns of the earth, its inhabitants, and the cosmos form a universal song. This grand melody functions as a synchronous rhythm similar to the fundamentals of music, reverberating throughout all pieces of the earth, living and non-living.

The idea of an ancient harmony uniting the universe has been theorized since the ancient Pythagoreans got the idea of *musica universalis*, often translated as The Music of the Spheres (470-39 BCE). Anthony Grafton, a Princeton historian, notes that advocates of the Music of the Spheres "believed that large bodies must inevitably produce sound while moving and, furthermore, that the speeds of the motions of the heavenly bodies and their distances are in the same mathematical relationships as concordant musical sounds." Notably, Johannes Kepler (1571-1630), a German mathematician and astronomer, was also a supporter of the Pythagoreans' theory, as he used the Harmony of the Spheres to

develop his infamous laws of planetary motion. Grafton adds that “Kepler’s harmony describes the fundamental mathematical reality of the universe, divinely ordained. The mathematical harmony present in movement and arrangement of the heavenly bodies is analogous to that of heard music. Kepler described planetary motions using musical notation.” Ultimately, the Pythagoreans and Kepler came to these assumptions purely through observation, utilizing astronomy and mathematics, as they did not witness any sound.

The idea of unifying harmonies carried over to the nineteenth century and became exemplified by various aspects of the transcendental movement in the United States. The transcendental movement was especially influential in spreading Asian philosophy into American culture. A sense of oneness with nature was the essence of the movement, for through nature transcendentalists believed that an individual could gain true knowledge.¹ Consequently, self-awareness and the designation of place could therefore become a reality simply by being attuned to rhythms of natural areas. Such Romantic viewpoints were seen as social reform from some of the more materialistic beliefs being spread into American society in the early 1800’s. Individuals such as Henry David Thoreau paved the way for the transcendentalist movement, as he not only identified with nature, but applied a deeply spiritual understanding of the natural world. In his seminal work *Walden or Life in the Woods* (1854), Thoreau reflects on his experiences in his version of the wilderness, Walden Pond. For instance, he highlights spirituality in a deep-rooted sense:

¹ Ralph Waldo Emerson’s essay “Nature” is considered one of the fundamental documents of transcendentalism, establishing the belief system at its very core. When reflecting on his time in the woods, Emerson states: “I become a transparent eye-ball; I am nothing; I see all; the currents of the Universal Being circulate through me; I am part or particle of God” (374). As the Pythagoreans and Kepler articulate the cosmic harmonies in a scientific method, the transcendentalists, specifically Emerson, applies a very Romantic, theistic approach to such an understanding.

“Every little pine needle expanded and swelled . . . and befriended me. I was so distinctly made aware of the presence of something kindred” (86). Furthermore, every morning, Thoreau “got up early and bathed in the pond; [it] was a religious exercise.” He even notes “there was something cosmical about it” (58). Ultimately, Thoreau emphasizes the fundamental desire of transcendentalists to gain a better understanding of one’s self through nature; and through his time at Walden Pond, Thoreau consciously regains a feeling of spiritual self-awareness as he feels nature’s sensorium all around him.

Most importantly, however, Thoreau not only acknowledges a sense of universality within the woods, he recognizes a song: “All sound heard at the greatest possible distance produces one and the same effect, a vibration of the universal lyre, just as the intervening atmosphere makes a distant ridge of earth interesting to our eyes by the azure tint it imparts to it” (91). Naturally, Thoreau applies a profoundly Romantic connotation to the sounds of his woods, but he ultimately recognizes the very same connecting, constantly moving, harmony that Kepler had also imagined. Thoreau adds: “There came to me . . . a melody which the air had strained, and which had conversed with every leaf and needle of the wood, that portion of the sound which the elements had taken up and modulated and echoed from vale to vale” (91). The concepts presented in Thoreau’s *Walden* resonate throughout the works of many transcendentalists, particularly Walt Whitman and John Muir, as they reflect on the world around them.

Walt Whitman began to circulate many of his poems in the 1850’s, and one of his most influential works *Leaves of Grass* was published in 1855. Initially, *Leaves of Grass* was ignored by masses; however, Whitman’s infusion of music into his poems helped begin a new era in poetry. Throughout Whitman’s poetry, he recognizes rhythms and

ultimately a sense of balance between opposing forces, especially the natural and urban worlds. Whitman, although devoid of any specific religious association, finds spiritual fulfillment within the universal song and unity with all of nature.

Likewise, John Muir, founder of the Sierra Club, experiences spiritual enlightenment through a theistic construal of the universal song. When I was first introduced to the writings of Muir, I became fascinated by his infusion of musical elements with his spiritual revelations. In his essay “The Yellowstone National Park,” Muir encourages his readers to “climb the mountains and get their good tidings. Nature’s peace will flow into you as sunshine flows into trees.” As I began reading more Western wilderness writers, the notion of musical harmonies within the natural world became more and more prevalent. For instance, many writers, such as Barry Lopez, Ann Zwinger, Aldo Leopold, and N. Scott Momaday, occasionally witness a similar rhythm flowing throughout the wilderness. Although these four authors published within hundreds of years of one another, they recognize the same recurring theme: a wild unifying song.

Notably, Whitman and Muir were writing before the advent of ecology; however, they both capture the very essence of the science. Ecology, although not officially deemed a science in the United States until the 1890’s, focuses on the relationships between organisms and their environment. Similarly, Muir could be viewed as an ecological scientist; as he not only ventured into the wilderness and wrote detailed reports of his findings, but he applied an understanding of various organisms’ relationships to their corresponding environments. Whitman, however, was simply a writer who was attuned to the music, and he applied the fundamentals of such musical patterns to the construct of the cosmos. Muir and Whitman can therefore be seen as ecologists by pure

experience, for they witnessed firsthand the reciprocity of specific environments. For these same reasons, the majority of this project remains grounded in the literary expression or translation of the universal song, for Whitman and Muir recognize and combine parts of transcendentalism and musicology to establish a sense of oneness with the earth.

For many reasons, the twentieth century has discarded the romantic and transcendental approach to the universal song, but now advances in science are beginning to confirm the validity of the concepts presented in the movements. In the 1960's the science of bioacoustics began gaining momentum as a means to analyze the behavior patterns of animals and fish. Bioacoustics essentially combines biology and acoustics to gain a better understanding of organisms and their corresponding environments. For many years, bioacoustics was not taken seriously by the scientific community; however, since the 1980's the science has been utilized more frequently to determine the dynamism of a given location. Therefore, I am suggesting Muir and Whitman utilized an approach similar to bioacoustics to understand the patterns of given environments and interpret them.²

Recently, the idea of harmonies guiding life functions has taken a major turn in the field of neuroscience. Specifically, Dr. Daniel Levitin, a neuroscientist who is also an established musician, attempts to explore music and our innate responses to it. In his book *This is Your Brain on Music* (2006), Levitin defines harmony as “simply a parallel melody to the primary one (as when two singers harmonize) or it can refer to a chord

² Bioacoustics and soundscapes, being a relatively new science, I am basically doing something entirely new with this project.

progression – the clusters of notes form a context and background on which the melody rests” (18). Thus, from a neuroscientific perspective, Levitin’s ideas can be used to understand Pythagoras and Kepler’s intuitive beliefs.

Ultimately, music drives an individual, for such patterns vibrate throughout the very essence of the universe and through our consciousness and unconsciousness. Jonathan Bate, a Professor of English Literature at Oxford, emphasizes that “the sense of verse-making is language’s most direct path of return to [a sense of place], because metre itself - a quiet but persistent music, a recurring cycle, a heartbeat – is an answering to nature’s own rhythms, an echoing of the song of the earth itself” (76). Bate therefore suggests that song and the earth are entwined, for the same harmonies that guide our lives also guide the functions of the earth. Most importantly, he also draws a connection between the earth’s song and the art of verse-making, as these fundamental concepts lay the foundation for Whitman’s poetry and Muir’s lyrical prose of the wilderness. Therefore, both authors are essential in understanding how literature and advances in science begin to intersect.

The first section of my project entitled “Recognizing a Wild Orchestra” will serve two primary purposes: to introduce the concepts of bioacoustics and soundscapes and to establish the recognition of a song amongst a variety of American writers. If a song does resonate throughout the natural world, what are its instruments? As the instruments become recognized, we will then explore how they contribute to the chorus, blending musicology and ecology. Finally, how has the song been interpreted by its listeners?

Expanding on these ideas, the next section, “The Wild Trumpeter,” will explain Whitman’s account of the universal song, and how he infused it into his poetry. Since he was a child, Whitman always had an inclination towards music. How did he get his music, though? Thus, not only will this section analyze the unifying patterns in Whitman’s poetry, but it will highlight how natural and urban soundscapes left a profound impact on his childhood and young adult life.

“An Influential Harmony” focuses on John Burroughs, best known for his observations of birds and their songs in nature, and functions as a bridge between Whitman’s poetry and Muir’s spiritual interpretation of the wilderness. Just as Whitman balances the urban and natural worlds, Burroughs recognizes the very same uniting patterns in bird song from the Catskills.

As the previous sections of this project establish the patterns of the universal song, “A Temple of Music” delves into John Muir’s spiritual interpretation of the harmony. During his time in the wilderness, specifically Yosemite, Muir witnessed something more than just majestic landscapes; he drew a direct correlation to musical rhythms and found within the wild a sense of place, fulfilling his longing for spirituality. Additionally, music and Muir’s religious upbringing are inseparable, for as a child both philosophies were literally beat inside of him. Thus, just as we ventured into Whitman’s past, we will explore Muir’s childhood and young adulthood to gain a better understanding of his analysis of the song.

In the final section, we will examine the notion of disconnection from the universal song. As this essay discusses how harmonies unite all things in the earth, what

happens when the universal song becomes disrupted? Of what value is the examination of the vibrational patterns, harmonies, and songs of natural objects and creatures? Most importantly, is the universal song simply a Romantic metaphor for a collective understanding of all things, for of what value are the harmonies of the earth to a contemporary non-theist?

I. Recognizing a Wild Orchestra

Bioacoustics and Soundscapes

In order to explore the relation between poetry, verse, harmony, and natural sounds properly, we must first gain a better understanding of bioacoustics and soundscapes; for these two models are fundamental in analyzing the construction and interpretation of the natural patterns that were acknowledged by Whitman and Muir. Bioacoustics refers to the inter-disciplinary study of the interaction between the acoustic signatures of organisms (including humans) and biology, as the term soundscape, coined by composer and environmentalist R. Murray Schafer, relates to the combination of sounds in any immersive environment. Schafer founded the science of soundscapes in the 1960's when he began his research at Simon Fraser University. Since then, many biologists have utilized the concepts presented in bioacoustics and soundscapes to understand and predict the behavioral patterns of organisms.

For instance, one of the leading fish ecologists Dr. Grant Gilmore has been studying fish communities since the 1980's. He has found that "the ability to listen to fish and other marine life allows scientists to identify, record, and study underwater animals even in the absence of visual information" (434). Naturally, an individual can easily identify a chirping bird or a roaring lion, but sea life proves more problematic to identify for visuals may not be always possible. Gilmore is therefore attempting to remedy the issue utilizing bioacoustics: "Fishes produce sounds to communicate with one another while they are feeding, mating, or being aggressive and also make incidental noises

associated with feeding, swimming, and other behaviors" (433). The purpose of his research is ultimately to record sounds and identify their related behavior.

Gilmore is just one of many individuals who are recognizing acoustics as a means of studying ecology in marine habitats. In another study, Diego Tonolla analyzed five common habitat types within twelve rivers in Switzerland to determine if each habitat could be identified by sound alone. Utilizing hydrophones³, he was able to “characterize river habitat types based on acoustic signatures and to quantify the relationship between acoustic signatures” (3147). As a result of the study, Tonolla determined that “although few fish species actively use acoustic signals for communication, almost all fish species are able to detect sound and therefore may use it for positioning, navigation, refuge detection, and prey selection. Therefore, underwater sound is expected to strongly influence the ecology and behaviour of many aquatic organisms” (3146). Furthermore, *Bioacoustics – The International Journal of Animal Sounds and its Recording* (<http://www.bioacoustics.info/>) publishes many peer-reviewed research papers and reviews on sound production and communication ranging from birds to fish to invertebrates. As the journal indicates, bioacoustics may be a newer science, but it is significantly gaining traction within the realm of environmental science.

For the paper, the most important discoveries have come from Bernie Krause, a pioneer in recording the songs of the wilderness who thrives on music. Before Krause traveled the world capturing the sounds and songs of various natural environments, he was a classical musician, but then turned his guitar talents to jazz and pop. Krause even replaced Pete Seeger in The Weavers in 1963, and he was a leading contributor to

³ A hydrophone is a microphone designed to record underwater sounds.

synthesizer performances in over a hundred films. However, Krause has recently established himself as an authority in bioacoustics and soundscapes. In his book *The Great Animal Orchestra* (2012), he provides the most concrete definition of a soundscape: “It refers to all of the sound that reaches our ears in a given moment” (26). Thus, each soundscape remains distinctive to its corresponding place. To better explore the individual components in each soundscape and share his findings with the world, Krause has developed an archive of over 4,500 hours of sound on his website (<http://www.wildsanctuary.com>). Each clip or soundscape captures a specific environmental acoustic signature. Throughout his archive, he includes recordings from the redwoods in California to the wilds of Africa to tropical forests and arctic biomes. In “The Loss of Natural Soundscapes,” he writes:

For those unfamiliar with my work, I have spent more than half of my 62 years recording sounds of living organisms and natural habitats. To me, this is the most beautiful music on the planet. It is also a collective voice. Armed with various types of sound recorders, a pair of earphones and various microphones, I search out rare undisturbed sites, set up my equipment, and sit quietly and patiently for hours waiting for this symphony of the world to unfold before me, all to capture those precious moments on tape. (27)

If you listen to even one of Krause’s various recordings in his digital archive, you can eventually recognize the exchange of sound between a number of given harmonies, as we shall see in the next section. Andrea Polli, an Associate Professor of Art and Ecology, is an artist who works at the juncture of art, science and technology and supports Krause’s soundscape theory. In her essay “Soundscape, Sonification, and Sound Activism,” she

notes that “primarily, traditional music is listened to intentionally, that is, consciously in the foreground. Alternatively, some kind of soundscape is always present, and therefore, by necessity must be attended to unconsciously, in the background of listening” (260). Thus, soundscapes are not just limited to natural environments, but can be found in urban environments, such as the gnarling sounds found in industrial factories or traffic and street talk in the middle of Times Square. Essentially, whenever a distinctive combination of sounds comes together at a specific site, a soundscape is formed.

The Instruments

Just as each instrument in an orchestra produces its own distinctive acoustic signature, each element within a given soundscape contributes to the wild song. Moreover, the composition of natural soundscapes can range from terrestrial animals to roaring canyon waterfalls. Polli adds that “analogous to colors, every sound has a frequency ‘spectrum,’ which is the combination of frequencies present in the sound” (258). The frequencies, pertaining to natural soundscapes, are composed of many elements; however, Krause divides these elements into two distinct categories: biophonies and geophonies. Further, Dr. Bryan Pijanowski, a Professor of Landscape and Ecology in the Department of Forestry and Natural Resources, also recognizes the established subgroups of soundscapes and helps describe each of these categories: “‘Biophony’ [describes] the composition of sounds created by organisms and ‘geophony’ [describes] nonbiological ambient sounds of wind, rain, thunder, and so on” (204). Biophonies therefore consist of bioacoustical sounds, produced by animals such as insects, birds, whales, frogs, goats, catfish, bass, and so on. Geophonies, on the other hand, may range from wind whipping through a grassy field or the bubbling of a spring.

Notably, geophonies carry with them necessary information for survival, such as storm signals. In an interview on National Public Radio (NPR) entitled “Listening to Wild Soundscapes,” Krause adds that “biophony and geophony together make up the voice of the natural world.” Thus, the various pieces or components of biophonies and geophonies, within soundscapes, function as the instruments of the collective song.

Furthermore, in any orchestra, each instrument attempts to connect or “talk” with the other; reciprocity is essential in any successful melody. A language therefore becomes present within the melody of the song. Levitin defines melody as the “starting point for the composer to create variations on [the main theme of a musical piece], which may be used throughout the entire piece in different forms” (17). Thus, the premise of the universal song remains the same, although variations in theme may occur. Specifically, bird song and melody play a significant role in the development of nature’s song.

Recognized as the authority on birdsong, David Kroodsma has been studying birds for over thirty years.⁴ Although it is widely known that some songbirds adapt their songs through mimicry, Kroodsma suggests for many others like the phoebe their songs are innate. He cites “loons, ducks, and geese, shore birds, gulls, pigeons and doves, owls and woodpeckers – indeed all except songbirds, parrots and some hummingbirds” (43). However, many species, much like humans, learn their songs and add melody that allows for individual expression and even dialect. Kroodsma therefore proposes that song comes naturally to most birds, and they use these calls as a means of survival: to mate, feed, and migrate. On the other hand, as not all birds produce a song, they do produce various other

⁴ Notably, Kroodsma started observing bird song just a few years before Schafer established the concept of soundscapes.

sounds. During his time in Glen Canyon, Eliot Porter, an American photographer and nature writer, observes some of these qualities in his essay “The Living Canyon”:

“Though [the raven] cannot sing, he is able to produce a bell-like quality into his croak which adds a musical touch without melody” (387). Thus, the sounds of birds function as notes on the grander musical scale, as Porter recognizes the raven operating as an instrument, of sorts, within the soundscape of Glen Canyon. Interestingly, Don Stapp notes that “exactly how a bird produces its song, however, is still not entirely understood despite decades of research” (74). However, their ability to produce song is undeniable.

The instruments of a biophony essentially consist of any living terrestrial organism. For instance, Schafer, reflecting on the acoustic signature of larger creatures, asserts:

Carnivores produce the greatest range of individual sounds among animals, and many of these sounds, such as the roaring lion, the howling of wolves or the laughing of hyenas, have striking qualities that they impress themselves instantaneously on the human imagination. They present intense acoustic images. One hearing and they will never be mistaken or forgotten in a lifetime. (38)

Once while recording in the Amazon rain forest in the pitch-black dark of night, Krause came face-to-face with a jaguar. He was unable to see the beast, but he could hear its distinctive sounds playing through his equipment. Then he felt the jaguar’s breath on his face. In his other web archive (<http://www.thegreatanimalorchestra.com>) Krause shares a recording of the jaguar, literally breathing down his neck. The sounds of the jaguar’s snorts and growls instantly instill the notion of looming danger upon the listener. The

jaguar left Krause alone, but the sound of the jaguar still resonates with Krause to this day.

As larger animal sounds remain easily recognizable with even the most untrained ear, Schafer explains how smaller organisms, namely insects, contribute to a biophony:

The general range of wing frequencies in insects is between 4 and upward of 1,100 beats per second, and much of the pitched sound we hear from insects is produced from these oscillations. Another type of sound produced by some insects is that created by tapping on the ground. Such is case in several species of termites. Large numbers of termites may hammer the ground in unison, presumably as a warning device, at a rate of about ten times a second, producing a faint drumming noise. (34-35)

Schafer continues that “still other insects, such as crickets and certain ants, produce stridulating effects by drawing parts of the anatomy called scrapers across other parts called files. The result of this filing activity is a complex sound, rich in harmonics” (35). Essentially, just as humans communicate through conspecific vocalizations, other species vocalize and understand one another in their own way. In a *National Geographic* article entitled “Good Vibrations,” Susan Bates writes that “male [jumping] spiders generate their vibes by rubbing parts of their bodies together, drumming body parts against the ground, and vibrating special organs. These vibrations not only make the female more likely to mate, they also decrease the chances she will eat the suitor.” Thus, sounds and vibrations can play an equal part in defining the biophony of an environment. In *The Great Animal Orchestra* Krause plays with the variety of instrumentation:

Animals are hooting, growling, chirping, warbling, cooing. They are tweeting, clucking, humming, clicking, moaning, howling, screaming, peeping, sighing, whistling, mewling, croaking, gurgling, panting, barking, purring, squawking, buzzing, shrieking, stridulating, cawing, hissing, scratching, belching, cackling, singing melodies, stomping feet, leaping in and through the air, and beating wings – and doing it in such a way that each voice can be heard distinctively. (4)

Large or small, every living organism carries with it a unique acoustic signature, whether seemingly still as a rock or screeching into the night sky:

When viruses let go from a surface they've been attached to, they create a detectable sonic spike – a sharp, quick change in the amplitude measurable by only the most sensitive instruments. Then there are low frequency moans and clicks – far below what humans can detect unaided – of the largest living animal on the planet, the blue whale. (Krause 57)

Sounds, both vocal and corporal, therefore not only contribute towards a harmony, but a meaningful harmony that guides the life functions of the organisms. As we shall see soon, the elements or instruments of biophonies play an integral part in defining the notion of a universal song in Whitman and Muir.

Naturally, Krause takes these larger concepts one step further. During his NPR interview, he describes the crescendo, similar to what one may find on a printed sheet of music:

First you hear the insects, and they establish their acoustic territory within the frequency spectrum, and then you hear the reptiles and the amphibians. They join

the chorus, establishing other niches. And once those are set, then come the birds and finally the mammals and all of the critters together, creating not only frequency bandwidth but temporal niches as well.

He essentially reflects on the very same notion of an orchestra, utilizing every instrument, slowly building to a grand harmony. After the crescendo, the music may taper into silence, but it never ends. Moreover, in his essay “The Loss of Natural Soundscapes,” Krause states that all these components “have to learn to sing in relationship to one another, just like instruments in an orchestra” (29). He even goes so far as to refer to the harmony as “the first proto-orchestra” (“Listening to Wild Soundscapes”). Essentially, bioacoustical patterns encompass the natural soundscape; however, they are only one piece of the larger orchestra at play.

Ultimately, biophonies, produced by the biotic community, blend with geophonies, produced by the habitat, to create a harmony. Schafer captures the essence of a geophony: “A mountain stream is a chord of many notes strung out stereophonically across the path of the attentive listener. The continuous sound of water from the Swiss mountain streams can be heard miles across a silent valley” (18). As water produces a rhythmic pattern of sound, the wind also creates a unique song:

Each type of forest produces its own keynote. Evergreen forest, in its mature phase, produces darkly vaulted aisles. When the wind blows in the forests of British Columbia, there is nothing of the rattling and rustling familiar with deciduous forests; rather there is a low, breathy whistle. In a strong wind the

evergreen forest seethes and roars, for the needles twist and turn in turbine motion. (23)

Clearly, Krause interprets the sounds of living organisms as notes of an orchestra, but Schafer applies the keynotes of various landscapes to the universal song, as well. Above all, geophonies emphasize the endlessness of the universal song, for water and wind will always exist. Schafer notes that “water never dies. It lives forever reincarnated as rain, as bubbling brooks, as waterfalls and fountains, as swirling rivers and deep sulking rivers” (18). Thus, the components of geophonies, although commonly overlooked by the inattentive ear, function as a vital component to the universal song. Ultimately, natural objects, whether living or inorganic, produce a pulsation or rhythm which can be attributed to the universal song.

The Chorus and Ecology

What happens, however, when geophonies and biophonies intertwine? What can we learn from this music? Specifically, Levitin states: “The difference between music and a random or disordered set of sounds has to do with the way these fundamental attributes combine, and the relations that form between them” (17). Pijanowski adds that “the circadian pattern of singing in birds, the timing of which is largely affected by weather and climatic conditions, strongly correlates with the sunrise and sunset and becomes more pronounced with the onset of breeding and migration” (208). Therefore, both geophonies and biophonies work together, like dimensions in an orchestra with multiple parts contributing to it throughout the year.

The idea that the components of soundscapes work together plays directly into the fundamentals of ecology which, in its most elementary definition, refers to the interactions of organisms and their environment. In the first half of the twentieth century, Aldo Leopold revolutionized our understanding of ecology, as he wrote, simply and directly, about reciprocity and the connection of all things to the land through the twelve months of his Sand County farm year. Leopold was part naturalist and part scientist, for he made real connections to the land by observing it. Through his observations, he identified the wilderness as a responsive biotic community. Specifically, in Leopold's essay "Round River," he affirms that "the land is one organism. Its parts, like our own parts, compete with each other and co-operate with each other" (190). Famously, in "The Land Ethic," he defines each "individual [as] a member of a community of interdependent parts. [The individual's] instincts prompt him to compete for his place in the community, but his ethics prompt him also to co-operate (perhaps in order that there may be a place to compete for). The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land" (117). Fundamentally, ecology and harmony in soundscapes are synonymous, and such a unity preserves the instruments of the universal song. Polli illustrates Leopold's assumptions:

The organizing power of musical notation naturally conforms to the function of organizing the chaos of nature. ... By immersing him or herself with the immediate soundscape, a local awareness is developed that builds empathy for and *communion* with the inhabitants of the surrounding sphere, both human and non-human. (260-261; *emphasis added*)

Thus, seemingly chaotic at times, soundscapes carry with them a distinct harmony that propels and unites the environment. Leopold continues that “the competitions are as much part of the inner-workings as the co-operations” (190). I see a direct correlation between Leopold’s version of a healthy environment through an ecologist’s perspective and Krause’s version through a bioacoustician’s perspective. Krause, in his article “The Loss of Natural Soundscape,” states:

In healthy habitats, certain insects occupy one sonic zone of the creature "bandwidth," while birds, mammals and amphibians occupy others where there is no competition. The same type of event also generally occurs within marine environments. This system has evolved so that each voice can be heard distinctly and each creature can thrive as much through its iterations as any other aspect of its being. This biophony, or creature choir, serves as a vital gauge of a habitat's health. (28)

Krause, through his own research, applies Leopold’s observations to a sonic environment. Strikingly, Levitin adds, when referencing Darwinian theory, that “while all living things are changing in response to the world, the world is also changing in response to them” (8). Essentially, biophony, geophony, and ecology promote the same concept: one cannot exist without the other. The notion of a soundscape is therefore critical in not only understanding each given place, but through such an understanding, a sense of unity can be established with the environment.

Gilmore supplies independent corroboration of these theories in one study, “Passive Acoustics as a Monitoring Tool for Evaluating Oyster Reef Restoration.” He

hypothesized that “the individual acoustic signature of oyster reefs could be used to compare restored and natural oyster reefs. It would be expected that as time progresses, the acoustic signature of a fully restored reef will resemble that of the natural reef, representing a habitat convergence.” Therefore, Gilmore found that the healthiness of a restored oyster reef would essentially sound similar to a natural one. However, the study concluded that “natural and restored reefs’ sound spectrums do differ, and passive acoustics may be a reliable tool to assess differences between marine habitats.”

Fundamentally, ecology and harmony in soundscapes are synonymous, and such a unity preserves the instruments of the universal song. Therefore, the notion of human responsiveness to soundscapes plays an integral part to our development. Krause, during a lecture entitled “The Great Animal Orchestra,” asserts that the partitioning of the critter voices into temporal and frequency niches provides wonderful tools by which to evaluate the condition of certain biomes, for it was concentrated sound, such as these, that first inspired humans to dance and sing. His assertion that early humans responded to the harmonies of the land by dancing and singing therefore establishes the very foundation of nature as an old, almost primal, music. In the same lecture, Krause develops these thoughts, as he states that “in many wild habitats creatures vocalize in special relationships with one another – cooperative and/or competitive – much like instruments in an orchestra.” Thus not only does the song translate into distinctive natural environments, but it encourages a human unconscious response, as well. It would seem that the origins of cultured music, dance, and even poetry stem from ancient soundscapes. Levitin speculates that music preceded language in human development and states that “some of the oldest physical artifacts found in human and protohuman excavation sites

are musical instruments: bones flutes and animal skins stretched over tree stumps to make drums” (6). Hence, Krause asserts that “bonded closely to the natural world, early humans would have first imitated the voices of these natural soundscapes (*The Great Animal Orchestra* 125). Notably, Krause essentially echoes Schafer’s same ideas:

Man unites himself with the soundscape about him, echoing back its elements. The impression is taken in; the expression is thrown back in return. But the soundscape is far too complex for human speech to duplicate, and so it is in music alone that man finds that true harmony of the inner and outer world. It will be in music too that he will create his most *perfect models* of the ideal soundscape of the imagination. (42; *emphasis added*)

The perfect models on interpretation bring us full circle to the theme of a uniting song seen throughout the works of many wilderness writers.

Jazz from the Canyon: Human Interpretation of the Spheres

The idea of the West, an untamed wilderness, has been commonplace in American culture for centuries. Thus, not only do many environmental writers recognize the build of the harmony, many authors attempt to translate it. For instance, N. Scott Momaday, a Pulitzer Prize winning Native American author, highlights a soundscape at play in a Navajo ceremonial song. In Momaday’s essay “A First American Views His Land,” he writes:

Voice above,
Voice of thunder,
Speak from the

dark of clouds;
 Voice below,
 Grasshopper voice,
 Speak from the
 green of plants;
 So may the earth
 Be beautiful (575)

In a sense, the ceremonial song appears to paraphrase a soundscape. Not only does Momaday capture instruments of a geophony, thunder and the swarm of clouds, but he highlights the responsiveness of the elements of the biophony, specifically grasshoppers. Momaday reflects that “the singer [of the Navajo ceremonial song] stands at the center of the natural world, at the source of its sound, of its motion, of its life. Nothing of that world is inaccessible or lost upon him” (575). As he recollects the ceremonial song, he notes that the singer’s song, seemingly produced by any man attuned to nature’s song, “is filled with reverence, with wonder and delight, and with confidence as well. He knows something about himself and the world around him – and he knows that he knows” (575). Momaday continues that “the singer is mindful of much more than thunder and insects; we are given in his song the wide angle of his vision and his hearing – and we are given the testimony of his dignity, his trust, and his deep belief” (575). Most importantly, he adds that “the sounds that are made in the natural world [are] the particular voices that beautify the earth” (575). Either knowingly or unknowingly, humans, just as other creatures, therefore respond to elements of the universal song.

Similarly, a theme seen throughout the works of many Western writers remains the concept of a song, resonating throughout the natural world, and ultimately the song exists for those who are willing to listen. Moreover, the majesty of the Grand Canyon seems to epitomize the wonder surrounding the very concept of the West. Thousands of tourists flock to the Grand Canyon for its amazing physical features; however, many naturalists, listening to the natural sounds presented within the canyon recognize something more. Ann Zwinger, a naturalist and author of over a dozen books on natural history, identifies a clear rhythm permeating the Grand Canyon. Specifically, during a trek down the Bright Angel Trail, Zwinger reflects on her surroundings: “The ominous rock falls on a winter night giving notice of a canyon under construction, the ragged pound of a rapid that matches no known rhythm but has lodged in my head like an old familiar song, the sheer blooming, healthy joy of the river’s refrain” (30). Ultimately, she recognizes the river sounds as an old harmony, flowing throughout the essence of the land.

Reflecting on the same section of the Grand Canyon, Harriet Monroe, author of an essay by the very same title, also hears the song emanating from the land: “The brave little song was a message personal and intimate, *a miracle of sympathy or prophecy*” (88; emphasis added). She conveys the recognized harmony within the Bright Angel Trail as natural miracle, which provides healing just by simply existing. Monroe adds that the song “seemed to welcome me to the infinite; to bid me go forth and range therein, and know the lords of heaven and earth who there had drunk the deep waters and taken the measure of their souls” (88). Zwinger and Monroe identify the song as something old and familiar, for it permeates throughout the land, wind, animals, birds, and all things. Most

importantly, however, both authors at different times recognize a song playing within the same specific environment in the Grand Canyon.

Eliot Porter, the outstanding landscape photographer, also recognizes a symphony, of sorts, floating throughout the wilderness. As Zwinger and Monroe identify a song in the Grand Canyon itself, the song Porter shares emanates from living creatures. In his essay, “The Living Canyon” Porter reflects on his experience listening to Glen Canyon: “[The birds] advertise their presence by song, even when they seem to be skulking in the thickets. In the spring the willow and tamarisk jungles of the river’s edge ring with the cheerful sibilance of yellow warblers. From among the broken rocks of dry talus comes the bright chant of the rock wren, and higher up the cliff side, the canyon wren’s deliberate down-scale notes echo melodiously” (385). Porter essentially captures a biophony and geophony at play within Glen Canyon, forming a chorus. Further, the soundscape soon expands, utilizing the natural features of the canyon to amplify its sound. As Schafer establishes that vibrational patterns, sounds of movement, play an important factor in various soundscapes, Porter also recognizes random sounds that add to the musical scale: “Added to these sweet songs, there are some unmelodious, comic sounds issuing frequently from the thickets – the harsh clucking, cawing, and whistling of the yellow-breasted chat that lurks mostly unseen in the densest underbrush, but occasionally bursts from the top of a bush in awkward, wing-clapping, nuptial flight” (386). The bird songs essentially respond and build upon one another, creating a natural sonata.

A Native American poet and environmentalist, Linda Hogan shares a related experience. When spending a February evening in a cabin at Glen Canyon during the

mating season of the great horned owl, she draws a greater correlation to the wild song: “The sloped roof [of the cabin] was the only thing between us and the rest of the universe” (814). Hogan’s observations appear to echo the Pythagoreans, as the wilderness, with its clear skies, can make visible the silent spheres of the universe. She continues: “Everything outside our wooden boundaries seemed so large. Filled with the night’s citizens, it all came alive” (814). Hogan brings the reader full circle into her notion of the wilderness, as she portrays the looming universe as constantly animated and alive. She continues:

The world opened in the thickets of the dark. The wild grapes would soon ripen on the vines. The burrowing ones were emerging. Horned owls sat on the treetops. Mice scurried here and there. Skunks, fox, the slow and holy porcupine, all were passing by this way. The young solitary bees were feeding on pollen in the dark.
(814)

Ultimately, Hogan describes precisely what Krause suggests within his animal orchestral theory: symphonic melodies, parts of an orchestra, infusing the night with sound. Within the harmonics, a sense of communication with the night is building, as the animals immediately respond to the change. She adds that “the whole world was a nest on its humble tilt, in the maze of the universe, holding us” (814). Thus, Hogan finds herself surrounded by not simply random animal noises, but something more, something significant. Zwinger, Monroe, Porter, and Hogan all recognize multiple dimensions of music, as previously indicated by Levitin, or harmonies within the natural world of the canyon wilderness.

Moreover, the arising patterns described in Hogan's essay can be easily translated into musical terms. Levitin indicates that "when we listen to music, we are actually perceiving multiple attributes or 'dimensions'" (14). In order for a harmony to be produced, there ultimately must be a relationship between notes, or various pitches in a frequency scale. Thus, when analyzing the various soundscapes we must take into consideration all of the aspects of the acoustic environment: biophonies, geophonies, and every accompanying instrument. Therefore, the multiple attributes, which Levitin suggests, are critical to the composition of music, are recognized as components to a greater harmony, an orchestra of sound permeating the universe.

Notably, many musicians have also attempted to translate various soundscapes into their own works. In fact, there's an entire industry of music based on the concept. For instance, Barry Lopez, a naturalist and author, with an ensemble of musicians intended to not only witness the wild orchestra, but also to prompt an exchange of sound. In Lopez's essay "Gone Back to Earth," he tells the story of when he participated in a music workshop, combining the jazz music of Paul Winter and the natural sound of the Grand Canyon. Lopez reflects that Winter "was searching for a reintegration of music, landscape, and people" (110). Winter ultimately infuses his song with the harmonies of the wild, as his "energy and passion, and the strains of solo and ensemble music, were sewn into the trip, like prevailing winds, like the canyon wren's clear, whistled, descending notes, his glissando— seemingly present, close by, or at a distance, whenever someone stopped to listen" (110). By incorporating man-made music with the canyon

sounds, the workshop aims to highlight the natural symphony and reciprocity of song resonating throughout nature.⁵

Such revelations become realized by merely listening to and observing the land. Ultimately, throughout the entirety of Krause's research, he urges people to listen. Krause emphasizes that "the natural world's collective voice represents the oldest and most beautiful music on the planet. But wild soundscapes aren't delivered in an instant; they require careful attention and reverence" (220). Barry Lopez, in his text *Arctic Dreams*, notes that in order gain a proper understanding of a new place, he simply listens to it (257). Thus, if we take the time to listen, we will recognize such a familiar song within the wilderness.

Listening to the world seems simple enough, especially for an individual attuned to music such as Krause. Thus, we must keep in mind, Krause is a musician, not a scientist, and for this reason his theories remain a controversial topic amongst some biologists. For instance, Michael Greenfield, who specializes in animal communication and sensory evolution at the University of Kansas, remains highly skeptical of the accuracy of Krause's ideas. Greenfield states: "I don't know of any cases where you have a variety of species that basically have decided: 'Let's all get along. You can have this bandwidth, and I'll have this, and that guy over there can have his piece.' There's little evidence that animals are solving this problem in a cooperative and amicable fashion" (qtd. in Hull). Krause, however, never suggests that all the animals essentially get along. In fact, he counters most skeptics by explaining that "it would never have occurred to most biologists to evaluate the health of an entire biome by listening to and studying in

⁵ Paul Winter has also incorporated sounds of wolves, whales, migrating birds, and sea otters into various other recordings.

greater detail the total acoustic community” (81). Within a field that finds itself more dependent on empirical data, Krause therefore presents an entirely unique concept. Edward O. Wilson, the entomologist Curator of the Museum of Comparative Zoology at Harvard University and one of the world’s leading evolutionary biologists, admits in an e-mail: "I assumed it was all a New Age thing, of little interest to scientists. I was wrong. ... His originality, research and above all basic knowledge of the sound environments in nature are impressive" (qtd. in Hull). Essentially, Krause emphasizes the same notions that many of the Western writers have recognized: the wilderness has more than just amazing visual landscapes; it whirls out multiple layers of musical connection.

During my own experiences in the Seminole State Forest in Central Florida, armed with a sound recorder⁶ that would make Bernie Krause smirk, I recorded various barred owls, woodpeckers, and insects, all seemingly responsive to one another. In the distance, a barred owl would bellow a soft sequence of hoots, as another owl would reciprocate his call. As these notes played, a group of insects buzzed and chimed throughout the gentle wind. Every so often a woodpecker could also be heard tearing away at a nearby tree, adding a bit of percussion to the soft song being played. All the sound, however, served the same purpose: communication.

Ultimately, I witnessed to a lesser degree what many other authors, musicians, and ecologists have witnessed: the rhythm of the earth. As I observed a natural song in Central Florida, Krause witnessed similar songs throughout various parts of the world. Literature, musical compositions, and poetry find themselves entwined within the ensemble of the wild song, for they are essential for its human translation.

⁶ I used a parabola microphone, magnifying sounds by a factor of ten or more, that provided me the kind of hearing that most animals already have.

II. The Wild Trumpeter: Walt Whitman's Interpretation of the Song of the Cosmos

Whitman's Universal Instruments

During the nineteenth century Walt Whitman published many poems and essays, attempting to bridge the gap between the natural and urban worlds through multiple types of soundscapes in his poetry. For this reason, he is viewed as a transcendentalist and a humanist.⁷ Ultimately, the concept of music functions as the foundation of Whitman's poetry, and in doing so he captures the essence of the universal song. As wilderness writers recognize harmonies within the natural world, Whitman, using music as a guide, recognized harmonies within more than just natural and urban habitats, but throughout the entire cosmos

As Whitman recognizes a universal song, in "A Song for Occupations," he suggests that his listeners can hear more than physical instruments:

All music is what awakes from you when you are reminded by the
instruments,

It is not the violins and the cornets, it is not the oboe nor the
beating drums, nor the score of the baritone singer singing
his sweet romanza, nor that of the men's chorus, nor that
of the women's chorus,

It is nearer and farther than they.

⁷ He is seen as transcendentalist, as he placed a greater sense of being, albeit in a non-theistic approach, upon natural objects. Similarly, he is viewed as a humanist, for he saw the greatest good within persons and viewed each individual as part of the greater harmony of the cosmos.

For Whitman, like Krause, the instruments of the universal song consist of all natural objects. Krause suggests a unifying harmony streams from biophonies and geophonies; however, Whitman captures these sentiments and takes them to a cosmic level. The notion of these forces uniting, merging and producing a cosmic symphony comes to realization in an early version (1856) of Whitman's poem "On the Beach at Night Alone." Just as a song begins with a clef, Whitman begins this poem by signaling a "clef of the universes and of the future" (3). Whitman then defines the composition of the universal song:

A vast similitude interlocks all,
 All spheres, grown, ungrown, small, large, suns, moons, planets,
 All distances of place however wide,
 All distances of time, all inanimate forms,
 All souls, all living bodies though they be ever so different, or in
 different worlds,
 All gaseous, watery, vegetable, mineral processes, the fishes, the
 brutes,
 All nations, colors, barbarisms, civilizations, languages,
 All identities that have existed or may exist on this globe, or any
 globe,
 All lives and deaths, all of the past, present, future,
 This vast similitude spans them, and always has spann'd,
 And shall forever span them and compactly hold and enclose them (4-14)

Seemingly taking a cue from Kepler, Whitman captures a multitude of the natural objects playing within the universal song. In doing so, he also highlights the notion that all of these aspects unify into a merging tempo. Likewise, Levitin suggests that “when an instrument creates energy at frequencies that are integer multiples, we say the sound is harmonic” (42). He adds that a “harmony has to do with relationships between the different pitches of different tones, and with the tonal contexts that these pitches set up that ultimately lead to ... a musical piece” (18).

“On The Beach at Night Alone” stands as one of Whitman’s more definitive works that emphasize the harmonies between all things, for the poem notably takes place within a natural biome, specifically a seashore. Interestingly, the idea of rolling waves crashing against a shoreline played a prominent role throughout Whitman’s life, as he commonly associated his sense of place with the beach. In *Specimen Days* (1882), Whitman recalls a recurring dream from his childhood:

A stretch of white-brown sand, hard and smooth and broad, with the ocean perpetually, grandly rolling upon it, with slow-measured sweep, with rustle and hiss and foam, and many a thump as of low bass drums ... Sometimes I wake at night and can hear and see it plainly. (147)

He openly admits that this soundscape, a geophony in Krause’s terms, constantly resonated within his subconscious, and when describing the recurring dream, he even adds a sense of percussion to the description of the soundscape, as he mentions the thump of the low bass drums. Whitman adds that “the sea-shore should be an invisible influence, a pervading gauge and tally for me, in my composition” (148). Just as the beach represents an endless free-forming ideal, Whitman writes using a free-verse, which at the

original time of publication, was a very unconventional and open form that fits his musical style.

Whitman's Musical History

The recognition of rhythms within the universe did not simply come randomly to Whitman, though. He was indeed a keen observer and always kept an open ear. Even as a child, he acknowledged harmonies within the everyday events of his childhood. The late Justin Kaplan, author of the biography *Walt Whitman: A Life*, notes:

Crying, the child learned the sound of his voice and its power over others.

Growing, he distinguished objects, sensations, rhythms. The sun rose in the morning, his father set out for work, pigs and chickens rooted in their apple orchard across the road from his mother's kitchen garden. In the evening herds of mongrel cattle and rat-tailed sheep were driven homeward from their grazing on the Hempstead plains—years later he was able to hear in memory the clanking of their copper bells and smell “the sweet and slightly aromatic evening air.”(60)

Here, Kaplan is unwittingly painting a picture of a soundscape, creating for us an audio recording of sorts, capturing the rhythms, motions, and harmonies surrounding Whitman's childhood farm. These sentiments reflect Krause's theory: “It is likely that buried deep within the human limbic brain is ancient wiring that springs to life every time we reconnect with these delicate webs of acoustic finery – the multiple layers of resonance that still exist in parts of the world” (105). Kaplan continues that “words, when [Whitman] acquired language, became life itself, links to the external world and to his unconscious. Words were instruments of command and of relationship to a world waiting

to be named for the first time” (60-61). For these same reasons, words and poetry became Whitman’s means of translating such unifying harmonies.

As Whitman heard and saw rhythms in everyday life, he soon fostered a far greater understanding of such harmonies and engrossed himself in music of all kinds. David S. Reynolds, author of *Walt Whitman’s America*, adds: “Like other culturally curious Brooklyn folk, Whitman constantly ferried to Manhattan for theater and music. Describing his early manhood, he said, ‘I spent much of my time in the theatres then – going everywhere, seeing everything, high, low, middling – absorbing theatres at every pore’” (43). Such musical experiences defined Whitman’s young adulthood, as he took great pleasure in attending the opera. Reynolds adds: “[Whitman] admired the great opera singers who came to America in the 1840’s and 1850’s. He heard at least sixteen of the major singers who made their New York debuts in ... eight years, including the Italian baritone Cesare Badioli, the tenor Allesandro Bettini, the sopranos Giulia Grisi and Balbina Steffanone, the contralto Marietta Alboni, and the English soprano Anna De La Grange” (53). The influence of the opera becomes apparent in some of Whitman’s own reflection, as Steve Phelan found: “I want a sublime of Hymn Chorus and orchestrium, wide as the orbit of suns, reliable as immortality and filling my capacity to receive kisses as the sea fills scooped out valleys. Tenor clean and fresh as the Creation whose vast pure volume floods my soul. I want the Soprano that over-leaps the stars” (NUPM 125-126).

Whitman’s absorption of music through the opera plays a critical role in his approach to poetry, but we must also take into consideration his appreciation for the sciences. For instance, Reynolds affirms that “the cyclical quality of all natural things was commonly emphasized by scientists of the day. Justus Liebig, the founder of

agricultural chemistry, gave the idea validity through the study of transferred chemical compounds. When an organism decomposed, its atoms were chemically recombined” (240). Whitman’s interest in the sciences becomes apparent throughout many of his works, and Steve Phelan indicates that “Whitman assumes there is an ecology that science had not yet studied; he imagines self-regulation through that long evolutionary process that generates a fully reciprocal system” (5). Whitman essentially adopts elements of astrology and chemistry, and blends them into his poetry, for the song of the cosmos connects itself to all things in life.

Therefore, I am suggesting Whitman recognizes forces at play within the universe, working together in a similar fashion as a metronome. Basically, a metronome produces a pulse--an active tempo, bouncing back and forth--which guides a melody. Whitman recognizes such patterns, functioning as a tempo throughout the universe, and implements these patterns into his thoughtfully musical verse. For these very same reasons, Jonathan Bate author of *Song of the Earth*, reflects on how we linguistically interpret natural sounds: “The sense of verse-making is language’s most direct path of return to [a sense of place], because metre itself - a quiet but persistent music, a recurring cycle, a heartbeat – is an answering to nature’s own rhythms, an echoing of the song of the earth itself” (76). The forces which Whitman identifies fall in agreement with Bate’s definition of earth’s song, as a synchronous reverberating rhythm. In utilizing this basis, Whitman taps back into the culture of all human life and times in his poetry.

Additionally, a hundred years after Whitman, Levitin illustrates the same concept: “No known human culture now or anytime in the recorded past lacked music, and whenever humans come together for any reason, music is there: weddings, prayer, funerals, and

even men marching off to war” (6). Music ultimately functions as a necessary building block in various aspects of human culture, and these very same concepts act as an important means of guiding other forces.

Therefore, as we establish the idea that a harmony consists of multiple parts, moving together at once to form a chord progression, Whitman calls upon the song in many instances to function as a guiding force for his poetry. In “Proud Music of the Storm,” he beckons the cosmos to: “Fill me with all the voices of the universe,/ Endow me with their throbbings,/ Nature’s also” (139-141). Consequently, not only does Whitman identify music on a global level, he calls upon its origins in the appropriately titled “Song of the Universal.” In the poem, Whitman beckons: “Come said the Muse,/ Sing me a song no poet yet has chanted,/ Sing me the universal” (1-3). Further, “Proud Music of the Storm” showcases the unifying harmonies reverberating throughout the earth:

All songs of current lands come sounding round me,
 The German airs of friendship, wine and love,
 Irish ballads, merry jigs and dances, English warbles,
 Chansons of France, Scotch tunes, and o'er the rest,
 Italia's peerless compositions. (71-75)

Whitman, seemingly floating from land to land, captures the harmonized songs within various human cultures. These ballads, jigs, and tunes capture the sounds of their respective cultures, for “poetry is a song and language at once” (Williams 4).

Respectively, Whitman further develops these sentiments in “Proud Music of the Storm”:

I hear the dance-music of all nations,

The waltz, some delicious measure, lapsing, bathing me in bliss,
 The bolero to tinkling guitars and clattering castanets.

I see religious dances old and new. (99-102)

Just as rhythm permeates the lands, essentially the same groundwork of song unites the very concept of religion and dance. Taking these sentiments a step further, Whitman acknowledges that harmonies not only exist on earth, but the song originates from a far more cosmological essence in his poem “With Antecedents”:

We stand amid time, beginningless and endless—we stand amid evil
 and good,

All swings around us—there is as much darkness as light,

The very sun swings itself and its system of planets around us,

Its sun, and its again, all swing around us. (19-22)

Throughout *Leaves of Grass*, not only does Whitman capture the accord between good and evil and darkness and light, but he also sets in the motion of the cosmos, swinging much like a metronome. As Whitman presents the tempo of the planets in this stanza, he also emphasizes the timelessness of such a melody.

Universal Me

In *On Whitman*, C.K. Williams indicates that Walt’s recognition of “the music was so forceful, so engrossing, so generative, that it couldn’t of taken him long ... to realize he’d discovered a musical system that was magically encompassing and had within it echoes of other singings” (11). Williams continues that it is essential to keep in mind that in poetry the music comes first, before everything else, and until the poem has

found its music, it's merely verbal matter (3). Essentially, true poetry cannot exist without a guiding harmony or song to make it purposeful. Reinforcing these concepts, Phelan set out to study Whitman's notebooks and journals prior to 1855 so as to get at the initial poetic impulse of *Leaves of Grass* and notes that Whitman "sees the poet as the translator of and joiner of the whole of creation" (9). Phelan adds that Whitman imagines "the poet has the divine grammar of all tongues ... in his predilections prior to the publication of *Leaves of Grass*" (9). Thus, Whitman identifies in poetry the very same idea that Levitin defines when describing a piano string: "All natural objects in the world have several modes of vibration" (41). Levitin and Whitman are fundamentally recounting the very same science behind a soundscape, as vibrational patterns and sounds all combine to form something grand: an eternal unifying song. Just as Whitman escalates his poetry to a far more cosmic understanding, Levitin advances his example:

Another analogy [of rhythm] is the several types of motion of the earth that are simultaneously occurring. We know that the earth spins on its axis once every twenty-four hours, that it travels around the sun once every 365.25 days, and that the entire solar system is spinning along with the Milky Way galaxy. Several types of motion, all occurring at once. (41)

From planets to tiny organisms, all natural objects produce a pulsation which can be attributed to the universal harmony.

For this same reason, especially in "Song of Myself," Whitman utilizes the notion of an ageless, transcended being to highlight the accord and balance between all things; the being seemingly rides in accordance with the universal song. The oneness with the universe is represented by his/her name "I." Whitman therefore uses various elements

within “Song of Myself” as an opportunity to highlight the harmony between man and beast, as the transcended “I” takes the form of all things. Echoing my original metronome theory, Reynolds suggests that Whitman acknowledged elements, bouncing from one end to another, within the universe:

The earthly and the divine, the sensuous and the mystical, are never far from each other in his verse. [Whitman’s] images flow rapidly from the minutiae of plant or animal life through parts of the human body to sweeping vistas of different times and places, often with affirmations of God’s harmonious universe. (235)

Therefore, reverberation plays a significant role in Whitman’s poetry. In this same sense, without vibration, sound and music cannot exist, for harmonies are multiple layers of vibration, working continuously. The transcended “I” sings: “My voice goes after what my eyes cannot reach,/ With the twirl of my tongue I encompass worlds and volumes of worlds” (564-565). The force’s multiple volumes, or dimensions, become realized through its various instruments, such as man and beast. Most specifically, Whitman indicates that “music rolls, but not from the organ” (1061). Thus, as the “I” encompasses all things through song, he ultimately portrays man and animal as one, part of the same unifying song. Specifically, in section 14 of “Song of Myself,” Whitman begins with a wild animal calling a song to form:

The wild gander leads his flock through the cool night,
Ya-honk he says, and sounds it down to me *like an invitation*,
The pert may suppose it meaningless, but I listening close,
Find its purpose and place up there toward the wintry sky. (245-248; *emphasis added*).

Whitman not only identifies the sounds of an animal biophony, he recognizes it as invitation to come and take part in the symphony. He continues, following the song produced by a goose, and allows the song to reverberate through various wild creatures:

The sharp-hoof'd moose of the north, the cat on the house-sill,
 the chickadee, the prairie-dog,
 The litter of the grunting sow as they tug at her teats,
 The brood of the turkey-hen and she with her half-spread wings. (249-251)

Similarly, immediately after 14 ends, section 15 begins with a man calling a song to form: "The pure contralto sings in the organ loft." Just as section 14 of "Song Myself" shows the universal song floating throughout creatures, section 15 provides a brief range of the harmonies floating through man:

The carpenter dresses his plank, the tongue of his foreplane whistles
 its wild ascending lisp,
 The married and unmarried children ride home to their Thanks-
 giving dinner,
 The pilot seizes the king-pin, he heaves down with a strong arm,
 The mate stands braced in the whale-boat, lance and harpoon are
 ready,
 The duck-shooter walks by silent and cautious stretches,
 The deacons are ordain'd with cross'd hands at the altar,
 The spinning-girl retreats and advances to the hum of the big
 Wheel. (264-271)

Therefore, one of the many rhythms in Whitman's "Song of Myself" fluctuates between man and beast, not only emphasizing a sense of harmony between the two, but presenting the fundamental similarities of these forces within the universal song. In "Return of the Heroes," Whitman indicates that all these instruments essentially share the same field as he states:

Ever upon this stage,
 Is acted God's calm annual drama,
 Gorgeous processions, songs of birds,
 Sunrise that fullest feeds and freshens most the soul,
 The heaving sea, the waves upon the shore, the musical, strong
 waves,
 The woods, the stalwart trees, the slender, tapering trees,
 The liliput countless armies of the grass,
 The heat, the showers, the measureless pasturages,
 The scenery of the snows, the winds' free orchestra,
 The stretching light-hung roof of clouds, the clear cerulean and
 the silvery fringes,
 The high dilating stars, the placid beckoning stars,
 The moving flocks and herds, the plains and emerald meadows,
 The shows of all the varied lands and all the growths and products. (10-24)

Williams captures these feelings best, as he observes: "How wildly exciting it must have been to [Whitman] when his poetry first offered him a way to see and record so much – it can feel like everything" (14). This notion of Williams that Whitman essentially felt

everything truly captures the sentiments presented in “Song of Myself.” Just as harmonies echo throughout the cosmos, Whitman recognizes the very same harmony between man and beast and journeys with it throughout “Song of Myself.” Whitman reflects: “I see in [animals] and myself the same old law” (252).

As Whitman melodiously floats between man and beast, he also simultaneously finds balance between the natural and urban worlds. These sentiments come to the forefront in “Song of Myself,” as Whitman’s sings:

I hear bravuras of birds, bustle of growing wheat, gossip of flames,
clack of sticks cooking my meals,
I hear the sound I love, the sound of the human voice,
I hear all sounds running together, combined, fused or following,
Sounds of the city and sounds out of the city, sounds of the day
and night. (584-587)

Essentially Whitman captures two soundscapes, or musical environments, in this stanza. The first soundscape exemplifies the natural world, as the second immediately shifts to an urban environment filled with song. Both of these soundscapes, although seemingly on opposite ends of the spectrum, share an equal harmony, as Whitman indicates the sounds are actually fused together. Jerome Loving adds that Whitman “united city and country in the way he united so many other entities, especially those of body and soul in *Leaves of Grass*. To Whitman the city was the body, the country was the soul. ‘Lack one lacks both’ is what he finally said in ‘Song of Myself’” (148). By infusing such dualisms into his poetry, Whitman “would destroy the Great Chain of Being that has governed western culture for more than a millennium, and in its place invoke a Great System of

Becoming where essentialism dissolves and equality prevails” (Phelan 4). Accordingly, not only does “Proud Music of the Storm” capture the essence of a universal song, it also shows the collective experience of both humans and nature:

Now the great organ sounds,
Tremulous, while underneath, (as the hid footholds of the earth,
On which arising rest, and leaping forth depend,
All shapes of beauty, grace and strength, all hues we know,
Green blades of grass and warbling birds, children that gambol
and play, the clouds of heaven above,). (34-38)

These concepts come to the forefront in “Song of the Redwood,” where Whitman gives a dying redwood tree a voice that laments: “A chorus of dryads, fading, departing—or hamadryads departing;/ A murmuring, fateful, giant voice, out of the earth and air” (3-4). In *Whitman and the Earth*, Jimmie Killingsworth indicates that “Whitman’s tree appears as an abstraction, a nonbeing, an idea that the poet inhabits in order to justify the ways of humans to nature.” Furthermore, on the other side of the spectrum in “Song of the Redwood,” an urban, almost mechanical, sound resounds: “the echo of teamsters' calls, and the clinking chains, and the music of choppers' axes” (74). Just as Whitman’s description of the redwood carries with it a chorus, man’s call for progress brings with it music of its own. However, Whitman appears to call such progress a necessary evil for he laments: “Clearing the ground for broad Humanity, the true America, heir of the past so grand,/To build a grander future” (104-105). Moreover, “the great tree is made to submit willingly, and even gladly, to the superior ‘race’ of human beings in their march

westward” (Killingsworth). Whitman ultimately sees the need for both humankind and nature to coexist as he seeks a sense of balance.

Therefore, balance is essential to understanding Whitman’s approach to music. Most convincingly, when “Song of the Redwood” is heard in contrast with “When I Heard the Learn’d Astronomer,” Whitman’s need for harmony becomes realized. “When I Heard the Learn’d Astronomer” not only captures the essence of unity but of a yearning for the wonderment of the wilderness, i.e. the unknown. The speaker, attending a science presentation, laments:

When the proofs, the figures, were ranged in columns
before me;
I became tired and sick
I wander'd off by myself,
In the mystical moist night-air, and from time to time,
Look'd up in perfect silence at the stars. (2-8)

The speaker immediately becomes bored with facts, figures and columns. In fact, he becomes physically ill and leaves the astronomer’s presentation. Instead, the speaker would rather walk in the perfect silence of the stars. He even goes so far as to call the night-air “mystical.” In essence, we cannot simply be provided truths, we must find truths, and an important factor to such discoveries is listening to the natural world. Emerson, in his essay “Nature,” claims that “few adult persons can see nature” (375). He continues: “The lover of nature is he whose inward and outward senses are still truly adjusted to each other; who has retained the spirit of infancy even into the era of manhood. His intercourse with heaven and earth, becomes part of his daily food. In the

presence of nature, a wild delight runs through the man” (375). Whitman indicates in his “Proud Music of the Storm” once an individual’s senses become tuned into the song of nature, we will then find “man and art with Nature fused again” (51). He therefore suggests that a balanced life, between the urban and natural worlds, is possible, and in fact, “the implication is that men and women who live close to the earth already enjoy a complete integration, a soulful life” (Killingsworth). Thus, both urban life and natural life are necessary for Whitman.

Similarly, Whitman also distinguishes the cyclical harmonies between life and death. In Franny Nudelman’s essay “‘This Compost’: Death and Regeneration in Civil War Poetry,” she emphasizes that Whitman succumbed “to the power of a machine able to unite life and death, health and disease, ugliness and beauty in a process of consumption and reproduction that proceeds without end.” However, the machine, Nudelman suggests, ultimately comes in the form of a song. The notion of dying, decomposing, and new life plays a significant role in Whitman’s poetry. For instance, in Whitman’s “The Compost,” he reflects:

How can you be alive, you growths of spring?
 How can you furnish health, you blood of herbs,
 roots, orchards, grain?
 Are they not continually putting distemper'd corpses
 in you?
 Is not every continent work'd over and over with sour
 dead? (7-10)

Life and death may be viewed as opposite ends of the universal spectrum; however, one cannot exist without the other. Man is born. Man dies. Man rots. Man becomes plant. Man eats plant. Man grows. Man dies. Life comes from the ground and returns to it. The transcended “I” notes in “Song of Myself”: “And as to you Life I reckon you are the leavings of many deaths, (No doubt I have died myself ten thousand times before)” (1298). Phelan adds that “the speaker of the poem [the transcended “I”] is literally fifteen billion-years old with the body of the universe that is in a state of development or betterment” (6). In another example, Nudelman notes: “Originally titled ‘Poem of Wonder at the Resurrection of the Wheat,’ after the war, Whitman renamed the poem ‘This Compost,’ thus emphasizing not only the corpse’s materiality (as opposed to the miraculous appearance of new wheat), but also the process of decomposition through which death would renew the natural world.”

An underlying sense of oneness consequently becomes present in Whitman’s verse. Expanding this idea, much like the building of a chord and capturing the cadence of the universe, Whitman proclaims in “I Sing The Body Electric” that “all is a procession;/ The universe is a procession with measured and beautiful motion” (89-90). These ideas come to fruition in “Song of the Rolling Earth,” as Whitman showcases similar balances:

The song is to the singer, and comes back most to him
 The murder is to the murderer, and comes back most to him,
 The theft is to the thief, and comes back most to him,
 The love is to the lover, and comes back most to him,
 The gift is to the giver, and comes back most to him—it cannot

fail. (83-87)

Perhaps, this is why Whitman ends “Song of Myself” by stating: “I bequeath myself to the dirt to grow from the grass I love,/ If you want me again look for me under your boot-soles” (1339-1340).

A Mystical Instrument

As forces and objects beat back and forth forming a universal song, the very concept of a bird in Whitman’s poetry functions as a master of harmonies; as not only can the creature fly throughout the earth, it also has the capability to naturally produce a song. Aldo Leopold actually visualizes the song in his reflections of March in the *Sand County Almanac*, as he witnesses a flock of geese: “And in this annual barter for food and light, and winter warmth for summer solitude, the whole continent receives a net profit *a wild poem* dropped from the murky skies upon the muds” (23; emphasis added). Although the writings of Whitman and Leopold are separated by nearly a century, both authors recognize a similar pattern at play within the wilderness. From mocking birds to screeching hawks, these flying creatures exemplify the notion of music in Whitman’s poetry. For instance, in “When Lilacs Last in the Dooryard Bloom’d” Whitman recognizes how the song of the hermit thrush immediately cuts to the center of his soul: “O wild and loose to my soul—O wondrous singer!” (105). He also utilizes the symbol of the bird to recognize the power of its voice to bring a sense of light to dark places: “Sing on, sing on you gray-brown bird,/ Sing from the swamps, the recesses, pour your chant from the bushes” (99-100). Throughout his various poems, Whitman represents birds as incredibly musical creatures, which not only produce a guiding life-song, but in this song unite life and death. For instance, in “Out of the Cradle Endlessly Rocking,” he observes

how song unifies two birds, two lovers and even goes so far as to personify the birds and interprets their song: “Pour down your warmth, great sun!/ While we bask, we two together” (33-34). Soon, however, one of the lovers disappears, and the other bird is left alone. Even in the lover’s absence, all the bird can do is mourn through song. The bird sings in congruence with other natural objects, singing in alignment with rest of the universal song:

O throat! O trembling throat!

Sound clearer through the atmosphere!

Pierce the woods, the earth,

Somewhere listening to catch you must be the one I want (95-98).

The bird sings for its lost love:

O throat! O throbbing heart!

And I singing uselessly, uselessly all the night. (123-124)

Whitman therefore describes the kinship and love between the birds, but most intriguingly, the love between the birds is drawn together by song. Song is engrained in these creatures, as all things, and it is the only language this lonesome creature knows. Levitin has studied how songs work from a neurological perspective: “The findings from memory for popular songs provide strong evidence that absolute features of music are encoded into memory. And there is no reason to think that musical memory functions any differently from, say, visual, olfactory, tactile, or gustatory memory” (157). Furthering this idea, Killingsworth states that in “Out of the Cradle,” the bird appears “trapped in the repetitive cycles of love and death, insulated first by the experience of mating and nesting, then by the grief that comes from losing its mate, the mockingbird trills a song

that compulsively repeats the refrain of ‘two together,’ unable to imagine life outside the charmed circle of love.”

Ultimately, birds play an important role in Whitman’s poetry, and they even translate into the tempo guiding his own life. W.L. Werner argues in “‘The Mystic Trumpeter’ as Autobiography” Whitman borrows the music of the bird to share the major events in his own life, presenting his own overarching life song. In the beginning of “‘The Mystic Trumpeter,’” Whitman calls forth a song:

Hark, some wild trumpeter, some strange musician,
 Hovering unseen in air, vibrates capricious tunes to-night.
 I hear thee trumpeter, listening alert I catch thy notes,
 Now pouring, whirling like a tempest round me,
 Now low, subdued, now in the distance lost. (1-5)

In the poem, he construes the song as a mystical sonic entity coined as a trumpeter, seemingly a bird, guiding him through his life. Monica Weis, author of “Translating the Untranslatable: A Note on ‘The Mystic Trumpeter’” explains this as she compares the bird to a poet: “The poem demonstrates the role of the prophetic bard, and the possibility of transcendence from the physical world to a higher reality: it illustrates how music expresses that experience of the higher reality more accurately than does verbal language” (27). Werner adds that the “the last five sections of ‘The Mystic Trumpeter’ seem ... to portray moods parallel to Whitman’s own life: his early fondness for Scott’s feudalism; his celebration of love in the early *Leaves*; the Civil War; his post-war despair at the evils of humanity; and his final optimism and ecstasy.” In a sense, “The Mystic Trumpeter” shares the same harmonies presented in “The Compost,” beginning with the

recognition of death—“some dead composer” (7)—and ending with bliss—“Joy! Joy! all over Joy!” (75). Werner goes on to say that when “interpreted, the poem seems no longer utterly formless, nor an assembly of the chief poetic themes, but a chronological summary of Whitman’s poetic life.” Weis states that “the unseen bird [The Trumpeter], noted for making melodies, not only inspires poetic song in others, but also symbolizes the creative process itself” (29). Whitman essentially suggests that life, itself, is a harmony, and the world is already fully composed for playing or singing.

Whitman recognizes that the very same structure or foundation of a song is flowing throughout the cosmos. Reynolds contends:

Whitman fastened to the word cosmos. Its appeal lay in its combination of factual data and comforting message. Providing descriptions of phenomena from the distant vastness of the Milky Way to the most minute organisms, it pictured nature not in chaos or conflict but as a source of calmness, always in equilibrium, with humans as the acme of creation (244)

Reynolds essentially finds that “cosmos signified both the order of nature and the centrality of human beings (245). Gary Snyder, in his introduction to *Turtle Island* (1974), states that “each living being is a swirl in the flow, a formal turbulence, a ‘song.’ The land, the planet itself, is also a living being—at another pace.” Snyder, almost a hundred years after Whitman, essentially recognizes the flow, the song, of the universe. In Whitman’s work, the guiding song becomes realized through the balancing act of various opposing forces: man and beast, life and death, and body and soul. The song also flows throughout his own life, as Weis recognizes that “music is not the background rhythm of [‘The Mystic Trumpeter’] but the very shape and language of the experience

(Weis 30). In “Song of Myself” Whitman’s transcended “I” reflects: “I hear the chorus, it is a grand opera,/Ah this indeed is music—this suits me” (599-600). He is the song, and the song is him.

III. An Influential Harmony: Burroughs, Whitman, and Muir

John Burroughs, eventually given the nick name the Grand Old Man of Nature, was a close friend of Whitman and shared his translation of the universal song. Burroughs was raised on a farm in the Catskill Mountains and, just as Whitman, shared an affinity towards the songs of birds. As Whitman identified with birds and the seashore, Burroughs identified with birds and the Catskills. Additionally, Burroughs went so far as to write a biography of his friend, entitled *Whitman: A Study* (1896). In his biography, he highlights the guidance of bird songs:

Birds of the garden and orchard meet birds of the forest upon the shaggy cedar posts that uphold my porch. At dusk the call of the whippoorwill mingles with the chorus of the pickerel frogs, and in the morning I hear through the robins' cheerful burst the somber plaint of the mourning-dove. (2)

From his years of experience in the Catskills, Burroughs therefore recognizes a soundscape built of multiple animal voices. Through his recognition of instruments, in consonance with Krause's notion of a biophony, Burroughs identifies an important pattern to the song vocalized in Whitman's "Song of Myself," as he listens in his garden:

This scene and situation, so primitive and secluded, yet so touched with and adapted to civilization, responding to the moods of both sides of the life and imagination of a modern man, seems, I repeat, typical in many ways of my poet [Whitman], and is a veritable Whitman land. Whitman does not to me suggest the wild and unkempt as he seems to do many; he suggests the cosmic and the elemental. (2)

Burroughs essentially captures a primal song, the same song that Whitman and Krause also appear to recognize. Most compellingly, as he acknowledges the raw, elemental nature of the song, he notes that it responds to the “imagination of a modern man.” Not only does Burroughs recognize a soundscape with the various whippoorwill, frog and robin sounds, he groups his observations with Whitman’s own understandings of song. Burroughs therefore captures the very essence of Whitman’s translation of the universal song in poetry. Burroughs reflects: “Here was a poet of a larger, more fundamental nature, indeed of the Cosmos itself. Not a poet of dells and fells, but of the earth and the orbs” (4). As he appreciates and details Whitman’s cosmological interpretation of bird song in his essays, Burroughs, following Whitman, recognizes the purest form of poetry in bird song. Accordingly, Burroughs believes “the best lyric pieces, how like [the pieces] are to certain bird songs, -- clear, ringing, ecstatic, and suggesting that challenge and triumph” (11). In Burroughs’s essay entitled “Birds and Poets,” published in 1877, he clarifies such beliefs: “The very idea of a bird is a symbol and suggestion to the poet. A bird seems to be at the top of the scale, so vehement and intense is his life – large brained, large lunged, hot, ecstatic, his frame charged with buoyancy and his heart with song” (10). A sense of individualized freedom therefore becomes immediately associated with the translation of the song. Burroughs lets the song into his heart, and in doing so, his body and mind, his very self, becomes free.

Moreover, birds embody this idea, for, as Whitman indicates throughout his poetry, their very essences are driven by song. Burroughs essentially views birds and poets as similar creatures: “The beautiful vagabonds, endowed with every grace, masters of all climes, and knowing no bounds, -- how many human aspirations are realized in

their free holiday lives – and how many suggestions to the poet in [birds’] flight and song!” (10). Moreover, as birds play an important contributing factor to the universal song, Burroughs emphasizes they are essentially only one part to the greater melody, flowing throughout the wilderness:

To strong, susceptible characters the music of nature is not confined to sweet sounds. The defiant scream of the hawk circling aloft, the wild whinney of the loon, the whooping of the crane, the booming of the bittern, the vulpine bark of the eagle, the loud trumpeting of the migratory geese sounding down out of the midnight sky or by the sea-shore, the coast of New Jersey or Long Island, the wild crooning of the flocks of gulls, repeated, continued by the hour, swirling sharp and shrill, rising and falling like the wind in a storm, as they circle above the beach, or dip to the dash of the waves – are much more welcome in certain moods than any and all mere bird-melodies, in keeping as they are with the shaggy and untamed features of ocean and woods, suggesting something like [an] ornithological orchestra (12)

Burroughs essentially captures the same sentiments that Krause and Shafer recognize throughout the wild, a soundscape that can now be understood and even identified.

During the latter-nineteenth-century, at the time the works of both Burroughs and Whitman were being published, there were fewer nature writers out there, so a close group of collective thoughts and friendships became prominent amongst such authors. Ultimately, prominent transcendentalists were very familiar with one another. For instance, not only did Burroughs have a close relationship with Walt Whitman, he also

shared a friendship with another nature writer, John Muir. In the essay “Kindred Spirits: The Close Relationship of Muir and Whitman,” Jim and Elaine Butler mention that “Burroughs and Muir first met on June 1, 1893, in New York City. Burroughs was in town to attend the posthumous Whitman birthday dinner the evening before, and Muir was touring the East before departing for Europe” (81). Therefore, the implication that Muir attended a Whitman’s birthday dinner indicates that he was familiar with Whitman’s works, as many of Muir’s writings share a similar understanding of the universe.

After Muir and Burroughs met, they fostered a friendship that took both of them later into the wilderness. Notably, Muir met Burroughs just a year after he organized the Sierra Club, so Muir held a well-established reputation as a wilderness expert within the United States. Clara Barrus, a biographer of Burroughs, was lucky enough to go camping with both Muir and Burroughs on many occasions. Barrus recalls a camping trip with Burroughs and Muir to the Pacific Coast in 1909: “Mr. Burroughs says, ‘The world wants this knowledge seasoned with John Muir, not his mere facts. He could accumulate enough notes to fill Yosemite, yet that would be worth little.’” In this conversation with Burroughs, Barrus emphasizes the need for Muir’s understanding of nature. Facts and figures are important, but they do not capture the wonder and majesty of wilderness.⁸ “Muir has spent years studying and sketching the rocks,” Barrus writes, “and noting facts about them, but you can’t reconstruct beauty and sublimity out of mere notes and sketches. He must work his harvest into bread.” For these same reasons, Muir attempts to interpret the beautiful arrangements at play in the wilderness through his understanding

⁸ These very same sentiments are echoed in Walt Whitman’s “I Heard the Learn’d Astonomer.”

of music. Thus, familiar with Whitman's works, Muir shares a similar view on the universal song. He was an extraordinarily dynamic listener who established an intimate relationship with the harmonies of the Sierras, Alaska, and the entire West.

IV. A Temple of Music: John Muir's Interpretation of the Universal Song

A Life Infused with Song

John Muir, spending the majority of his life as a naturalist and spokesperson for the wilderness, ventured into the wild and simply reflected on his findings through his various journals and published works. Therefore, Muir can be viewed as more of a scientist than Walt Whitman, for he valued experience first and then focused on the connections. He truly was an ecologist before ecology was deemed an official science. Ultimately, Muir had a very methodical approach in attempting to understand the systematic workings of the natural world. He applied all of his senses on his journeys throughout the wild, and these approaches remain indicative throughout his works, as he captured an incredibly sensory and harmonious world. In his works, Muir, much as Whitman, notices musical patterns at play in the wild, and he applies his own interpretation which becomes realized through his deeply religious background. Ted Johnson, author of "The Spiritual Lives of Great Environmentalists," asserts that "like anyone else, Muir believed what he believed because of how he was raised, the time in which he lived, what he read, heard, and experienced" (3). Muir's search for a sense of self and place helps us understand his interpretation of the wild harmonies. Johnson explains:

Muir's expressions of spirituality cannot be separated from his actions to preserve wild places. His spirituality and environmentalism went hand in hand. They were inseparable. ... However, we must exercise great care so as to guard against dressing Muir in our own cloak of spirituality.

Johnson suggests that we cannot place our own worldview on Muir, for we must take into context his own upbringing.

Muir's childhood was heavily instilled with strict Calvinistic thoughts, and he struggled with its meaning in his own life. H.J. Taylor, in his biography of Muir entitled "John Muir, Interpreter of Nature," states that Muir's father Daniel "was a stern, severe, merciless disciplinarian. He was a dictator demanding instant obedience" (132). In his autobiography "A Boyhood in Scotland," Muir reflects that by the time he was eleven years of age he had about three-fourths of the Old Testament and all of the New memorized by heart and sore flesh. He could recite the New Testament from the beginning of Matthew to the end of Revelation without a single stop. It was all done by whipping and thrashing.

Just as Whitman became familiar with the patterns of music throughout his adolescence and young adulthood, Muir shared a similar fixation with music. Muir's inclination towards music began with his father. Before coming to America in 1849, Daniel Muir and his family lived in Scotland, where music was a commonplace. Linnie Marsh Wolfe, in her biography of Muir, notes: "When the Highland young folk gathered among the crofts to dance and sing, [Daniel] joined them" (4-5). Daniel soon noticed the power associated with song, for "his lusty voice and good looks soon made him a leader. But he liked best to listen to the screaming fiddles playing the mad old strathspeys and reels and marching airs of their ancestral glens" (4-5). Wolfe adds that "as Daniel matured, so did his musical abilities, and before long he could play all the psalm tunes, ballads, and wild northern airs he had ever heard" (4-5). These songs essentially became part of Daniel's body, as they "were like strong wine in his blood, giving him dreams that

teemed and surged against the narrow bounds of his existence. And they put an itch into his fingers to play a fiddle of his own” (4-5). From listening to his ancestral songs, music became engrained into his soul, and he, too, became a musician. Daniel’s understanding of himself and his worldview ultimately began to shift to a deeply religious perspective. Wolfe adds that “Daniel seemed to be trying to stamp out in himself and his children their pagan inheritance and to substitute for it a culture wholly Hebraic. Even his everyday speech became a composite of Biblical phrases” (12). Despite Daniel’s harsh religious inclinations, for a time, music provided the Muir family with a sense of connection to one another. For instance, “sometimes on a holiday such as New Year’s, [Daniel’s family] would beg Father to ‘life a fiddle.’ Then, taking it out of his cloth shroud, he would play ballads and hymns for them to sing. They all developed good voices and under his leadership became a singing family” (12).

Muir sought to make sense of such a conflicted upbringing. Specifically, Wolfe captures his growing agitation with not only his father but his religion, as well:

Muir early revolted against religion as he saw it practiced. The [fortitude] entered his soul when he saw pious people ruthless in their treatment of animals and human beings in their charge. His first active rebellion stemmed from his father’s callousness in over-driving the horse Nob to get from one religion meeting to another. When the poor beast, slowing dying of pneumonia, followed them about the farm, as if dumbly pleading for help, he began seriously to question a religion so devoid of love. (38)

Eventually, Muir was attuned to Cotton Mather's *Christian Philosopher: A Collection of the Best Discoveries in Nature, with Religious Improvements* (1721) because it emphasized the harmony between religion and new sciences. In the *Christian Philosopher*, Mather asserts that "Philosophy [science] is no Enemy, but a mighty and wondrous Incentive to Religion; and they will exhibit that philosophical religion, which will carry with it a most sensible Character and victorious Evidence of a reasonable Service." Undoubtedly, Muir saw Mather's philosophies as an opportunity to balance his conflicting viewpoints; but, according to Taylor, "[his] father balked at the word 'Philosopher' [and] was ordered to return the book at once" (Taylor 134).

In contrast, Steven J. Holmes, author of *The Young John Muir: An Environmental Biography*, indicates that "Daniel Muir clamped down and would let none but religious books into his household. John smuggled in literature and philosophy anyway, reading them by candlelight for a few stolen moments before being ordered to bed" (51). The agitated relationship with his father is widely recorded, as Keith E. Kennedy notes that "John rebelled against his father's tyrannical, orthodox Calvinism, and his rebellion proved to be a constant source of friction between them" (18). His conflict with his father only intensified when he attended the University of Wisconsin in the early 1860's. Roderick Nash, author of *Wilderness and the American Mind*⁹, notes that Muir "found scientists and theologians who supported his revulsion from his father's attitudes toward nature and religion" (123). For instance, "in Professor Ezra Slocum Carr's geology class Muir learned to look at the land with a new awareness of order and pattern" (123). Muir

⁹ *Wilderness and the American Mind* was part of Roderick Nash's thesis and consistently evolves to capture the changing attitudes towards the wilderness as seen in American culture. In January 2014, a fifth edition was released.

never seemed to reconcile his relationship with his father, and his conflict made him question his place in the world and eventually leave his family:

Pushed and pulled internally, Muir finally made the decision to leave home. To the end, Daniel Muir refused to recognize John's independence, offered no material support or emotional encouragement, and withheld all words of blessing or even goodbye. (Holmes 73)

Muir left his home shattered. Holmes indicates that Daniel's "only acknowledgement of the event was a grim warning that leaving home would be a mistake, for strangers would not care for him as had his family" (73).

Shortly after Muir left his father's home, an accident occurred, which completely redefined his spiritual life. In 1867, "a sharp file slipped in Muir's usually sure hands and pierced the cornea of his right eye. Within hours his other eye had also become blind from sympathetic nervous shock" (Nash 124). Muir was thrown into darkness. The once adventurous man who sought to gain a better understanding of the world around him was forced into "an invalid's bed in a darkened room, [and John] Muir contemplated life without sight" (124). Muir did regain his ability to see after a month, and due to this event, he "vowed to waste no more time getting into the wilderness. 'God has to nearly kill us sometimes, to teach us lesson,' he concluded" (124). Before beginning his monumental work at Yosemite, Muir began his famous 1,000 mile walk, exploring the East coast of the United States. Although this trek served as a means of reconnecting with nature after his accident, his true epiphanies came when he arrived in California.

In 1868, when Muir settled in San Francisco, he “allegedly inquired of the first passer-by the way out of town. Asked to specify his destination, he simply replied ‘any place that is wild.’ The trail led across the Bay, into the San Joaquin Valley, and, finally, into the Sierra” (125). Taylor adds that Muir “threw his pack over his shoulder and walked leisurely to Yosemite enjoying the meadow gardens, the rich valleys, and *the song of birds*. When the Sierra appeared on the horizon he was thrilled beyond words – his spirit was aglow – *he sat in silence*” (137; *emphasis added*). A whirlwind of sound and song enveloped Muir, and he listened: “[Muir] was overcome with Nature’s handiwork. The roaring, deafening falls were pouring their waters in profusion and refreshing the thirsty valley” (137). As he recognized the soundscapes around him, his growing connection to the land served as means of reconciling his harsh childhood. In Muir’s “A Boyhood in Scotland,” he reflects on this experience as he states that “we were glorious, we were free,--school cares and scoldings, heart thrashings and flesh thrashings alike, were forgotten in the fullness of Nature's glad wildness.”

The harmony, which Muir begins to recognize, allows him to reconnect and reconcile his spirituality. In Edgar M. Castellini’s “On Tops of Mountains,” he adds that for Muir “dynamic agencies were alive and at work on the mountains; earth, water, air, fire were some of the mythical and magical forces there, dwarfing in their action the human body and mind. These natural powers try Muir’s humanity, [but] they also transform him” (164-165). In “A Vertical Sauntering,” Arthur W. Ewart notes that “Muir sensed more than silent, stoic beauty when he saw mountains; he felt brilliant, ebullient life bursting forth from the rock and ice. The vision affected all aspects of Muir’s climbing and elevated his efforts from the realm of simple sport to spiritual quest” (51).

Ultimately, as his father, Daniel, found spirituality in rigid religious virtues, Muir found an outlet in the wilderness. Ewart confirms that “Muir... ultimately came to peace with himself, and rejected his father’s God and embraced a more benevolent deity, thereafter designated as ‘Nature’ or ‘Beauty’ or ‘Spirit’ in his writings (53). As Muir had finally begun to find a sense of place, he began recognizing similar patterns and harmonies, as Whitman did, within the wilderness.

Muir’s Instruments: The Gathering of the Cosmos

Similar to Whitman’s understanding of the cosmos, Muir draws a direct correlation between the smallest atom and the cosmos. In one of his earliest essays “Wild Wool” (1875), he reflects that “we are governed more than we know, and most when we are wildest. Plants, animals, and stars are all kept in place, bridled along appointed ways, with one another.” Most convincingly, Muir also ties in Whitman’s understanding of the reciprocity of life and death within the very same elements. He mentions that plants, animals, and stars, in this glorious harmony, “through the midst of one another [are] killing and being killed, eating and being eaten, in harmonious proportions and quantities. And it is right that we should thus reciprocally make use of one another, rob, cook, and consume, to the utmost of our healthy abilities and desires.” Therefore, by listening to the land and careful observation, Muir, noticing the rhythms of his surroundings, gains a better understanding of the universe around him.

Through Muir’s recognition of harmonies within the wilderness, he identifies a sensory world that encompasses all things. Additionally, in one of his unpublished journal entries written in 1906 and collected in Linnie Marsh Wolfe’s *John of the*

Mountains, Muir, when reflecting on the superiority of our natural senses to that of the mind, notes: “We not only see the forms and colors of the mountains, but hear them. Plants and animals also seem to be music in both form and color” (439). Similar to Krause’s theories, Muir establishes multiple layers of understanding the harmonies within the universe. He adds that “everything breaks forth into form, color, song and fragrance – an eternal chorus of praise going up from every garden and grove, a wide range of harmonies leading into the inner harmonies that are eternal” (439). Therefore, Muir, an educated man and inventor, suggests simply diving into nature to understand it. If we let go of our preconceived notions and let our primal senses hear, listen, and smell the world around us, we will experience an entirely new harmony. In “Wild Wool,” much like Whitman, Muir takes these observations to a cosmic level: “Stars attract one another as they are able, and harmony results. Wild lambs eat as many wild flowers as they can find or desire, and men and wolves eat the lambs to just the same extent.” Muir, instilled with a strict Calvinistic upbringing, believed in a greater design of the universe, and he translates his background into a connecting song. Ultimately, Muir believes a pattern, a harmony, exists within the wilderness, and it is a part of life. If an individual denies it, he denies a universal truth.

Nearly a century after Muir asserted such observations in his essays, some contemporary scientists have theorized similar patterns in the universe. For instance, Neil Shubin is a paleontologist and evolutionary biologist who analyzes the parallels in animal evolution. In his book *The Universe Within Us*, Shubin, using fossils as a foundation, attempts to explain how elements of the cosmos can be seen in our bodies, as he, much as Whitman, supports a sense of oneness with the universe. Although Muir interprets the

universal song through a theistic foundation, Shubin on the other hand shares the same understanding, but through a purely scientific approach. Additionally, Shubin does not specifically cite Muir, but he echoes his approach to the natural world:

Seeking out connections to the natural world is like detecting the pattern inside an optical illusion. We encounter bodies, rocks, and stars every day of our lives. ... When you learn to view the world through this lense, bodies and stars become windows ... and [are] always shared among living things and the universe that fostered them. (4)

Ultimately, much as Muir broke away from his harsh Calvinistic rearing, Shubin encourages his readers to tear away at the excessive noise which is blocking the realities of the world around them. How often does an individual venture into the wilderness to get away from the madness of everyday life? Why do thousands of tourists find themselves flocking to Yellowstone and Yosemite, as if the national parks were a genuine Disneyland or escape from reality? Thus, many individuals recognize the need for reconnection to the natural world.

When Muir writes about Twenty-Hill Hollow (1872), an area just outside Yosemite which consists of twenty small hills enclosing it off from the rest of the surrounding mountains, he appears to confirm Shubin's understanding of the universe. Shubin suggests sound ultimately functions as a window to a world that we barely understand, and Muir shares these feelings. Throughout Twenty-Hill Hollow, Muir notes the resonating patterns evoke a distinctive musical imagery:

Music is one of the attributes of matter, into whatever forms it may be organized. Drops and sprays of air are specialized, and made to splash and churn in the bosom of a lark, as infinitesimal portions of air splash and sing about the angles and hollows of sand-grains, as perfectly composed and predestined as the rejoicing anthems of worlds; but our senses are not fine enough to catch the tones.

Thus, music and Shubin's notion of deeper realities become intertwined. However, most importantly, he encourages listening to our world.

The source of Muir's Twenty-Hill Hollow essay can be found in a journal entry three years prior to publishing the essay. Working as a shepherd in La Grange, Wisconsin, Muir notes: "How grand must be the one general harmony of all nature's voices here – winds, waters, insects, and animals" (436). Not only does Muir hear a song resonating in La Grange, but he applies a near-scientific connotation to the song as he draws a direct correlation to the elements of matter: "Music belongs to all matter[, and] there is not a silent, songless particle in the Lord's creation" (16). Muir continues:

A little fragment of wind is broken off from the main ocean, specialized and made to eddy and gurgle in the bosom of a lark, and that is made into music, all precious and sweet. Wind also gurgles and vibrates about the angles and hollows of every surface grain of sand – each grain of sand making a perfect song, but not for us. (436)

He clearly recognizes the song, but by the same token, he recognizes the song is not playing to entertain an audience.

Krause suggests the music of the wilderness serves as a means of communication; Whitman suggests the universal harmonies evoke a dualistic oneness amongst all things; and Muir translates the song as a divine hymn, of sorts. As Muir's observations remain indicative of Krause's biophony and geophony theories, Muir attempts to ground his observation as the very foundation of matter. Interestingly, in the same entry in which Muir draws a scientific understanding of the harmony, he also applies a theistic connotation to the song: "How spiritual must be the tunes that are born in the groves of golden daisies! How the wind will pulse among the curves and points of these lovely corollas and among the pistils and the stamens with their sculptured pollen, but not one note is for mortals!" (436). He even goes as far as to "thank God for this arrangement ... and for every wind vibration that our ears can read" (436). Essentially, Muir attempts to infuse both a Calvinistic and a scientific understanding of the universal song. In another journal entry from 1875, he ventures to the Sequoia belt, and while admiring a forest dawn, recognizes a chorus at play in the wild. He reflects: "In music there are not only birds, main wind-tones, the frogs, a flutter of leaves like the clapping of small hands, squirrels, waterfalls, and the rush and trill of rivers and small brooks, but the whole air vibrates with a myriad of voices blended that we cannot analyze" (219).

Consequently, both Muir and Shubin recognize the harmony within not only the land, but the entire universe. Muir reflects these very same opinions in "Studies in the Sierra": "The meadow recalls the still lake, the boulder delta, the gray booming torrent, the rugged talus, the majestic avalanche, and the moraine reveals the mighty glaciers silently spreading soil upon a thousand mountains." Just as a note lingers on a musical scale to evoke an earlier melody, natural harmonies linger to recall past incidents. All of

these actions, though, conform to Whitman and Muir's notion of a shared harmony. Essentially, the elements at play precisely fall in line with his perception of a grander cosmic order: "Nor in all these involved operations may we detect the faintest note of disorder; every soil-atom seems to yield enthusiastic obedience *to low-boulders and mud-grains* moving to music *as harmoniously as the far-whirling planets*" (*emphasis added*). Muir appears to be drawing a direct correlation to Newton's laws of motion. Most importantly, however, we again see Muir drawing a direct correlation to atoms, matter, and the universal song.

Similarly, when recording natural sounds, Krause, in *The Great Animal Orchestra*, reflects that as he turns up the volume slightly, he gets an "out of this world" impression, one that astronomers might feel when they receive Hubble telescope images of exploding supernovas from the far reaches of the universe (16). Muir and Whitman essentially capture the same universal approach to the natural world. In a very Whitmanesque passage from "Mountains of California," Muir emphasizes how the universal harmony echoes from the planets to the very essence of human beings:

The rivers flow not past, but through us, thrilling, tingling, vibrating every fiber and cell of the substance of our bodies, making them glide and sing. The trees wave and the flowers bloom in our bodies as well as *our souls*, and every bird song, wind song, and tremendous storm song of the rocks in the heart of the mountains is *our song, our very own, and sings our love. (emphasis added)*

Once we peel apart the layers of noise blocking the senses, we are able to establish a powerful song which serves many purposes. Love, life, communication, and place become entwined in the makeup of the universal harmonies.

Moreover, Muir not only recognized musical harmonies within various biophonies, but he also recognized geophonies in the mountains themselves. In a journal entry entitled “All of Each” from 1906, he writes:

There is a musical idea in every form. See, hear, how sharp, loud, and clear-ringing are the tones of the sky piercing peaks and spires; and how deep and smooth and massive those of the swelling domes and round-backed ridge-waves; and how quickly the multitude of small features in a landscape suggest hurrying trills and ripples and waves of melody. (439)

As Muir observes the construct of the swelling mountains, he notes every crack and crevice. Every feature in the mountain appears purposeful, a lingering note of a past experience.

Post-dating Muir by nearly a hundred years, Barry Lopez recognizes these same concepts and approaches universal harmonies as both a scientist and a Romantic, for he applies a scientific understanding but holds an almost mystical interpretation of various aspects of the natural world. In his book *Arctic Dreams*, Lopez calls for a better human understanding of the patterns happening in the Arctic, for its “landscape is able to expose in startling ways the complacency of our thoughts about land in general” (12). Most specifically, Lopez notes that these patterns happening in the Arctic are more than mathematical equations, as they are simply nature (12). Shubin confirms this notion, as

he states: “Hidden inside these [patterns] lie our deep ties to the forces that shaped our bodies, the planets, even the entire universe” (4). Ultimately, as Lopez reaffirms, “the determination in [wild animals], their traditional movement, are a calming reminder of a more fundamental order” (155). Although Muir, Lopez, and Shubin approach the patterns resonating throughout the wild with different mindsets, they essentially resolve the same understanding of the universe that Whitman reflects upon throughout his poetry: unity and connectedness. The harmony exists within the universe to unite all things, but how can an individual interpret such a power?

Building a Cathedral of Song

Fundamentally, the interpretation of the song remains highly individualized, but it tends to take on a spiritual form for many individuals. Gary Snyder, an environmental activist and author of the poem “Without,” shares these very same thoughts:

the silence
of nature
within.
the power within.
the power
without.
the path is whatever passes—no
end in itself.
the end is,
grace — ease—

healing,
 not saving.
 singing
 the proof

the proof of the power within. (*Turtle Island* 6)

Snyder thus interprets the concept of song as a raw power, and each part of the universe has the capability to tap into it. Although spirituality is commonly associated with a sense of otherworldliness, Snyder, a practicing Buddhist, suggests true communion with the divine exists in the surrounding natural world. In *The Practice of the Wild*, Snyder states: “The world is not only watching, it is listening too” (22). In stark contrast, John Calvin, the figurehead behind Muir’s principal religion, overlooks the natural world as a direct means of spirituality. Charles Partee, author of *The Theology of John Calvin*, indicates that “Calvin’s view of the natural world is developed from his understanding of Scripture rather than from cosmological inferences” (80). Naturally, Calvin’s views differ significantly from Whitman and Muir’s comprehension of the universe. For instance, Gates asserts that “to Muir all human beings have spiritual strivings, and the wilderness is a natural place to consummate the longings of the soul.” Partee adds that Calvin’s “account of creation is based, not on scientific observation, but on theological conviction” (80). From the time Muir was an adolescent, he recognized something special in the natural world and flung himself into it, and, as previously established, he sought to seek his own interpretation of the wild, constructing his own individual religion.

As song flows through Muir’s wilderness, he reminds me of Mary Hunter Austin’s character, Ms. Walker, in “The Walking Woman.” Muir may have walked away

from society, but he remains grounded by his principles which were deeply-rooted. Although Ms. Walker is walking lonely in the desert, unbounded to societal norms, she remains true to her own principles: work, love, and child. Austin continues: “To work and to love and to bear children. *That* sounds easy enough. But the way we live establishes so many things of much more importance.” As Ms. Walker remains grounded by her own values, Muir upholds his own religious beliefs. Thus, his interpretation of the song remains grounded by his own truth. As Mary Hunter Austin was writing during the same time as Muir, Edward Abbey (1927-1989), author of *Desert Solitaire*, also finds himself spiritually drawn to the wilderness for precisely the same reasons. Abbey reinforces this notion, for he viewed the desert as his own personal refuge: “*Into the center of the world, God’s navel, Abbey’s country, the red wasteland*” (4; *emphasis added*). As Biblical hymn and verse ground Muir’s upbringing, he forms his own interpretation of the song around his early childhood. Specifically, when Muir visits Alaska, he hears the song of the cosmos and applies a Biblical interpretation:

We turned and sailed away, joining the outgoing bergs, while “Gloria in excelsis”¹⁰ still seemed to be sounding over all the white landscape, and our burning hearts were ready for any fate, feeling that, whatever the future might have in store, the treasures we had gained this glorious morning would enrich our lives forever. (“Discovery of Glacier Bay”)

The church of Muir’s father is no longer necessary to revel in God’s grace, as the song of the wilderness becomes materialized into something far more spiritual in Muir’s eyes:

¹⁰ “Gloria in Excelsis” is sung during a mass and a reference to the “glory of God” manifest. The song refers to the songs the angels, showering their hymns across the cosmos, sang during the birth of Christ.

“Beneath the frosty shadows of the fiord we stood hushed and awe-stricken, gazing at the holy vision ... we [had] seen the heavens opened and God made manifest” (“Discovery of Glacier Bay”). Moreover, drawing a direct correlation to the *Christian Philosopher*, Muir appears to echo Mather’s thoughts:

There is a Suspicion that every Star may be a Sun to other Worlds in their several Vortices. Consider then the vast Extent of our Solar Vortex and into what Astonishments must we find the Grandeur and Glory of the Creator to grow upon us! Especially if it should be so (as he thinks) that all these Worlds have their Inhabitants, whose Praises are offer’d up unto our GOD! (Mather)

Muir, echoing Mather, attributes these very same philosophies to the natural world around him. Larry Gates, author of the *Nature of Mysticism*, states that “it is probably safe to say that no American ever experienced wilderness as religious ecstasy more than Muir. He called the Sierras the Range of Light and -- as Light in the sky -- they evoked in him immense religious longings.” Thus, Muir, holding his religious foundations close, connects his experiences to the divine, for he recognizes heaven’s choir singing to him.

Through song and wilderness, Muir essentially establishes his own cathedral and worships. Gates reinforces that “when [Muir] was in the wilderness he sensed the entire world glowing with God’s radiance.” For instance, in “The Grand Canyon of the Colorado,” Muir revels: “All the rocks, as if wild with life, throb and quiver and glow in the glorious sunburst, rejoicing. Every rock temple then becomes a temple of music; every spire and pinnacle an angel of light and song, shouting color hallelujahs” (80). Therefore, Muir, just like Zwinger and Monroe, hears an interpretative song resonating in

the canyon. Also, Muir held a deep fascination with Cathedral Rock in Yosemite, as he “repeatedly compared Yosemite Valley and the mountain peaks around it to a church or a cathedral” (Gates). Most convincingly, Gates asserts that when Muir finally climbed atop Cathedral Rock, he “said it was the first time since he had come to California that he had been to church. Atop this giant monolith, he had the sensation of doors opening, revealing the transcendent realm.”

A sense of transcendence therefore becomes an important factor in defining Muir’s interpretation of the universal song. Krause, sharing a similar experience to that of Muir, explains these claims as he recalls: “With my portable recording system, I didn’t feel like I was listening as a distant observer; rather, I had been sucked into a new space – becoming an integral part of the experience itself” (*The Great Animal Orchestra* 15). Ralph Waldo Emerson, in his essay “The Oversoul,” reflects that “a thrill passes through all men at the reception of new truth, or at the performance of a great action, which comes out of the heart of nature” (154). The excitement of Muir’s reveling in his universal truths embodies his writings. In “Mountains of California,” Muir interprets this truth as “the Song of God, sounding on forever. So pure and sure and universal is the harmony.” Holmes captures these sentiments best as he states: “Muir’s experiences and responses were leading him to a complex array of emotionally charged associations and images held together by a personal psychological logic” (180). Thus, the building of Muir’s cathedral filled with mountains and wildness began with a deep desire for reconciliation, and he finally ascertained it. Holmes continues that “at the center of this logic lay a desire for and image of a religiously and emotionally satisfying home, these

desires and images grounded in his past but open to dynamic transformation in the present” (180).

To my surprise, Krause remains skeptical of Muir’s authenticity as a naturalist. In fact, he even butts heads with Muir’s rendition of wild harmonies, even though they both emphasize the same patterns within the wilderness. Krause notes that “by eliminating [the] ‘unsightly’ Native residents, the well-heeled, educated members of Muir’s newly formed Sierra Club could supposedly improve upon Yosemite’s management” (*The Great Animal Orchestra* 144). Sarcastically, he adds, “Muir wrote lovely paeans to the sound of wind blowing through the High Sierra conifers, signaling a place he thought only he could understand” (*The Great Animal Orchestra* 144). However, the very notion of interpretation remains highly individualized. As established, Muir construed the harmonies in the wilderness with a distinctive religious interpretation due to his upbringing. Krause, though, interprets the same harmonies as orchestral pieces, for his background is inspired by the composition of orchestral music, not a conflicted religious upbringing. Throughout *The Great Animal Orchestra*, he consistently refers to various soundscapes as musical pieces, ranging from forth-century Chinese poetry (93) to Gabriel Faure’s “Requiem” (47). Specifically, when recording soundscapes in Masai Mara, he notes that every distinct voice of the highly orchestrated acoustic arrangement of insects, spotted hyenas, eagle-owls, African wood-owls, elephants, tree hyrax, distant lions, and several knots of tree frogs and toads seemed to fit within its own acoustic bandwidth. Each one so carefully placed that it reminded him of Mozart’s elegantly structured Symphony no. 41 in C Major, K. 551 (84). Krause observes: “Woody Allen once remarked the Forty-first proved the existence of God. That night, listening to the most

vivid soundscape experience I'd had to that moment, I came as close as I would ever come to said revelation" (84). Therefore, the interpretation of the universal song remains subjective, for a theist (Muir) and a non-theist (Krause) both share a profound connection to the natural world based solely upon their backgrounds.

Notably, not only does Muir use music as a means of reconnecting with his religion, he uses the harmonies to gain a better understanding of the life around him. The animals, surrounding Muir in the wilderness, find themselves entwined in musical elements. In "Water-Ouzel," Muir observes a tiny, spectacular bird, who sings through all seasons. Muir notes that "however dark and boisterous the weather, snowing, blowing, or cloudy, all the same he sings, and with never a note of sadness. No need of spring sunshine to thaw *his* song, for it never freezes." The very nature of music emanates from this peaceful creature, as the bird's song never fades. Furthermore, when Muir sings to a Douglas squirrel, the wild little creature intently listens. Humorously, Sir Douglas, as Muir respectfully calls the squirrel, and many creatures of the wild are disrupted by his foreign song: "[The animals] at once stopped eating, stood erect, and listened patiently until I came to 'Old Hundredth,' when with ludicrous haste every one of them rushed to their holes and bolted in, their feet twinkling in the air for a moment as they vanished" ("The Douglas Squirrel"). The animals ultimately disliked Muir's presented harmony, for it disjointed their own. This foreign harmony, which Muir introduces into the animals environment, shatters the normal patterns or rhythms that the animals are used to articulating.

Fundamentally, the universal harmony, which Whitman forms into poetry and Muir formulates into a cathedral of healing, guides life and serves as a means of spiritual

connection. Muir associated a spiritual truth within the patterns and recognized, as he used the same song to reconnect and reconcile with his conflicted religious past. Although Muir never made amends with his father, he gained a greater transcendent understanding through the patterns and soundscapes of the wilderness. For in the wilderness, Muir finally achieved a sense of reconciliation with his abusive and disconcerting childhood. With a strong foundation in music and theology, he created his own theoretical church within the wilderness. Moreover, the wilderness, streaming with wild visual patterns and acoustical harmonies, provided him with a sense of place. Thus, nature's music, the unifying song which is prevalent throughout Krause's theories and Whitman's poems, ultimately has the ability to stimulate countless emotional responses and to heal, for it is nature's truth.

Conclusions: The Loss of a Song

Just as music unites and guides the universe, if one loses such a connection, a sense of loss becomes immediately associated with the disconnect. Moreover, Krause takes these concepts one step further and suggests the quality of the song can gauge the vitality of its corresponding ecosystem. He asserts that “soundscape ecology assumes that the natural soundscape is an ongoing, profoundly informative narrative. It's the world's first theatrical, acoustic manifestation that among other things provides us with instant feedback as to how we're treating the natural world” (“Listening to Wild Soundscapes”). However, what happens when the soundscape is interrupted? What happens when a creature becomes cut off from its harmony?

The idea of mechanical, human-made noise or disruption plays an integral factor in defining the “health” of natural harmonies. For instance, Schafer notes that “the songs of humpback whales can be analyzed in musical terms. Each song seems to consist of a series of variations on constant themes or motifs, repeated differing numbers and times” (37). In “The Loss of Natural Soundscapes,” Krause asserts: “Because of the noise introduced into the environment by cruise boats traveling in Alaska’s Glacier Bay, humpback whales have been observed trying to swim away and hide from the noise, ducking behind spits of land or large blocks of ice apparently in an effort to get into quieter ‘shadow’ zones” (29). Think back to when you were a child and you would tap on your fish tank. The fish, which were once systematically floating together, would immediately disperse, shooting in every other direction across the tank. I remember my father distinctly telling me, “Don’t do that. It’s like an earthquake for those fish.” The smooth patterns of the water were essentially displaced by a foreign, almost alien

vibration. Now, think if you did not stop tapping the fish tank. You just kept tapping and tapping and tapping. What would the fish do? They would have to readjust. Krause concludes that “where once there were many, in recent years, fewer and fewer whales have been seen in the bay. Some biologists believe that human-induced noise is a major contributing factor to the falling numbers of humpback whales in these waters” (29).

Not only aquatic species are being affected by the introduction of mechanical noise. When Krause was conducting acoustic research in the Amazon Basin, he noticed:

A multi-engine jet flying low over the jungle interrupted the dawn chorus of birds and insects where we were recording. When we returned to our lab and examined the effect of the jet noise on the natural soundscape, we found the disruption induced many creatures to stop vocalizing while others altered patterns significantly. (29)

Ultimately, he proposes foreign noise, when introduced into an established harmony, destroys it. Edward O. Wilson asserts that “extinction is accelerating and could reach ruinous proportions during the next twenty years. Not only are birds and mammals vanishing but smaller forms, such as mosses, insects, and minnows” (*Biophilia* 121-122). The way humans treat the earth undoubtedly becomes reflected in the growing extinction rates of other creatures and in an interview with Jascha Hoffman, a writer for *Nature* magazine, Krause recollects:

In 1988, I recorded in a site in the Sierra Nevada mountains before it was ‘selectively logged’ – a technique meant to have no impact on creature density

and diversity of habitat. The place looked the same afterwards, but there was only sporadic birdsong, with almost no frogs or insects. (308)

Naturally, at first glance, the “recovered” environment may appear improved from the human interruption; however, the soundscape of the area suggests otherwise. Krause concludes that “when you record an unhealthy ecosystem or ‘biome’ – one that has been slashed and burned, for example – the voices tend to be faint and chaotic, like an untuned orchestra without a score” (308).

This theme is also explored in *Walden*, as Thoreau reflects on the disruption of the natural patterns around him as “the whistle of the locomotive penetrates [his] woods” (90). Much as the man-made noise disconnects Thoreau from his place, perhaps humanity is therefore faced with an imposing question: With all of the distractors (traffic, smart phones, television, etc.) around us, are *we* also tone deaf to the universal song? Could this be the same reason many individuals find solace when they revisit the wilderness? N. Scott Momaday, in his novel *House Made of Dawn*, plays with this idea. The protagonist, Abel, is torn away from the natural world he once knew and is thrown into a mechanical, urban world. Throughout the majority of the novel, Abel acts as a lost being, for he “was no longer attuned to [the song]” (53) and lacks any sense of piety. Eventually, Abel does begin to find a sense of redemption but only through reconnecting with the land. At the end of novel, Momaday writes that Abel was “going to sing about the way it used to be, how there was nothing around but the hills and the sunrise and the clouds” (129), for initially, Abel “wanted to make a song ... but he had not got the right words together” (53). Morris Berman, a philosopher and author of *The Reenchantment of the World*, explains similar ideas presented in *House Made of Dawn*: “Rather than put ourselves in

harmony with nature we seek to conquer it and the result is ecological destruction. Who, then, knows more about nature, about ‘reality’? The person who caresses it, or the one who takes it by force, vexes it?” (178). In drawing a direct correlation to the disregard, Tempest Williams offers the human race a warning: “If we ignore our connection to the land and disregard and deny our relationship to the . . . nature of earth, we will render ourselves impotent as a species” (54). Tempest Williams essentially promotes the same idea seen throughout Krause’s theories, Whitman’s poetry, and Muir’s writing: balance. If the harmony falls out of sync, much like an orchestra, it will fall apart. Leopold, in his essay “Round River,” shares: “For the biotic community to survive, its internal processes must balance, else its member-species would disappear” (191).

Unquestionably, something special resonates in the wilderness, for as subsequent authors and critics have argued correctly and as this thesis contends, Whitman and Muir recognized how such harmonies balanced the world around them. Through such harmonies, Muir, yearning for spiritual fulfillment, ascertains a greater connection with his God, as Whitman, a non-theist, gains a better understanding of himself, as an instrument of the cosmos. One hundred years later, Krause identifies these harmonies as soundscapes, acoustic environments forming a guiding orchestra of sound, and suggests we can judge a biome’s wellness simply by listening to it. These three individuals separated by a century essentially recognize the same unifying pattern: reciprocity and balance. Thus, theists and non-theists alike are able to establish a better understanding of self, depending on his/her worldview, with a connection to the song. In this same sense, Tempest Williams encourages us to “take off our masks, to step out from behind our personas-whatever they might be: educators, activists, biologists, geologists, writers,

farmers, ranchers, and bureaucrats-and admit we are lovers, engaged in [the search of] place. Loving the land. Honoring its mysteries. Acknowledging, embracing the spirit of place-there is nothing more legitimate and there is nothing more true” (54). Similarly, Krause adds that “the whisper of every leaf and creature implores us to cherish the natural sources of our lives, which may hold secrets of love for all living things, especially our own humanity” (29). Ultimately, Krause, Whitman, and Muir recognize a sense of connectedness between animals, landscape, and cosmos, for music is forever interwoven into the blueprint of the universe.

Works Consulted

- Abbey, Edward. *Desert Solitaire*. New York: Touchstone, 1968. Print.
- Austin, Mary Hunter. *The Walking Woman*. n.p.: University of Virginia Library, 1995.
eBook Collection (EBSCOhost). Web. 15 Apr. 2013.
- Barrus, Clara. "Camping with Burroughs and Muir." *The John Muir Exhibit*. Sierra Club, 2013. Web. 19 Mar. 2014.
- Bate, Jonathan. *The Song of the Earth*. London: Harvard University Press, 2002. Print.
- Bates, Mary. "Good Vibrations." *National Geographic*. National Geographic Society, 2013. Web. 23 Nov 2013.
- Berman, Morris. *The Reenchantment of the World*. New York: Cornell University Press, 1981. Print.
- Burroughs, John. *Birds and Poets with Other Papers*. New York: Hurd and Houghton, 1877. *Hathi Trust Digital Library*. Web. 31 Dec. 2013.
- . *Whitman: A Study*. New York: Hurd and Houghton, 2009. *Project Gutenberg*. Web. 31 Dec. 2013.
- Butler, Jim and Elaine Butler. "Kindred Spirits: The Relationship Between John Burroughs and John Muir." *Sharp Eyes: John Burroughs and American Nature Writing*. Ed. Charlotte Zoe Walker. Syracuse: Syracuse University Press, 2000. Print.

- Castellini, Edgar M. "On Tops of Mountains." *John Muir: Life and Work*. Ed. Sally M. Miller. Albuquerque: University of New Mexico Press, 1993. 153-165. Print.
- Emerson, Ralph Waldo. "Nature." *The Works of Ralph Waldo Emerson*. Ed. George Sampson. London: George Bell & Sons, 1906. *Hathi Trust Digital Library*. Web. 1 Apr. 2014.
- . "The Over-Soul." *The Essays of Emerson*. Ed. Arthur L. Humphreys. London: The Royal Library, 1908. 135-178. Rollins Olin Library. Web. 16 Apr. 2013.
- Ewart, Arthur W. "Vertical Sauntering." *John Muir: Life and Work*. Ed. Sally M. Miller. Albuquerque: University of New Mexico Press, 1993. 43-60. Print.
- Gates, Larry. *The Nature Mysticism of John Muir. The John Muir Exhibit*. The Sierra Club, 2000. Web. 2 Apr. 2013.
- Gifford, Terry. *Reconnecting with John Muir: Essays in Post-Pastoral Practice*. Athens: University of Georgia Press, 2006. Rollins Olin Library. Web. 2 Apr. 2013.
- Gilmore, Grant R., Hilde Zenil, and Vincent Encomio. "Passive Acoustics as a Monitoring Tool for Evaluating Oyster Reef Restoration." *Restore America's Estuaries*. Restore America's Estuaries, 2012. Web. 9 Apr. 2014.
- Grafton, Anthony. "Harmony of the Spheres." *The Classical Tradition*. Cambridge: Harvard University Press, 2010. *Credo Reference*. Web. 1 Apr. 2014.
- Hoffman, Jascha. "Q&A Bernie Krause: Soundscape Explorer." *Nature* 485.7398 (2012): 308. *ProQuest*. Web. 27 Feb. 2014.

- Hogan, Linda. "Dwellings." *American Earth*. Ed. Bill McKibben. New York: Library of America, 2008. 809-814. Print.
- Holmes, Steven J. *The Young John Muir: An Environmental Biography*. Madison: The University of Wisconsin Press, 1999. Print.
- Hull, Jeff. "The Noises of Nature." *New York Times* Feb 18 2007: D16. *ProQuest*. Web. 18 Mar. 2014 .
- Johnson, William Ted. "The Spiritual Lives of Great Environmentalists: John Muir, Calvin DeWitt." *Electronic Green Journal* 24 (2006): 2-14. *ProQuest*. Web. 9 Apr. 2013.
- Kaplan, Justin. *Walt Whitman: A Life*. New York: Simon and Schuster, 1980. Print.
- Keats, John. "On the Grasshopper and Cricket." *John Keats*. Ed. Susan J. Wolfson. London: Longman, 2006. Print.
- Kennedy, Keith E. "'Affectionately Yours.'" *John Muir: Life and Work*. Ed. Sally M. Miller. Albuquerque: University of New Mexico Press, 1993.17-34. Print.
- Killingsworth, Jimmie. *Walt Whitman and the Earth: A Study in Eco-poetics*. Iowa: University of Iowa Press, 2004. *The Walt Whitman Archive*. Web. 7 Nov. 2013.
- Krause, Bernie. "The Great Animal Orchestra." California Academy of Sciences. 2011. Web. 17 Apr. 2013.
- . *The Great Animal Orchestra*. Hachette Book Group, 2014. Web. 28 Apr. 2014.
- . *The Great Animal Orchestra*. New York: Back Bay Books, 2012. Print.

- . "The Loss of Natural Soundscapes." *Earth Island Journal* Spring 2002: 27-9.
ProQuest. Web. 27 Feb. 2014.
- . *Wild Sanctuary*. Bernie Krause, n.p. Web. 28 Apr. 2014.
- Kroodsma, Donald. *The Singing Life of Birds: The Art and Science of Listening to Birdsong*. Boston: Houghton Mifflin Company, 2005. Print.
- Leopold, Aldo. "Round River." *Sand County Almanac: And Sketches Here and There*.
 Oxford: Oxford University Press, 1989. Print
- . "The Geese Return." *Sand County Almanac: And Sketches Here and There*. Oxford:
 Oxford University Press, 1989. Print.
- Levitin, Daniel. *This Is Your Brain On Music*. New York: Penguin Books, 2006. Print.
- "Listening to Wild Soundscapes." Washington, D.C.: National Public Radio, 2011.
ProQuest. Web. 27 Feb. 2014.
- Lopez, Barry. *Arctic Dreams*. New York: Vintage Books, 2001. Print.
- . "Gone Back to Earth." *Grand Canyon Reader*. Ed. Lance Newman. Berkeley:
 University of California Press, 2011. 108-114. Rollins Olin Library. Web. 15 Apr.
 2013.
- Loving, Jerome. *Walt Whitman: The Song of Himself*. Berkeley: University of California
 Press, 1999. Print.
- Mather, Cotton. *The Christian Philosopher 1721, Excerpts*. National Humanities Center,
 2009. Web. 8 Apr. 2014.

- Momaday, N. Scott. "A First American Views His Land." *American Earth*. Ed. Bill McKibben. New York: Library of America, 2008. 570-581. Print.
- . *House Made of Dawn*. New York: HarperCollins Publishers, 2010. Print.
- Monroe, Harriet. "Bright Angel Trail." *Grand Canyon Reader*. Ed. Lance Newman. Berkley: University of California Press, 2011. 84-92. Rollins College. Web. 15 Apr. 2013.
- Muir, John. *The John Muir Exhibit*. Sierra Club, 2013. Web. 15 Apr. 2013.
- . *John of the Mountains: The Unpublished Journals of John Muir*. Ed. Linnie Marsh Wolfe. Boston: Houghton Mifflin Company, 1938. Print.
- . "The Grand Canyon of the Colorado." *Grand Canyon Reader*. Ed. Lance Newman. Berkley: University of California Press, 2011. 77-83. Rollins Olin Library. Web. 15 Apr. 2013.
- Nash, Roderick Frazier. *Wilderness and the American Mind*. 4th ed. New Haven: Yale University Press, 2001. Print.
- Nudelman, Franny. "'This Compost': Death and Regeneration in Civil War Poetry." In *John Brown's Body: Slavery, Violence, and Culture of War*. Chapel Hill: North Carolina University Press, 2004. *Literature Resources from Gale*. Web. 15 Oct. 2013.
- Partee, Charles. *The Theology of John Calvin*. Louisville: Westminster John Knox Press, 2008. Print.

- Phelan, Steve. "Whitman's Environmental Imagination." *Song of Wekiva: Florida's Wild River and Its Democratic Vista*. Rollins Faculty Publications, 2010. Web. 14 Apr. 2014.
- Pijanowski, Bryan C., et al. "Soundscape Ecology: The Science of Sound in the Landscape." *Bioscience* 61.3 (2011): 203-16. *ProQuest*. Web. 27 Feb. 2014.
- Polli, Andrea. "Soundscape, Sonification, and Sound Activism." *AI & Society* 27.2 (2012): 257-68. *ProQuest*. Web. 27 Feb. 2014.
- Porter, Eliot. "The Living Canyon." *American Earth*. Ed. Bill McKibben. New York: Library of America, 2008. 380-391. Print.
- Reynolds, David S. *Walt Whitman's America*. New York: Alfred A. Knopf, Inc, 1995. Print.
- Rountree, Rodney A., Grant Gilmore, Clifford A. Goudey, Anthony D. Hawkins, Joseph J. Luczkovich, and David A. Mann. "Listening to Fish: Applications of Passive Acoustics to Fisheries Science." *Fisheries*. 31.9 (2006): 433-446. *Taylor & Francis*. Web. 26 Mar. 2014.
- Schafer, R. Murray. *The Soundscape: The Tuning of the World*. Rochester: Destiny Books, 1994. Print.
- Shubin, Neil. *The Universe Within: Discovering the Common History of Rocks, Planets, and People*. New York: Pantheon Books, 2013. Print.
- Snyder, Gary. *The Practice of the Wild*. Berkley: Counterpoint Press, 1990. Print.

- . "Without." *Turtle Island*. 6. New York: New Directions Books, 1974. Print.
- Stap, Don. *Birdsong: A Natural History*. New York: Oxford University Press, 2005.
Print.
- Taylor, H.J. "John Muir, Interpreter of Nature." *Bios*. 11.3 (1940): 131-140. *JSTOR*.
Web. 15 Apr. 2013.
- Thoreau, Henry David. *Walden; Or, Life in the Woods*. New York: Dover Thrift Editions,
1995. Print.
- Tonolla, Diego. "A field-based investigation to examine underwater soundscapes of five
common river habitats". *Hydrological Processes* 24.22 (2010) 3146-3156. *Wiley
Online Library*. Web. 16 Apr. 2014.
- Weis, Monica. "Translating the Untranslatable: A Note on 'The Mystic Trumpeter.'" *Walt Whitman Quarterly Review*. University of Iowa, 1983. Web. 11 Sept. 2013.
- Werner, W.L. "'The Mystic Trumpeter' as Autobiography." *American Literature* 7.4
(1936) 455-458. *EBSCO*. Web. 15 Oct. 2013.
- Whitman, Walt. *Leaves of Grass and Other Writings*. Ed. Michael Moon. New York: W.
W. Norton & Company, 2002. Print.
- . *Notebooks and Unpublished Prose Manuscripts*. Ed. Edward F. Grier. New York:
New York University Press, 1984. Print.
- . *Specimen Days*. London: Walter Scott, 1887. *Hathi Trust Digital Library*. Web. 4
Apr. 2014.

Williams, C.K. *On Whitman*. Oxford: Princeton University Press, 2010. Print.

Williams, Terry Tempest. *The Open Space of Democracy*. Eugene: Wipf & Stock, 2004.

Print.

---. "The Erotics of Place." *Whole Earth Winter* 1997: 53-4. *ProQuest*. Web. 3 Apr. 2014.

Wilson, Edward O. *Biophilia*. Boston: Harvard University Press, 1986. Print.

Wolfe, Linnie Marsh. *Son of the Wilderness: The Life of John Muir*. Wisconsin:

University of Wisconsin Press, 2003. Print.

Zwinger, Ann. "Bright Angel Trail." *Grand Canyon Reader*. Ed. Lance Newman.

Berkley: University of California Press, 2011. 22-30. Rollins Olin Library. Web.

15 Apr. 2013.