

12-2014

The Essentialism of Music in Human Life and Its Roots in Nature

Katricia D. F. Stewart
Linfield College

Follow this and additional works at: https://digitalcommons.linfield.edu/muscstud_theses



Part of the [Music Commons](#)

Recommended Citation

Stewart, Katricia D. F., "The Essentialism of Music in Human Life and Its Roots in Nature" (2014). *Senior Theses*. 6.

https://digitalcommons.linfield.edu/muscstud_theses/6

This Thesis (Open Access) is protected by copyright and/or related rights. It is brought to you for free via open access, courtesy of DigitalCommons@Linfield, with permission from the rights-holder(s). Your use of this Thesis (Open Access) must comply with the [Terms of Use](#) for material posted in DigitalCommons@Linfield, or with other stated terms (such as a Creative Commons license) indicated in the record and/or on the work itself. For more information, or if you have questions about permitted uses, please contact digitalcommons@linfield.edu.

LINFIELD COLLEGE
McMinnville, Oregon

The Essentialism of Music in
Human Life and its Ties to Nature

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Arts in Music

Katricia Darlene Frances Stewart

Presented to the Department of Music
December 2014

THESIS COPYRIGHT PERMISSIONS

Please read this document carefully before signing. If you have questions about any of these permissions, please contact the [DigitalCommons Coordinator](#).

Title of the Thesis:

The Essentialism of Music in Human Life and its Roots in Nature

Author's Name: (Last name, first name)

Stewart, Katricia D. F.

Advisor's Name

Dr. Faun Tiedge

DigitalCommons@Linfield is our web-based, open access-compliant institutional repository for digital content produced by Linfield faculty, students, staff, and their collaborators. It is a permanent archive. By placing your thesis in DigitalCommons@Linfield, it will be discoverable via Google Scholar and other search engines. Materials that are located in DigitalCommons@Linfield are freely accessible to the world; however, your copyright protects against unauthorized use of the content. Although you have certain rights and privileges with your copyright, there are also responsibilities. Please review the following statements and identify that you have read them by signing below. Some departments may choose to protect the work of their students because of continuing research. In these cases, the project is still posted in the repository but content will only be accessible by individuals who are part of the Linfield community.

CHOOSE THE STATEMENT BELOW THAT DEFINES HOW YOU WANT TO SHARE YOUR THESIS. THE FIRST STATEMENT PROVIDES THE MOST ACCESS TO YOUR WORK; THE LAST STATEMENT PROVIDES THE LEAST ACCESS.

 X I agree to make my thesis available to the Linfield College community and to the larger scholarly community upon its deposit in our permanent digital archive, DigitalCommons@Linfield, or its successor technology. My thesis will also be available in print at Nicholson Library and can be shared via interlibrary loan.

OR

 I agree to make my thesis available only to the Linfield College community upon its deposit in our permanent digital archive, DigitalCommons@Linfield, or its successor technology. My thesis will also be available in print at Nicholson Library and can be shared via interlibrary loan.

OR

 I agree to make my thesis available in print at Nicholson Library, including access for interlibrary loan.

OR

 I agree to make my thesis available in print at Nicholson Library only. Updated April 2, 2012

Updated April 2, 2012

NOTICE OF ORIGINAL WORK AND USE OF COPYRIGHT-PROTECTED MATERIALS:

If your work includes images that are not original works by you, you must include permissions from original content provider or the images will not be included in the repository. If your work includes videos, music, data sets, or other accompanying material that is not original work by you, the same copyright stipulations apply. If your work includes interviews, you must include a statement that you have the permission from the interviewees to make their interviews public. For information about obtaining permissions and sample forms, see <http://copyright.columbia.edu/copyright/permissions/>.

NOTICE OF APPROVAL TO USE HUMAN SUBJECTS BY THE LINFIELD COLLEGE INSTITUTIONAL RESEARCH BOARD (IRB):

If your research includes human subjects, you must include a letter of approval from the Linfield IRB. For more information, see <http://www.linfield.edu/irb/>.

NOTICE OF SUBMITTED WORK AS POTENTIALLY CONSTITUTING AN EDUCATIONAL RECORD UNDER FERPA:

Under FERPA (20 U.S.C. § 1232g), this work may constitute an educational record. By signing below, you acknowledge this fact and expressly consent to the use of this work according to the terms of this agreement.

BY SIGNING THIS FORM, I ACKNOWLEDGE THAT ALL WORK CONTAINED IN THIS PAPER IS ORIGINAL WORK BY ME OR INCLUDES APPROPRIATE CITATIONS AND/OR PERMISSIONS WHEN CITING OR INCLUDING EXCERPTS OF WORK(S) BY OTHERS. IF APPLICABLE, I HAVE INCLUDED AN APPROVAL LETTER FROM THE IRB TO USE HUMAN SUBJECTS.

Signature Signature redacted Date December 13th, 2014

Printed Name Katricia Stewart

Approved by Faculty Advisor Signature redacted Date 12/15/14

Table of Contents

Prologue	3
Introduction.....	4
Philosophy of Music and Nature	4
Music in Evolution and History.....	6
Animal Music.....	7
Musical Communication: Understanding the Environment	8
Music Communication: In Social Context.....	9
Universal Language of Music	13
Music Beyond Survival: Early Forms of Music	15
Nature in Music: The Seasons	23
Antonio Vivaldi: <i>The Four Seasons</i>	24
Ludwig Van Beethoven: <i>Symphony No. 6</i>	45
Pyotr Ilyich Tchaikovsky and Modern Composers	51
Conclusion	54
References.....	55

Prologue

From the time of its conception, the process of researching, writing, and working on this thesis project was a consistent irony to me. Everything I read and analyzed pointed to the importance of spending more time in nature, more time making music, and less time behind the barriers of technology. Yet the deeper I wove myself into the topic, the more time I had to spend staring at a computer within the white walls of Academia.

I grew up in a mountain valley in Washington state, where my childhood was preoccupied by running through the woods, climbing trees, falling out of trees, and going on adventures. The deeply spiritual connection between nature and me grows stronger with time and experience, and grew stronger yet with the understanding I gained from this research.

As I write, criss-cross-legged on my couch with the windows open, I find myself distracted by the chirping birds, the peaceful breeze blowing the tapestries on the walls. All I long to do is close my laptop, strap on my backpack, and go walk in the woods for a few days; to pull out my guitar and harmonize with the breeze; to bike to the coast and walk along the sand, hear the tide sigh with relief, and watch the ocean waves dance for the moon. All I long to do is leave these walls and go where my heart is so strongly gravitating: toward nature, toward nature's music, immersed in its beauty, drowning in the peaceful solitude of where my soul comes from and belongs.

The understandings I have gained from this research point me back to nature, to music, and to my human roots. The passion within me for this topic is incessant, leading me to separate the initial irony in my mind from the hope that others may be inspired to consider their place in a society so unfortunately disconnected from the natural world, from the joy of making music, from our deeply rooted human nature, and from the pieces of life that might make it worthwhile.

Introduction

The connections between our emotions, music, and the natural world have only been examined in dualities, rather than as an interwoven triangle of elements that are innate and stem from our evolutionary history as a species. Our emotions are profoundly tied to musical sounds, while we also have a deeply rooted emotional connection with nature. The music of the natural world provided the foundation for crucial aspects of our human evolution, making our connections with both music and nature innate. Composers, musicians, poets, and storytellers have recognized this for centuries, exploiting these inherent connections in order to convey emotion and meaning through their creative work. Composers throughout many generations, and from regions across the world, have sought to inspire emotions in the listener through the portrayal of nature in music.

In order to fully appreciate and understand how artists have been able to pull our emotions so heavily, it is crucial to examine how far back our history reaches as a musical species, immersed in the natural environment.

Philosophy of Music and Nature

"The appreciation of music is a universal feature of mankind; music-making is found in all societies and it is normal for everyone to participate in some manner" (Mithen, 2006). How did this innate propensity toward music making come to be, and what purpose or function did it serve to leave it so engrained in our human nature?

Nearly two millennia ago, Taoist philosophers proposed music to be "a potent cosmic force capable of expanding human intelligence and enhancing communion with the non-human world" (De Woskin, 2002; Lawson, 2009). Other ancient Chinese writings further emphasized the importance of listening to nature, with the ability to hear and listen being symbolic of the

sage (De Woskin, 1982). These two philosophies of historical Asian culture, emphasizing the importance of nature and listening, parallel the ancient gardens created by Chinese Taoists to improve mental, emotional, and physical health (Louv, 2011). Although there was no scientific evidence to support such claims, the philosophers of the ancient world were the scientists of their time, reflecting critically upon experience and observation in order to guide society.

The connection with nature and its music that these philosophies advocate has relentlessly maintained its grasp on the human spirit: over two thousand years later, the philosophies of David Dunn and Pauline Oliveros, two modern composers from America, mirror the ideas of those Chinese Taoist thinkers. These two modern composers believe that (1) listening is one of the best means for understanding our profound physical interconnectedness with the natural world (Dunn, 1999); and (2) the ability to listen is the source of human creativity and intelligence (Oliveros, 2005).

The idea of nature's music being connected to, if not a primary source of, the human capacity for wisdom and inspiration has many roots that reach far back into human history and have prevailed over time. What these ancient and modern philosophies have in common is their suggestion that attentive listening to nature helps us to perceive the interconnectedness of life – our integration with the natural world – via hearing and internalizing layers of the natural environment that our eyes simply cannot perceive (Dunn, 1999; Lawson, 2009; Oliveros, 2005;). Although all of these philosophies emphasize the importance of sound and listening for intelligence, creativity, and wisdom, the modern philosopher-composers also argue that an *unawareness* of sound is an indication of being disconnected with one's environment, which too often occurs in urban areas most of us in Western society live in (Oliveros, 2005). Many other philosophies throughout history have reflected this sentiment, making music an integral and

ubiquitous aspect of everyday life. Science – about two thousand years behind – is only just beginning to demonstrate the physical, emotional, and mental affects of both nature and music on human emotion and psyche, shedding light on why these two elements have always been so critical to human life.

Music in Evolution and History

Before we can understand the importance of music in human life, it is crucial to comprehend how deeply our musical roots and instincts reach in our evolutionary history. In our ancestors' lives, music had a necessary function beyond the mere enjoyment of it that we experience today. Musical ability is thought to have evolved before actual language, as there is a strong relationship between music, symbolism, and body movement that would indicate it as a form of communication more basic than language (Tolbert, 2001). Ethnomusicologist John Blacking further proposed that a “nonverbal, prelinguistic, ‘musical’ mode of thought and action” occurred before language acquisition in human history (Blacking, 1984). Many evolutionary scientists argue that our modern human instinct to sing is equal to our predisposition for speaking (Bannan, 1997).

Some of these theories are evidenced through the vocalized calls of African apes, bonobos, and chimpanzees – the ancestors to the gorilla, whom we evolved from (Mithen, 2006). For example, monkeys from further back in our evolution, such the vervet monkey, have specific calls that resemble words. Gelada baboons (also a distant ancestor) participate in word-like chatter that translates to variations in pitch to express different emotions. What is striking is that the same waveforms of monkey and human pitch-change are used to express the same emotional states, demonstrating that we were primed for emotionally laden, musical speech before we even evolved into human form (Mithen, 2006). Furthermore, gibbon monkeys, another human

ancestor, sing before and after mating and when defending territory – songs consisting of rhythmic long notes varying in pitch (Mithen, 2006).

After the evolution from monkeys to our most recent ancestor, the hominid, it is theorized that a communication system developed that was holistic, multi-modal, manipulative, and musical – combining the various communication systems that we see in modern apes and monkeys (Mithen, 2006). These and many more examples confirm that humans evolved from monkeys who utilized communication systems that are musical in nature, exploiting rhythm, melody, synchronization, and turn-taking. These evolutionary developments primed us for a human history of music.

Animal Music

These early forms of communication among our ancestors, which sought in some way to imitate and depict nature, are seen within modern, isolated tribes. The songs and stories of Hutu and Tutsi tribes of East Africa incorporate the ultra-low frequency communications of elephants; on the other side of the globe, the Tlingit, Inuit, and other seafaring tribes have been listening to the sounds of whales through the hulls of their boats for thousands of years (Gray, Krause, Atema, Payne, Krumhansl, & Baptista, 2001). Yet those of us immersed in the urban environment have only heard this beautiful animal music through recordings, which were only captured in the last century and do not do justice to the experience of listening to these animal songs in their context.

Perhaps our innate attraction – and universal reactions – to various elements of music are because music was created on a foundation based in the natural environment. Recent research has found that the music of both humpback whales and many bird species have surprising similarities to the structures of our human music. Humpback whales utilize musical intervals that

reflect the intervals in our musical scales, while also using tones and timbres that are similar to the sounds we create in our music. Humpbacks further have a tendency to mix percussive sounds with pure tones in way similar to human symphonic music (Payne, 2000). If these findings aren't surprising enough, whales also structure their songs in formats similar to the way we tend to: initial theme, elaboration of that the theme, and an eventual return to the original theme (known as ABA form in Western music). Humpback whale songs also contain repeating refrains that form melodic rhymes, similar to the refrains and rhymes in human music (Payne, 2000).

A more commonly known example of how closely animal music reflects human music is within the songs of birds. Birds use the same rhythmic variations and effects, intervals, and combinations of notes that humans do (Hartshorne, 1973). Moreover, they consistently transpose motifs into different keys (Armstrong, 1963); follow the same musical scales as humans (Borror & Reese, 1956); and have a tendency to sing in canon (Kroodsma, 1982; Verner, 1975).

Clearly, we are discovering many connections and similarities between animal music and human music. Considering that musical communication preceded linguistic communication, it is logical that animals would also utilize music as a form of interaction. The notion that our human foundation of music-making has a similar structure to that of animals is also unsurprising when considering that our ancient ancestors imitated nature's sounds in order to converse about the environment with one another.

Musical Communication:

Understanding the Environment

With the spread of human ancestors into Europe between 1 million and 2 million years ago, along with the big-game hunting that is evidenced to have begun at least 40,000 years ago, humans needed a way to communicate about the natural environment in order to survive. The

most organic way to do this without language is through mimicry – via gestures, body language, and sound. This includes mimicry of animals, bodies of water, and materials observed by one person who wishes to communicate those findings to another (Mithen, 2006).

Anthropological studies reveal that this mimicry of animals, objects, and people is universal among current hunter-gatherer societies (that have remained unexposed to modern societies) as part of their hunting and religious practices (Marshall, 1976). Other such analyses indicate that the mimicry used by our ancestors often included the sounds of animals, utilizing those sounds to identify animals instead of giving those animals separate names. This mimicry also incorporated vocal gestures to indicate the animals' characteristics (Berlin, 1992, 2005; Jespersen, 1983).

Because these mimicry developments preceded a comprehensive language of words and grammar, the communication system used by our ancient ancestors assimilated "not only gesture but also dance, with extensive use of rhythm, melody, timbre and pitch, especially for the expression of emotional states" (Mithen, 2006, p. 172). These theories of our musical communication-based history depict our initial musical inclinations as being rooted directly in – and intimately related to – the natural world, expanding from that basis afterwards.

Musical Communication:

In Social Context

Although this musical communication system developed out of necessity, its uses spread far beyond survival and were intricately tied to the social practices of early human communities. The impact that these musical behaviors had on emotional states was likely vital to the formation and manipulation of social relationships (Mithen, 2006). Expanded use and development of musical communication may have been spurred by its usefulness in attracting

mates, as well as its effectiveness in the communication between mothers and infants (Mithen, 2006).

These examples of how musical communication expanded beyond the necessity of survival are merely a precursor to music being integrated into social contexts for an abundance of purposes: worship, entertainment, social bonding, intellectual pursuits, ritual, meditation, and many other objectives throughout all cultures. However, a common thread throughout these diverse ways of using music is that music-making has primarily been a communal, collaborative activity. Why is that?

The synchronization of vocalization and body movement is speculated to have provided a sense of cooperativeness among our ancestors that enabled them to engage in a variety of other behaviors requiring mutual support and reliance (Merker, 1999, 2000). Moreover, groups of modern humans who are interdependent are especially inclined to make music and dance together, as these activities are found to create group cohesion (McNeill, 1995). This is because music-making and dancing are forms of interaction that allow individuals to demonstrate their willingness to cooperate, which promotes solidarity when survival depends on teamwork. Music-making (such as singing) is also an activity that individuals can participate in while doing other tasks – a cheap and easy way to further promote bonding between members of a given social group (Axelrod, 1984).

Even more compelling, modern psychology provides evidence that music-making creates "boundary loss." When a group gathers, each individual comes to the circle in a personal and removed state of mind and emotion, making the group vulnerable to conflict. However, communal music-making enables all of the individuals in a group to mold their mental and emotional states into one shared state – moving from an individual sense of self to a social group

identity. This creates a collective unit that promotes a sense of belonging and cooperation, which in turn promotes survival (McNiell, 1995). Throughout our human history, therefore, communal music-making was likely used to create a group identity that, in turn, promoted survival; examples of this musical bonding are still observable in modern culture.

Overall, these examples and many more from both modern research and historical studies provide evidence that communal music-making was a way to advertise one's willingness to cooperate via its tendency to promote social bonding, group identity, and group cohesion. Music-making was utilized to influence the emotions of others in the group, while also being crucial to mate selection and infant care-taking. These theories are supported by modern human societies: "When living in conditions of adversity, they make music. Such music enables social bonding and facilitates mutual support" (Mithen, 2006, p. 236). Considering that our ancestors lived in non-linguistic, non-symbolic, ice-age conditions, music-like communication was essential to thriving in a communal setting (Mithen, 2006).

Music has since evolved to serve many purposes and is incorporated into a variety of social and personal contexts that extend far beyond the group cohesion and emotional manipulation it provided to our ancestors. What is important to keep in mind is that our tendency toward and use of music is innate and began within the context of the natural environment, stemming from a long evolutionary development that is now encoded into our genes.

Within this evolution of musical communication, the earliest forms of music likely intertwined dance and song. Music psychologist John Sloboda asserts that music is the embodiment of the physical world in motion – that we feel music in our bodies and describe it in words related to movement. John Blacking further suggested that music is initiated “as a stirring of the body.” Considering the ways in which we spontaneously – yet universally – utilize

gestures and body language when speaking, the same was likely true for music in its early use among humans (Mithen, 2006).

The first forms of music are postulated to have been based in the rhythmic sounds one could make with the human body. An example of this is hand-clapping, which naturally gives way to the stomping that has been noted as the key element to preserved ancient dance forms. These early forms of rhythm and dance eventually evolved to incorporate rhythm via other methods: initially, from striking objects with sticks, and eventually progressing throughout history to the modern drum set (Pratt, 1935).

The significance of this is how these original rhythms were likely co-coordinated with the movement of labor, adding tones and melodies later on. This simple development in our human history – rhythm and melody accompanying the daily toil – set the stage for a human history filled with music. Although it is difficult to determine the origin of intentional rhythm combined with melody, it likely came long before the complexities of language, engraining music and rhythm deeply into our history as a species (Einstein, 1937).

What is unfortunate, however, is that the majority of musical history within a social context resides in the records of kings, priest, poets, and philosophers rather than that of the common folk – leaving a large gap in our understandings of history. Before such music could have reached the church and court, it was likely developed by common folk for several millennia – as they would have been the performers for those kings and priests of high-culture. The only understandings we have of early music that did *not* reside in the records of those at the top of the social ladder is the music that remains with remote groups of peoples (such as the earlier-mentioned tribes in remote areas of Africa, Malaysia, and other areas) that were isolated from outside influence until very recently in human history.

Understanding the importance of music as a social influence and central aspect of daily life necessitates an exploration of how music interacts with the internal world of the individual – primarily, with emotion.

The Universal 'Language of Emotion'

Music is often said to be the 'language of emotion,' and emotions have evolutionarily guided our actions and survival (Evans, 2001). When we make decisions, we do so with limited time, and our final decision is often based on contradictions and partial information (Oatley & Johnson-Laird, 1987). With such uncertainty guiding decision-making, the process is impossible with logic alone. Therefore, emotions are a necessity for our daily actions: they allow us to engage in 'rational' thinking, helping us find a balance between the logic of the physical world and the unpredictability of the social world. Unsurprisingly, our most complex human emotions relate to social interactions and relationships, as emotions provide us with the ability to interact socially and make decisions (Mithen, 2006). Therefore, we have become (over millions of years, as apes also have this experience), masters at the complexity of both expressing our emotions and interpreting the emotions of others (Frank, 1988; Ekman, 2003). This non-verbal communication is a part of our daily lives, influencing our decisions, behaviors, and perceptions of the world around us.

There are many ways to utilize this important foundation of emotional guidance, music being one of them. We often use music to either express how we are feeling or to induce a certain mood within others and ourselves. Conveniently, if we choose the correct music we are able to accomplish this with incredible efficiency (Niedenthal & Setterlund, 1994). Moreover, our emotional reactions to music are often based on the musical qualities we hear, not simply the words in a song. For example, the emotional reactions we associate with different musical

intervals (such as a major third, a tritone, or a minor scale) are seemingly universal: cross-cultural studies suggest that the emotional experiences humans have of musical qualities are consistent across cultures and time (Oelman & Loeng, 2003).

These musical intervals are simply systems of relationships between different pitches. Our reaction to various intervals is often referred to as 'tonal tension' (a term coined by musicologist Deryck Cooke in his book *The Language of Music*). Yet there are other elements of music that also have a strong relationship to our emotional reactions, such as dynamics, articulations, and even instrumentation (Cooke, 1959; Juslin, 1997). Juslin's (1997) clever studies of listeners and performers indicate that we are able to understand the performer's emotional expression in music beyond the learned (cultural) associations we have of emotions with various intervals, dynamics, articulations, and instrumentation. Performers often interpret the music they play based on the emotion they want to convey – and we are incredibly accurate interpreters of that emotion.

These studies suggest that there is an underlying universality guiding how we interpret both music by itself and emotional expression with the performance of music. This demonstrates how innate our processing and understanding of music is, and how intricately it is tied to our emotions. As the earlier cited studies indicate, the experience and expression of emotions is a core aspect of human life and influences behavior, while the expression and inducement of emotional states often occurs through music – all of which would've been crucial to the social interactions of our ancestors before they developed language, and is still a crucial component to human life (Isen, 1970; Isen, Daubman, & Nowicki, 1987; Forgas & Moylan, 1987). Overall, this points to music's innate, essential, and intricate ties to our human experience, and partially explains its pervasiveness in modern life.

Music Beyond Survival:

Early Forms of Music

Long after the origins of musical communication, language and music developed independently, allowing music to mature as a separate piece of human life – though its importance was not diminished. After the development of language, music took on many different roles – within various cultures and societies – that served purposes far beyond its initial use for survival. Music has long been a critical element within religion and spirituality, in social and political realms, as well as daily life.

Societies throughout the world utilize music in a variety of ways: music enables communion with the dead for the Kaluli people in Papua New Guinea; and it helps to define social relations for the Venda people in South Africa (Ball, 2010). Many ethnomusicologists over the last several decades have identified a profusion of social functions for music, such as: emotional expression, pleasure, dance accompaniment, validation of rituals and institutions, and promotion of social stability (Ball, 2010). Music also serves as an outlet for emotions and behaviors that might not be socially tolerated if enacted through speech or writing (Ball, 2010). To understand how music became such an integral part of our lives, it is important to examine our oldest pieces of evidence suggesting the pervasiveness of music in human life.

The ancient texts and instruments that were left by our ancestors preserve an important piece of our musical history, being a key component in understanding the role music played throughout ancient societies. The evidence for this musical history begins with the oldest known musical instrument in the world: a bone pipe found in southern Germany, dating to around 36,000 years ago (Mithen, 2006). It is assumed that the ice-age humans who made this flute-like pipe would've also made other instruments. However, the earliest drawings that arguably suggest

"instruments" used to create sound date to circa 13,500 BCE in the Magdalenian cave of Les Trois Freres (Abraham, 1979).

Considering more irrefutably preserved representations of musical instruments and performance, the oldest date from *c.* 3000 BCE in Mesopotamia, though the instruments and forms of music presented likely developed long before then. A confusing piece of juxtaposing archeological evidence, however, is that the illustrations of instruments in Mesopotamia are over 30,000 years younger than the oldest-known instruments found in southern Germany. These discrepancies demonstrate that perhaps there is a rich history of music that is lost to the physical erosion of passing time.

Similarly, in Egypt, remains of instruments and paintings depict groups of musicians and a singer, as well as dancers clapping their hands or using clappers (*c.* 2635-2155 BCE). Later reliefs illustrate further development and elaboration of these instruments, as well as the creation of new instruments. Various types of harps, trumpets, lutes, lyres, and pipes portrayed dating to *c.* 1550-1080 BCE suggest a cultural and artistic expansion in Egypt that enabled music to progress further yet. These instruments were made with a variety of materials that were both domestic and imported, showing that music was spread between different cultures through travel and political dominance. This is a pattern that is seen throughout many areas in the world where paintings, texts, and instruments have been preserved.

What is important to observe, however, is how these paintings and reliefs depict the *use* of music. Music is portrayed as an essential component in home life, at feasts, in processions and funeral ceremonies, and in temples. Moreover, religious song and chant throughout the world helped to establish musical traditions that were created before musical notation existed, enabling this ancient music to persist and eventually be preserved in text. These notated melodies and

musical practices are much more ancient than the texts themselves, having been long-held oral traditions that were passed down through culture and widespread use. The persistence of these traditions validates the importance that musical practices held and their prevalence amongst ancient cultures.

There are several musical traditions – outside of the often-emphasized Western music – that reveal music's importance in daily life. In the Fertile Crescent region where Islam was practiced (around the time of Muhammad, 570-632 CE), instrumental music was initially a "forbidden pleasure," emphasizing the belief in music's power to sway ethos and passions (though some instrumental music was still permitted in social festivities). However, many forms of music were not considered 'music' in Islamic practice: call to prayer, the cantillation of the Koran, chanting of verses, prayers, praises, and hymns. These music-like pieces of religious life all differed in style, creating an expansive musical tradition that would later be recognized as significant to cultural and musical history. The Umayyad Caliphs (661-750 CE; the second of the four major Islamic caliphates established after the death of Muhammad), however, loved all forms of music: they encouraged folk music while also advancing a classical practice and theory that was utilized in the courts. With the soon-after establishment of Baghdad as the capital (768 CE), political powers emphasized both court music and "music of the people" (Abraham, 1979, p. 191). Therefore, there was further emphasis on the development of both classical and folk-popular music. It was at this time that music became more widely accepted as an important form of cultural exchange, a value that was also emphasized in other societies at this time.

The sub-continent of India also contained a rich musical tradition spanning both spiritual and daily life. First and foremost, the hymns of the Sanskrit collection the *Rigveda* likely have not changed for over 3,000 years because of the emphasis on precise accuracy in their

intonations. Based on these intoned verses, the songs of the *Sāmaveda*, for offerings and sacrifices, also maintained its place in history through oral and cultural tradition. The importance of music in spirituality was emphasized by the Hindus in India, who "believed in the power of music – or rather *samgita*, the combination of vocal music, instrumental music, and dance – to influence the whole workings of the universe . . . in its power to help the self break from the endless cycle of birth, death, and rebirth and become absorbed into the spirit of the universe" (Abraham, 1979, p. 559). Primarily through oral tradition, India also developed both classical and popular music, similar to the ways in which many other cultures cultivated such practices – via both religious and common use.

Eastern Asian cultures, especially ancient Chinese, also believed in the "transcendental nature and power of music" (Abraham, 1979, p. 564). For example, a treatise that systematized the relationship between musical sounds and cosmic order (i.e. the nature of music, which is currently derived mathematically) dates to *c.* 250 BCE. By 239 BCE, the Chinese had developed musical theory and practices that were thoroughly documented. They further related music to both social and cosmic order, associating various pitches (based on the concept of 5th's and the pentatonic scale) with important political and spiritual beliefs. For example, the 'five notes' symbolized important political figures; they also corresponded to the 'five virtues', 'five colors', 'five elements', 'five planets', and 'five directions' (the four points of a compass plus the center). Clearly, music was intricately tied to spiritual practices and understandings in ancient Chinese culture.

Moreover, various imperial courts throughout Chinese history employed massive orchestras, with many emperors supporting musical development and education; both religious and secular development of music; and music coupled with dance. The Chinese also valued

cultural exchanges of music, being influenced by Buddhist chant and spreading popular song and dance throughout Asia. By 800 CE, styles, practices, instruments, and musical ideas from Chinese societies had begun to spread throughout Asia (Abraham, 1979). Clearly, music was a predominant part of daily life for many of these Eastern cultures.

From around 600 BCE through 800 CE, many other cultures developed musical systems and forms of notation that demonstrate the emphasis they placed on preserving music and its practices. In ancient Greece, music dominated daily life, being considered the most "important factor in the shaping and control of morals and institutions" by the time of Plato (Abraham, 1979, p. 26). Indeed, some of the earliest depictions of music come from the *Iliad* (where Apollo plays music) and the *Odyssey* (with Phemius and Demodocus). These two examples illustrate the priority that the Greeks placed on music's centrality to both spiritual and daily life. Plato's *Republic* and *Laws* further describe the Greek belief of balancing all aspects of life, emphasizing the importance of music in a well-rounded education. From the ancient Greek perspective, the sounds of music were emotional, whereas words were rational – therefore being a complementary relationship that all people should engage in.

This Greek *mousike* included poetry and dance, as these three elements combined were considered a natural synthesis that existed together before they were ever separate entities. The ancient Greeks also believed in the ethical and therapeutic powers of music, commending music's ability to influence morals as well as internal states of being. Because of these beliefs that permeated ancient Greek culture and life, a thoroughly developed musical system of harmony, chords, and scales became widely practiced. This system was derived scientifically with ratios (initially by Plato bringing these concepts from Mesopotamia), culminating in the notation system described in Alypius' *Introduction to Music* (c. 350 CE). Inevitably, this

emphasis on music spawned a depth of musical study, which eventually evolved into the natural division between 'practical music' and the professional musician.

The establishment of the professional musician is evident within Aristotle's writings. These writings state the importance of passive listening to professional musicians, and that the layman should listen to the virtuoso rather than strive to reach his level of achievement. Aristotle also believed that music appeals directly to human emotions without words, a focus on absolute music that recurred throughout human history. This division between the professional and the layman engaging in music reveals the level at which music had developed by this time in human history, pointing to its significance in daily life and the emphasis placed on musical development.

In the Hebrew tradition of this time, there were many secular uses of music: songs for harvest, vintage songs, workers' songs, love songs, and songs of mourning. These uses of music reached far beyond the culture of church and court – both of which have been the primary sources of musical evidence that have informed Western musical history.

Within the Mediterranean, the spread of music, musical concepts, and instruments was fostered by Roman dominance and the spread of Christianity. The Book of Chronicles in the Bible emphasizes the importance of vocal and instrumental music in the daily order of worship, turning the focus of music toward religious uses. The Bible and the hymns that stem from it are one of the first, and most potent, places from history where we can observe the depiction of nature in music, with many verses describing nature and these verses often being reflected in song.

However, there is also evidence that Romans incorporated music in every social activity: work, recreation, worship, festivals, satire, love, drinking, annual celebrations, and religious

celebrations all involved song and dance. Similar to Greek developments, the Romans established professional actors and singers with the insertion of music into theater by *c.* 400-300 BCE. Further evidence suggests a distinct development of folk music – especially with the bagpipe, which was only used in taverns and never sacred or court music (Abraham, 1979).

This division of religious music and common music in Roman musical institutions was an important way of preserving musical traditions. Professional musicians were primarily employed through the church, courts, and higher classes, enabling an incredible amount of musical development to occur within the religious tradition and the popular forms of virtuosic music throughout each period. This emphasis, however, could not override music's common uses in daily life and Roman music's roots in ethos: music and dance remained a common part of daily life, though much of our history's musical records account for only those within the religious traditions (because the church had the resources available for such preservation). Because of the church's protection of sacred music, we have many resources describing the psalms, hymns, masses, chants, and notations of music within religious practice. Unfortunately, it was not until 800 CE that this notation spread to secular songs, though the secular and common use of music was surely occurring during that gap.

By 1000 CE, musical entertainment and performance was widespread, as understood by accounts of Troubadours and Jongleurs, who performed songs (as well as other entertainment) to villages, courts, and castles. This further evolved into the courtly songs of knights (1100-1300 CE), as well as popular melodies and songs that were widespread and well-recognized, remaining as important songs of cultural tradition (Abraham, 1979).

By roughly 1500 CE, the music of the church became an exhausted technique, whose emphasis on purity reached perfection with Palestrina and Victoria. The caveats of common

music up to this point led to the eventual development of professional secular music, where further depictions of nature in music are notable. Perhaps this is because, before the Industrial Revolution, life revolved around our connections and dependence upon the natural world: gardening, shepherding, and other outdoor activities were a daily part of life. During the Industrial Revolution, life became more removed from nature, and therefore the arts saw a decreased emphasis on nature. It was not until the Romantic era that music returned to a focus on nature in its songs and imitations.

The movement of Romanticism was a reaction against the Industrial Revolution and the scientific rationalization of nature. There was a particular focus on the appeals of nature in its untamed beauty, as well as emotions and their validation as an authentic source of aesthetic appearance (Burkholder, Grout, & Palisca, 2013). Although the focus on both nature and emotion was most historically prominent in – and most readily associated with – the Romantic era, many musicians both before and after this time frame held similar beliefs. Their compositions strove to depict various aspects of the natural world in music, with the goal of eliciting specific emotions in the listener related to the natural world. Within nature, there are many things a composer could have focused on: a particular scene, the sky, various types of weather, a tree, animals, bodies of water, etc. When the desire to express our deeply rooted emotional ties to natural world is added to this, we see the effect of numerous compositions produced related to nature and the feelings it arouses in us.

Unfortunately, secular music was rarely documented before the Renaissance era, and we only know of the kinds of secular music that were popular because of indirect accounts. However, it can be assumed that if there was poetry about nature before the Renaissance, there was likely music about it, as poetry and song were often combined for entertainment outside of

the church (Burkholder, Grout, & Palisca, 2013). One example of this is the Greek poet Theocritus' *idylls* in the third century BCE, which depicts a high esteem and praise of rural life's simplicity. The Bible's *Song of Songs* also evokes imagery from the natural world to tell a story of love and passion. And the most famous pastoral poetry depicting the natural world and the seasons is Virgil's *The Eclogues*, written in 37 BCE. Throughout the millennia, many poets pursued an expression our human connection to nature, and often these poems were sang or put into some form of folk music. Therefore, music that seeks to express our emotional ties to nature has potentially been abundant for much of human history.

Nature in Music: The Seasons

Within the realm of music and poetry that depicts nature (and that we have records of), the seasons are a topic of particular popularity. Composers from different eras in history, as well as different parts of the world, sought to illustrate their perspectives of the seasons through music, including the emotions those seasons elicited. Within both instrumental music and vocal music, composers have focused on individual seasons as well as all four in one grand piece, seeking to characterize the emotions that often accompany the changing of seasons or the images of a particular season. Across these various compositions, there are many similarities in how composers perceived and mimicked nature, as well as within the emotions they sought to elicit in the listener through the music's depiction of these scenes in nature.

Why is it that the transition between one season and another elicits such strong emotions? Or that a particular season can have such affectionate value in our lives, striking us in a deeply powerful way, eliciting emotions we have a difficulty describing? As we've seen, a major part of our innate connection with both nature and music is rooted in our evolutionary history as a species – an engrained characteristic of being human that has only been reinforced as time has

passed. Considering this foundation and the ways in which even absolute music pulls on our emotions, music has the ability to help us express the emotional ties we have to nature. Composers have long sought to depict the seasons in music, combining the mystifying emotionality of music with the equally perplexing emotions elicited by the ever-transforming natural world.

Antonio Vivaldi: *The Four Seasons*

Although many composers have written pieces for various seasons, Antonio Vivaldi's (1678-1741) *The Four Seasons* (Opus 8, 1725) is a timeless work that has captured the imaginations of countless performers and listeners for centuries. How it pulls the emotions and portrays each of the four seasons, creating images and sensations in the imagination of the listener, is an important place to begin for understanding how later composers did the same. Although Vivaldi lived in Italy during the Baroque era, he was far ahead of his time in his conceptualization of nature in music – embracing a compositional focus more often associated with the Romantic era.

Long after the premier of *The Four Seasons* and its widespread popularity, sonnets were found (which are assumed to be Vivaldi's) that go with each concerto. There is a poem for each season, with specific markings along each line to determine where it parallels the music; the lines of the poem are also reflected in the original score. With these sonnets, we can examine the exact scene and emotion Vivaldi was seeking to elicit from the listener, as well as understand how he tried to do this through examining the musical techniques used. It is crucial to understand that Vivaldi did not intend for *The Four Seasons* to be performed with a program of the sonnets. Because of this, *The Four Seasons* is a phenomenal example of how to elicit the sounds, images, and emotions of the seasons with only instrumental music. The following analysis looks to the

sonnets to more thoroughly understand the images Vivaldi was seeking to evoke within the music, each piece of each sonnet being directly tied to a part of the music.

The Four Seasons is a set of four concertos originally composed for a string orchestra comprised of violin, viola, cello, contrabass (basso continuo), and a solo violin. Each concerto has three sections, totaling 12 sections, which reflects the 12 months of the year and the three months comprising each season. (Each sonnet has been translated from two sources: Klopick, 2004; and Robbins Landon, 1996; and the musical examples from IMSLP. Musical examples are featured without clefs or key signature. Please consult the score for the full example.)

Concerto No. 1, "Spring"

Allegro

"Springtime has arrived and happily
The birds welcome it in joyful song,
And the streams flow at the breath of zephyrs
With sweet murmurings. Meanwhile:
The sky darkens, and there is thunder and lightening.
Afterwards, however, the little birds return
And all sing anew.

Largo

And so, on the pleasant, flowery meadow under the
Rusting trees, the shepherd sleeps with his faithful
Dog at his side.

Allegro

To the festive sounds of country bagpipes, nymphs

And shepherds dance under the glorious spring sky."

The opening *Allegro*, in common time and the key of E major, depicts gaiety and freshness. Although given many variations throughout, the motif used for spring has an overarching presence in this first movement that enables cohesiveness while conjuring the energy and life of spring.

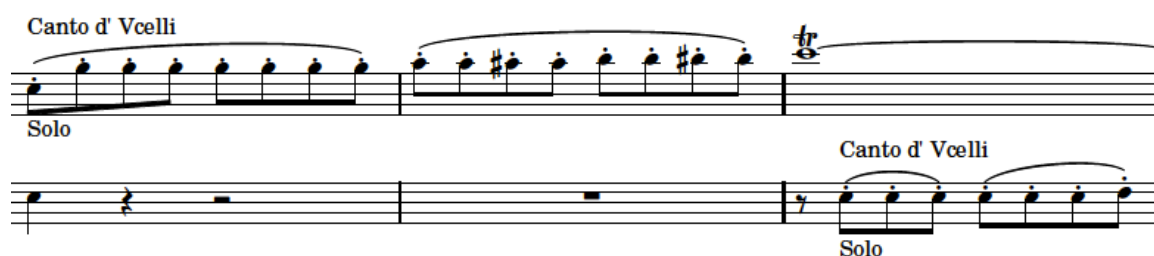
Example 1. Vivaldi, *The Four Seasons*, Spring I, mm. 1-3

Giunt'è la Primavera

This motif's energetic rhythm, over quarter notes in the bass, gives the movement vitality and a forward impulse. The alternating dynamic markings of *forte* and *piano* emphasize the excitement of springtime, nature's returning to life after winter. This joyous sparkle is also noticeable in the musical figures used for the birds, which are imitative of true birdsong:

Example 2. Vivaldi, *The Four Seasons*, Spring I, mm. 19-21

Example 3. Vivaldi, *The Four Seasons*, Spring I, mm. 59-61



Of particular importance is use of the trills – a common theme for portraying birds throughout the entire work, combined with the use of upward two-note slurs (Example 2). Another way they are portrayed in both this movement and later movements is via an upward interval jump to repeated 8th-notes (Example 3). These techniques continue the emphasis of energy and gaiety that was established with the spring motif at the beginning. Later in this section, Vivaldi constructs additional themes and techniques to portray the storm of lightening and thunder:

Example 4. Vivaldi, *The Four Seasons*, Spring I, mm. 44-45



Example 5. Vivaldi, *The Four Seasons*, Spring I, mm. 48-49



The quarter-note *tremolo* for the thunder initially alternates with upward rushing scales of lightening (Example 4), followed by 16th-note triplets in the solo violin also depicting lightening (Example 5). The storm is brief, followed by a return of the birds and spring theme.

The next section, *Largo*, changes to 3/4 meter and is marked "largo e pianissimo sempre," indicating a slow and quiet contrast to the opening allegro. The solo violin takes on the role of the dozing goatherd, with a gentle melody and techniques for goat snores, such as trills over held notes:

Example 6. Vivaldi, *The Four Seasons*, Spring II, mm. 3-4



Beneath the solo violin melody, the violins play undulating 16th's, which harmonically progress very slowly, mimicking the rippling leaves of the meadow. As depicted in Example 6, the viola plays the role of the barking dog, repeating the short-long rhythm throughout the entire movement.

The third section of Concerto No. 1, *Danza Pastorale*, is an allegro in a 12/8 dance meter. The violins are muted (for a more realistic effect of bagpipes) with the dance rhythm of the bagpipes. The bass alternates between a long-held drone and dotted-quarter notes to emphasize both the drone of the bagpipes and the folk-dance beat:

Example 7. Vivaldi, *The Four Seasons*, Spring III, mm. 5-6



Springtime's brilliance and life continues to be emphasized in this section via the violin solo's extravagance (Example 8), with infrequent trills throughout reminding us of the birds.

Example 8. Vivaldi, *The Four Seasons*, Spring III, mm. 20-22

The various techniques, themes, and motives Vivaldi implemented throughout this movement, in conjunction with the major key, illustrate the buoyancy and gaiety of life re-awakening after the winter. However, the *Largo* section, with the meadow's rippling leaves and the barking dog, portrays a sleepy, brisk, and cloudy spring day in the countryside. This contrast contains a hint of lonely sorrow, of a lone shepherd with his dog and goatherd. This sets up the loving dance of the third section, but gives it a tinge of doubtful hope or longing – the kind one gets upon witnessing a budding romance but doubting its longevity. With this opening

movement, Vivaldi creates a mood that provokes an overarching shadow of sadness, storms, and a vague melancholy that continues through each movement.

Concerto No. 2, "Summer"

Allegro non molto

“Beneath the blazing sun's heat,
 Man and herd languish, pines are scorched.
 The cuckoo begins to sing, and with him
 Sing the turtledove and nightingale.
 Sweet breezes stir the air, but the North wind threatens.
 The shepherd trembles, frightened of the coming storm
 And his fate.

Adagio e piano - Presto e forte

He stirs his weary limbs for fear of
 The lightening's flash and thunder's roar,
 While gnats and flies swarm.

Presto

Alas, his worst fears are justified,
 The thunder shakes the heavens
 And hail beats down the corn.”

The *Allegro* begins *pianissimo*, in 3/8 meter and the key of G minor. The minor key eludes to the heaviness and glum of the summer heat. In the opening section we hear the downward movement of off-beat eighth notes, intermixed with upward struggles toward the quarter notes that are never quite able to hold.

Example 9. Vivaldi, *The Four Seasons*, Summer I, mm. 1-8



Example 10. Vivaldi, *The Four Seasons*, Summer I, mm. 9-15



In this section, the heaviness of the heat – portrayed in the downward, offbeat eights (Example 9) – is emphasized by the 3/8 meter. These notes are followed by a struggle upward – evoking the image of lethargically striving to move through the heat. The ties across the downward notes (Example 10) suggest a resignation to the burden of the sun, or trodden steps and heavy breathing in the heat. This rhythmic and melodic pattern repeats throughout the movement as a motif for summer.

After this languishing in the heat, the meter changes to 4/4, *allegro e tutto sopra il canto*, where the cuckoo begins to sing. Again, we see the upward interval jump in 16th-notes portraying the bird chirping, while the bass part, emphasizing the lowest notes in its rhythmic and melodic pattern, maintains the sense of heaviness and heat:

Example 11. Vivaldi, *The Four Seasons*, Summer I,
mm. 32-33



After the reintroduction of the summer motif (Examples 9 and 10), the turtledove and goldfinch join, with the previously used techniques of trills and two-note slurs to indicate birdcalls:

Example 12. Vivaldi, *The Four Seasons*, Summer I, m m. 58-62; 67-70; 72-75



Shortly after the statement of these bird themes, the breezes begin, with *piano* triplets slurred upward, indicating an initially gentle breeze (Example 13). But soon this changes to a more syncopated rhythm, and then is overtaken by the North wind in rushing scales and chromaticism, with rapid octave and interval leaps (Example 14):

Example 13. Vivaldi, *The Four Seasons*, Summer I, mm. 80-83



Example 14. Vivaldi, *The Four Seasons*, Summer I, mm. 92-93 (Solo violin and bass)



The sobbing, worried shepherd soon interrupts the wind with his cries about the approaching storm. This is portrayed in a connected, melancholic violin solo (Example 15) with a simple bass line underneath, soon followed again by the rapid winds.

Example 15. Vivaldi, *The Four Seasons*, Summer I, mm. 122-125



This melody of the shepherd's worry continues, alternating with the motifs of the building North wind. The next section, *Adagio*, introduces the melody of the shepherd's weariness, with a long-noted line over the violins warning of the coming thunder (Example 16). The rest of this section alternates between the increasing thunder (*presto*) and the shepherd's weariness and growing fear (*adagio*) (Example 17).

Example 16. Vivaldi, *The Four Seasons*, Summer II, mm. 1-2



Example 17. Vivaldi, *The Four Seasons*, Summer II, mm. 16, 17-18

Adagio

Presto e Forte

Adagio e Piano

Adagio e Piano

Presto

Adagio

Presto

With the following 3/4 *Presto*, still in G minor, we have the full storm. The techniques used for both thunder and lightening in Spring and earlier sections of Summer return (Example 18), accompanied by arpeggios of massive leaps over quarter-notes in the violins and viola, indicating the hail storm (Example 19):

Example 18. Vivaldi, *The Four Seasons*, Summer III, mm. 11-13

Example 19. Vivaldi, *The Four Seasons*, Summer III, mm. 41-43

Example 20. Vivaldi, *The Four Seasons*, Summer III, mm. 57-59



The rest of the movement continues with progressions of thunder, lightening, and hail either alternating or all at once (Example 20), ending “Summer” with an irrepressible storm.

One has to question why summer, a season of light and abundance, was instead viewed by Vivaldi as heavy, filled with fear and defeat. The key of G minor and the 3/8 metered motif at the opening emphasize the heavy burden of the sun and heat. The over-powering storm – this time adding hail, typical of a summer storm yet a step further than the storm featured in “Spring” – defeats the weary, anxious shepherd.

Considering Vivaldi’s sonnets, he successfully portrayed summer as a burdensome season that trudges on for too long. The heaviness is easily perceived, bringing the listener to feel sluggish along with the summer motif; to worry and fear the approaching thunder and lightening with the shepherd; to be overwhelmed by the chaos of the storm and hail. The reappearance of the summer birds (building off the motifs used for birds in “Spring”) adds minimal buoyancy and tranquility to the movement. What is interesting is how Vivaldi expanded the number of birds from “Spring” to “Summer” – suggesting that spring is an awakening of the world, while the abundance of birds in summer actually adds to the theme of overwhelming heaviness portrayed

in other aspects of the movement.

Concerto No. 3, "Autumn"

Allegro

"The country peasants celebrate with dance and song

The joy of a bountiful harvest

And the Bacchus liquor is drank freely,

Their joy ends in deep slumber.

Adagio molto

The dance and song are renounced

The cool breezes are pleasant,

The season increasingly inviting

A savoring of deep slumber.

Allegro

The hunters emerge at dawn for the hunt

With horns, guns, and dogs for the chase.

The beasts flee, their trail is followed

Exhausted and wounded, they flee, languishing,

And die, cowering."

"Autumn" is in the pleasurable key of F major, with the initial dance in 4/4 meter. The opening motif is a standard dance rhythm that Vivaldi pushes forward via the quarter note followed by the eighth-note pickup, as well as the eighths primarily moving upward melodically, giving the dance energy. This rhythm repeats while the dynamics specify an interchange between *forte* and *piano*, indicating an energetic and joyful celebration.

Example 21. Vivaldi, *The Four Seasons*, Autumn I, mm. 1-5



The solo violin plays the part of the stumbling drunk, with 16th-note arpeggios, scales, and falling octaves – creating a picture of drunken dancing and festivity (Example 22). This solo is intermixed with short, five-note snippets of the dance theme, portraying an attempt at continuing the dance, but those attempts are consistently overridden by the commotion of drunken dancers (Example 23).

Example 22. Vivaldi, *The Four Seasons*, Autumn I, mm. 32-35



Example 23. Vivaldi, *The Four Seasons*, Autumn I, mm. 39-41



Eventually, the dance continues, but accidentals, dissonances, and chromaticism suggest a growing rowdiness. Sporadic interjections from the drunken dancers occur (via the solo violin passages, Example 23), yet the group dance prevails – with syncopated, hiccupped, and changing rhythms suggesting an ever-increasing drunkenness.

Eventually, a drunken slumber takes over the dancers. With a change to *larghetto*, the solo violin plays a sweet, peaceful melody over continued eighth-notes in the violins, suggesting that others are still dancing, or that the drunks are dreaming of the dance. Either way, the dance does not disappear, as Vivaldi keeps the dance motif in the background:

Example 24. Vivaldi, *The Four Seasons*, Autumn I, mm. 90-93



The dance theme returns, closing this section of the movement, suggesting a joyful celebration of harvest that lasted long into the following day. The following section, *Adagio Molto* in 3/4 meter, portrays a slow-moving, peaceful melody, with elements of chromaticism and muted strings for a quiet, dream-like effect.

Example 25. Vivaldi, *The Four Seasons*, Autumn II, mm. 12-18 (violins and viola)



This slow, peaceful melody eventually molds into long notes held across several bars in all strings, ending this section of “Autumn” on a *pianissimo* fermata, awaiting the surprise of the next section.

The final section, *Allegro* in 3/8 meter, depicts the energetic hunters embarking out into the woodland. The overarching rhythmic motif is one of excitement, adrenaline, and a galloping chase.

Example 26. Vivaldi, *The Four Seasons*, Autumn III, mm. 1-4

La Caccia
Allegro

Later, we see the motif of fleeing beasts, depicted in 16th-note triplet arpeggios (intervals

that mimic those of the hunting horn of Vivaldi's era, a clever way to evoke the image with only strings). Under this violin solo the rest of the strings play infrequent quarter notes, which imitate guns firing at the fleeing prey (Example 27). Later, these shots become more frequent and syncopated, increasing the excitement of the hunt as it draws closer to an end.

Example 27. Vivaldi, *The Four Seasons*, Autumn III, mm. 78-81



These two motifs – the galloping chase, plus the fleeing beasts with the hunters' gunshots – alternate throughout the rest of the movement, until the chase eventually wins out and the prey is conquered.

In the first section of this movement, Vivaldi makes special use of the solo violin, exploiting the virtuoso's ability to play rapidly, wildly, freely, and debauchedly to truly illustrate the image of a drunken celebration. Moreover, the simplicity of only strings is perfectly fitted to the idea of a country-dance, further emphasized by the energetic dance motif incorporated throughout.

The peaceful slumbering melody that follows, played with the harmony of all strings, suggests a season of increasing sleep as it is approaching the shorter, darker days of winter. The slow melody moves gently up and down, depicting autumn days with crisp, but still warm, air; the chromaticism within these gracefully moving lines can be imagined as falling leaves, decaying but colorful and blowing in the gentle wind. Again, the debauchery portrayed in the dance scene can be interpreted as a joyful celebration, but the excess drunkenness, into the slumber of autumn's decay, hints at a melancholy Vivaldi was attempting to illustrate.

The chase of the final section portrays the motif of a galloping hunt, intermixed with the fleeing prey. This energetic movement brings to mind the vivid image of a chase through the autumn woodland, hurtling over fallen logs, through trees that are losing their leaves, with running dogs and guns firing.

Interestingly, the reason for selecting the key of F major becomes clear in the final section, as F is the key of the hunting horn – a clever way to connect the listener to the context of the final section. Moreover, advanced fiddle players used the key of F or Bb, and use of fiddle was (and still is) an important aspect of folk dance music. This key for this movement seems to have been deliberately chosen by Vivaldi to help the listener connect more easily with the autumn season. Interestingly, though hunting is not something the majority of people in the modern world participate in, for much of our human history hunting was a major part of our lives. The primitive adrenaline and excitement that Vivaldi illuminates of chasing beasts through the wilderness helps the listener connect to those roots in our history.

Concerto No. 4, "Winter"

Allegro non molto

“Frozen and trembling among the frosty snow

Our breathing hampered by stinging winds;

As we run we stamp our icy feet;

Teeth chattering in the frightful cold.

Largo

We rest in contented peace by the fire

While the rain outside pours in sheets.

Allegro

We tread the icy path slowly and cautiously,
 For fear of falling.
 Then turn abruptly, slip on the earth
 And rise, hastily moving across the ice
 In case it breaks and dissolves.
 We feel through the closed doors
 The North winds roaring.
 This is winter, which nonetheless brings its own delights.”

This final concerto, in the key of F minor and in common time, contrasts the previous F Major in "Autumn." The minor key helps to portray the quiet darkness of winter. The opening is a gradually building, repeated eighth-note pattern. The progression has slowly changing harmony, small amounts of dissonance, and staccato-tied eights with infrequent trills – creating a chilling atmospheric effect:

Example 28. Vivaldi, *The Four Seasons*, Winter I, mm. 1-4

Aggiacciato tremar trà nevi argenti

Allegro non molto

Allegro non molto

Allegro non molto

Allegro non molto

Allegro non molto

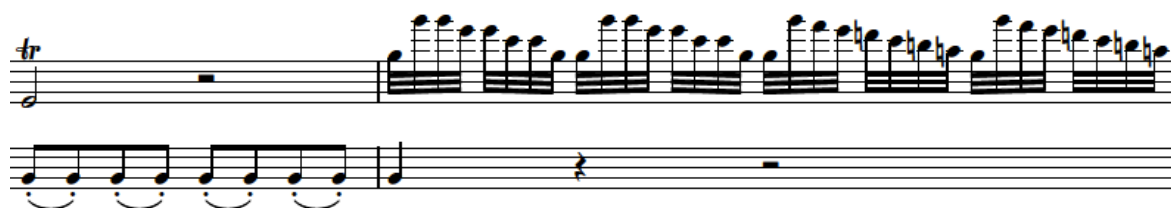
6
4
2

7
5

The solo violin, with arpeggios, leaps, and some scalar motion, depicts the icy winds. Vivaldi

captures the sensation of winter winds that so often move erratically in different directions, like a whirlwind. This is intermixed with the opening motif of staccato-tied eights, maintaining the winter motif (Example 29). The initial theme depicting the chill of winter alternates with the wind theme, followed by a change in pattern to indicate the stamping of feet while running through the cold (Example 30).

Example 29. Vivaldi, *The Four Seasons*, Winter I, mm. 16-17



Example 30. Vivaldi, *The Four Seasons*, Winter I, mm. 24-25



The stamping feet are emphasized by the change in speed and pattern: from 16th-notes to 32nd-notes, and within repetitive melodic movement. These three themes (winter, wind, and stamping feet) are interwoven for a time throughout the movement, only to be interrupted by the chattering teeth. The teeth-chattering is depicted in repetitive 32nd-notes in a dissonant harmony, from major 2nds, to minor 2nds:

Example 31. Vivaldi, *The Four Seasons*, Winter I, mm. 47-48



This motif is combined with the previous three, ending the section with the alternating and overlapping of these four themes for winter.

The following section, *Largo*, utilizes all strings throughout, with each playing a different role. The solo violin portrays the continuing wind, though not as wild as before (as it is heard from indoors), while the other violins' *pizzicati* depict the pouring rain outside. The violas play a long-noted line as the warmth and contentedness of the fire, while the bass repeats a simple but incessant eight-note pattern – maintaining the deep pulse of winter.

Example 32. Vivaldi, *The Four Seasons*, Winter II, mm. 1-2

Largo - Solo
La Pioggia

Largo e Pizzicati forte
La Pioggia

Largo Pizzicati Forte

Pianissimo con l'arco

Largo - Sevre Piano

In the final section of “Winter,” *Allegro* in 3/8 meter, the solo violin carries the depiction of attempting to navigate the ice, with rapidly flowing lines that sound like a slippery dizziness and the bass as a drone beneath – reflective of the deep-noted groan of the ice (Example 33). Later in this section, the other strings join, with the fear of falling on the ice portrayed in all parts (Example 34).

Example 33. Vivaldi, *The Four Seasons*,
Winter III, mm. 4-6 (solo violin and bass)

Example 34. Vivaldi, *The Four Seasons*, Winter III, mm. 40-44

These two themes alternate until the wind through the doors is depicted, and the North wind's wild frigidity takes over the rest of the movement, ending the entire piece with the dizzying, frozen storm.



"Winter" paints a picture of the icy wind, the gasping frigidity, and the numb lifelessness of the season. It is interesting that Vivaldi characterizes it as something he enjoys (via the poetry): sitting inside by the fire, protected from the storm outside. He is able to portray the horridness of the winter weather and contrast it to the comforts of being cozy inside. Overall, he creates an atmospheric effect of winter that really helps the listener connect with the treachery of the winds and ice while also being comforted by the fire. Nevertheless, the winds are what end the movement – which reemphasizes the connection to nature's overbearing presence and the emotions this elicits in us.

It is unclear whether Vivaldi intended to capture elements of sadness and suffering within each season, but this is suggested by the musical techniques Vivaldi employed, combined with the understandings gained from the accompanying sonnets. Each season has its joys, which are portrayed briefly, but only as an underwhelmed comparison to the overarching theme: nature reflecting man's sorrow, struggle, and an internal world of unsettled emotion. It is remarkable that Vivaldi was able to evoke the images of the seasons so powerfully that they also evoke the

overwhelming emotions we nostalgically, even melancholically, associate with each season. The main ways he did this were through motifs associated with different elements of each season, and maintaining these motifs throughout each movement. Some of these motifs – and the techniques used to more specifically portray an idea, such as birds – are carried across multiple movements. By focusing on the key aspects of nature that we more readily associate with each season – from harvest to piercing winds – Vivaldi enables the listener to connect not only with nature, but also to specific emotions through the music.

Vivaldi was one of the first composers to so thoroughly evoke images of nature and their accompanying emotions with only instruments. Undoubtedly, many Baroque composers had a Romantic spirit – which is probably due to how immersed in nature their daily lives were, as the Industrial Revolution had not occurred yet.

After Vivaldi, many composers across the world sought to depict elements of nature and the seasons with instrumental music, from Beethoven to Tchaikovsky to modern American composers. Many utilized techniques similar to Vivaldi's, suggesting not just that Vivaldi's techniques were effective, but that composers across the world heard the same things from nature, connected to those sounds in similar ways, and used music as an outlet for this emotional connection in ways that would be effective for the listener, too. However, composers also varied greatly in the ways they chose to evoke nature and its associated emotions. More importantly than differences or similarities in technique, the continuation of seeking to elicit images of nature in instrumental music demonstrates the importance each generation, in different parts of the world, placed on connecting with nature on an emotional level.

Ludwig Van Beethoven: *Symphony No. 6*

After thoroughly examining Vivaldi's work, selected examples from other pieces will

further demonstrate how later composers honored nature. Another famous composer who sought to elicit scenes from nature was Ludwig Van Beethoven (1770-1827) in his pastoral *Symphony No. 6*, Opus 68 (1808). Beethoven commented that this symphony was "more the expression of feeling than painting." Yet nature was the inspiration for the feeling, what created the feeling, and the bridge that Beethoven used to elicit the feeling in the listener (Sadie, Stanley, and Tyrrell, 2011).

Although this work is not explicitly about the seasons, nor is there evidence that Beethoven was aware of Vivaldi's *The Four Seasons*, there are numerous parallels within how they sought to emulate nature through music. Each movement of *Symphony No. 6* is directly related to scenes that would occur in a given season without being focused on the topic of that season. Whether or not Beethoven specifically mimicked Vivaldi or whether he came up with these techniques on his own is insignificant. The important observation to note is that they were both effective in creating these images of nature with music, and of eliciting specific emotions tied to those scenes in nature – and they happened to do this through similar musical techniques and expression.

In studying *Symphony No. 6*, the following excerpts demonstrate several of the more prominent images and emotions Beethoven sought to create for the listener. The first movement of this symphony, "Awakening of cheerful feelings upon arrival in the countryside," is similar to Vivaldi's "Spring" movement (which also features a scene of the countryside) with the use of a major key and the indication for *Allegro*. Like the opening of "Spring," this movement depicts the countryside through a parallel rhythmic motif that is surprisingly like Vivaldi's with its 8th and 16th-note patterns (see Example 1).

Example 35. Beethoven,
Symphony No. 6, I, mm. 16-
20 (violins)



Beethoven also calls to mind the sounds of birds in this countryside scene – as did Vivaldi in “Spring,” where he depicted the countryside – using the same interval leap to repeated notes that Vivaldi used (Example 36; see Vivaldi Examples 2, 3, and 12 for comparison). He used other similar techniques to Vivaldi later in the movement, such as that of the rippling leaves (see Example 8). Perhaps the violin 1 part was meant to mimic the rolling hills of the countryside, too (Example 37).

Example 36. Beethoven, *Symphony No. 6*, I, mm. 44-45 (flutes); 45-49 (oboes)



Example 37. Beethoven, *Symphony No. 6*, I, mm. 346-350 (violins and viola)



The parallels between this movement and Vivaldi’s “Spring” movement continue with movement two, “Scene by the brook.” Like Vivaldi’s first

movement, this second movement is in a major key – which continues the “cheerful feelings” and gaiety evoked from the first movement. Here we see a technique that parallel’s what Vivaldi used to represent a brook: repetition of two (and three, in Beethoven’s) tied notes with repeated

intervals that gently flow up and down, suggesting the sound of a shallow brook moving over small rocks.

Example 38. Beethoven, *Symphony No. 6*, II, mm. 1, 7 (violin and viola)



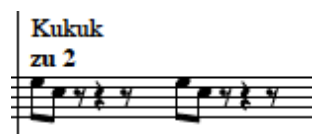
A major part of what distinguishes Beethoven's depictions of nature from Vivaldi's is that Beethoven had the use of a full orchestra, whereas Vivaldi only used strings. Because of this, Beethoven was able to assign different instruments to precise roles. The end of the second movement features a cadenza for various woodwind instruments to imitate birdcalls – which Beethoven marked in the score for specific instruments: nightingale (flute), quail (oboe), and cuckoo (two clarinets). The techniques of these three birdcalls parallel those used by Vivaldi with his string orchestra (see Vivaldi Examples 2, 3, and 12).

Example 39. Beethoven, *Symphony No. 6*, II, mm. 129-131 (flute)



mm. 130-131 (oboe)

mm. 131 (clarinets)



These first two movements contain a buoyancy and lightness that help to elicit happy emotions amongst images of the countryside. The images and pieces of nature Beethoven used to create these emotions mirror those used by Vivaldi in “Spring,” except that Beethoven keeps this scene toward the more positive emotions, whereas Vivaldi interrupted them with the storm.

The third movement of Symphony No. 6, “Merry gathering of country folk,” is an *allegro* in 3/4 meter and the key of F major. This again parallels Vivaldi’s depictions of the countryside and country folk from both the “Spring” and “Autumn” concertos. The 3/4 meter mimics the 12/8 meter of *Danza Pastorale* featured in “Spring” (as they are both a form of triple meter). Another parallel is that various instruments throughout this movement take on the role of a drone, as the viola and bass do in *Danza Pastorale* to imitate the drone of the bagpipes. The movement and direction of the melodic lines is also similar to *Danza Pastorale*.

Example 40. Beethoven, *Symphony No. 6*, III, m. 99-101;

Vivaldi, *The Four Seasons*, III, m. 30



All of this helps to create the image of a folk dance in the countryside, calling to mind the energy of the celebration. Moreover, the meter, rhythm, and energy of the rhythmic-melodic motifs depict a country-dance in ways similar to Vivaldi’s “Autumn,” especially in the 2/4 section (measures 165-204):

Example 41. Beethoven, *Symphony No. 6*,

III, mm. 165-168 (violin)



Considering how the previous movements evoked images of the countryside, it seems

that Beethoven intended sustain this image and its accompanying emotions throughout the other movements via the continued use of the same techniques. Although Beethoven didn't call movements 2 and 3 "spring" or "autumn," both feature motifs and techniques that reflect those in Vivaldi's concertos. By Beethoven's time, these motifs and ideas would have been known by listeners through Vivaldi's work (and other composers who found that the same techniques were effective for these purposes). Therefore Beethoven was able to suggest these images of the countryside without the program actually stating it, as listeners would have been accustomed to what these techniques and sounds were meant to portray.

Further parallels occur between Vivaldi's nature scenes and Beethoven's *Symphony No. 6* in the final two movements. Beethoven's fourth movement, "Thunder, Storm," is an *allegro* in 3/4 meter and the key of F minor – the tempo, meter, and use of a minor key all mirroring Vivaldi's storm depictions. The various storm techniques used by Vivaldi are also used by Beethoven, such as: the use of jumps up or down in octave with added tremolo for a thunder effect; repeated upward 16th-note patterns and rapid scales for lightening; and brisk interval jumps for rain (see Vivaldi Examples 4-5, 18-20). These two composers using similar motifs, figures, and modes suggest that they had discovered an effective way to depict the trembling roar of a storm and the chaos or fear experienced with it.

Another interesting pattern emerges when examining key relationships: the modal shift from F major to F minor relates to Vivaldi's change from a major to a minor key (E major to G minor) between a joyful country scene ("Spring") and the thunderstorm ("Summer"). This modal relationship continues with the return to F major in the fifth movement, "Shepherd's song; cheerful and thankful feelings after the storm," as Vivaldi's follows the same pattern by returning to major (F major) for "Autumn" – a scene of grateful, festive harvest.

It makes sense that joyful scenes would be featured in a major key, and scenes like a storm would be featured in a minor key. Yet how closely the structure of *Symphony No. 6* resembles Vivaldi's *The Four Seasons* undoubtedly suggests that Beethoven was seeking to elicit many of the same emotions and images of nature that Vivaldi sought to, and that these modal relationships were effective in doing so. Moreover, each composer created a progression of scenes and key changes that emphasize the emotions each subsequent movement is intended to portray. This is done by placing opposing emotions back-to-back: peaceful feelings in the countryside are overridden by the fear of the storm, which heightens the emotional intensity of that storm; while the celebration following the storm is that much greater because the frightful thunder and lightening has passed. By ordering the movements and keys in this way, each composer was able to accentuate the emotions they sought to convey within each movement.

The techniques established by Vivaldi to provoke images in the listener's mind of various scenes in nature were quite effective, as demonstrated by other composers using them hundreds of years later – suggesting that the composers either mimicked Vivaldi, or they came to the same conclusions as Vivaldi regarding which techniques would effectively paint the scene and emotion. But each composer was simply striving to reach the listener on a psychological scale in order to elicit specific emotions that are intricately tied to these scenes of nature. As stated earlier, Beethoven's *Symphony No. 6* was intended to be an emotional experience more than anything else. He chose to produce emotion in the listener through music that portrayed images of nature.

Pyotr Ilyich Tchaikovsky and Later Composers

After Vivaldi and Beethoven, numerous composers of the Romantic era sought to depict nature's seasons in their work. Pyotr Ilyich Tchaikovsky (1840-1893) is one of the better-known

composers who did just that with his work *The Seasons* (Opus 37, 1876). This work for solo piano is comprised of twelve short character pieces, one for each month of the year. The accompanying epitaphs that were published with each piece were chosen by the publisher and then approved by Tchaikovsky. Because he wrote one piece for each month, not every piece is focused on its applicable season (but rather a topic that would occur during that season). The work as a whole, however, gives the impression of moving through the seasons – and provides material for the listener to imagine the scenes that would accompany each season.

For example, the work begins with “January: At the Fireside.” This piece utilizes many atmospheric effects, like Vivaldi did for “Winter.” It has a ghostly opening, with slow simplicity, a slightly hallow and cold sound that indicates the cold winter outside. The extensive arching lines suggest a long, lifeless season. Yet it is balanced with enough richness and warm harmony so as to evoke the warmth and comfort of the fire. The key of A major also suggests that there is a peacefulness in this quiet season, and that the relaxation and darkness it brings is welcome – similar to the contended feeling of winter Vivaldi sought to portray.

Another example from these twelve pieces is “March: Song of the Lark.” It is the key of G minor, the same as Vivaldi’s “Summer” (which is the concerto that features the most birdcalls throughout the work). This key seems to be closely associated with birdcalls – perhaps because it elicits the longing of a lonely bird, perched in a tree singing to the day. The idea of a singing lark has been featured in many musical pieces, typically ones that are conceived of as sad or longing (one example is “Skylark,” composed by Hoagy Carmichael, lyrics by Johnny Mercer, which was also originally composed in the key of G minor). Tchaikovsky also makes use of the techniques used by Vivaldi and Beethoven to suggest birdcalls: triplet-like figures and rhythms, repeated interval patterns, and big leaps that mimic the chirps and songs of birds. But unlike

Vivaldi and Beethoven, Tchaikovsky chose to feature birdsong throughout the entire piece – allowing the story and image of a somberly singing lark to develop in the listener’s mind.

Throughout this work, Tchaikovsky was able to tell a story of moving through the seasons, to paint a picture of the scenes each season reveals and the emotions that accompany it. Like Vivaldi and Beethoven, Tchaikovsky sought to elicit emotions in the listener via musical depictions of nature. Each era of music has emphasized, in its own way, the importance of preserving nature in music, of recognizing and connecting with the natural world through music. Even in the 20th century, composers and musicians continued to express their connections with the natural world through music.

Much of our modern music utilizes technology, rather than an orchestra, to create new, unique sounds. From the second half of the 20th century through the beginnings of the 21st, we have seen a major shift from acoustic music to electronic. Although some would argue this has removed us even more from the natural world (and from the beauty of live, acoustic music), there is also a side to these developments that enables us to connect more fully to nature. Musicians, composers, and musical experimenters often record sounds directly from nature, whether for scientific purposes (like acoustic ecology), meditative purposes (such as soundtracks of ocean waves or birds in a forest), or to add these beautiful sounds to musical recordings.

With modern dwellings and lifestyles being so far removed from nature, it makes sense that many of us would be drawn to music that reflects nature so directly. But in several genres of music a trend is growing to create atmospheric effects that enable listener’s to connect with nature. Examples of several popular artists who use technology in combination with standard instruments to create these atmospheric, nature-reminiscent effects include Bon Iver, Sigur Rós, and Jónsi and Alex.

Conclusion

Although these examples are far removed from Vivaldi, Beethoven, and Tchaikovsky, these artists seek to elicit images and emotions tied to nature from their modern ways of creating music, just like composers throughout the last 400 years did, along with the many generations before them. Throughout our musical history, we have sought to connect with nature on a deep, emotional level. This internal connection we seek with nature is rooted in our human ancestry and evolution having been entirely immersed in nature. Moreover, our most primitive forms of communication, emotional expression, and social connection were all through musical sounds that originally (and out of necessity) stemmed from the natural world that surrounded us.

Clearly, we have strong internal connections with both nature and music, but these two essential components to human life cannot be separated within us. Nature and music go hand-in-hand in our evolutionary history and in our human-nature: naturally, we use music to express our emotion, including the emotions we experience in relation to the natural world. This has been both emphasized and reinforced by composers and musicians who have sought to emotionally connect to nature through their music; and the strength of our essential connection with music and its roots in nature has been made clear by the listeners who feel this connection, too.

The essential role that music has played in human life often seems to be fading – with an increase in private listening, and a decrease in participation and music's overall centrality in daily life. This disconnect is also reflected in our relationship with, and decrease in interactions with, the natural world. However, a reconnection with nature and its music has the potential to resonate with the human emotions, helping us to reconnect to ourselves and more fundamentally comprehend the interconnectedness of life.

References

- Abraham, G. (1979). *The Concise Oxford History of Music*. New York, NY: Oxford University Press.
- Armstrong, E. A. (1963). *A Study of Bird Song*. London, England: Oxford University Press.
- Axelrod, R. (1984). *The Evolution of Cooperation*. London, England: Penguin.
- Bannan, N. (1997). The consequences for singing teaching of an adaptationist approach to vocal development. *Music in Human Adaptation* (ed. D. J. Schneck and J. K. Schneck). Blacksburg, VA: Virginia Polytechnic Institute and State University.
- Berlin, B. (1992). *The Principles of Ethnobiological Classification*. Princeton, NJ: Princeton University Press.
- Berlin, B. (2005). 'Just another fish story?' Size-symbolic properties of fish names. *Animal Names* (ed. A. Minelli, G. Ortalli, and G. Singa). Venice, Italy: Istituto Veneto di Scienze, Lettere ed Arti.
- Blacking, J. (1973). *How Musical Is Man?* Seattle, WA: University of Washington Press.
- Borror, D. J., and Reese, C. R. (1956). Vocal gymnastics in wood thrush songs. *Ohio Journal of Science*, 56(177).
- Burkholder, J. P., Grout, D. J., and Palisca, C.V. (2013). *A History of Western Music*, 9th ed. New York, NY: W. W. Norton & Co.
- Cooke, D. (1959). *The Language of Music*. London, England: Oxford University Press.
- De Woskin, K. (2002). *Chinese Philosophy and Aesthetics*. In *The Garland Encyclopedia of World Music: East Asia, Vol 7* (ed. Robert C. Provine, Yosihiko Tokumaru, and J. Lawrence Witzleben). New York, NY: Routledge.

- Dunn, D. (1999). *Why do Whales and Children Sing? A Guide to Listening in Nature*. Santa Fe, NM: Earth Ear.
- Einstein, A. A. (1937). *A Short History of Music*. New York, NY: Alfred A Knopf.
- Ekman, P. (2003). *Emotions Revealed*. London, England: Weidenfeld and Nicolson.
- Evans, D. (2001). *Emotion: The Science of Sentiment*. London, England: Oxford University Press.
- Forgas, J. P., and Moylan, S. (1987). After the movies transient mood and social judgments. *Personality and Social Psychology Bulletin*, 13(4).
- Frank, R. H. (1988). *Passions Within Reason: The Strategic Role of the Emotions*. New York, NY: W. W. Norton & Co.
- Gray, P. M., Krause, B., Atema, J., Payne, R., Krumhansl, C., and Baptista, L. (2001). The Music of Nature and the Nature of Music. *Science*, 291(5).
- Hartshorne, C. (1973). *Born to Sing*. Bloomington, IN: Indiana University Press.
- IMSLP: Vivaldi, The Four Seasons
[http://imslp.org/wiki/Le_Quattro_Stagioni_\(Vivaldi,_Antonio\)](http://imslp.org/wiki/Le_Quattro_Stagioni_(Vivaldi,_Antonio))
- IMSLP: Beethoven, Symphony No. 6
[http://imslp.org/wiki/Symphony_No.6,_Op.68_\(Beethoven,_Ludwig_van\)](http://imslp.org/wiki/Symphony_No.6,_Op.68_(Beethoven,_Ludwig_van))
- Isen, A. M. (1970). Success, failure, attention and reactions to others: The warm glow of success. *Journal of Personality and Social Psychology*, 15.
- Isen, A. M., Daubman, K. A., and Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology*, 52, 1122-31.
- Jespersen, O. (1983) [1895]. *Progress in Language*. Amsterdam Classics in Linguistics, 17. Amsterdam: John Benjamins Publishing Co.

- Juslin, P. N. (1997). Emotional communication in music performance: A functionalist perspective and some data. *Music Perception*, 14, 383-418.
- Klopčič, R. (2004). *The Four Seasons, Complete (Violin & Piano Reduction) (Four Concertos for Violin and Orchestra)*. Composed by Antonio Vivaldi (1678-1741). Edited by Rok Klopčič. G. Schirmer #LB2047. New York, NY: G. Schirmer, Inc.
- Kroodsma, D.E., Miller, E.H., and Oullet, H. (1982). *Acoustic communication in birds: production, perception and design features of sounds*. New York, NY: Academic Press.
- Lawson, F. S. (2009). Being audient: Similarities between Chinese Taoism and western acoustic ecology. *Interdisciplinary Humanities*, 26(2).
- Louv. R. (2011). *The Nature Principle: Human Restoration and the End of Nature-Deficit Disorder*. Chapel Hill, NC: Algonquin Books of Chapel Hill.
- Marshall, L. (1976). *The !Kung of Nyae Nyae*. Cambridge, England: Cambridge University Press.
- McNiell, W. H. (1995). *Keeping together in time: Dance and drill in human history*. Cambridge, MA: Harvard University Press.
- Merker, B. (1999). Synchronous chorusing and the origins of music. *Musicae Scientiae Special Issue 1999-2000*, 59-73.
- Merker, B. (2000). *Synchronous chorusing and human origins*. In *The Origins of Music* (ed. N. Mesthrie, R. (2010). *Sociolinguistics in South Africa: A critical overview of current research*. The Routledge Handbook of Sociolinguistics around the World, 187-202.
- Mithen, S. (2006). *The Singing Neanderthals*. Cambridge, MA: Harvard University Press.
- Niedenthal, P. M., and Setterlund, M. B. (1994). Emotion congruence in perception. *Personality and Social Psychology Bulletin*, 20, 401-11.

- Oatley, K., and Johnson-Laird, P. N. (1987). Towards a theory of emotions. *Cognition and Emotion, 1*, 29-50.
- Oelman, H., and Loeng, B. (2003). A validation of the emotional meaning of single intervals according to classical Indian music theory. *Proceedings of the 5th Triennial ESCOM conference*, 393-6. Hanover, Germany: Hanover University of Music and Drama.
- Oliveros, P. (2005). *Deep Listening: A Composer's Sound Practice*. Lincoln, NE: iUniverse, Inc.
- Payne, R. (2000). Whale songs: Musicality or mantra? *BioMusic Symposium*, AAAS Annual Meeting.
- Pratt, W. S. (1935). *The History of Music*. New York, NY: G. Schirmer, Inc.
- Robbins Landon, H. C. (1996). *Vivaldi: Voice of the Baroque*. Chicago, IL: University of Chicago Press.
- Selfridge-Field, E. (1995). *The Four Seasons and Other Violin Concertos in Full Score*. Mineola, NY: Dover Publications, Inc.
- Talbot, M. (1992). *Vivaldi*. New York, NY: Macmillan Publishing Company.
- Tolbert, E. 2001. Music and meaning: an evolutionary story. *Psychology of Music, 29*, 84-94.
- Verner, J. (1975). Complex song repertoire of male Long-billed Marsh Wrens in eastern Washington. *Living Bird, 14*, 263-300.