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UNIVERSITY OF CALIFORNIA
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Poems of Wildness
(Twelve Bitonal Preludes for Piano and Electronics)

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Music

by

Christian Dubeau

December 2016

Dissertation Committee:

Dr. Ian Dicke, Chairperson

Dr. Tim Labor

Dr. Stephen Lias

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The Dissertation of Christian Dubeau is approved:

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ABSTRACT OF THE DISSERTATION

Poems of Wildness
(Twelve Bitonal Preludes for Piano and Electronics)

by

Christian Dubeau

Doctor of Philosophy, Graduate Program in Music
University of California, Riverside, December 2016
Dr. Ian Dicke, Chairperson

My research interests focus on the programmatic representation of the natural world and current environmental issues through acoustic and electro-acoustic music. Although I believe that music is an art that should creatively assert itself regardless of extra-musical associations, I find that the programmatic elements inspire listeners to evaluate the world with a fresh perspective. I aim to compose works that encourage my community to listen more closely to the world around them. While the tradition of nature-inspired works has precedents in the late-Romantic era, my work employs techniques unique to our time, including field recordings, and the processing of live electronics.

Poems of Wildness is a forty-five-minute composition for piano and electronics. It consists of twelve bitonal preludes that utilize all twenty-four keys. The inspiration behind these preludes is the San Gabriel Mountains, a mountain range that lies to the north of Los Angeles county, in California. Since impact of human activity is a crucial aspect of the mountain range's history, I decided to make this interaction the focus of my

set of preludes. Bitonal music is an appropriate musical tool for these preludes because of its potential to signify an opposition. The juxtaposition of the two keys in each prelude reflects man and man-made technology interacting with the San Gabriel Mountains.

My project is documented here with a (1) full-score, (2) a musical analysis of each prelude and a general analysis of the complete set, (3) a section explaining how the electronic portion of the project was conceived, and (4) a mockup audio recording. I also included a brief history of the San Gabriel Mountains as it relates to my music, and details about the history of music inspired by nature in the United States, as well as a section on the general history of bitonal music.

Poems of Wildness

Contents

1. The Connection Between Music and Nature in American Music (Pg. 1)
2. The San Gabriel Mountains (Pg. 8)
3. Bitonal Music (Pg. 14)
 - 4.1 Analysis of *Poems of Wildness* (Pg. 19)
 - 4.2 Electronics in *Poems of Wildness* (Pg. 23)
 - 4.3 Analysis of Individual Preludes (Pg. 28)
 - Arroyo Seco* (Pg. 28)
 - Ghost of a River* (Pg. 32)
 - Bridge to Nowhere* (Pg. 34)
 - Rubio Canyon* (Pg. 38)
 - Impurity* (Pg. 42)
 - Crystal Lake* (Pg. 45)
 - High Country* (Pg. 50)
 - Watchers of the Sky* (Pg. 52)
 - The Days of '42* (Pg. 57)
 - Proximity Effect* (Pg. 60)
 - Railway in the Clouds* (Pg. 63)
 - Skeletons* (Pg. 67)
- Full Score (Pg. 71)**
5. Sources (Pg. 126)

List of Figures

Figure 1 Duetto II from *Clavier-Übung III* by J.S.Bach (Pg. 14)

Figure 2 Outline of form (Pg. 20)

Figure 3 Prelude 4 selected (Pg. 25)

Figure 4 Setup for Prelude 1 (Pg. 26)

Figure 5 Fixed media file for Preludes 5 and 6 (Pg. 27)

Figure 6 Space echo effect from Prelude 7 (Pg. 27)

Figure 7 The entrance of C[#] Major (Pg. 29)

Figure 8 Clash between the two tonal centers (Pg. 30)

Figure 9 One of the cadence points in *Arroyo Seco* (Pg. 31)

Figure 10 Blocked chords (Pg. 32)

Figure 11 Mimicking Bach's Prelude no. 1 (Pg. 33)

Figure 12 Beginning of *Bridge to Nowhere* (Pg. 34)

Figure 13 Melody stated in octaves (Pg. 35)

Figure 14 Shows electronics in boxed notation (Pg. 35)

Figure 15 Blocked chords interrupting (Pg. 36)

Figure 16 Ending of *Bridge to Nowhere* (Pg. 37)

Figure 17 Depicting large boulders (Pg. 39)

Figure 18 Arpeggiated figures in lower voice (Pg. 39)

Figure 19 Crashing rocks and rushing stream (Pg. 40)

Figure 20 Flowing streams and cascades (Pg. 40)

Figure 21 mm. 1-5 from *Impurity* representing pollution (Pg. 43)

- Figure 22** A part of the “canyon theme” in the treble clef (Pg. 44)
- Figure 23** 6.5 bar phrase from *Crystal Lake* (Pg. 47)
- Figure 24** Music become denser (Pg. 48)
- Figure 25** End of *Crystal Lake* (Pg. 49)
- Figure 26** Light, playful music in the upper register (Pg. 50)
- Figure 27** Long sustained pitches in high and low registers for panoramic effect (Pg. 51)
- Figure 28** Long, sustained pitches at the beginning (Pg. 53)
- Figure 29** Music is becoming denser (Pg. 53)
- Figure 30** Second section of *Watchers of the Sky* (Pg. 54)
- Figure 31** Last few bars of *Watchers of the Sky* (Pg. 56)
- Figure 32** First eight bars of *Days of '49* (Pg. 57)
- Figure 33** First few bars of Variation I (Pg. 58)
- Figure 34** A section from the final variation (Pg. 59)
- Figure 35** mm. 3-10 of Prelude X. Shows left hand becoming more prominent (Pg. 61)
- Figure 36** Two-bar motive from *Railway in the Clouds* (Pg. 63)
- Figure 37** Piano part at the start of the prelude (Pg. 64)
- Figure 38** Climax of *Railway in the Clouds* (Pg. 65)
- Figure 39** Ends with the first chord of *Skeletons* (Pg. 65)
- Figure 40** The first few bars of *Skeletons* (Pg. 65)
- Figure 41** Quote from *Watchers of the Sky* (Pg. 68)
- Figure 42** mm. 40-41 from *Skeletons* (Pg. 69)
- Figure 43** Motive from m. 27 being altered and harmonized (Pg. 69)

1. The Connection Between Music and Nature in American Music

As it relates to my research interests, I will give a brief historical background of composers who wrote music inspired by natural landscapes. Since *Poems of Wildness* is an example of an American composer being inspired by an American mountain range, I will focus my discussion on American composers who wrote pieces focusing on American natural landscapes. In the book, *The Sounds of Place*, author Denise Von Glahn discusses the history of American music inspired by American places (including cities, small towns, and rural phenomena). She confines her discussion to predominately instrumental works of the western classical tradition, and focuses on composers who have a personal investment in the places that they wrote about. Here, I will do the same, but my focus will be music inspired by natural landscapes.

The East Coast of the U.S. was the main focus of music inspired by nature before the twentieth century. “No native composers established themselves in the West until the twentieth century, and thus musical depictions of place, like the majority of artworks that celebrated place, were dominated by renderings of what artists and composers knew, and most knew the East Coast. The most enduring national icons of the United States throughout the nineteenth century remained natural ones found in the East; the Hudson River, the Berkshires, and above all, Niagara Falls.”¹

Notable nineteenth century composers who wrote music inspired by the East Coast include Anthony Philip Heinrich, William Henry Fry and George Frederick

¹ Denise Von Glahn, *The Sounds of Place: Music and the American Cultural Landscape*. (Boston: Northeastern University Press, 2003), 8.

Bristow. All three of them wrote music inspired by the massive sound of Niagara Falls. Their respective works were all written for large orchestral ensembles in order to convey this sound musically.²

Heinrich's *The War of the Elements and the Thundering of Niagara* (subtitled *Capriccio Grande for a Full Orchestra*) was composed between 1831 and 1845. The composer mentions in the score that the coda of the piece is meant to represent the thundering of Niagara but otherwise does not mention details about the program in the score. The piece requires an unusually large percussion setup for music of its day, consisting of timpani, bass drum, snare drum, triangles, cymbals and tambourine. On many occasions throughout the piece, these instruments are to be played simultaneously. Also noteworthy is an expanded brass section, which consists of four horns, four trumpets, and alto, tenor, and bass trombones.³

The introduction and the *War of the Elements* section describe the terrain surrounding Niagara Falls. Since it is not specifically focused on the falls themselves, the texture is thin, with unstable harmonies and several sudden key changes (perhaps used to represent different vistas in the area). It also makes use of bird-like gestures, such as trills, turns, and grace notes in piccolos, flutes, and oboes.⁴ In the *Thundering of Niagara* section, the composer focuses on the massiveness of the falls. Glahn notes, "With the

² Ibid., 23.

³ Ibid., 26.

⁴ Ibid., 28.

coda Heinrich focused on the superstar of the landscape, the Falls themselves. The solid C major harmony allows a listener to anchor his aural gaze.”⁵

William Henry Fry’s *Niagara Symphony* was composed in 1854. Like Heinrich’s piece, it also uses large percussion (making use of eleven timpani as well as other instruments) and brass sections to attempt to capture the sound of Niagara Falls.⁶ Given the loud nature of the falls, however, it is interesting that Fry starts and ends the piece with extremely soft music

Listeners come upon the Falls as they come upon his piece, with sounds that are soft and mysterious, and they leave the Falls and the piece the same way. Fifty years later, Charles Ives would depict eternity using a similar approach in his piece *The Unanswered Question*. In both works auditors enter into an extremely quiet musical environment, although they might themselves be changed. Perhaps Fry was suggesting the same about Niagara: Regardless of decades of commercializing and commodifying, the essence of the falls was beyond human alteration.⁷

George Frederick Bristow’s work *Niagara: Symphony for Grand Orchestra and Chorus* (1893) was perhaps the last musical composition inspired by Niagara before the turn of the century, reflecting the composers’ conservatism, patriotic views, and devoutly religious association.⁸ Indeed, the text utilized in the piece, although about Niagara and the Great Lakes, makes frequent mention of praising God.

In the early twentieth century, due to the ongoing industrialization and urbanization of the United States, many composers shifted their attention towards works

⁵ Glahn, *The Sounds of Place: Music and the American Cultural Landscape*, 33.

⁶ Ibid., 23.

⁷ Ibid., 48.

⁸ Glahn, *The Sounds of Place: Music and the American Cultural Landscape*, 50.

inspired by urban landscapes as opposed to natural ones.⁹ This can be heard in the music of Charles Ives and Aaron Copland, for example, in pieces such as *Music For a Great City*, *Quiet City*, (Copland) and *Ann Street*, and *From Hanover Square North* (Ives). Although these composers, among others, also wrote pieces inspired by nature (such as Ives' *The Housatonic at Stockbridge*, and pieces by William Grant Still, Roy Harris, and Ferde Grofé), the focus during this time was on urban areas.¹⁰

As the source of musical inspiration shifted from rural phenomena to the city, musical styles naturally also changed. In his book, *The Soundscape: Our Sonic Environment and the Tuning of the World*, Canadian composer R. Murray Schafer compares nineteenth century and twentieth century musical styles. Although his ideas are not specifically focused on American music, they are certainly applicable to American music. Schafer suggests that the Alberti bass was developed partly due to the sounds of galloping horses, a very prevalent sound in the eighteenth century.¹¹ In the twentieth century, however, the sounds of horses were replaced with the sounds of motorized vehicles, and thus, the Alberti bass was replaced with drones, clusters, and whirring effects.¹² Schafer gives the following example: "Penderecki's music leaves the impression that it was conceived somewhere between the airstrip and the autobahn."¹³ Schafer also has much to say about the growth of the orchestra in the twentieth century.

⁹ Ibid., 11.

¹⁰ Ibid., 13-14

¹¹ R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester VT: Destiny Books, 1993), 112.

¹² Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, 12.

¹³ Ibid., 113.

When the orchestra continued to expand into the twentieth century it was primarily percussion instruments that were added, that is, nonpitched noisemakers capable of sharp attack and rhythmic vitality. The pastorale and the nocturne then ceased to exist and were replaced by the (for example) the machine music of Honegger's *Pacific 231*.....In 1924 (Ezra) Pound had written: "I take it that music is the art most fit to express the fine quality of machines. Machines are now a part of life, it is proper that men should feel something about them; there would be something weak about art if it couldn't deal with this new content."¹⁴

In the latter half of the twentieth century (and up to the present day) composers started to once again focus on nature as a source of inspiration. Denise Von Glahn suggests that this is partly due to environmentalist movements gaining strength in the United States, and to its views being increasingly adopted by American citizens.¹⁵ The United States had witnessed an entire century of water contamination, pollution, destruction of forests, displacement of animals, and more, and many people became involved in trying to save what remained of open spaces.¹⁶

The number of natural sites essentially untouched by humans has decreased significantly in the United States since the days of Fry and Heinrich. Since the United States has become increasingly identified with its people, human experiences in natural places, and the influence that people have had on natural places has become a bigger source of inspiration in music about nature. Glahn writes, "Whether pieces celebrated natural or urban sites, deserts or elevated train stations, the Mississippi River, or the Oklahoma plains, cities or gardens, people interacted with, and altered places in basic

¹⁴ Ibid., 110.

¹⁵ Glahn, *The Sounds of Place: Music and the American Cultural Landscape*, 15.

¹⁶ Ibid., 216.

ways.”¹⁷ My own observations suggest to me that in the present day, there are generally fewer composers who solely focus on representing the sounds of nature. Recent exceptions include the soundscape music of artists like Annea Lockwood. An example of a piece that falls in the category of music inspired by both nature and people is Steve Reich’s *The Desert Music*, which is partly inspired by the National Missile Range in the White Sands desert of New Mexico.¹⁸

In recent years, plenty of new music has been inspired by the natural world. Currently active composers who have contributed to this genre include John Luther Adams, Stephen Lias, Jenni Brandon, Oliver Caplan, Linda Chase, Nell Shaw Cohen, Michael Futreal, Libby Meyer, Rachel Panitch, Justin Ralls, Christina Rusnak, Alex Shapiro, Ryan Suleiman, and Stephen Wood, among others.

All of these composers have different approaches to writing music inspired by the natural world. For example, John Luther Adams is most known for his music about Alaska, the place that he called home for a large portion of his life.¹⁹ As he describes it in his book *Winter Music: Composing the North*, “I’ve aspired to make music that belongs here...music that can best, perhaps *only* be made here.”²⁰

Composer Stephen Lias, on the other hand, has for the past several years focused on music inspired by his visits to the U.S. National Parks. In a recent interview, Lias notes, “My music is very much trying to capture my own emotional and physical

¹⁷ Glahn, *The Sounds of Place: Music and the American Cultural Landscape*, 269.

¹⁸ Ibid., 253.

¹⁹ John Luther Adams, *Winter Music: Composing the North* (Middletown, CT: Wesleyan University Press, 2004), 7.

²⁰ Ibid., 8.

experiences in those places.”²¹ He then compares himself to John Luther Adams by saying that Adams’ music “unfolds at a glacially slow, incredibly mesmerizing pace, and feels like it is more omniscient in its point of view – reflecting the reality of how slowly glaciers move, or how slowly mountains rise. When I hear his music, it’s as if there are no people present, as opposed to my own pieces where personal reactions and experiences are so near to the surface.”²²

Nell Shaw Cohen, the founder of www.landscapemusic.org, (which hosts an online publication as well as a composer’s network dedicated to raising awareness and appreciation of the natural world through music) criticizes human being’s shortsightedness, and overall alienation from nature in the present day, and the resulting effect on issues such as global warming and loss of natural lands.²³ On the subject of the importance of music inspired by the natural world, she states that

Artists concerned with environmental sustainability are faced with the question: how can we as artists best utilize our time, skills, and insights as creators to reconnect ourselves and our audiences with the natural world? I don’t pretend to claim that art solves all problems, but it is a powerful force that influences peoples’ feelings, alters their priorities, and gives them purpose. Being affected by a work of art can awaken a person’s mind to the world around them.²⁴

Cohen’s ideas are very much in line with my own interests, and my reasons for writing music inspired by the natural world.

²¹ Nell Shaw Cohen, “Stephen Lias, Adventurer-Composer,” *Landscape Music* (February, 2015). <http://landscapemusic.org/interviews/stephen-lias-adventurer-composer/> (accessed October 11, 2016).

²² Ibid.

²³ Nell Shaw Cohen, “Why Landscape Music Is More Important Than Ever,” <http://landscapemusic.org/essays/why-landscape-music-is-more-important-than-ever/> (accessed October 11, 2016).

²⁴ Ibid.

2. The San Gabriel Mountains

This Southern California mountain range lies to the north of Los Angeles County, with the eastern end extending into western San Bernardino County. There is some disagreement as to the exact boundaries of the range, but it is commonly accepted that it runs from Soledad Canyon on its western end, to Cajon Pass in the east.²⁵ The highest peak in the San Gabriels is Mt. San Antonio (10,068 ft.), commonly known as Mt. Baldy. It has been said that these mountains act as both villain and hero to Southern California residents. On the one hand, they gather moisture from Pacific storms and protect the L.A. Basin and surrounding areas from the harshness of the desert, but they also keep smog and other forms of pollution trapped in the valleys.²⁶ In 2014, President Barack Obama designated 346,177 acres of the San Gabriel Mountains as a national monument.²⁷ As of this writing it is still the newest national monument in the United States.

Throughout history, people have travelled through the San Gabriel Mountains in almost every possible way. From mules and horses, to helicopters, automobiles, and railway. Few mountain ranges anywhere in the world have experienced so much construction and tampering with by outside forces.²⁸ When human activity modifies these mountains, however, nature often retaliates. Many cabins, resorts, wilderness camps, shops, roads, and other man-made entities that have been built in and around the

²⁵ John W. Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek* (Arcadia, CA: Big Santa Anita Historical Society, 1991), 1.

²⁶ *Ibid.*, 5.

²⁷ Daniel Medina, "The San Gabriels: A Historical Guide to America's Newest National Monument," <https://www.kcet.org/shows/departures/the-san-gabriels-a-historical-guide-to-americas-newest-national-monument> (accessed October 12, 2016).

²⁸ Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek*.

mountains over the years were subsequently abandoned for various reasons (e.g. natural disasters, financial reasons) and taken over by the expanse of flora and fauna.²⁹ Most of these structures were only accessible through hiking or horseback riding, and were built during what is commonly known as “The Great Hiking Era” in Los Angeles, which existed from around the 1890s to the late 1930s. During this time, an estimated two million people per year visited the San Gabriel Mountains.³⁰

In 1938, a massive rainstorm in early March created a destructive flood that washed away mountain resorts, the famous Camp Baldy, the East Fork Highway, and other man-made entities. Around this time, construction of a paved mountain highway for automobiles was taking place, thus providing easier access to the San Gabriel Mountains. The rustic cabins, resorts, and camps lost their wilderness appeal and most were never rebuilt, thus The Great Hiking Era came to an end.³¹

Before the 1880s, few people entered the San Gabriel Mountains for pleasure. According to Daniel Medina, “primarily gold miners, loggers, hunters, and pioneering early settlers braved the backcountry to seek profit from wilderness exploits.”³² The early 1800s were a brutal time of environmental devastation in the San Gabriel Mountains. “Before the Forest Reserve Act of 1891 established them as federally protected lands, the

²⁹ John Robinson and Doug Christiansen, *Trails of the Angeles* (Berkeley, CA: Wilderness Press, 2005), 5.

³⁰ Daniel Medina, “The San Gabriels...”(accessed October 12, 2016).

³¹ Ibid.

³² Ibid.

public domain of the San Gabriels was subject to unchecked resource demands and careless destruction.”³³

The San Gabriel Mountains are the site of the very first California Gold Rush. Indeed, gold was first discovered in the San Gabriel Mountains in 1842 (approximately three miles east of present day Santa Clarita by a cowboy named Francisco Lopez) an entire six years before gold was discovered at Sutter’s Mill in Northern California, which started the more significant gold rush in California.³⁴ As more gold was discovered in other parts of the San Gabriel Mountains, many mines and other structures were constructed that have since been abandoned, due to the depletion of this metal.³⁵

An example of a man-made entity built in the San Gabriel Mountains during the Great Hiking Era is the Mt. Lowe Railway, which operated from 1893-1938. This railway extended through a significant portion of the western San Gabriel Mountains. It is the only scenic mountain, electric traction (overhead electric trolley) railroad ever built in the United States. At least two cottages and one hotel were also installed as a result of this railway.³⁶ When it was built (by Civil War balloonist and inventor Thaddeus Lowe and engineer David MacPherson) it was a significantly popular attraction and “ was considered one of the engineering wonders of the world”.³⁷

³³ Ibid.

³⁴ Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek*, 17.

³⁵ Ibid., 41.

³⁶ Charles Seims, *Mount Lowe, the Railway in the Clouds* (San Marino, CA: Golden West Books, 1976), 33-36

³⁷ Robinson and Christiansen, *Trails of the Angeles*, 73.

The railway, and the mountain resorts were damaged by fire on September 15, 1936. Plans to repair the damage were underway, but then the flood of March 1938 completely destroyed what was left standing. It was never rebuilt, although several investors, including Walt Disney contemplated rebuilding the franchise.³⁸ Just like many other abandoned man-made objects in the San Gabriels, the ruins of the railway are still scattered throughout the landscape.

The East Fork Highway, a road built in 1929, which was planned to connect the southern part of the San Gabriel Mountains to the town of Wrightwood (on the north eastern end of the mountain range), was literally chopped to pieces overnight in 1938 by the aforementioned flood. Today, all that remains of this highway is “The Bridge to Nowhere, a sizeable structure that is only accessible by hiking or horseback riding five miles up a canyon.”³⁹

The San Gabriel Mountains are also known for the Mount Wilson Observatory, an astronomical observatory founded by scientist George Ellery Hale in the early twentieth century that includes a 60-inch telescope, a 100-inch telescope, a 60-foot and a 150-foot solar tower.⁴⁰ The 100-inch Hooker telescope was the largest in the world from 1917 (when it was built) to 1948. One of the many important discoveries made by the telescope is the discovery that the Milky Way Galaxy is not the only galaxy in the universe. According to San Gabriel Mountains historian John Robinson, “the Hooker reflector has

³⁸ Daniel Medina, “The San Gabriels...”(accessed October 12, 2016).

³⁹ Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek*, 234.

⁴⁰ Ibid., 133-134.

contributed more to man's knowledge of the universe than any other single tool of science.”⁴¹

The discovery that the speed of light is 299,796 km. per second was also made at the Mt. Wilson Observatory. This discovery (reported in 1927) was made by physicist Albert Michelson. He launched a beam of light from a station at the Mt. Wilson observatory and allowed it to travel twenty-two miles to a station on Mt. Baldy, which contained a return mirror allowing it to travel back to Mt. Wilson.⁴² According to Daniel Media, “the return beam would hit a rotating mirror driven by compressed air, and by measuring the minute change in angle of the mirror during a round trip, the speed of light would be measured.”⁴³ This first accurate measurement of the speed of light paved the way for Einstein's Theory of Relativity.⁴⁴ Thankfully, the Mt. Wilson Observatory still stands, unlike other remnants from the Great Hiking Era.

In the modern day, the San Gabriel Mountains still see a lot of use, but because of the easy access via automobile (and its proximity to the city of Los Angeles), the area has been plagued with smog, different kinds of pollution, vandalism, carelessly caused fires, and disrespect for nature and for the trails (many of which were built by Native Americans before Europeans arrived).⁴⁵

There are three main reasons why I chose to make the San Gabriel Mountains the focus of my music for this dissertation. First, my primary research interest is in making

⁴¹ Ibid., 133.

⁴² Daniel Medina, “The San Gabriels...” (accessed October 12, 2016).

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek*, 297.

music inspired by natural landscapes. Second, I wanted to create a large piece of music about a place that I am very familiar with. Indeed, I personally spent more time in the San Gabriel Mountains than any other mountain range in the world. I grew up in a town located the base of those mountains and would spend time doing recreational activities and helping out with trail restoration work on a regular basis when I was growing up. I still spend time in the San Gabriels whenever I have the chance. Just as John Luther Adams has made his home in Alaska the focus of most of his music, I too wanted to focus on a place that feels like home to me.

The third reason is to raise awareness and appreciation for the San Gabriel Mountains and for natural landscapes in general. I believe that this is a good way to solve the problems that currently plague the San Gabriels. I believe that humans should have the right to use these mountains for recreation. I also believe that humans should have the right to develop these mountains to some extent if it contributes to the safety of Los Angeles residents (e.g. if debris basins and flood control dams had not been built, entire suburbs of Los Angeles would have been washed away by now). I am, however, opposed to overuse, overdevelopment, littering, vandalism, and to the overall ignorance that Los Angeles residents have towards these mountains, contributing to pollution, and other issues that not only affect these mountains and the city of Los Angeles, but also our entire planet.

3. Bitonal Music

R. Murray Schafer describes the term *keynote* as “the note that identifies the key or tonality of a particular composition. It is the anchor or fundamental tone and although the material may modulate around it, often obscuring its importance, it is in reference to this point that everything else takes on its special meaning.”⁴⁶ He goes on to explain what he considers the keynote sounds of a landscape: “those created by its geography and climate: water, wind forests, plains, birds, insects, and animals.”⁴⁷ In other words, Schafer is saying that the keynote of a landscape is the sound that is most associated with a particular place. On urban streets and freeways, the keynote is the sounds of automobiles. On the Pacific coast, the keynote is the crashing of ocean waves. John Luther Adams believes that “the keynote of the northern interior is silence.”⁴⁸

I believe the keynote of the San Gabriel Mountains is the sounds of nature juxtaposed with urban sounds. Specifically, the sounds of streams, wind, leaves rustling, birds, and animal movement, penetrated by the sounds of vehicular traffic, electrical hums from telephone poles, and overhead aircraft. I demonstrate this keynote in one of my preludes (*Proximity Effect*) by superimposing field recordings of urban sounds onto those of nature. My main approach for representing the juxtaposition of the mountain landscape with activity in *Poems of Wildness*, however, is bitonality. I will briefly discuss the presence of bitonality in western classical music throughout history, and then proceed to discuss how I approach bitonality in *Poems of Wildness*.

⁴⁶ Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, 9.

⁴⁷ Ibid., 10.

⁴⁸ Adams, *Winter Music: Composing the North*, 8.

Bitonality is the “simultaneous occurrence of two different tonalities or keys.”⁴⁹ The term polytonality can be used if two or more keys are employed, thus bitonal music can also be referred to as polytonal music, but the opposite is not always true.⁵⁰ In Western classical music, bitonality is most associated with music from the early twentieth century onwards, although, there are some earlier examples.

Although perhaps merely a precursor to bitonality, it is worthy to note the difference between the right hand and left part of the following example from J.S. Bach’s *Clavier-Ubung III*. The piece, although in D minor, has a section where the higher of two voices modulates from D minor to G minor. The lower voice is a canon at the fourth below, thus modulating from A minor to D minor. Because of the way Bach arranged it, though, the excerpt does not sound bitonal.⁵¹



Fig. 1: Duetto II from *Clavier-Ubung III* by J.S.Bach

There are a few more examples of short polytonal and bitonal passages in classical music before the twentieth century (W.A. Mozart, for example, used polytonality in the final bars of *A Musical Joke*), but the piece that is most known for popularizing

⁴⁹ The Editors of Encyclopedia Britannica, “Polytonality,” <https://www.britannica.com/art/polytonality>, (accessed October 16, 2016).

⁵⁰ Ibid.

⁵¹ Percy A. Scholes, *Harmony: The Oxford Companion to Music* (London: Oxford University Press, 1970) 40.

bitonality and polytonality is Igor Stravinsky's *The Rite of Spring*. Alfred Casella describes this work as, "the first work presenting polytonality in typical completeness—not merely in the guise of a more or less happy 'experiment', but responding throughout to the demands of expression."⁵² Other pieces well known for their use of bitonality include *Piano Sonata no. 1* by Darius Milhaud (among many other works by Milhaud), and pieces by Bela Bartok, Charles Ives, and Benjamin Britten.⁵³

One of the most intriguing examples of bitonality used to represent nature is in the first movement of Benjamin Britten's *Four Sea Interludes from Peter Grimes*. This movement, entitled *Dawn*, has three musical ideas, which give different perspectives of the same natural landscape. The first one is in the higher registers of the flutes, and in the first and second violins. It is a quiet, somber melody that brings to mind sunlight piercing through clouds at the dawn of the day. The second idea is in the clarinet, harp, and violas, consisting of arpeggiated chords perhaps used to represent waves gently washing onto the shores of a seaside town. The third idea, in the lower winds, brass, percussion, and lower strings, consists of blocked chords, which could be a representation of massive ocean swells. These ideas repeat one after another throughout the movement, and they rarely come together. The first and second ideas are in the key of A minor while A major (which is heard in the brass, while the low strings and winds are still emphasizing the key of A minor, and the timpani is emphasizing an "a" pedal tone) is used for the idea representing the foreboding ocean swells.

⁵² Alfred Casella, "Tone Problems of Today," *Musical Quarterly* 10 (1924): 159-71.

⁵³ Richard Crawford, *America's Musical Life: A History*. (New York: W.W. Norton, 2001), 503.

The two keys are not always played together, but the fact that certain instrumental groups only play in one key, while others only play in the second key, and the fact that the keys do overlap makes the movement bitonal.

Although I never have a direct imitation of this particular method in *Poems of Wildness*, my decision to compose certain sections in only one key (such as in my first, fourth, and ninth preludes), as well as my decision to have different voices in different keys (as opposed to only having the different hands playing different keys) was directly inspired by Britten's method.

Poems of Wildness makes use of four designated categories of bitonality: (I) left-hand of the piano playing in one key, versus the right hand of the piano playing in another key; (II) different voices in the piano emphasizing different keys; (III) piano in one (or both, in one example) key(s) versus the electronic sound in another key; (IV) electronics in two different keys while the piano is reinforcing both.

Most of the preludes make at least some use of Category I. Category II is employed whenever there are more than two voices present. It is most prominent in preludes, 1, 7, and 12. Preludes 3 and 9 make use of Category III. In Prelude 3, the electronics are in G major, while the piano plays in both G major and G[#] minor. In Prelude 9, the entire second section (starting at mm. 59) has piano in B^b major, while the fixed media part is in D minor. Category IV is only heard once, in Prelude 11 where the fixed media part is in both B major and B^b minor, while the piano is reinforcing both keys.

In general, I have been strict in my use of these prescribed categories and with bitonality. It has been said that Charles Ives became interested in polytonality and

bitonality because his father trained him to sing a song in one key, while harmonizing it in another.⁵⁴ My interest in bitonality, however, came from a purely programmatic source, that is, in trying to find a way to best represent the San Gabriel Mountains.

⁵⁴ Richard Crawford, *America's Musical Life: A History*, 503.

4.1 Analysis of *Poems of Wildness*

I decided to call my twelve bitonal preludes *Poems of Wildness* because environmentalist John Muir referred to the San Gabriel Mountains as a “little poem of wildness.”⁵⁵ I also wanted to organize the preludes in the same manner employed by Debussy, Rachmaninoff, among others. That is, I wanted potential performers to be able to freely choose preludes from the set to play. The preludes don’t necessarily have to be played in order, and a performer can play as many or as few of them as they desire. This is important to me because a set of such great length as this one is difficult to program in its entirety. However, since I also consider this set to be one large piece of music, I wanted to give it an overall shape and form.

I have divided my twelve preludes into three different sets of four. The dynamic curve for the first set is predominantly loud. Although the second prelude has plenty of soft music, it is the shortest of the four. In addition, the tempos in the first set are predominantly fast. Contrastingly, the second set of preludes are slowest and softest overall. Two of the four preludes in the second set are predominantly fast with a loud dynamic curve, but they are both short compared to the two other preludes, which are predominantly slow with soft dynamic markings. The third set of preludes is the most melodic, and it is predominantly fast and upbeat. I chose this structure to imitate a traditional three-movement form of fast, slow, fast on the macro level for all twelve preludes.

⁵⁵ Donald Worster, *A Passion for Nature: The Life of John Muir* (New York: Oxford University Press, 2008), 3.

Order, Keys, and Positive and/or Negative Subject Matter

Positive—Negative—Positive to Negative—Negative to Positive
(M,M) (m,m
tritone relationship)

- 1). Dramatic/Pesante**
 - 2). Slow and mainly electronics**
 - 3). Fast/Energetic**
 - 4). Fast/Scherzo**
-

- 1). Arroyo Seco (positive to negative) C[#]M, CM
 - 2). Ghost of a River (negative) d[#], am
 - 3). Bridge to Nowhere (positive) GM g[#]m
 - 4). Rubio Canyon (negative to positive) E^b, em
-

- 1). Impurity (negative) f[#], cm
 - 2). Crystal Lake (positive-negative) AM, g
 - 3). High Country (negative to positive) F[#], c[#]
 - 4). Watchers of the Sky (positive) EM, A^b
-

- 1). The Days of '42 (positive to negative) B^b, dm
- 2). Proximity Effect (negative) bm, fm
- 3). Railway in the Clouds (positive to negative) BM, b^b
- 4). Skeletons (neutral-positive) FM, DM

Fig. 2: Outline of form

Figure 2 shows an outline of the set of rules that I made for myself to help me compose my preludes. I ended up deviating from these rules (especially in the second and third set of preludes), but I still used it as a general guideline. Within each prelude set, my intention was to imitate a four-movement form of (1) dramatic and fast, (2) slow, (3) fast, and with a lighter tone, (4) fast and melodic. In the first set, the first prelude is dramatic and fast, while the second is slow. The third prelude is fast, and has less dissonance than the others. The fourth prelude starts slow, but ends fast, and it has lyrical thematic material.

In the second set, the first prelude is fast, the second is slow, and the third is fast. However, the final prelude of this set (the longest of the twelve) is predominantly slow, thus deviating from my four-movement plan described above. The main reason why I chose this deviation was to create a better balance of fast and slow music on the macro level for all twelve preludes.

The first prelude of the third set is mostly tuneful and fast. The second is at a quicker tempo than I originally planned to (again) create a balance between fast and slow preludes. The third is melodic and upbeat and comes to a large climax. The final prelude resembles a *dénouement* after a large climax, so it is at a slower tempo (once again deviating from my original plan).

Another one of my goals was to create a set of contrasting moods and emotions, and to create a balance of dissonant versus consonant music. Since major keys and consonance are commonly associated with brighter moods and subject matter, I use this to

represent subject matter that is less dark. Conversely, since minor keys and dissonance are commonly associated with dark subject matter, I also use this accordingly.

The section in bold at the top of figure 2 shows my original plan for the organization of the keys, and the subject matter. The section below it (not in bold) shows the result after I finished composing. Again, I was faithful to my rules in the first set of preludes, and then I started deviating by switching the order of the preludes (in the second set) and switching the order of keys (in the third set). The second prelude of each set was originally supposed to consist of two minor keys set a tritone apart (to represent particularly dark subject matter). What was originally the first prelude in the second set, however, (*Watchers of the Sky*) became the last prelude, thus slightly changing the original structure. In the third set, I ended up switching the keys around to better emphasize the tone of the subject matter I was attempting to represent.

4.2 Electronics in *Poems of Wildness*

The electronic component of *Poems of Wildness* consists of both fixed media and live electronics. Preludes 1, 3, 7 and 8 incorporate live electronics, while preludes 2, 4, 5, 6, 9, 10 and 11 use fixed media. Prelude 12 uses both live electronics and fixed media. These electronics were created by use of three different software applications: Pro Tools, Ableton Live, and Max/MSP. All of the fixed media consists of field recordings (with the exception of some time-stretched versions of recorded piano parts in a few preludes). Some of these I recorded myself, while the rest were royalty free sounds that I downloaded from www.freesound.org. In the case of all of the preludes containing fixed media field recordings, I put multiple sound files into Pro Tools' sequencer, then cut and spliced them, moved them around, and used the volume controls on the mixer to shape the sounds.

In most cases, the sounds heard are heavily processed. Rather than doing the sound processing in Pro Tools, I dropped my newly created fixed media parts for each prelude into the Ableton Live sequencer and did all the processing with that software. Then I put the newly processed fixed media part back into Pro Tools for some final edits, thus rendering the fixed media part complete.

The live electronics were mainly created by using audio processors in Ableton Live, created in a programming environment called Max for Live. These are effects that are written in Max/MSP, but have the ability to run inside Ableton and/or Max. I chose those specific effects because I wanted to run the entire electronic component of my preludes through Max/MSP.

Only one of my preludes contains a live electronic component that was fully created using the Max/MSP programming environment. This prelude consists of a program I created that records eight seconds of audio whenever the performer commands it to (by pressing down on a MIDI pedal). The audio is then heard through a set of speakers several times, but in reverse. Other preludes contain some live-electronic components that were partly created with Max/MSP, such as those containing effects that require specific ramp times.

I chose to use Max/MSP as the main engine to run my electronics for a couple reasons. The first is Max/MSP's ability to generate a user-friendly graphical user interface (GUI). I feel that it is important for a potential performer (even one with no knowledge of electronic performance practices) to be able to easily understand how to incorporate the electronic component of a composition into their performance. The second and most important reason is that most of what I'm doing with electronics in this project would not be possible with Ableton Live or Pro Tools.

Each of the three sets has its own separate Max Patch, with all of the fixed media files and Max Audio Effects from Ableton Live embedded within it. The performer's only task is to open the patch for the set that they wish to perform, and read the basic instructions. This should easily teach them how to perform the electronic component. They will also need to configure the audio settings in the Max/MSP preferences, but I plan on giving them a document that teaches them how to do this.

The following electronic equipment is needed to run the three Max Patches: 1 MIDI Pedal; 1 MIDI controller with MIDI notes 48, 50, 52, and 53 available; 1 (or 2)

condenser microphone(s); 1 (or 2) microphone stands; 1 audio interface with 1 (or 2) microphone inputs, 2 outputs; 2 speakers; and one laptop computer with Max/MSP installed. OS X 10.4.11 or later is required to run Max/MSP on an Apple computer, and Windows XP, Vista, or Windows 7 is required to run it on a PC.

In the case of each set of preludes, the MIDI controller is used to switch between the individual preludes, which are numbered 1 through 12.

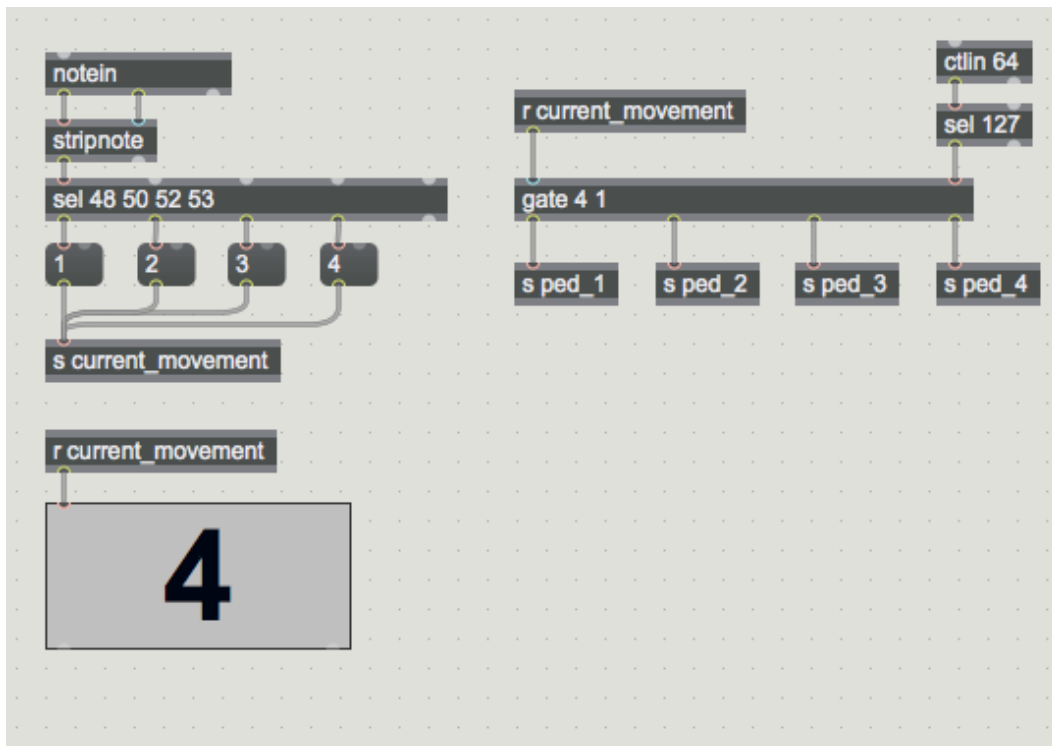


Fig. 3: Prelude 4 selected.

Once a particular prelude is selected, the MIDI pedal is used to control all of the electronics during the performance. I have copied pictures of selected sections from my Max patches below:

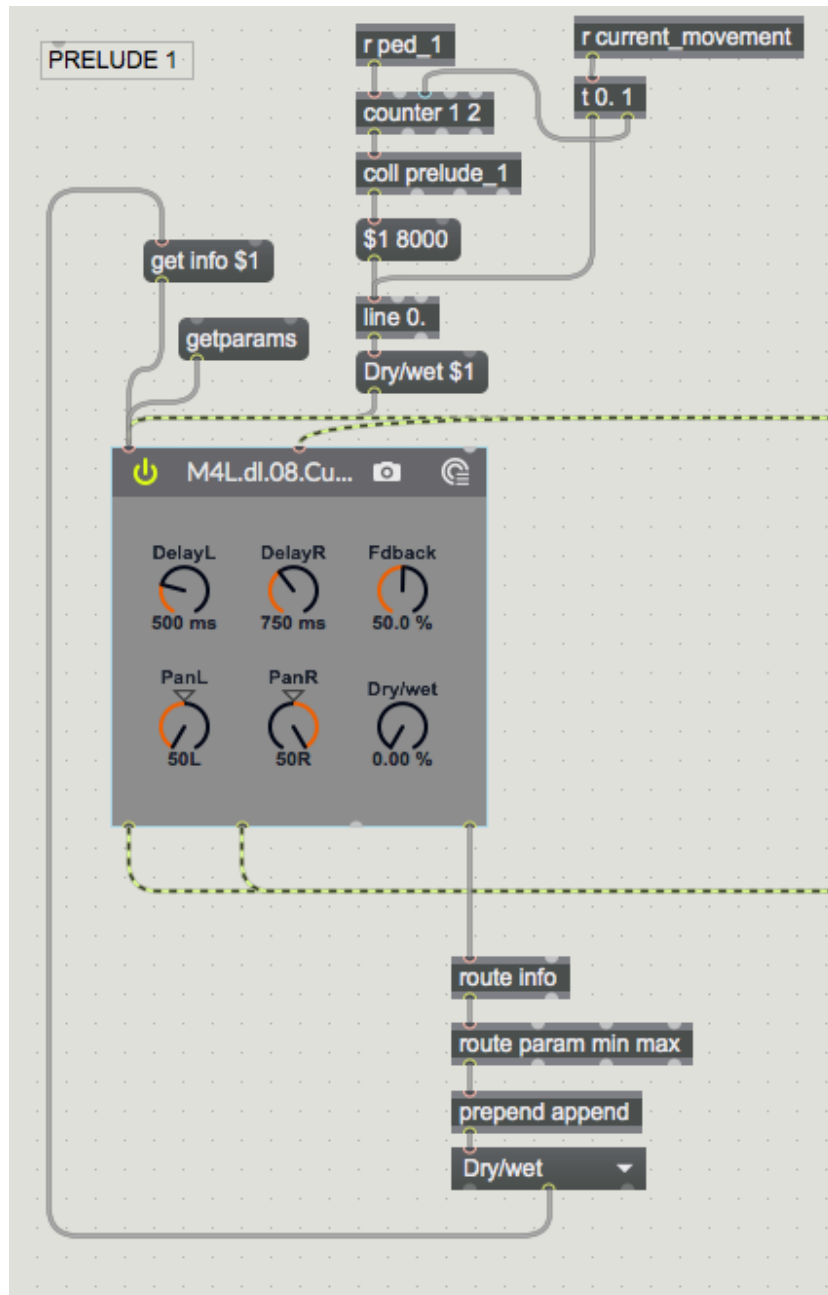


Fig. 4: Setup for Prelude 1. The image labeled M4L.dl.08 is a Max Audio Effect from Ableton Live used to generate a delay effect.

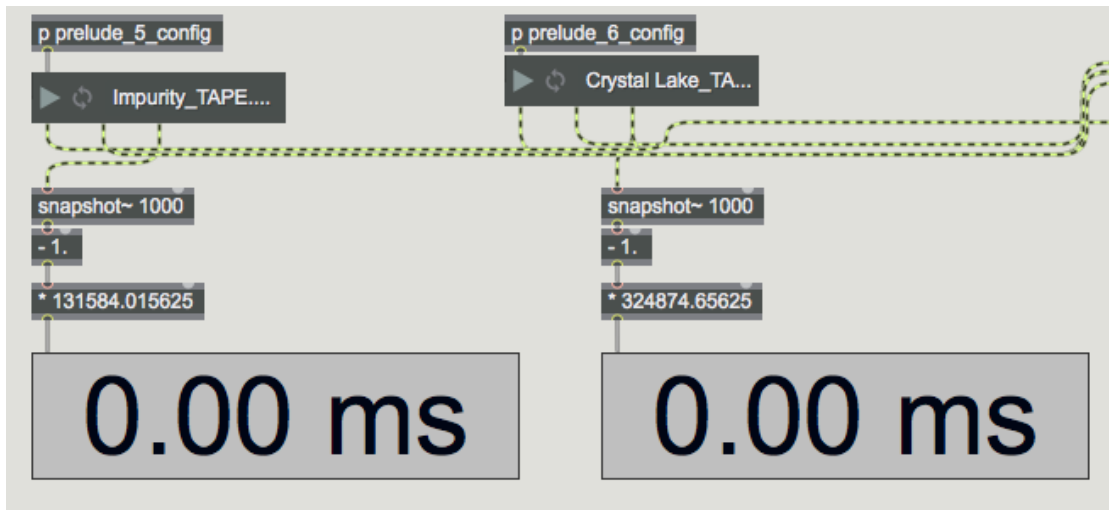


Fig. 5: Shows the fixed media file for Preludes 5 and 6. When the file is turned on, the image at the bottom acts as a stopwatch.



Fig. 6: Space echo effect from Prelude 7.

4.3 Analysis of Individual Preludes

Arroyo Seco

PRELUDE No. 1 in C major and C[#] major

The title of this prelude refers to a river, which flows through the front range of the San Gabriel Mountains, through parts of urban Los Angeles county, and eventually merges with the Los Angeles River. Although the river was named Arroyo Seco, meaning Dry River, it is not dry except during droughts and other times of minimal rainfall. It received its name from Spanish explorers in the 1770s that were looking at only the lowest portion of the river (not in the mountains), which does appear dry.⁵⁶

An enormous number of flood control dams (beginning with the Devil's Gate Dam in 1920) and other obstructions such as debris basins (large ditches at the base of the mountains made to collect falling debris upstream of the city) have been built over the years to prevent flooding. According to John McPhee, "to stabilize mountain streambeds and stop descending rocks even before they reach the debris basins, numerous crib structures (barriers made of concrete slabs) have been emplaced in high canyons-the idea being to convert plunging streams into boulder staircases, and hypothetically cause erosion to work against itself."⁵⁷

Although the dams, basins, and other structures prevent the river from flooding the city below, they also obstruct, and change the historical river's flow. It is the obstruction of

⁵⁶ Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek*, 159.

⁵⁷ John McPhee, *The Control of Nature* (New York: Farrar, Straus, and Giroux, 1989), 193.

this flow that is the subject matter of this first prelude. When composing, I was mainly thinking of what John McPhee called “crib structures,” as they are one of the most common sights in the canyons in the front range of the San Gabriel Mountains.

After a brief introduction, the prelude quotes the first few measures (the first three chords) from Bach’s Prelude no. 1 (from *The Well-Tempered Clavier*). This melody becomes the basis for the rest of the prelude, and gets repeated several times. Each repetition introduces some small melodic changes and becomes increasingly bitonal and thus more dissonant.

With the exception of the introduction and the first cadence point, the first time that the second key of C[#] major is heard, is in m.19.



Fig: 7: Shows the entrance of C[#] major.

This entrance is noteworthy because the first two pitches are notated as E[#] and B[#], thus sounding like it is part of the original key, C major. In doing so, I attempted to avoid the occurrence of dissonance too soon in the piece. I also wanted the entrance of C[#] major to be subtle and not immediately noticeable. The first real dissonant chord (with the exception of the dissonant introduction) occurs in m. 23 when a C[#] and G[#] are played against a G, D, and an F.



Fig. 8: Shows clash between the two tonal centers.

In this prelude, Bach's melody represents the river, while the use of bitonality, dissonance, and electronics represents man-made obstructions. The melodic changes represent the river diverting from its natural course. The change in dynamics from *pianissimo* to *fortississimo* also represents change and uncertainty. There are a few reasons why I chose to use Bach's well-known melody. First, the arpeggiated nature of the melody reminds the listener of a flowing river. Second, it is used in Bach's first prelude, so I thought it would be an effective way to start my own set of preludes. But the most important reason for using the melody is because of its historical significance. Just as Bach's melody has existed for many centuries, so too has the Arroyo Seco. The historical Arroyo Seco is now being changed and diverted through dams, crib structures, and other man-made obstructions, so the changes that I have made to Bach's historically relevant melody, in my opinion, mimic the changes to the river more accurately than if I were to use a new, or lesser known melody.

The aforementioned electronics (representing man-made obstructions) come in the form of a delay at every cadence point in the prelude. Specifically, after each time the electronics are heard, a new change is made to the melody. In Bach's prelude, there is no

pause in the music. This could be interpreted as a river that is continually flowing, unaltered by human activity. In my interpretation, the delay and the pause at the cadence points represents a temporary halt in the flow of the river while it searches out or carves out a new path.

The image displays a musical score for a piece titled *Arroyo Seco*, specifically focusing on measures 22 through 27. The score is written for piano, featuring a treble and bass staff. Measures 22 and 23 show a continuous flow of eighth notes in the treble staff, with a dynamic marking of *mf* (mezzo-forte) in measure 23. The bass staff has a few notes and rests. Measures 24 and 25 introduce a 'Delay' section, marked with a *p* (piano) dynamic. This section features triplets of eighth notes in the treble staff and sustained chords in the bass staff. Measures 26 and 27 continue the triplet pattern in the treble staff, with the bass staff showing more complex chordal structures. Pedal points are indicated at the bottom: 'MIDI Ped. 5' under measure 25 and 'MIDI Ped. 6' under measure 27. The key signature has one sharp (F#), and the time signature is 4/4.

Fig 9: One of the cadence points in *Arroyo Seco*

Ghost of a River

PRELUDE No. 2 in D[#] minor and A minor

My second prelude, *Ghost of a River* is inspired by periods of drought in the state of California. At the time of this writing, California has been in a state of drought for five years, from which it has still not fully recovered. Although current research has theorized that this drought is naturally occurring (part of high pressure blocking Pacific storms from coming to shore) and not directly caused by man and greenhouse gases⁵⁸ it has had a significant effect on the San Gabriel mountains, so I decided to make it the subject of one of my preludes.

Most of the piano part consists of blocked poly-chords chords, a striking contrast to the flowing arpeggios of the previous prelude.



Fig. 10: Blocked poly-chords

⁵⁸ Steve Baragona, "Study: California Drought Natural, Not Man-Made," <http://www.voanews.com/a/california-drought-natural-not-man-made/2550951.html> (accessed September 15, 2016).

Pedal markings are not indicated in this prelude (however there are some long sustained pitches). This is to emphasize the dryness of the river. The two sections with arpeggiated chords are there to portray the small amount of flowing water that remains. It is a minor mode version of the beginning of Bach's first prelude.



Fig. 11: Mimicking Bach's Prelude no. 1.

The electronics consist of a time-stretched version of the beginning of the same Bach prelude. It was taken from a recording that I made of *Arroyo Seco*, and time-stretched by using Pro Tools. This is used to emphasize the change from what used to be a fast flowing river, to what is now a slow, miniscule trickle drying up. Towards the end of the prelude, once the time-stretched piano sound fades, a field recording of dry wind brings the prelude to a close.

Bridge to Nowhere
PRELUDE No. 3 in G Major and G[#] minor

This third prelude is inspired by the aforementioned flood of March 1938 that completely decimated the East Fork Highway in the eastern San Gabriel Mountains, leaving behind only “The Bridge to Nowhere.”⁵⁹

The piano represents the torrential waters of the flood, while the electronics represent the bridge that resisted the flood and still stands after so many years. The prelude begins with a fast arpeggiated bitonal piano introduction, which introduces a rhythmic pattern that is continuously heard throughout the piece, while going through several transpositions.



Fig. 12: Beginning of prelude. Transposition of the pattern appears later.

The main melody, which starts in m. 12, is stated entirely in octaves, and is thus used to portray the stability of the cement highway, whose collapse is not depicted in the music until the very end of the prelude.

⁵⁹ Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek*, 234.



Fig. 13: Melody stated in octaves.

The melody is stated three times throughout the course of the prelude, and it is slightly altered every time (through transposition and changing certain melodic intervals). After each statement of the melody, the “bridge” motive (consisting of one of the arpeggios in the piano played backwards) is heard in the electronics through the use of a reverse piano sound. Unlike the rest of the pitch material in this prelude, the “bridge” motive is never transposed or altered in any way.



Fig. 14: Shows electronics in boxed notation.

During the final statement of the melody, loud, blocked chords in G major occasionally come in to interrupt.

The image displays a musical score for piano, spanning measures 45 to 50. The score is written for both hands, with a grand staff (treble and bass clefs). The key signature is G major (one sharp, F#). The time signature is 2/4. The melody is primarily in the right hand, with the left hand providing harmonic support. The score includes various musical notations such as slurs, ties, and dynamic markings. The dynamics range from piano (*p*) to fortissimo (*fff*). The score shows a progression of chords and melodic lines, with some measures featuring blocked chords that interrupt the melody. The final measure (50) ends with a fortissimo (*fff*) chord.

Fig. 15: Blocked chords interrupting.

After the final statement of the melody, the piano part comes to a loud, turbulent climax ending with blocked *fortississimo* chords. This indicates the collapse of the highway. The “bridge” motive is then outputted through the speakers one final time, bringing the prelude to a close. Throughout the prelude, the music becomes increasingly less bitonal. By the climax, only G major is heard.

The musical score is divided into three systems. The first system, starting at measure 62, is marked *accel.* and features a 4/4 time signature. Both the treble and bass staves contain complex triplet patterns. The second system, starting at measure 66, shows a tempo change to 140 BPM (indicated by a quarter note = 140) and a key signature change to one sharp (F#). It includes a *fff* dynamic marking and a section with sustained chords. The third system, also starting at measure 66, shows a tempo change to 88 BPM (indicated by a quarter note = 88) and a key signature change to one flat (Bb). It features a *p* dynamic marking and a final melodic phrase in the bass staff marked with a *5* (finger number).

Fig. 16: Ending of *Bridge to Nowhere*.

Rubio Canyon

PRELUDE No. 4 in E^b major and E minor

In 1998, workers from the city of Pasadena tried to repair a damaged water pipe in Rubio Canyon (a canyon at the base of the San Gabriel Mountains). This repair work brought about a massive landslide that covered up well-known waterfalls and cascades in the area under an 80-foot pile of rocks and debris. The landslide angered environmentalists who demanded that the pile of fallen debris be removed, but the city kept either denying responsibility for the incident or stated that they did not have enough finances to clean it up.⁶⁰

One night in October of 2004, ten inches of rain fell on the area. This storm managed to dislodge the pile of debris from the narrow gorge and uncovered the falls.⁶¹ “In what must have been an awesome display, 50,000 tons of rock and debris had been swept away and strewn down the canyon. Old waterfalls were reborn, and streams resumed their courses. To be sure, there are still scars, and the area retains a raw, unkempt look that will take decades to soften, but it appears that Rubio Canyon is on the way to recovery.”⁶²

This prelude is influenced by the night of the storm. The electronics depict a storm that grows in intensity throughout the first three quarters of the piece. At the 2:26 mark, the piano stops playing and a lightning strike is heard, which gives way to the sounds of a massive landslide and rushing water (the landslide which dislodged the pile of

⁶⁰ Robinson and Christiansen, *Trails of the Angeles*, 78-79.

⁶¹ Ibid., 78-79.

⁶² Ibid., 79.

debris and sent rocks rolling down the canyon). The rushing water can be heard until the very end of the piece.

The bitonal piano part imitates the fixed media part. The loud, blocked chords at the beginning of the prelude depict large boulders that are covering the once flowing waterfall.



Fig. 17: Depicting large boulders.

Throughout the prelude, as more water is heard in the fixed media, the blocked chords in the piano slowly give way to flowing, arpeggiated figures.

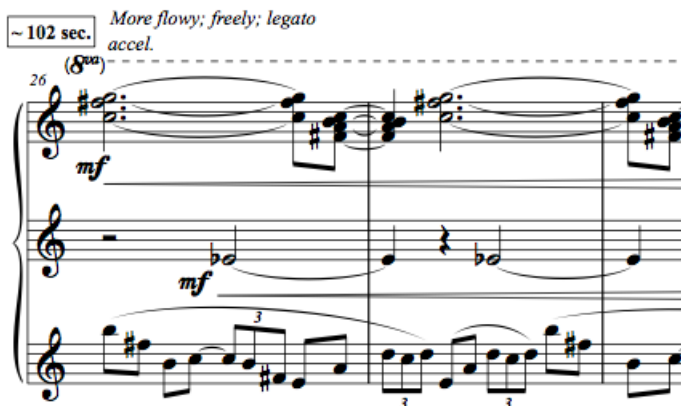


Fig. 18: Arpeggiated figures in lower voice.

After the fixed media part comes to a climax at the 2:26 mark, the fortississimo section in the piano depicts crashing rocks and a rushing stream.



Fig. 19: Crashing rocks and rushing stream.

The rest of the piano part, consisting of scalar figures, imitates the now flowing streams and cascades.

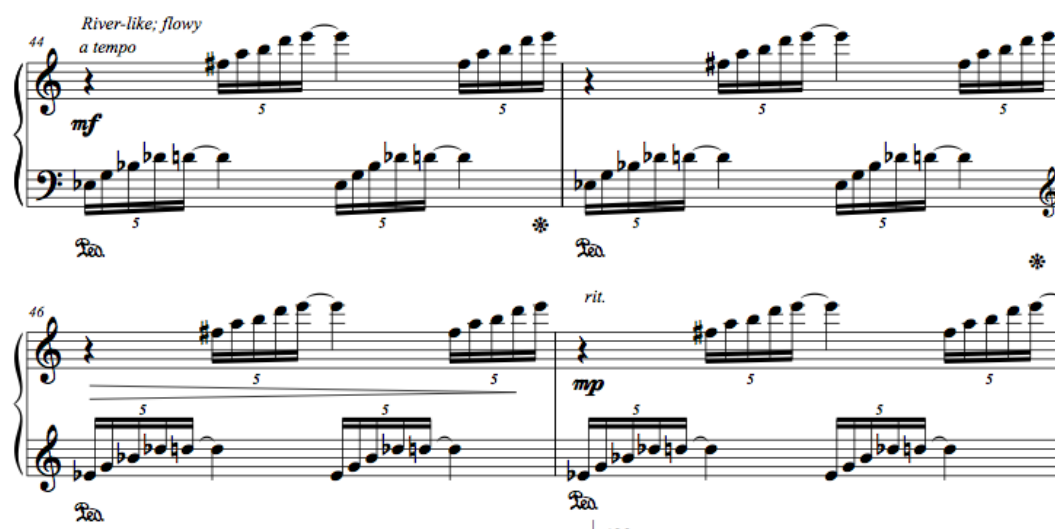


Fig. 20: Flowing streams and cascades.

It is worthy to note that most of the piece makes use of only the upper register of the piano. No pitch below middle C is heard until halfway through the prelude. Since notes in the upper register of the piano vibrate faster, the sound has a smoother, drier quality to it, which depicts the years of dryness in the area before the storm. The slowly vibrating, rough sounding extreme low register of the piano is reserved for the section depicting the landslide. It is also worthy to note that pitches from the second key of E^b major are rarely heard until the second half of the prelude, where the prelude becomes increasingly bitonal.

Impurity
Prelude No. 5 in F[#] minor and C minor

According to the Southern California Environmental Health Center, “Los Angeles’ cherished, yet pollutant-trapping ring of mountains set the stage for a dilemma long before millions of cars and trucks filled our freeways. Indeed, lore has it that early inhabitants referred to the San Gabriel Valley as the “Valley of Smokes”.⁶³ However, the SCEHC is also quick to point out the recent contributions that mankind has made to this problem: “Industry, and ever-growing population, and more than 12 million vehicles, pose a formidable challenge for regulatory agencies trying to achieve and maintain air quality standards designed to protect human health.”⁶⁴

Impurity is one of the more abstract preludes in this set in that it doesn’t follow a narrative structure. It is a representation of the pollution that plagues the San Gabriel Mountains, especially at the lower elevations. The piano part represents this by using poly-rhythms and bitonality. It also makes extensive use of the lower register where there is a greater thickness to the sound.

⁶³ Southern California Environmental Health Sciences Center, “Pollution in Los Angeles County,” <https://www.rabbitair.com/pages/pollution-in-los-angeles-county> (accessed September 30, 2016).

⁶⁴ Ibid.

(V)
Impurity

Christian Dubeau

$\text{♩} = 130$ *morbidity*

Fig. 21 mm. 1-5, representing pollution.

The first and the last five bars of the prelude, which consist of the same material, represent rising levels of pollution. Since the worst of the pollution is in the lower elevations of the San Gabriel Mountains, in mm. 6-9, I make use of the “canyon theme” from the *Rubio Canyon* prelude (Prelude 4).



Fig. 22: A part of the “canyon theme” in the treble clef.

The first time the theme is heard, it is unprocessed, and contains the first instance of bitonality in the prelude. The c minor theme is in the right hand, and it is harmonized by an F# minor scale in the left hand. The second and third time the theme is heard, it is in the fixed media part (a recording of the piano part from *Rubio Canyon*) and is significantly time-stretched, and some of the harmonic partials are altered, thus representing change (rising levels of pollution) overtime.

The fixed media electronic component, when not playing modified piano sounds, consists of recordings of dry winds and smog producing motor vehicles.

Crystal Lake
PRELUDE No. 6 in A major and G minor

“High under the 8000 foot summits of Mounts Islip and Hawkins, just below the main crest of the San Gabriels, lies a forested basin replete with Jeffrey and Sugar Pine, White Fir, Incense Cedar and Big Cone Spruce. Springs of sparkling cold water gush from mountainside recesses, watering the basin and forming the headwaters of the San Gabriel River’s North Fork. Just southwest of the basin, without an outlet, nestles a little silver-dollar-shaped lake.”⁶⁵

Crystal Lake, located in a high elevation in the eastern San Gabriels, is the only natural lake in the San Gabriel Mountains. The area attracted hunters as early as the 1860s, when the lake was called Sycamore Lake (for an unknown reason, as there are no sycamores in the area). The name of the lake was changed to Crystal Lake around a couple decades later when Benjamin Eaton (a well-known lawyer and judge from Pasadena) visited the area and claimed that “the water is clear as crystal”⁶⁶

Crystal Lake and its surrounding area became heavily used by humans during the Great Hiking Era of the San Gabriel Mountains. In the spring of 1932, Crystal Lake County Park became open to the public. It was disbanded around the time of World War II, but the Crystal Lake recreation area was open in 1946, also attracting many visitors. The area became popular for camping, boating, picnicking, among many other activities. Unfortunately, this led to the area becoming overused, which resulted in polluted water.

⁶⁵ Robinson, *The San Gabriels: The Mountain Country from Soledad Canyon to Lytle Creek*, 239.

⁶⁶ Ibid., 239.

Because of the lake's current state (the complete opposite of what it looked like when Benjamin Eaton first visited it), many fewer visitors are seen in the area today.⁶⁷ This prelude attempts to paint a musical picture of what Crystal Lake was like in the 1800s, followed by a depiction of the increasing amount of pollution overtime, and it finally ends with a portrayal of the conditions of the lake today.

The prelude begins with a sound recording that I made of waves from a lake crashing onto a shore. This is not a recording of Crystal Lake (it is a recording of a small, natural lake in eastern Canada), because, unfortunately, Crystal Lake doesn't sound like this anymore. But I imagine that the sound heard by Benjamin Eaton in the late 1800's when he first visited Crystal Lake was similar to the one that I recorded.

A soft and tranquil six-and-a-half bar phrase in the piano is introduced, which become the basis of the piano part.

⁶⁷ Ibid., 240.

♩=48

pp Gently foreboding

MIDI Ped. 1 *legato pedaling throughout*

ppp

sf *p* *sf* *p*

Fig. 23: Shows the 6.5 bar phrase along with the start of the phrase being repeated. Each time the phrase is repeated, it becomes denser with more notes and chords.



Fig. 24: A section of the 6 ½ bar phrase that has become much more dense.

The second key of A major is first introduced in measure 4 in the low register of the piano, and the intervallic content of the middle and lower voices become smaller throughout the course of the prelude, while the music becomes increasingly dense.

Over time, the sounds of crashing waves in the fixed media part become heavily processed (once again depicting increasing amounts of pollution), until the original source of the sound is completely hidden, and only electronic gibberish is heard. For the processing, I used three different Max audio effects from Ableton Live called Space Syncopations (providing random high frequency noise), Stereo Vibrato, and Mud Slide (producing a white noise effect). This section comes to a climax, after which a recording of a lake with much less water is heard. I added a dry wind sound to this recording in order to emphasize the current drought conditions that Crystal Lake is facing. In this section, there is much less activity in the piano part, which is used to indicate the decreased number of visitors to the lake in modern times. To further accentuate this fact, the main melodic phrase is played backwards and one key (A^b major) is heard much more than the other.

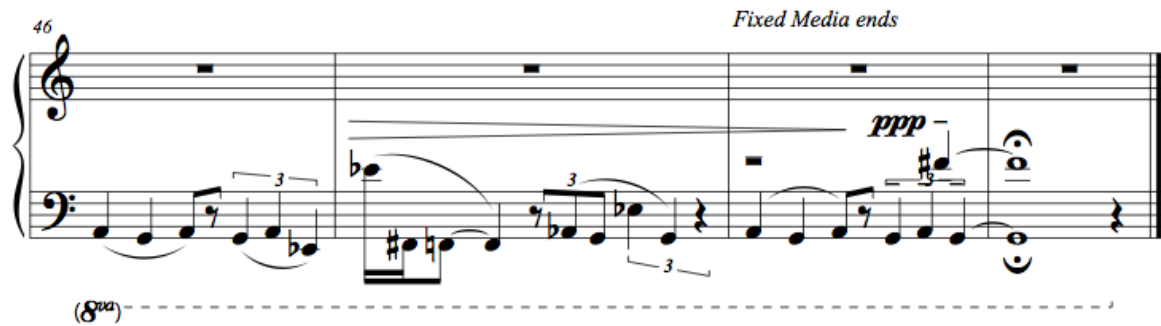


Fig. 25: End of the prelude, in A^b Major. D[#] is the only pitch from A major that is heard.

High Country
Prelude No. 7 in F# major and C# minor

Although pollution plagues the lower elevations of the San Gabriel Mountains, the air in the higher elevations is much cleaner. Standing on top of Mt. Islip (one of the higher peaks in the San Gabriel Mountains) and looking down at the cloud of smog that pollutes the valley below inspired me to write this prelude.

The music begins with a musical depiction of the valleys and canyons at the lower elevations. This is done by directly quoting the first five measures (which are at the lowest register of the piano) from a previous prelude, *Impurity*. (see Fig. 21). The music then progressively moves into the high registers of the piano (representing higher elevations). Once in the higher register, the music has a much lighter and playful tone, and the dissonance from the bitonal aspect of the prelude is less prominent, depicting the less polluted high country of the San Gabriel Mountains.



Fig. 26: Light, playful music in the upper register

The prelude ends by giving the audience a panoramic view of what is seen while standing on top of one of the mountain's higher peaks. Both the piano and the electronics contribute to this effect. The piano plays long, sustained tones in the upper, and low registers. The music in the upper register is played at a soft dynamic level, while the music in the lower register incorporates more dissonance and is played at a loud dynamic level to accentuate the prominence of pollution at the lower elevations.

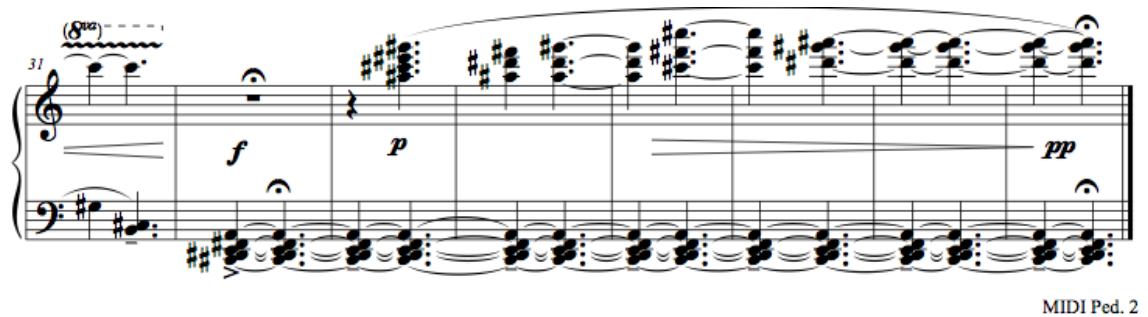


Fig 27: Long sustained pitches in high and low registers for panoramic effect.

In the electronics, echo and pitch bending effects (created by using the Space Echo audio effect in Ableton Live) represent clouds of smog. Throughout the prelude, the left hand plays in F[#] major, while the right hand plays in C[#] minor. This only changes in the final few bars, where the hands switch keys.

Watchers of the Sky
Prelude No. 8 in E major and A^b major

The title, *Watchers of the Sky*, refers to the telescopes at the Mt. Wilson observatory. Most of the prelude is inspired by the inherent conflict and struggle of transporting the sixty-inch telescope to the top of Mount Wilson from the valley below in the early twentieth century when there were no highways for automobiles in the mountains.⁶⁸ The form of the prelude is inspired by a piece by John C. Adams called *The Mountain*, which is the last movement of a three-movement composition titled *My Father Knew Charles Ives*.

The Mountain is a programmatic orchestral work about a hiker struggling to complete a strenuous climb to the top of a mountain. At the beginning of the piece, long, soft sustained pitches and different orchestral registers are used to represent the vastness of the landscape. The music becomes more percussive, louder, and rhythmic as time goes on. The climax is very brass heavy, percussive, and fast. This is to convey the character struggling to complete the hike. The last couple minutes depict the character having completed their arduous hike, having reached the top of the mountain admiring the view. The music suddenly becomes much softer and less rhythmic. Soft, sustained pitches are used again, and so are extremely low and high instrumental registers representing (once again) the vastness of the place and perhaps the serenity that the character must feel after having completed such a task.

⁶⁸ Ibid., 128.

Watchers of the Sky incorporates many of the same musical tools as in *The Mountain*. It starts with soft, long sustained pitches in the piano to represent vastness.



Fig. 28: Long, sustained pitches at the beginning.

As the prelude moves forward, it becomes increasingly dense, more rhythmic, more voices are introduced, and the dynamic level consistently increases.



Fig. 29: Music is becoming denser.

After a tense, percussive climax, the music suddenly becomes soft and the mood of the prelude changes completely. The first chord of this second, softer section is an A^b major chord, which, non-coincidentally is the same first chord that John Adams uses after his climax (although mine is slightly modified in the left hand due to my use of bitonality).

Fig. 30: Beginning of the second section. First chord in the right hand is A^b major.

Watchers of the Sky does differ from *The Mountain* in some notable ways, however. The first and most obvious example is the difference in instrumentation. John Adams was able to represent many aspects of the weather and the environment through use of different orchestral timbres (e.g., using soft glockenspiel to represent light snowfall). I did not have the luxury of an orchestra for *Watchers of the Sky*, however, through the use of electronics, I was able to further accentuate some of the imagery. For example, the reverb heard throughout the first three quarters of the piece further highlights the vastness and grandeur of Mount Wilson and its surrounding landscapes. Also, the

sudden change in electronic medium (from a reverb to a delay) after the climax of the piece is used in lieu of the sudden change of timbre after the climax in *The Mountain*. Instead of using different orchestral timbres to represent the different aspects of the landscape, in *Watchers of the Sky*, I used bitonality, and polyphonic textures. As time goes by, more countermelodies are heard, and the bitonal aspect becomes more prevalent.

The second difference is that I don't use every register at the beginning of the prelude. Just like in *High Country*, I start with the lower register of the piano to depict low elevations (with the exception of a few high pitches to represent movers of the telescope looking up at the distant mountaintop) and gradually move up the piano as the piece moves forward. The final bars only make use of the highest register on the piano, a depiction of the top of the mountain and also the planets and stars that are being seen through the lens of the telescope. The final pitch that is played in the prelude is C, which is not part of the E major scale that is being used in the voice playing it. C is a physical constant used to denote the speed of light, and thus it is used here to represent the Mount Wilson observatory's role in the discovery of the speed of light.

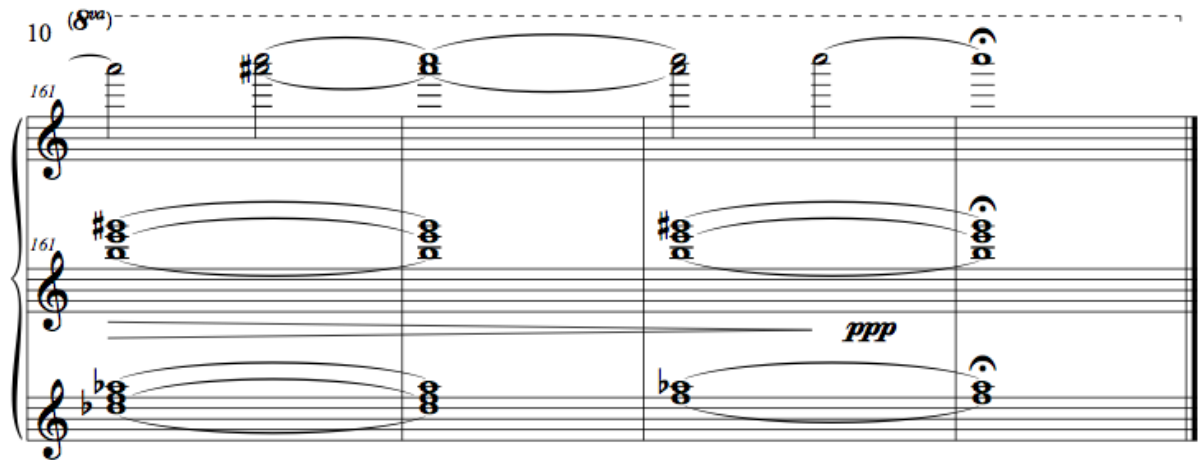


Fig. 31: The last few bars of the prelude. C (the highest pitch on the piano) is the final pitch.

The Days of '42
Prelude No. 9 in B^b major and D minor

The discovery of gold in the San Gabriel Mountains in 1842, which sparked the aforementioned first California Gold Rush, inspired this prelude. This prelude quotes *The Days of '49*, a well-known folk song from the California Gold Rush era. The lyrics of the song describe a gold miner who becomes bankrupt after he squanders his gold rush riches.

The form of this prelude could be considered a theme and variations. At the beginning, the theme for *The Days of '49* is heard in its original form cast in the key of D minor. The harmony in the first several bars consists of i and VII chords.



Fig. 32: First eight bars of the theme.

This is then followed by three variations. In each variation, the theme becomes more obscured, and the harmony increasingly changes, representing the earth being depleted of a natural resource (gold) gradually overtime. In the first variation, the D

minor theme is harmonized in the key of B^b major (depicting mankind tampering with nature). Although the harmony is different than in the first statement of the theme, chords based on the first and seventh scale degrees (I and vii⁰) are still often used.



Fig. 33: First few bars of Variation I.

This bitonal idea continues in the second variation where only fragments of the original theme are heard.

The final variation has a much darker tone and consists of a fixed media part playing back a recorded, time stretched version of the original D minor theme along with a recording of myself singing a section of *The Days of '49*. I removed high and low frequencies and I inserted crackling sounds into the recording (through the use of an Max audio effect called “Crack”) of my singing to make it sound like it could be from an old field recording. I also decreased the quality of the recording through use of a Max audio effect called “Phone Filter.” Both of these effects were taken from Ableton Live.

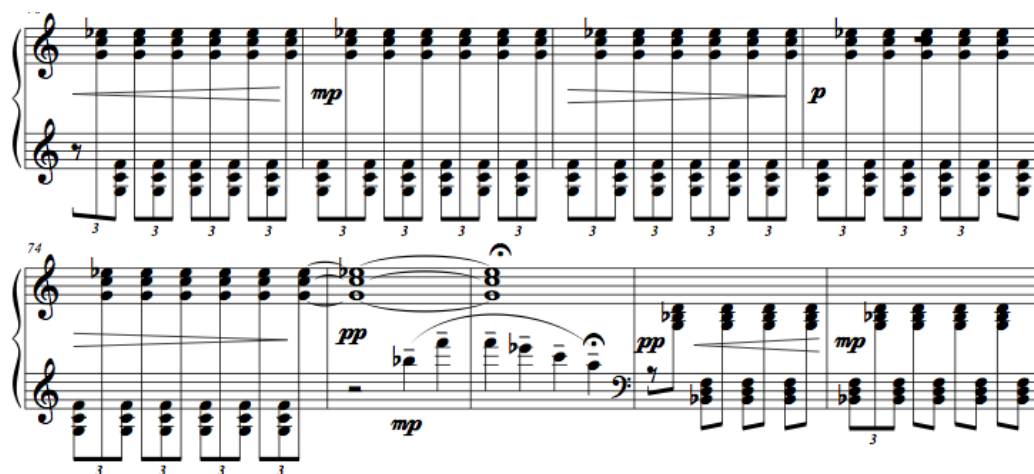


Fig. 34: A section from the final variation.

In the piano, an intermittent fragment of the theme in B^b major can be heard, although the vii^o chord is never heard. The prelude ends on a solemn note, as the piano plays soft, sustained chords in the low register, and the words “in the days of old when we dug up the gold” is heard in the fixed media.

Proximity Effect

Prelude No. 10 in B minor and F minor

My goal for this prelude was to represent the proximity of the San Gabriel Mountains to the city of Los Angeles and the noise pollution that occurs as a result. According to John McPhee's book *The Control of Nature*, the San Gabriel Mountain's "extraordinary proximity to the city, the abruptness of the transition from the one milieu to the other, cannot be exaggerated."⁶⁹ McPhee recounts the story of a hiker in the San Gabriels one winter. He contracted hypothermia due to the cold, snowy conditions in the mountains. He crawled down a ridgeline, which led out of the snow, and directly into a large shopping center. He then found a pay phone, called 911, and waited for help to come.⁷⁰ McPhee also states that, "to be up in the San Gabriels is to be both above and beside urban Los Angeles, only minutes from the streets, and to look north from ridge to dry ridge above deeply cut valleys filled with gulfs of clean air."⁷¹

Needless to say, with this degree of proximity to the city, the San Gabriel Mountains suffer from a high level of noise pollution. The prelude opens with a recording of sounds from nature (rushing water and birds) interspersed with some vehicular traffic sounds. When the piano makes its entrance, the right hand part (in F minor) represents the rippling, running water, while the low register left hand part represents the low frequency rumble of the car traffic on the mountain highways (or perhaps on the streets in the nearby

⁶⁹ John McPhee, *The Control of Nature*, 205.

⁷⁰ Ibid., 205.

⁷¹ Ibid., 205.

the suburbs of Los Angeles). The left hand part becomes more prominent over time and its dynamic level increases, eventually bringing the piano part to a climax.

The musical score consists of four systems of piano notation, measures 3 through 10. The right hand (RH) plays a continuous sequence of triplet chords throughout. The left hand (LH) is mostly silent in measures 3-5, then enters in measure 6 with a melodic line of eighth notes. The dynamics are marked as *p* (piano) in measure 3, *mf* (mezzo-forte) in measures 6 and 8, and *mp* (mezzo-piano) in measures 8 and 10. The key signature has two flats (B-flat major), and the time signature is 6/4.

Fig. 35: mm. 3-10. Shows left hand becoming more prominent.

The piano part acts as a direct imitation of the electronic fixed media part, which also comes to a climax where the sounds from nature can barely be heard over the rumble of the car engines and overhead aircraft.

Although the piano part is bitonal, it can also be said, in a sense, that the electronics are likewise bitonal. They consist of sounds that are rarely associated with one another. It could even be said that this prelude makes use of category IV (electronics in two “keys”, while the piano is reinforcing both) in my four applications of bitonality. While the blending of these two kinds of sounds might be pleasing to listen to towards the beginning of the prelude (representing mankind’s use of the San Gabriel mountains), the traffic sounds get increasingly irritating as they become more prominent towards the end of the prelude (representing the urban sprawl in recent years).

Railway in the Clouds
Prelude No. 11 in B major and B^b minor

This prelude is inspired by the Mt. Lowe Railway in the San Gabriel Mountains. The electronics consist of a two-bar rhythmic motive that is repeated throughout (and slightly altered at times).



Fig. 36: Two-bar motive.

The sound is a piano that is processed (by use of two Ableton Live Max audio devices: Prepared Piano2 Harmonics, and Metallic), to sound metallic, my musical representation of the steel rails on the railway. The quick-paced and repetitive nature of the motive depicts the movement and repetitive nature of the wheels of the trolley. At the end of the prelude, the sound gets processed even further until it is close to white noise. This is a representation of the natural disasters that brought the railway to its end.

The piano part also consists of repetitive motivic material with harmonic accompaniment. The motive, however, reveals itself gradually overtime. At the beginning of the prelude, the piano part consists of only a B^b in the bass clef, 2 E notes in the treble clef, and a grace note A in the bass clef.



Fig. 37: Piano part at the start of the prelude.

Throughout the course of the prelude, this idea is slightly altered and grows into a two-bar phrase with significant harmonic accompaniment. This compositional method of revealing more material overtime is exceedingly common in the works of composer Steve Reich. Reich calls this method “substituting beats for rests.”⁷² *Drumming* is an example of a Reich piece that is particularly known for this compositional technique.

In *Railway in the Clouds*, this beats-for-rests technique is used to represent the mountain scenery that is gradually being revealed to a person as they travel on the scenic railway. At the end of the prelude, the piano part (in a similar fashion to the fixed media part) comes to a loud crashing climax (Fig. 38), indicating the disasters that eventually struck the railway. The last few bars of piano music act as a transition into the final prelude. The music is transposed into the bitonal keys of the final prelude, the last chord being the first chord of the final prelude (Fig. 39).

⁷² Russell Hartenberger, *Performance Practice in the Music of Steve Reich* (Cambridge: Cambridge University Press, 2016), xxii.



Fig. 38: Climax of the prelude.

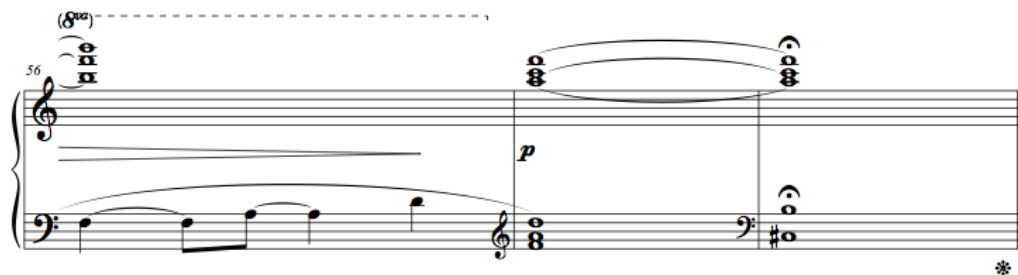


Fig. 39: Ends with the first chord of the final prelude.



Fig. 40: First few bars of the final prelude.

The bitonality in this prelude consist of a fixed media part playing in both B major and B^b minor. The piano re-emphasizes both keys with the left hand playing in B^b minor and the right hand playing in B major (Category IV), although this becomes obscured towards the chaotic climax of the prelude where the hands switch between keys from time to time. The incredible quantity of man-made technology juxtaposed with the natural world that is being represented in this prelude inspired me to place equal emphasis on both keys at all times. The case is not that one key represents nature, while the other represents man-made technology. The idea is rather that both keys (as well as man-made technology and nature) blend together.

Skeletons

Prelude No. 12 in D major and F major

Skeletons is inspired by the buildings, cabins, gold mines, and other man-made structures in the San Gabriel Mountains that have been abandoned over time. They have slowly been taken over by erosion and by the expanse of flora and fauna, leaving behind little more than foundations (or skeletons) of what was once there. In fact, in some cases, it looks as if the remains of the man-made phenomena have intermingled with nature so well, that it has become an integral part of nature.

Since this is the last prelude in the set, I decided to reuse, and further develop material from a previous prelude in order to tie the movements together. The main musical idea for *Skeletons* is taken from the second half of *Watchers of the Sky*. I consider this musical idea to be perfect for the subject matter of this prelude because it intermingles two keys together (as opposed to having one hand playing in one key and the other hand playing in the second key) and thus strengthens the fact that man-made structures can intermingle and become a part of the natural landscape. At the end of the prelude, I even decided to take this idea to the next level and introduce pitches that are not part of either key to accentuate the fact that these areas in the San Gabriel Mountains are being completely transformed as a result of this intermingling.

The prelude begins with an almost direct quote of the aforementioned theme from *Watchers of the Sky*. The only difference is that the keys are now D major and F major, and the ending of the theme is slightly altered. Even the delay created by the live

electronics is still present. Entirely new thematic material does not arrive until m. 27, where a seven-bar motive is introduced in the bass.



Fig. 41: Shows the quote from *Watchers of the Sky* along with new material in the lowest voice.

This motive represents the slow disappearance of man-made structures over time. In fact, as soon as this motive is presented, the upper-most melodic voice begins to disappear. At first, it moves to the upper-most register of the piano and gets softer, followed by certain pitches becoming left out. It completely disappears by m. 40.



Fig. 42: mm. 40-41. The upper voice vanishes after m. 40.

The chorale-like material in the middle register eventually disappears, too. It moves to the upper register of the piano, and gets increasingly softer until it ends permanently in m. 65. For the rest of the prelude, all that is heard is the motive introduced in m. 27 (it is also being harmonized), but it is no longer possible to identify the keys of D major and F major.



Fig. 43: Motive from m. 27 being altered and harmonized.

The disappearance of man-made phenomena is further accentuated in the live electronics, as after m. 65, crackles and changes in the timbre of the piano can be heard. The crackles represent cracks and rust in what remains of man-made structures.

The electronics also consists of a fixed-media part with recorded sounds of nature. It starts with only the sound of a babbling brook, but over time, more sounds associated with the expanse of flora and fauna, such as leaves rustling, and various animals.

Conclusion

Working on this set of preludes has challenged me in various ways. First, coming up with an overall shape and form for a set of this magnitude, while trying to give unique characteristics to each prelude was an arduous task. Second, I normally write acoustic chamber and orchestral music. While I have written electro-acoustic pieces before, I have never written one of such magnitude. This project has challenged me to step beyond my comfort zone in regards to electronics, and to delve more deeply into the Max/MSP programming environment. The development of electronic means of creating new sounds provides opportunities that would have been unimaginable a century ago. This tool will undoubtedly continue to rapidly improve over the next century, providing opportunities that are unimaginable today. I look forward to the challenges and opportunities it will present.

I was also challenged with trying to find unique ways to musically represent natural landscapes, and human interaction. My future research goals are to continue exploring traditional, and non-conventional ways to represent the natural environment through music.

POEMS OF WILDNESS
(12 BITONAL PRELUDES)

FOR PIANO AND ELECTRONICS

CHRISTIAN DUBEAU
(2016)

Instrumentation

***Piano
Electronics***

DURATION: APPROX. 45 MINUTES

INFORMATION REGARDING ELECTRONICS

- 1). MIDI Ped. = Push down on the midi pedal and release immediately.
- 2). Before playing any specific prelude, you will need to select it with a MIDI controller. MIDI note C selects the first prelude in each set. MIDI note D selects the 2nd. E selects the 3rd, and F selects the 4th. You can select these notes in any octave.
- 3). The following equipment is needed: 1 MIDI Pedal; 1 MIDI controller with MIDI notes C, D, E, and F available; 1 (or 2) condenser microphone(s); 1 (or 2) microphone stands; 1 audio interface with 1 (or 2) microphone inputs, 2 outputs; 2 speakers; and one laptop computer with Max/MSP installed. OS X 10.4.11 or later is required to run Max/MSP on an Apple computer, and Windows XP, Vista, or Windows 7 is required to run it on a PC.
- 4.) ~245 sec. These messages tell the approximate total time (in seconds) that has elapsed in the fixed media part.
- 5). At least 2 hours should be set aside for sound checking this piece before performance.

(I) Arroyo Seco

Christian Dubeau

$\text{♩} = 100$

ff surprising!

Legato Ped. throughout

held back; slightly slower

p *mp* *p*

MIDI Ped. 1

$\text{♩} = 88$

suddenly calming down

pp soothing

(Delay stops)

MIDI Ped. 2 (turns off delay)

p

rit.

MIDI Ped. 3

16 (Delay) *p* (Delay stops) *a tempo* *pp* MIDI Ped. 4

19 *p*

22 *mf*

24 (Delay) *p* MIDI Ped. 5 MIDI Ped. 6

27 $\text{♩} = 100$ (Delay stops) *ff* surprising! *p* *mp* *p*

Detailed description of the musical score: The score is written for piano on a grand staff. Measures 16-18 show a melodic line with triplets and a bass line with sustained chords. Measure 19 continues the melodic pattern. Measure 22 features a more active bass line. Measure 24 has a melodic line with a triplet and a bass line with sustained chords. Measure 27 is marked with a tempo of 100 and features a complex melodic line with triplets and a bass line with sustained chords. The piece concludes with a 'surprising!' dynamic in measure 27.

♩ = 82

30 *pp* soothing

33 *p*

36 *rit.* (Delay) *p*

MIDI Ped. 7

40 *a tempo* *pp* (Delay stops) *mf*

MIDI Ped. 8

43

45 *accel.*

47 $\text{♩} = 92$
f furioso

49

51

53

55 *accel.*

56 $\text{♩} = 100$ (Delay)

57 *rit.* $\text{♩} = 80$ (Delay stops)

MIDI Ped. 9

MIDI Ped. 10

(II) Ghost of a River

Christian Dubeau

*time-stretched
piano noise
in fixed media* ~ 1 sec.
♩ = 72

MIDI Ped. 1

subito p *dry* *subito p*

~ 15 sec. ~ 90 sec.

subito p *p* *mp*

rit. -----

mf *mp* *p*

dying away *pp*

*fixed media
continues for
a few seconds
and fades away*

Christian Dubeau

The image displays a page of musical notation for a piano piece. The score is written for a single instrument, likely a piano, using a grand staff with a treble and bass clef. The key signature is one sharp (F#), and the time signature is 4/4. The tempo is marked 'moderato' with a metronome indication of 88. The piece is titled 'The Sea' and is Op. 10, No. 1 by Maurice Strakosky. The notation includes various musical elements such as notes, rests, and dynamic markings (p, mp, mf). There are also performance instructions like 'flowing' and 'rit.' (ritardando). The score is divided into measures, with measure numbers 1, 3, 6, 9, and 11 indicated. The piece concludes with a final chord and a 'rit.' marking.

13

16

19

subito p

22

f

24

recording - - - - -

p

MIDI Ped. 1

Electronics

a tempo

27 *mp* *s*

pp *s*

30 *s* *s* *s*

33 *subito p* *s* *s* *s*

36 *s* *s* *s*

39 recording

MIDI Ped. 2

42

mp

45

mp

16th

53

p

ff

mp

57

pp

61

rit.

a tempo

Fixed media begins

ff

accel.

MIDI Ped. 3

65

♩ = 140 furioso

69

Fixed media ends

(IV) Rubio Canyon

Christian Dubeau

$\text{♩} = 72$ ~ 12 sec.

Light rain in fixed media

Granite-like! Striking!

Thunder sounds in electronics

MIDI Ped. 1

~ 53 sec.

~ 82 sec.

18 *(8^{va})* *mp* *accel.* *mp*

22 *(8^{va})* *mf* *mf* *mf*

~ 102 sec. *More flowy; freely; legato* *accel.* *loco*

26 *mf* *mf* *f*

~ 116 sec. *♩ = 100 legato; flowy*

30 *f* *f* *f* *p* *8^{va}*

34 *sound of branch breaking in electronics*

accel.

f

38 *Lightning; Rocks crashing into river*

mf

f

42 *Landslide with rocks tumbling down!*

mf

rit.

44

~ 156 sec.

~ 146 sec.

$\text{♩} = 120$

46 *a tempo*
mf River-like; flowy *5*

48 *rit.* *mp* *5*

50 *♩ = 100*
flowing *5*

52 *5*

54 *subito p* *3*

The musical score consists of five systems of piano notation. The first system (measures 46-47) begins with a treble clef, a key signature of one sharp (F#), and a 2/4 time signature. The right hand plays a melody of eighth notes, while the left hand plays a bass line of eighth notes. The tempo is marked 'a tempo' and the dynamics are 'mf'. The second system (measures 48-49) continues the melody and bass line, with a 'rit.' (ritardando) marking above the staff and a 'mp' (mezzo-piano) dynamic marking in the right hand. The third system (measures 50-51) features a tempo marking of '♩ = 100' and a 'flowing' instruction. The fourth system (measures 52-53) continues the flowing melody and bass line. The fifth system (measures 54-55) concludes the piece with a 'subito p' (subito piano) marking and a final cadence.

56 *15^{ma}*
rit. *a tempo*

sound of
water flowing
in fixed media
fades out after
a few seconds

60 *15^{ma}*

(V) Impurity

Christian Dubeau

$\text{♩} = 130$

p morbidly

$\text{♩} = 86$

ff

p much gentler mood

Fixed media starts here - 75 sec.

MIDI Ped. 1

pp

sf

accel.

pp

$\text{♩} = 130$

morbidly

loud ambient noises
fade out after a few seconds

(VI) Crystal Lake

Christian Dubeau

~ 18 sec.

$\text{♩} = 48$

The first system of the musical score is written for piano in 4/4 time. It consists of three measures. The top staff (treble clef) contains whole notes: C4, E4, G4, and A4. The middle staff (treble clef) contains a series of eighth notes: G4, A4, B4, C5, B4, A4, G4, F#4, E4, D4, C4, B3, A3, G3, F#3, E3, D3, C3, B2, A2, G2, F#2, E2, D2, C2, B1, A1, G1, F#1, E1, D1, C1, B0, A0, G0, F#0, E0, D0, C0, B-1, A-1, G-1, F#-1, E-1, D-1, C-1, B-2, A-2, G-2, F#-2, E-2, D-2, C-2, B-3, A-3, G-3, F#-3, E-3, D-3, C-3, B-4, A-4, G-4, F#-4, E-4, D-4, C-4, B-5, A-5, G-5, F#-5, E-5, D-5, C-5, B-6, A-6, G-6, F#-6, E-6, D-6, C-6, B-7, A-7, G-7, F#-7, E-7, D-7, C-7, B-8, A-8, G-8, F#-8, E-8, D-8, C-8, B-9, A-9, G-9, F#-9, E-9, D-9, C-9, B-10, A-10, G-10, F#-10, E-10, D-10, C-10, B-11, A-11, G-11, F#-11, E-11, D-11, C-11, B-12, A-12, G-12, F#-12, E-12, D-12, C-12, B-13, A-13, G-13, F#-13, E-13, D-13, C-13, B-14, A-14, G-14, F#-14, E-14, D-14, C-14, B-15, A-15, G-15, F#-15, E-15, D-15, C-15, B-16, A-16, G-16, F#-16, E-16, D-16, C-16, B-17, A-17, G-17, F#-17, E-17, D-17, C-17, B-18, A-18, G-18, F#-18, E-18, D-18, C-18, B-19, A-19, G-19, F#-19, E-19, D-19, C-19, B-20, A-20, G-20, F#-20, E-20, D-20, C-20, B-21, A-21, G-21, F#-21, E-21, D-21, C-21, B-22, A-22, G-22, F#-22, E-22, D-22, C-22, B-23, A-23, G-23, F#-23, E-23, D-23, C-23, B-24, A-24, G-24, F#-24, E-24, D-24, C-24, B-25, A-25, G-25, F#-25, E-25, D-25, C-25, B-26, A-26, G-26, F#-26, E-26, D-26, C-26, B-27, A-27, G-27, F#-27, E-27, D-27, C-27, B-28, A-28, G-28, F#-28, E-28, D-28, C-28, B-29, A-29, G-29, F#-29, E-29, D-29, C-29, B-30, A-30, G-30, F#-30, E-30, D-30, C-30, B-31, A-31, G-31, F#-31, E-31, D-31, C-31, B-32, A-32, G-32, F#-32, E-32, D-32, C-32, B-33, A-33, G-33, F#-33, E-33, D-33, C-33, B-34, A-34, G-34, F#-34, E-34, D-34, C-34, B-35, A-35, G-35, F#-35, E-35, D-35, C-35, B-36, A-36, G-36, F#-36, E-36, D-36, C-36, B-37, A-37, G-37, F#-37, E-37, D-37, C-37, B-38, A-38, G-38, F#-38, E-38, D-38, C-38, B-39, A-39, G-39, F#-39, E-39, D-39, C-39, B-40, A-40, G-40, F#-40, E-40, D-40, C-40, B-41, A-41, G-41, F#-41, E-41, D-41, C-41, B-42, A-42, G-42, F#-42, E-42, D-42, C-42, B-43, A-43, G-43, F#-43, E-43, D-43, C-43, B-44, A-44, G-44, F#-44, E-44, D-44, C-44, B-45, A-45, G-45, F#-45, E-45, D-45, C-45, B-46, A-46, G-46, F#-46, E-46, D-46, C-46, B-47, A-47, G-47, F#-47, E-47, D-47, C-47, B-48, A-48, G-48, F#-48, E-48, D-48, C-48, B-49, A-49, G-49, F#-49, E-49, D-49, C-49, B-50, A-50, G-50, F#-50, E-50, D-50, C-50, B-51, A-51, G-51, F#-51, E-51, D-51, C-51, B-52, A-52, G-52, F#-52, E-52, D-52, C-52, B-53, A-53, G-53, F#-53, E-53, D-53, C-53, B-54, A-54, G-54, F#-54, E-54, D-54, C-54, B-55, A-55, G-55, F#-55, E-55, D-55, C-55, B-56, A-56, G-56, F#-56, E-56, D-56, C-56, B-57, A-57, G-57, F#-57, E-57, D-57, C-57, B-58, A-58, G-58, F#-58, E-58, D-58, C-58, B-59, A-59, G-59, F#-59, E-59, D-59, C-59, B-60, A-60, G-60, F#-60, E-60, D-60, C-60, B-61, A-61, G-61, F#-61, E-61, D-61, C-61, B-62, A-62, G-62, F#-62, E-62, D-62, C-62, B-63, A-63, G-63, F#-63, E-63, D-63, C-63, B-64, A-64, G-64, F#-64, E-64, D-64, C-64, B-65, A-65, G-65, F#-65, E-65, D-65, C-65, B-66, A-66, G-66, F#-66, E-66, D-66, C-66, B-67, A-67, G-67, F#-67, E-67, D-67, C-67, B-68, A-68, G-68, F#-68, E-68, D-68, C-68, B-69, A-69, G-69, F#-69, E-69, D-69, C-69, B-70, A-70, G-70, F#-70, E-70, D-70, C-70, B-71, A-71, G-71, F#-71, E-71, D-71, C-71, B-72, A-72, G-72, F#-72, E-72, D-72, C-72, B-73, A-73, G-73, F#-73, E-73, D-73, C-73, B-74, A-74, G-74, F#-74, E-74, D-74, C-74, B-75, A-75, G-75, F#-75, E-75, D-75, C-75, B-76, A-76, G-76, F#-76, E-76, D-76, C-76, B-77, A-77, G-77, F#-77, E-77, D-77, C-77, B-78, A-78, G-78, F#-78, E-78, D-78, C-78, B-79, A-79, G-79, F#-79, E-79, D-79, C-79, B-80, A-80, G-80, F#-80, E-80, D-80, C-80, B-81, A-81, G-81, F#-81, E-81, D-81, C-81, B-82, A-82, G-82, F#-82, E-82, D-82, C-82, B-83, A-83, G-83, F#-83, E-83, D-83, C-83, B-84, A-84, G-84, F#-84, E-84, D-84, C-84, B-85, A-85, G-85, F#-85, E-85, D-85, C-85, B-86, A-86, G-86, F#-86, E-86, D-86, C-86, B-87, A-87, G-87, F#-87, E-87, D-87, C-87, B-88, A-88, G-88, F#-88, E-88, D-88, C-88, B-89, A-89, G-89, F#-89, E-89, D-89, C-89, B-90, 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F#-171, E-171, D-171, C-171, B-172, A-172, G-172, F#-172, E-172, D-172, C-172, B-173, A-173, G-173, F#-173, E-173, D-173, C-173, B-174, A-174, G-174, F#-174, E-174, D-174, C-174, B-175, A-175, G-175, F#-175, E-175, D-175, C-175, B-176, A-176, G-176, F#-176, E-176, D-176, C-176, B-177, A-177, G-177, F#-177, E-177, D-177, C-177, B-178, A-178, G-178, F#-178, E-178, D-178, C-178, B-179, A-179, G-179, F#-179, E-179, D-179, C-179, B-180, A-180, G-180, F#-180, E-180, D-180, C-180, B-181, A-181, G-181, F#-181, E-181, D-181, C-181, B-182, A-182, G-182, F#-182, E-182, D-182, C-182, B-183, A-183, G-183, F#-183, E-183, D-183, C-183, B-184, A-184, G-184, F#-184, E-184, D-184, C-184, B-185, A-185, G-185, F#-185, E-185, D-185, C-185, B-186, A-186, G-186, F#-186, E-186, D-186, C-186, B-187, A-187, G-187, F#-187, E-187, D-187, C-187, B-188, A-188, G-188, F#-188, E-188, D-188, C-188, B-189, A-189, G-189, F#-189, E-189, D-189, C-189, B-190, A-190, G-190, F#-190, E-190, D-190, C-190, B-191, A-191, G-191, F#-191, E-191, D-191, C-191, B-192, A-192, G-192, F#-192, E-192, D-192, C-192, B-193, A-193, G-193, F#-193, E-193, D-193, C-193, B-194, A-194, G-194, F#-194, E-194, D-194, C-194, B-195, A-195, G-195, F#-195, E-195, D-195, C-195, B-196, A-196, G-196, F#-196, E-196, D-196, C-196, B-197, A-197, G-197, F#-197, E-197, D-197, C-197, B-198, A-198, G-198, F#-198, E-198, D-198, C-198, B-199, A-199, G-199, F#-199, E-199, D-199, C-199, B-200, A-200, G-200, F#-200, E-200, D-200, C-200, B-201, A-201, G-201, F#-201, E-201, D-201, C-201, B-202, A-202, G-202, F#-202, E-202, D-202, C-202, B-203, A-203, G-203, F#-203, E-203, D-203, C-203, B-204, A-204, G-204, F#-204, E-204, D-204, C-204, B-205, A-205, G-205, F#-205, E-205, D-205, C-205, B-206, A-206, G-206, F#-206, E-206, D-206, C-206, B-207, A-207, G-207, F#-207, E-207, D-207, C-207, B-208, A-208, G-208, F#-208, E-208, D-208, C-208, B-209, A-209, G-209, F#-209, E-209, D-209, C-209, B-210, A-210, G-210, F#-210, E-210, D-210, C-210, B-211, A-211, G-211, F#-211, E-211, D-211, C-211, B-212, A-212, G-212, F#-212, E-212, D-212, C-212, B-213, A-213, G-213, F#-213, E-213, D-213, C-213, B-214, A-214, G-214, F#-214, E-214, D-214, C-214, B-215, A-215, G-215, F#-215, E-215, D-215, C-215, B-216, A-216, G-216, F#-216, E-216, D-216, C-216, B-217, A-217, G-217, F#-217, E-217, D-217, C-217, B-218, A-218, G-218, F#-218, E-218, D-218, C-218, B-219, A-219, G-219, F#-219, E-219, D-219, C-219, B-220, A-220, G-220, F#-220, E-220, D-220, C-220, B-221, A-221, G-221, F#-221, E-221, D-221, C-221, B-222, A-222, G-222, F#-222, E-222, D-222, C-222, B-223, A-223, G-223, F#-223, E-223, D-223, C-223, B-224, A-224, G-224, F#-224, E-224, D-224, C-224, B-225, A-225, G-225, F#-225, E-225, D-225, C-225, B-226, A-226, G-226, F#-226, E-226, D-226, C-226, B-227, A-227, G-227, F#-227, E-227, D-227, C-227, B-228, A-228, G-228, F#-228, E-228, D-228, C-228, B-229, A-229, G-229, F#-229, E-229, D-229, C-229, B-230, A-230, G-230, F#-230, E-230, D-230, C-230, B-231, A-231, G-231, F#-231, E-231, D-231, C-231, B-232, A-232, G-232, F#-232, E-232, D-232, C-232, B-233, A-233, G-233, F#-233, E-233, D-233, C-233, B-234, A-234, G-234, F#-234, E-234, D-234, C-234, B-235, A-235, G-235, F#-235, E-235, D-235, C-235, B-236, A-236, G-236, F#-236, E-236, D-236, C-236, B-237, A-237, G-237, F#-237, E-237, D-237, C-237, B-238, A-238, G-238, F#-238, E-238, D-238, C-238, B-239, A-239, G-239, F#-239, E-239, D-239, C-239, B-240, A-240, G-240, F#-240, E-240, D-240, C-240, B-241, A-241, G-241, F#-241, E-241, D-241, C-241, B-242, A-242, G-242, F#-242, E-242, D-242, C-242, B-243, A-243, G-243, F#-243, E-243, D-243, C-243, B-244, A-244, G-244, F#-244, E-244, D-244, C-244, B-245, A-245, G-245, F#-245, E-245, D-245, C-245, B-246, A-246, G-246, F#-246, E-246, D-246, C-246, B-247, A-247, G-247, F#-247, E-247, D-247, C-247, B-248, A-248, G-248, F#-248, E-248, D-248, C-248, B-249, A-249, G-249, F#-249, E-249, D-249, C-249, B-250, A-250, G-250, F#-250, E-250, D-250, C-250, B-251, A-251, G-251, F#-251, E-251, D-251, C-251, B-252, A-252, G-252, F#-252, E-252, D-252, C-252, B-253, A-253, G-253, F#-253, E-253, D-253, C-253, B-254, A-254, G-254, F#-254, E-254, D-254, C-254, B-255, A-255, G-255, F#-255, E-255, D-255, C-255, B-256, A-256, G-256, F#-256, E-256, D-256, C-256, B-257, A-257, G-257, F#-257, E-257, D-257, C-257, B-258, A-258, G-258, F#-258, E-258, D-258, C-258, B-259, A-259, G-259, F#-259, E-259, D-259, C-259, B-260, A-260, G-260, F#-260, E-260, D-260, C-260, B-261, A-261, G-261, F#-261, E-261, D-261, C-261, B-262, A-262, G-262, F#-262, E-262, D-262, C-262, B-263, A-263, G-263, F#-263, E-263, D-263, C-263, B-264, A-264, G-264, F#-264, E-264, D-264, C-264, B-265, A-265, G-265, F#-265, E-265, D-265, C-265, B-266, A-266, G-266, F#-266, E-266, D-266, C-266, B-267, A-267, G-267, F#-267, E-267, D-267, C-267, B-268, A-268, G-268, F#-268, E-268, D-268, C-268, B-269, A-269, G-269, F#-269, E-269, D-269, C-269, B-270, A-270, G-270, F#-270, E-270, D-270, C-270, B-271, A-271, G-271, F#-271, E-271, D-271, C-271, B-272, A-272, G-272, F#-272, E-272, D-272, C-272, B-273, A-273, G-273, F#-273, E-273, D-273, C-273, B-274, A-274, G-274, F#-274, E-274, D-274, C-274, B-275, A-275, G-275, F#-275, E-275, D-275, C-275, B-276, A-276, G-276, F#-276, E-276, D-276, C-276, B-277, A-277, G-277, F#-277, E-277, D-277, C-277, B-278, A-278, G-278, F#-278, E-278, D-278, C-278, B-279, A-279, G-279, F#-279, E-279, D-279, C-279, B-280, A-280, G-280, F#-280, E-280, D-280, C-280, B-281, A-281, G-281, F#-281, E-281, D-281, C-281, B-282, A-282, G-282, F#-282, E-282, D-282, C-282, B-283, A-283, G-283, F#-283, E-283, D-283, C-283, B-284, A-284, G-284, F#-284, E-284, D-284, C-284, B-285, A-285, G-285, F#-285, E-285, D-285, C-285, B-286, A-286, G-286, F#-286, E-286, D-286, C-286, B-287, A-287, G-287, F#-287, E-287, D-287, C-287, B-288, A-288, G-288, F#-288, E-288, D-288, C-288, B-289, A-289, G-289, F#-289, E-289, D-289, C-289, B-290, A-290, G-290, F#-290, E-290, D-290, C-290, B-291, A-291, G-291, F#-291, E-291, D-291, C-291, B-292, A-292, G-292, F#-292, E-292, D-292, C-292, B-293, A-293, G-293, F#-293, E-293, D-293, C-293, B-294, A-294, G-294, F#-294, E-294, D-294, C-294, B-295, A-295, G-295, F#-295, E-295, D-295, C-295, B-296, A-296, G-296, F#-296, E-296, D-296, C-

12 *sf* *p* *sf*

15 *p* *sf* *p*

18 *p* *sf* *sf* *p*

21 *p* *mp* *p*

Loco markings: 12, 15, 18, 21

24 *loco* *8va* *accel.* *loco* *8va*

27 *loco* *8va* *8va*

30 *66* *loco* *accel.*

mp *more energy* *mf*

32 *72* *more energy*

The musical score consists of four systems of piano notation, each with a treble and bass staff. The key signature has two sharps (F# and C#). The time signature is 4/4. The score includes various musical notations such as triplets, slurs, and dynamic markings. The tempo and energy increase over the measures, indicated by markings like 'loco', '8va', 'accel.', and 'more energy'. The dynamics range from mezzo-piano (mp) to mezzo-forte (mf). The tempo markings are 66, 72, and 8va (octave up).

33 $\text{♩} = 48$ ~ 230 sec. ~ 245 sec.

trill for about 10 seconds

p held back *pp* *p*

40

44 *pp*

8^{va}

47 *Fixed Media ends* *ppp*

(8^{va})

(VII) High Country

Christian Dubeau

$\text{♩} = 130$

p furioso

f

subito p

f

f dry

$\text{♩} = 110$

The musical score is written for piano and dry guitar. It begins with a tempo marking of 130 beats per minute. The piano part starts with a *p furioso* dynamic. The guitar part enters in measure 5 with a *f* dynamic. The tempo changes to 110 beats per minute at measure 10, and the guitar part is marked *f dry*. The score includes various musical notations such as triplets, accents, and dynamic markings.

13

8va

16

p *pp*

8va

19

8va

22

p

8va

25

mp

8va

MIDI Ped. 1

echoes and
slight pitch bends
in electronics

The musical score consists of two systems. The first system, measures 28-30, features a treble and bass staff for piano. The treble staff has a wavy line above it labeled 'pp' and a dashed line above it labeled '(8va)'. The bass staff has a wavy line above it labeled 'pp'. The second system, measures 31-33, features a treble and bass staff for piano. The treble staff has a wavy line above it labeled 'f', a dashed line above it labeled '(8va)', and a wavy line above it labeled 'pp'. The bass staff has a wavy line above it labeled 'p' and a wavy line above it labeled 'pp'. The score includes various musical notations such as notes, rests, and dynamic markings.

MIDI Ped. 2

(VIII) Watchers of the Sky

Christian Dubeau

*Big, prominent reverb
in live electronics*

$\text{♩} = 92$

MIDI Ped. 1

legato pedaling throughout

6

mp

12

pp

18

pp

24

accel. $\text{♩} = 100$ *broadening*

p

29

pp *p*

34

39

pp *mp*

44

mf *subito p* *pp*

8^{va} *8^{va}*

$\text{♩} = 82$

Held back; Much slower

49

$\text{♩} = 100$

as before

54

p

pp

58

mp

62

mf

mp

mf

p

67

mp *mf* *mf*

71

f

75

f

(8^{va})-----

79

82

p *pp* *f*

8^{va}-----

85

p

This image displays four systems of musical notation for piano, spanning measures 88 to 97. The notation is written for both the right and left hands on grand staves.

- Measure 88:** The right hand begins with a series of chords marked with accents and a forte (*f*) dynamic. The left hand plays a continuous eighth-note triplet pattern.
- Measure 89:** The right hand features a piano (*p*) dynamic section with sustained chords, followed by a return to forte (*f*). The left hand continues the triplet pattern.
- Measure 90:** The right hand has a mezzo-piano (*mp*) section with accented chords, followed by a forte (*f*) section. The left hand continues the triplet pattern.
- Measure 91:** The right hand continues with accented chords. The left hand continues the triplet pattern.
- Measure 92:** The right hand continues with accented chords. The left hand continues the triplet pattern.
- Measure 93:** The right hand continues with accented chords. The left hand continues the triplet pattern.
- Measure 94:** The right hand continues with accented chords. The left hand continues the triplet pattern.
- Measure 95:** The right hand continues with accented chords. The left hand continues the triplet pattern.
- Measure 96:** The right hand continues with accented chords. The left hand continues the triplet pattern.
- Measure 97:** The right hand continues with accented chords. The left hand continues the triplet pattern.

123

130

137

(8va)-----

144

p *pp*

(8va)-----

149

(8va)----- *rit.*-----

153

161

(8^{va})

ppp

(IX) The Days of '42

Christian Dubeau

$\text{♩} = 160$
8va

f *cantabile*

(8va)

5 *mf* *f*

(8va)

10 *mp*

(8va)

15 *f*

(8va) *rit.*

20 $\text{♩} = 148$
slower, but more aggressive

25 *ff*

30

35 *8va-*
subito p

40 *(8va)*
ff

45 *8va-*

Detailed description: The image shows a page of musical notation for a piano piece, consisting of five systems of staves. The notation includes various musical symbols such as notes, rests, dynamics (e.g., *ff*, *p*), and articulations (e.g., *8va-*, *subito*). The piece is written in a key with one flat (B-flat) and a 4/4 time signature. The notation is complex, featuring many beamed notes and rests, suggesting a fast and technically demanding piece. The page number 110 is visible at the bottom.

50

54

Fixed media starts
(time stretched piano; Singing begins after about 30 sec.)

wait approx.
50 seconds
before
playing next bar.

$\text{♩} = 120$ Legato

mp

L.V.

pp

Legato Ped.

MIDI Ped. 1

60

mp

p

63

pp

65

mp

approx. 10"

67 *p*

70 *mp* *p*

74 *pp* *mp*

79 *p*

82 *pp* *mp* *p*

85 *pp* *ppp*

Fixed media ends around here.

rit. $\text{♩} = 60$ gloomy

(X) Proximity Effect

~ 28 sec.

Christian Dubeau

Running river sounds; Birds; Automobile sounds

♩=120 *gently*

MIDI Ped. 1

Legato pedaling throughout

12 *mf*

14 *f*

16

18 coming up on a crushing climax

20

Traffic noise becomes increasingly dominant; Fixed media fades after ~40 sec.

(XI)
Railway in the Clouds

Christian Dubeau

Electronics

MIDI Ped. 1

Piano

mp Con Brio!

3

5

7

9

12

13

14

15

mp

16

17

18

19

20

21

22

mf

24

26

28

30

32

24

ff f

27

f

Fixed media evolving
into high frequency noise

30

f

The image displays three systems of musical notation, likely for a piano, arranged vertically. Each system consists of a grand staff (treble and bass clefs) and a single bass line below it.

- System 1 (Top):** The treble staff begins with a measure marked (8^{va}) . It features dense, rapid sixteenth-note passages, often grouped in triplets. The bass line provides a steady accompaniment of eighth notes. The system concludes with a measure containing a triplet of sixteenth notes.
- System 2 (Middle):** The treble staff includes a measure marked *loco*, indicating a change in fingering or a specific performance technique. The notation continues with complex sixteenth-note patterns and triplets. The bass line remains consistent with the previous system.
- System 3 (Bottom):** This system introduces a new element: a horizontal line labeled "High frequency noise" that spans across the upper portion of the treble staff. Below this line, the treble staff continues with dense sixteenth-note textures and triplets. The bass line continues its accompaniment.

50 *accel.*

52 *♩=100 furioso* *rit.* *♩=86* *Fixed media ends*

mf *slower, with emphasis*

56 *p*

(XII) Skeletons

Christian Dubeau

Delay effect + Fixed Media -7 sec.
♩=66

MIDI Ped. 1 (for fixed media) *Legato Pedaling throughout*
MIDI Ped. 2 (for delay effect)

8

16

24

pp

(8^{va})

31

p *pp* *ppp*

(8^{va})

37

p *mp*

accel. *woodpecker sound*

43

mf *f* *broad!*

rit.

broad!

92

66

51 rattlesnake sound *pp*

dying away *p*

57 *p*

63 *ppp*

pp

-243 sec
Delay effect
changes to crackle effect

MIDI Ped. 3

70 *Owl sound*

76

79

*fixed media
fades after
~ 30 sec.*

2015-16
Riverside, CA

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