FAULT LINES

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By
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ABSTRACT

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Thesis supervised by Lynn Emberg Purse, M.M.

Fault Lines is a musical composition written for the traditional wind band and electronics created as an artistic expression of disruptive elements invoking change. The composition aims to draw connections between the geological tectonic stress and rebalancing process and the human experience of stress, disruption, and rebalancing. The composition allows an opportunity for an electronic performer’s artistic variation from performance to performance based on the choices of sounds relevant to the performer.
DEDICATION

This project is dedicated to my family. My wife, Bethany, has been a source of constant inspiration in the pursuit of my educational and artistic endeavors. The support and patience she has shown throughout these projects has contributed as much to their success as any bit of research or artistic content knowledge. Without her motivating me to meet my potential in fulfilling the roles of teacher, artist, student, friend, and father, I would not have the opportunities that have defined my professional and personal life. My children, Gavan and Maia, have reminded me of the power of persistence, passion, intuition, and humility. Their presence in my life has opened a window into the human experience that was not possible before their existence.
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The Genesis & Organization of Fault Lines

In the initial brainstorming, I was intrigued by the idea of creating the musical representation of a disruptive force invoking dramatic change. The imagery of landscapes shaped by tectonics, fault planes, and fault lines in geology was my inspiration for this idea. In the summer of 2016 I had the opportunity to visit Boulder, Colorado. Looking up at these massive formations of exposed flat iron rock had a looming and humbling effect on me. I have always had a fascination with landscapes and the forces behind them. I grew up visiting West Virginia and Pennsylvania Appalachia where a lush green temperate forest often hides the rocky features of the terrain; I had never seen anything like the Rocky Mountains in person before. It was in this week spent in Boulder that the idea to create a work about the formation of a landscape was born.

The concept immediately provided various associations between such geological forces and the forces of stress within the human mind. On an emotionally communicative level, I started by assigning meaning to the music that might represent the change that occurs when the disruptions, or mistakes, of our lives, change our outlook and actions. I began to draw a metaphorical correlation between this human process and the process of change that occurs with the stress and tectonics of the earth, as if it was alive and its own being. Thus, the deep thunderous heartbeat seemed to make sense as a motif throughout the piece.

Figure 1.0 - 1.1 all show the initial brainstorming that was done as a journal entry, where I keep sketches of ideas that might manifest into a larger concept. Journaling became a
One of the pieces we studied was John Corigliano’s *Circus Maximus*, which was created through the process of building an architecture or grand design before assigning specific musical material.
In an attempt to develop structure for the through composed form of *Fault Lines*, I began to research seismograph readings and the imagery associated with that structure. I then created a chart representing the general form of an earthquake reading, including p-waves, s-waves, and surface waves to provide some associated structure to the piece. After gathering knowledge about the anatomy of a seismic reading, I placed this figure on a timeline to begin pacing out a musical journey. The initial brainstorming that occurred in a journal was now scrutinized and assigned to a sequence that promotes an organic musical journey. I was able to hone in on some ways to portray these concepts musically and made notes in the visual storyboard (Fig. 2).
Figure 2 - Initial journaled brainstorming
**Other Aesthetic & Thematic Inspiration**

While the seismic reading helped to provide some structure to keep in mind when composing, early in the brainstorming process for these three major sections of this piece I was drawn to invoke the essence of imagery associated with the fault lines concept. These faults as they present themselves in nature are monumental and awesome geological formations that define landscapes. Eruptions of volcanoes, the formation of tsunami, landslides, and of course earthquakes all conjure up images of nature’s primal force on display. Often, though these displays of force are the result of the constant stress of tectonic movement. It has been a welcomed challenge to create music based on both the constant stress as well as the violent act of rebalancing in the natural world.

Another layer of metaphor present in my mind was that related to the human effect on the environment. The human influence on the earth is a reality that is hard to ignore. The effects of fracking, mining, and drilling for natural resources will meet a threshold where the environment responds to rebalance the only way it knows how.

**Electro-Acoustical Orchestration**

In *Fault Lines*, from the beginning I wanted to incorporate an electronic element. Electronic music has shaped the compositional and orchestration choices of Fault Lines from the piece’s inception, with the intent of blending electronic tone within the acoustic world to a point where it is difficult to distinguish the difference between acoustic and electronic timbres. I aim to use electronic sounds to create a relevant voice in today’s wind band music for the performer and conductor.
Originally, I considered the use of timed samples and specific tracks in the electronic integration brainstorming. I chose not to pursue this route as I felt it would be limiting for the evolution of electronic sounds in the future for the conductor and the performer. Instead, I chose to make use of a MIDI controller connected to a laptop which is loaded with MainStage 3 to allow ease in choosing and switching sounds. The notes in the score of the piece request that the conductor and/or synthesizer performer choose sounds based on the broad descriptions presented in the part. These sound choices can then be programmed into MainStage 3 or another MIDI controller/synthesizer for a live performance. It is my intention for there to be a creative and improvisatory element to the choice of electronic sounds. As technology in electronic sound continues to evolve, I hope that Fault Lines will be played with the most modern sounds of the time, chosen by the musicians of the time, based on their artistic taste successfully orchestrating a sonic world that is truly a new electro-acoustic experience each time the piece is performed. I see this electronic element as an ongoing evolution.

Creating the Soundscape

When the time came to begin composing the initial soundscape, I was drawn to the idea of a lydian sound. E-flat lydian was chosen as the starting tonality, providing a comfortable range and key for wind instruments. The challenge was to create a utopian sound and provide a steady youthful drive and energy to the beginning of the piece. With the desire to integrate the electronic component throughout the work the immediate tone color you hear is a warm electronic synthesizer. Leading into measure 3 where the driving eighth notes begin the layered and sequential development of a soundscape.
This development, presented in Figure 3, uses an underlying minimalist approach to layering the lydian soundscape. This process continues as the bass drum provides the heartbeat pulse, composed to give the impression of the earth living and growing.

To that initial electronic presence is added dry textures with the wood-block and marimba; metallic sounds presented by a muted Trumpet and a sizzle cymbal struck with a soft mallet; and upper woodwinds sustaining defining degrees of the lydian sound. When the bass voices enter, they are to invoke a subtle rumbling of tectonics beneath the surface. Referencing Figure 2, the Fault Lines Event Chart, we see the seismograph begin to pick up very small waves or “noise.” This opening captures the notion of the seismograph needle dancing around when it picks up some initial vibrations.

This idea is represented by a dance-like unison figure presented in the woodwinds and mallet percussion, providing a jolly and naive character to the music (Fig. 4). This figure moves then into a powerful and busy orchestration allowing the elements to climax with strength for the first time.

Figure 3 - Soundscape development
However, this presentation has an irregular time signature meant to compress the time in the manner that a p-wave might act in an earthquake. This section of music also includes a foreshadowing of the melody that at this point in the piece has yet to be introduced as seen in Figure 5.

Through the brainstorming process, I wanted to use descending chromatic half steps to invoke some unease as a disruptive element in the soundscape that is presented. The first presentation of a chromatic element in this manner is at the end of this soundscape climax where chromatic planing is used to lead the listener into the next major section of music where the melody is presented (Fig. 6).
Melodic Material & Thematic Treatment

One of the earliest ideas for this piece was that of a deconstructed & elemental approach to melody. A melody would be presented and then deconstructed into fragments, go through a transformation, and then come back as something new with familiarity.

The first step was to create a melody. Because seismographs influenced the overall structure of the piece, it seemed natural to allow the melody to take on a shape that could be associated with the vertical zig-zag of a seismograph’s needle (Fig.7). To achieve this I would use larger intervalllic leaps, as often as was appropriate, to create a memorable melody depicting the shape I was looking for. The resulting melody is shown in Figure 8, which is presented in the Clarinets in measure 53.

After this initial presentation of a simple song-like melody, it begins to experience rhythmic disruption. To portray this, a hemiola is employed to give the impression that the dotted quarter note is beginning to lose footing as can be seen in Figure 9.
At this point the addition of voices playing a fragmentation (Fragment A) of the melody with the hemiola disrupts the rhythm until reaching a climactic point, which is based on Fragment B of the melody. The weight of this climax snaps the music into an exploration of Fragment B, with incessant entrances in varying iterations. There is a residual chromatic duality that is carried along with this exploration. Figure 10 displays examples of how this fragment is used.

During this exploration of melodic Fragment B, a new motif is presented in the tenor voice for the first time based on the chromatic half steps that have been interjecting thus far (Fig. 11).

![Figure 11 - Chromatic disruption motif](image)

This marks the regularity of chromatic disruption as a thematic presence. This disruption motif becomes the focus of the next section of music, shifting tonalities with each iteration of the motif until the listener has lost a tonal foothold. At the peak of this development, balance is found leading to an ensemble statement that seems to be an undulating wave-like augmentation based on this chromatic motif. Interjections of thematic Fragment A make an appearance, stated with fanfare by the Trumpets represented in Figure 12. With the notion that this material is alive after all fighting to not succumb to change.

![Figure 12 - Fragment A based fanfare](image)
The alto voice takes the melodic torch of Fragment A and leads, through an accelerando, in a direction that marks the revival of the Fragment A melodic material only for the metaphorical earth to crack and begin rumbling on polytonal ground (Fig. 13).

It is at this point that we see Fragment A and Fragment B presented again, this time, fundamentally changed. Fragment A is now presented in the trumpet, taking on the chromatic harmonies that have been introduced as the disruptive force (Fig. 14). Fragment B has been transformed as well, this time the melodic fragment is presented with the chromatic harmonies, and retrograde inversion (Fig. 15). The second iteration of this is also harmonized into the soprano voices. The dramatic layering of these pieces results in the most climactic moment in the first four minutes with the return of the chromatic disruption motif taking over as presented in Figure 16 to end the first major section of melodic introduction and disruption.

The Alto Saxophone solo enters from within the electronic layer. The material is a combination of Fragment B, the chromatic disruption motif, lending way to a foreshadowing of the melodic theme’s metamorphosis (Fig. 17).
This section of the piece has a resemblance to the AABA song form, finding the melody originally presented in measure 53 by the Clarinet in a significant metamorphosis. This time presented by the Bassoon using material that implies that original Clarinet melody, including the ascending half step into beat four of the first measure, as well as large intervallic leaps. It is employed in a much slower tempo with the marking of *cantabile* allowing the melody to take on a lamenting quality as if the earth itself was calling out from the bottom of a canyon. This melody, seen in Figure 18, is played by the solo Bassoon amongst delicate scoring.

![Figure 18 - Melodic metamorphosis as presented by the Bassoon](image)

After passing this same melody off to the Horns and Saxophones, the Bassoon presents a second metamorphosis, this time of Fragment A in a sequential presentation (Fig.19).

The B section of music presents new melodic material in the Oboe (Fig. 20). This motif beckons in the solo flourishes on Flute, Clarinet and Bassoon to join the solo Oboe, all present ascending flourishes that ultimately reaffirm the initial solo Oboe melody before the full ensemble enters for the final statement of the A section (Fig. 21).

![Figure 19 - Fragment A metamorphosis](image)

![Figure 20 - Solo Oboe beckoning](image)

![Figure 21 - Response](image)
While the Trombones carry the melody in this final statement of the A section in the new key of F minor, the Horns have the thematic interest in their presentation of counter melody in measure 184. Measures 184 – 187 have an augmentation of the morphed melody and in measure 190 the familiar melodic Fragment A begins to emerge once again (Fig. 22).

![Figure 22 - Augmentation of the morphed melody and the familiar presentation of melodic Fragment A](image)

In the next section, the rumbling of Percussion, oscillating Synthesizer, and double tonguing Trumpets kick us into a polytonal harmonic duality where half of the ensemble is in E Major and the other half is in Bb Major. Within this polytonal soundscape emerges Fragment A melodic material in guise (Fig. 23). Immediately following, a developed metamorphosis theme is presented in the tenor voices, four measures later joined by the bass voices (Fig. 24).

![Figure 23 - Fragment A in guise](image)

![Figure 24 - Developed metamorphosis theme](image)
Pushing and pulling harmonic tension, created by this shifting polytonal soundscape, eventually erupts into the upper winds with a sequence of notes that outline triads of both E Major and Bb Major (Fig. 25). After this climactic event we hear the pulsing pitch of concert A, the key to which the piece will ultimately rebalance.

Familiar melodic material is then presented over the rocking back and forth of F natural and E natural whole notes over the repetitive pulsing concert A natural in a long sequence of solo entrances using melodic Fragment A (Fig. 26).

The final presentation of melodic material settles the piece into the key of A major. Loosely based on melodic Fragment A, the half step resolution of the minor 6th scale degree of F natural to the 5th scale degree of E natural grows to represent the last chromatic resolve that must occur to rebalance the piece (Fig. 27). This final melody is presented in the most monumental way possible. Orchestrated in unison octaves with a heavy cylindrical brass presence, and an electronic synth lead hearkens back to that humbling feeling walking underneath the Rocky Mountains that loomed over the town of Boulder, Colorado. When the last A Major chord is reached by the full ensemble through the resolution of the F – E half step, the piece feels balanced, solid and final.
Reflections

Throughout the composition of *Fault Lines*, I have used creative brainstorming, research, and metaphor to create a musical work that can draw varying levels of depth in artistic expression. The time spent organizing thought helped me to develop a perimeter in which to be creative. These creative boundaries combined with the use of electronics in the traditional wind ensemble, have been a source of inspiration throughout the compositional process. A seemingly endless array of possibilities in electronic sound colors and timbres now and in the future allow the thoughtful and researched composer in today’s world to develop a relevant voice now and in the future.
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Picc.
Fl. 1-2
Ob.
Bsn.
B. Cl. 1
B. Cl. 2-3
B. Cl.
A. Sx. 1-2
T. Sx.
B. Sx.
B. Tpt. 1
B. Tpt. 2-3
Hn. 1-2
Tbn. 1
Tbn. 2-3
B. Tbn.
Euph.
Tuba
Synth.
M. & X. 1
Mal. 2
Perc. 1
Perc. 2
Perc. 3
Timp.
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