The Ruination of Atlantis: A Ballet for Virtual Orchestra

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THE RUINATION OF ATLANTIS: A BALLET FOR VIRTUAL ORCHESTRA

By

Jess Hendricks

A DOCTORAL ESSAY

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of the University of Miami
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the degree of Doctor of Musical Arts

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A BALLET FOR VIRTUAL ORCHESTRA: *THE RUINATION OF ATLANTIS* 

Jess Hendricks 

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The Ruination of Atlantis is an original ballet in thirteen movements composed for prerecorded media using sampled orchestral and other instruments. The purpose of this essay is to discuss the reasoning behind composing a work for a “virtual” instead of an actual orchestra followed by an analysis of the overall structure of the piece, analyses of the use of leitmotif throughout the work, and an analysis of the pitch, rhythmic, and harmonic material of the piece as a whole and each individual movement. The conclusion of this paper is a description of the concept of staging and performance of The Ruination of Atlantis.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF MUSICAL EXAMPLES</th>
<th>.................................................................</th>
<th>v</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF FIGURES</td>
<td>.................................................................................</td>
<td>viii</td>
</tr>
</tbody>
</table>

## Chapter

1. INTRODUCTION ........................................................................ 1

2. REASONS FOR COMPOSING FOR VIRTUAL ORCHESTRA ............... 4

   Real Orchestra Versus Virtual Orchestra ..................................................... 4

   Program Considerations ............................................................................. 8

   Production of the Prerecorded Score ........................................................ 12

3. OVERALL STRUCTURE AND PROGRAM ....................................... 16

4. ANALYSES OF INDIVIDUAL MOVEMENTS.............................. 21

   Movement I. “Overture” ........................................................................ 22

   Movement II. “Dawn of Poseidon” ............................................................... 27

   Movement III. “War Dance” .................................................................... 29

   Movement IV. “None Return from Athens” ................................................. 33

   Movement V. “Interlude No. 1” ................................................................. 35

   Movement VI. “Requiem for the Lost” ....................................................... 37

   Movement VII. “Fanfare and the Arrival of Poseidon” ................................ 39

iii
<table>
<thead>
<tr>
<th>Movement</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIII</td>
<td>“The Temple of Cleat and the Wives of Poseidon”</td>
<td>42</td>
</tr>
<tr>
<td>IX</td>
<td>“The Three Oracles and Dark Omens”</td>
<td>45</td>
</tr>
<tr>
<td>X</td>
<td>“The First Calamity”</td>
<td>47</td>
</tr>
<tr>
<td>XI</td>
<td>“Interlude No. 2”</td>
<td>50</td>
</tr>
<tr>
<td>XII</td>
<td>“Meditation to Poseidon”</td>
<td>50</td>
</tr>
<tr>
<td>XIII</td>
<td>“The Ruination Scene”</td>
<td>53</td>
</tr>
</tbody>
</table>

5 A DIFFERENT APPROACH TO COMPOSITION ........................................ 57

6 STAGING AND PERFORMANCE ................................................................ 59

BIBLIOGRAPHY .................................................................................. 60

APPENDIX A Score of I. “Overture” ........................................... 61

APPENDIX B Score of V. “Interlude No. 1” .................................. 82

APPENDIX C Score of VI. “Requiem for the Lost”.......................... 94
LIST OF MUSICAL EXAMPLES

EXAMPLE 2.1. Santur ostinato, “Overture,” mm. 9-17 ........................................ 11
EXAMPLE 2.2. Instruments of different cultures, “Interlude No. 1,” mm. 1-7......... 12
EXAMPLE 3.1. The “Poseidon” leitmotif............................................................ 18
EXAMPLE 3.2. The “Omens” leitmotif.............................................................. 19
EXAMPLE 3.3. The ostinato motive in the violins, “Overture,” mm. 2-8.............. 19
EXAMPLE 3.4. The “War Drum” motive, “War Dance,” mm. 1-6. ...................... 20
EXAMPLE 3.5. Mixed-meter 9/8 rhythmic motive ........................................... 20
EXAMPLE 4.1. A harmonic analysis of the opening of the “Overture.” ............... 23
EXAMPLE 4.2. The Neapolitan and pandiatonicism, “Overture,” mm. 21-25......... 25
EXAMPLE 4.3. The “B” section, “Overture,” mm. 34-37.................................... 26
EXAMPLE 4.4. Brass and choir clusters, “Overture,” mm. 88-91. ....................... 27
EXAMPLE 4.5. Use of the “Poseidon” leitmotif, “Dawn of Poseidon,” mm. 1-8.... 28
EXAMPLE 4.7. Theme I of “War Dance,” mm. 14-17....................................... 29
EXAMPLE 4.8. Theme II of “War Dance,” mm. 30-31...................................... 30
EXAMPLE 4.9. Theme II in the woodwinds, “War Dance,” mm. 30-35............ 31
EXAMPLE 4.11. Themes II and I in the cellos, “War Dance,” mm. 58-65. 32

EXAMPLE 4.12. The opening section, “None Return from Athens,” mm. 1-6. 34

EXAMPLE 4.13. Descending chromatic movement, “None Return from Athens,” mm. 18-25. 35


EXAMPLE 4.15. Root movement by thirds, “Requiem for the Lost,” mm. 59-68. 38

EXAMPLE 4.16. Imitation of string accompaniment from the “Lacrimosa” in Mozart’s Requiem Mass in D minor, “Requiem for the Lost,” mm. 27-35. 39

EXAMPLE 4.17. The “Poseidon” leitmotif, “Fanfare and the Arrival of Poseidon.” mm. 23-27. 40

EXAMPLE 4.18. Variations of the “Poseidon” leitmotif, “Fanfare and the Arrival of Poseidon.” 41

EXAMPLE 4.19. The “Omens” leitmotif, “Fanfare and the Arrival of Poseidon,” mm. 60-65. 42

EXAMPLE 4.20. The main theme and its response. 44


EXAMPLE 4.23. Violin artificial harmonics, “The Three Oracles and Dark Omens,” mm. 15-18. 47


EXAMPLE 4.25. Exposition of the fugue, “The First Calamity,” mm. 17-25. 49

EXAMPLE 4.26. Figures based on the “Omens” leitmotif, “Interlude No. 2,” mm. 21-24. 50

EXAMPLE 4.27. Three different textural effects, “Meditation to Poseidon,” mm. 14-21. 52
EXAMPLE 4.28. Opening “rumbling” figures and “War Dance” theme, “The Ruination Scene,” mm. 1-11. ............................................................... 55

EXAMPLE 4.29. Polychords in the brass, “The Ruination Scene,” mm. 46-50............. 56
LIST OF FIGURES

FIGURE 2.1. Logic Pro’s workflow, “Interlude,” mm. 1-13............................. 13
FIGURE 2.2. The “Play” system window with an 11 violin section loaded .......... 15
FIGURE 3.1 Organization of movements within the larger sections of the ballet ....... 17
FIGURE 4.1. The berimbau............................................................................. 43
CHAPTER 1

INTRODUCTION

When it was decided to compose a ballet, it was the original intention to write the work for small orchestra in a more traditional manner that would facilitate the potential for a live performance. The likelihood, realistically, of a relatively unknown composer getting a work of this nature performed by a ballet company in its original, fully orchestrated form is minute because of budget restrictions, availability of performers, and other factors. Very few composers are interested in composing a work that does not have a chance to be presented in its intended form to an audience, so the consideration of an alternative was decided on early in the process of composition. The eventual solution was to compose an electronic, fixed media composition that used sampled orchestral instruments that mimic the real thing as closely as possible.

Advances in the last couple decades regarding orchestral sample libraries and computer technology have given modern composers access to much more realistic virtual instruments than have been available in the past. Not only does this technology give the composer access to much larger ensembles than were realistically feasible with live, acoustic performers, it also gives them the ability to use a nearly infinite combination of instruments, both real and imagined, from all over the world. Programmers, producers, composers, and recording engineers created sample libraries such as Garritan Personal
Orchestra, EastWest/Quantum Leap Orchestral Library, and the Vienna Symphonic Library largely with commercial, film, and television composers in mind.¹

Many of the most famous ballets ever composed employed massive orchestral forces and strongly influenced modern film composers as well. Igor Stravinsky’s original version of *The Rite of Spring* used a huge orchestra with; for example, eight horns (horns 7 and 8 double Wagner tubas), woodwinds in fours, and a much larger string section than was often used during that time. Maurice Ravel’s ballet, *Daphnis et Chloe*, also makes use of a huge orchestra and it even includes an off stage choir. The problem with composing for massive orchestral forces such as those employed by Stravinsky and Ravel is that most modern ballet orchestras do not have these forces at their disposal.

When it was decided to compose this ballet as a fixed media piece, it opened the door to the possibility of writing for massive orchestral forces and unusual instruments not usually associated with the Western orchestral tradition. *The Ruination of Atlantis* was created with the assistance of modern technology including Logic Pro software on a Macintosh computer and sound libraries including EastWest’s dynamic orchestral library. The final recording can be made available for any dance company, ballet, modern dance, or other performing arts organization in its original form, eliminating the need to contract and rehearse instrumentalists, but still enjoying a reasonably realistic-sounding orchestral accompaniment.

After committing to the idea of writing what, in essence, is an electronic piece it was decided to alter the usual method of composing for two primary reasons. The EastWest orchestral library is far too large and requires a huge amount of computer system resources (memory, processor speed, hard disk space) to work well with a notation program such as Finale. Music created first in the Finale notation program was difficult to convert into a good rendering. “Rendering” is a term used to represent taking an acoustic piece of music and recreating it using MIDI or sampled instruments. The other reason is that a printed score is of little importance because this music is meant to be presented on fixed media such as a compact disc or from a computer hard drive. Because of these reasons, the entire ballet was composed with little actual notation by writing at the keyboard and inputting the music directly into Logic Pro, which is a sequencing and recording software.

In this paper the reasons that the fixed media virtual orchestra is a viable solution for this composition are discussed. The limitations of the technology, the process of producing the recording, and the effect working with sample libraries had on the actual composition of the music are discussed in Chapter 2. Chapter 3 provides a structural analysis of the work as a whole. Chapter 4 presents an analysis of the pitch, rhythm, and harmonic material in each individual movement, including the use of leitmotif and other motivic development. Chapter 5 is an explanation of how the composition of this work was approached differently than other works by this composer. Chapter 6 details the concept of how choreographers can interpret and perform *The Ruination of Atlantis.*
CHAPTER 2

REASONS FOR COMPOSING FOR VIRTUAL ORCHESTRA

Real Orchestra Versus Virtual Orchestra

This composition is not intended to foster the belief that real orchestras can be supplanted with those created artificially. The primary reason the sampled orchestra was used is that the work was composed for nearly impossible to assemble, massive instrumental forces mostly seen in Hollywood studio orchestras. The fixed media recording preserves the performance as originally intended, thus precluding the need for a rearrangement of the music for a smaller ensemble.

When developing a concept for a ballet using nearly unlimited orchestral forces, the possibility of employing an unusual ensemble of world instruments such as erhu (Chinese fiddle), bansuri flute, taiko drum ensemble, santur (Persian dulcimer-type instrument), and massive percussion sections become feasible. The percussion compilations are found in a library commonly used by film composers called “Stormdrum 2” that is also manufactured by EastWest, and the instruments from other cultures are found in EastWest’s “Ra” library.

Two noted ballets provide a model for the traditional Western orchestral forces in *The Ruination of Atlantis*: Maurice Ravel’s *Daphnis and Chloe* and Igor Stravinsky’s *The Rite of Spring*. Like *Daphnis and Chloe*, the ballet is divided structurally into three parts and makes some use of a choir. Ravel’s ballet also incorporated a large orchestra with
extensive percussion, a full brass and winds section, and a large enough string section to handle the many divisi passages throughout the work.²

In terms of orchestral size, few ballets compare to *The Rite of Spring* by Igor Stravinsky (other than *Daphnis and Chloe*). *The Ruination of Atlantis* pays homage to this ballet in many ways including the sheer size of the ensemble. Stravinsky’s orchestra includes a full wind and brass section featuring four bassoons and contrabassoon, four trumpets and piccolo trumpet, and eight horns in F.³ By using sampled orchestral sounds recorded by Hollywood studio musicians, a work is created that employs a massive ensemble like the ones used by Stravinsky and Ravel, without having to worry about the expense and logistics of assembling so many musicians for a performance or recording.

The idea of using an at least partially synthetic orchestra is nothing new. Broadway musicals often use synthesizers when touring in lieu of the larger orchestral forces present in their original productions. The Los Angeles ballet opened its inaugural season in 2006 by performing Tchaikovsky’s *Nutcracker* by using 22 live musicians mixed with sounds from the Garritan Personal Orchestra to round out the full orchestration because of limitations of the size of the pit. The piece would normally require 55 musicians, so the other 33 were represented virtually while the live performers played along.⁴

If one was to compose a ballet requiring an orchestra of the scale used in *Rite of Spring* or *Daphnis and Chloe*, the potential for performance would be limited to only the

---

² Maurice Ravel, *Daphnis and Chloe* (Mineola, NY: Dover, 1989), 1


largest of ballet companies in a small number of venues that have an orchestra pit large enough to hold the ensemble. With a virtual orchestra on fixed media, *The Ruination of Atlantis* can be presented to any dance or ballet company vastly broadening the possibility of performances of the original, unedited work.

Some elements of the music can easily be tailored to individual choreographers’ needs. If they request alterations of some of the tempos, for example, it is a simple process to produce a custom recording that meets their needs. The material can also be provided in any media format that they require or the music can be seamlessly integrated into video if requested.

Although it is still extremely important to consider the capabilities and balance of actual orchestral instruments, composing for computer generated instruments in a studio-like set up (Logic Pro), opens up the potential of realizing ideas that would be very difficult to achieve in an actual orchestra. One does not have to worry about, for example, using unusual instruments like the Erhu, Santur, and Taiko drums, which would be difficult to employ because the players typically do not read Western notation. Because some level of realism is a goal of this composition, acknowledging the limitations and idiosyncrasies of specific instruments is essential in achieving a good realization. When composing this piece, a balance between total realism and the freedom associated with working in a prerecorded environment had to be addressed. When recording film music, composers can bend some rules of orchestration based on the fact that individual instruments or sections can be made more prominent by putting microphones on them and raising their volume. In this way, for example, a flute playing in the lower register
can be brought out over thick orchestration, whereas in a live performance it would be
drowned out by the orchestra.

In an ideal situation, a professional orchestra would record all the relevant parts,
using samples only in place of the more unusual instruments that would have trouble
blending with the Western musical language. Unfortunately, the cost to contract an
orchestra and the performance rights involved with recording live performers make this
nearly impossible for most individuals who do not have a large budget.

When orchestrating a large-scale piece of music, a composer needs to consider the
logistics involved with live performance. It would be illogical, as an example, to have the
contrabassoon play only eight bars in one movement—and nowhere else—with a 45
minute work. If the composer did want to accomplish this, the contrabassoon would
likely be played by the second or third bassoonist who would be doubling. This would
still be inconvenient for the performer to bring a large, unwieldy instrument to play a few
seconds of music. It is common in musical theatre to use such doublings, however, as a
solution for limited forces in the orchestra.

Another problem with composing for live musicians, that is not as prevalent when
composing for fixed media, is consideration for difficulty. This does not mean one can
write impossible musical lines as that would hurt the realism of the recording, only that
the freedom to compose difficult passages without fear of bad performances exists.
Composing a piece for sampled orchestral instruments allows the piece to be composed
as if it were going to be played by one of the top professional orchestras in the world.
Some techniques that are difficult on real instruments can be created with relative ease
using virtual instruments such as: the upper range of brass instruments, quick changes of
tuning in the timpani, and complex or agile rhythmic figures that would be less precise if
performed by semiprofessional or amateur musicians. Care was taken with this
composition, however, to still write idiomatically for the Western orchestral instrumental
sections to achieve the amount of realism desired. For example, while a composer is able
to compose divisi sections for the violins and divide them into four parts without a
diminishment of quality, they should be aware that too much of this technique may
prevent the recording from sounding like a real orchestra.

Program Considerations

The program of The Ruination of Atlantis was devised based on Plato’s account of
the destruction of the civilization of Atlantis as described in the dialogues, Timaeus and
Critias:

In the former, Plato describes how Egyptian priests, in conversation with the
Athenian lawgiver Solon, described Atlantis as an island larger than Asia Minor
and Libya combined, and situated just beyond the Pillars of Hercules (the Straits
of Gibraltar). About 9,000 years before the birth of Solon, the priests said, Atlantis
was a rich island whose powerful princes conquered many of the lands of the
Mediterranean until they were finally defeated by the Athenians and the latter's
allies. The Atlantians eventually became wicked and impious, and their island was
swallowed up by the sea as a result of earthquakes. In the Critias, Plato supplied a
history of the ideal commonwealth of the Atlantians.\(^5\)

February 1, 2010).
With this in mind, some of the ideals of the mythological Atlantis were embodied by trying to achieve a universal aspect to the music. In the sampled, prerecorded environment, combining unusual instruments with a full orchestra is only limited by the capabilities of the software and computer system. By choosing a mythological setting and stripping these instruments of their cultural implications, the music was freed to use any combination of instruments without worrying about how they would impact the programmatic continuity. If the ballet was set in a real place and time, some listeners might expect to hear music related to that nationality. Erhu, the Chinese fiddle, would be inappropriate in a ballet set in Ireland, for example.

When composing for the more exotic instrumentation, it is possible and necessary to make some exceptions to having a rigid adherence to specifically idiomatic writing. When mixing traditionally Western instruments that use an equally tempered tuning with instruments from other cultures that have different tuning systems, exceptions to idiomatic writing were made. It was also important to avoid stereotypical realizations of actual instruments to avoid any clichés that could be offensive to other cultures, or the implication that parts of the music were meant to represent one particular culture.\textsuperscript{6} When the more unusual instruments were implemented together with the orchestra, they were Westernized stylistically and adapted to the ballet’s musical vocabulary so that they blended better with the orchestra. The Western instruments were orchestrated as realistically as possible, but the other instruments were used as a kind of fictional

\textsuperscript{6} Although Greece (specifically Athens) figures prominently in the story of Atlantis, this ballet takes place entirely on the island in its last day of existence.
instrument to represent the lost culture of Atlantis that, had it existed, would have had its own musical instruments that no longer exist.

An example of the use of exotic (to Western music) instrumentation occurs in movements I, VII, and VIII, where the santur is prominently employed. The santur is a hammered dulcimer that is used in the Middle East, Egypt, and parts of Asia and Southeastern Europe, although it is predominantly a Persian instrument. The music composed in this ballet is not idiomatic of actual Persian santur performance practices. The santur has moveable bridges so that different modes can be created, and in the hands of a seasoned performer, could possibly perform most of the parts in the ballet. There was not, however, an attempt to compose any stylistic passages that would give the listener the impression that they are hearing traditional santur music. The purpose of the santur is to add a foreign, exotic element to the Western orchestra. The santur in the first movement mirrors the string ostinato, plays an accompanying figure in the seventh movement, and takes a more prominent melodic role in the eighth movement. The santur ostinato figure from the first movement is shown in Example 2.1.


The two interlude movements at the end of the first and second parts of *The Ruination of Atlantis* incorporate a greater proportion of world instruments than the rest of the work. These movements are not meant to accompany dance, but are instead instrumental breaks in the action on stage meant to enhance the mood of a mythological culture.

In the first “Interlude,” a combination of Indonesian angklungs, Swiss alpenhorn, African kora, Tibetan singing bowls, African log drums, and Japanese shakuhachi flute are incorporated with the strings of the orchestra. This is a prime example of how the atmosphere of the lost continent was represented. Example 2.2 shows how some of the instruments, including the shakuhachi, alpenhorn, and percussion are integrated with the strings in the fifth movement, “Interlude No. 1.”
Example 2.2. Instruments of different cultures. “Interlude No. 1,” mm. 1-7.

Production of the Prerecorded Score

While approaching the orchestration and development of the music from a traditional angle, the importance of the audio production of the piece was also acknowledged. The final composition would represent the quality of the “performance” of the work and had to be nearly flawless. Almost all of *The Ruination of Atlantis* was composed using Apple Computer’s Logic Pro software, which is a MIDI sequencing and audio recording package. Composers in the noncommercial field often use this type of software to compose electronic music as opposed to instrumental pieces, where they tend to prefer working with standard notation or software that focuses on notation such as
Finale or Sibelius. While Logic Pro does have a limited notation capability, it was decided to compose using the “Piano Roll,” which is named as such due to its similarity in appearance to old player piano rolls. Figure 2.1 demonstrates how the Logic Pro workspace appears. The compositional process is discussed in further detail in the second section of Chapter 3. In this chapter, methods used to create a high quality recording that sounded realistic are discussed and how it was accomplished with the software being used.

Figure 2.1. Logic Pro’s workflow, “Interlude,” mm. 1-13.
Creating a realistic orchestral sound is dependent on much more than just good samples, one must also consider the expected placement of instruments and sections in the virtual space. When someone attends an orchestra concert the violins are situated to the left of the listener, the cellos and basses to the right, and the winds and brasses typically sit in the middle. The EastWest sample library being used as the primary source of virtual instruments recorded the samples already placed in this manner, so very little adjustment is required, although these settings need to be adjusted considering the specific hall in which the piece is to be broadcast. The violins, for example, might need to be panned hard to the left so that when played back in a hall they sound as if they are in the proper position of the aural space. It was also recorded with three different microphone positions: “Close,” “Stage,” and “Surround.”

The close microphone samples are primarily used for solo passages and represent placing the microphone very close to the section or instrument. The close microphone setting is not used at any point in the Ruination of Atlantis because the intended perspective is meant to come from sitting in the audience.

A mix of the stage and surround microphone positions are used throughout the work to achieve the perception that the listener is hearing an orchestra in a large concert hall. Recordings meant to be played in large halls would not use the surround microphone setting as the reverb created naturally would eliminate the need for the effect created by this setting. The stage position is a stereo microphone placed above the conductor and the surround microphone position is recorded from the audience and adds a natural reverberation effect.
Different articulations and specific instrumental effects are loaded into EastWest’s interface, known as “Play.” From this interface adjustments can be made to the balance of the different microphone settings, techniques such as legato and portamento, and which articulation is currently loaded. Figure 2.2 is a screen capture of the “Play” interface with several of the 11 violin section articulations loaded. The articulations are shown in the middle of the interface, the microphone position mixer is to the right of that, and other functions are spread throughout the rest of the interface.

Figure 2.2. The “Play” system window with an 11 violin section loaded
CHAPTER 3

OVERALL STRUCTURE AND PROGRAM

Careful planning of the larger structure of a work is the most important aspect of the compositional planning of this ballet. In *The Ruination of Atlantis* the larger structure is dictated by the story associated with the work. Early in the compositional process, movements of the ballet and the mood for each movement were outlined. It was also decided how thick the texture would be in these movements so that the work as a whole would have a good balance between heavy and light orchestration. To create a sense of continuity throughout the work and for dramatic effect, leitmotifs were used. *Grove Music Online* defines a leitmotif as: “a theme, or other coherent musical idea, clearly defined so as to retain its identity if modified on subsequent appearances, whose purpose is to represent or symbolize a person, object, place, idea, state of mind, supernatural force or any other ingredient in a dramatic work”\(^8\) This technique, employed liberally by Richard Wagner in his opera, has been adopted by modern film composers, such as John Williams, to great effect.\(^9\)

Instead of requiring a specific story that is described in detail in the score, it was decided to give each movement a descriptive title that can be interpreted by individual

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\(^9\) Arguably the most famous example of John Williams’ use of leitmotif is the two-note motive in the movie *Jaws* that accompanies almost every appearance of the shark.
performers, choreographers, and dancers however they might choose within the confines of the basic dramatic framework. Although this is ambiguous, the movements do outline a simple dramatic arc that is divided into three parts.

The first part deals with the defeat of the Atlantian army to the forces of Athens, although this takes place from the perspective of those waiting at home for the return of the soldiers. The second part deals with the arrival of the god Poseidon, who was the mythical creator of Atlantis, and his interaction with his wives. The final part is dominated by the destruction of Atlantis by a volcanic eruption, an earthquake, and a tsunami that engulfs the whole continent causing it to sink into the ocean, although the specifics of the destruction were left ambiguous (see Figure 3.1).

<table>
<thead>
<tr>
<th>PART 1</th>
<th>I. Overture (no dance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II. Dawn of Poseidon</td>
</tr>
<tr>
<td></td>
<td>III. War Dance</td>
</tr>
<tr>
<td></td>
<td>IV. None Return from Athens</td>
</tr>
<tr>
<td></td>
<td>V. Interlude No. 1 (no dance)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART 2</th>
<th>VI. Requiem for the Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VII. Fanfare and the Arrival of Poseidon</td>
</tr>
<tr>
<td></td>
<td>VIII. The Temple of Cleito and Wives of Poseidon</td>
</tr>
<tr>
<td></td>
<td>IX. The Three Oracles and Dark Omens</td>
</tr>
<tr>
<td></td>
<td>X. The First Calamity</td>
</tr>
<tr>
<td></td>
<td>XI. Interlude No. 2 (no dance)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART 3</th>
<th>XII. Meditation to Poseidon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XIII. The Ruination Scene</td>
</tr>
</tbody>
</table>

Figure 3.1. Organization of movements within the larger sections
Throughout *The Ruination of Atlantis* two primary leitmotifs are used as the basis for a large amount of the material in the entire ballet. There is also secondary motivic material that occurs in almost all the movements to further relate each movement to the work as a whole. The main leitmotif represents Poseidon, god of the sea, and the continent of Atlantis (see Example 3.1). This simple motive, and variations of it, appear in almost every movement. In addition to functioning as a leitmotif, it is also used as a basic seed motive for the entire piece, much in the same way Beethoven used the four-note rhythmic motive in his *Symphony No. 5*. Much like Beethoven’s famous motive, the same rhythmic figure is used, albeit much slower, of short-short-short-long.

**Example 3.1.** The “Poseidon” leitmotif.

The secondary, contrasting leitmotif for the ballet is called the “Omens” leitmotif (see Example 3.2). This figure is meant to contrast the more expansive “Poseidon” motive, and represents the underlying danger approaching the denizens of Atlantis. It is often presented in conjunction with artificial harmonics in the violins and, sometimes, with sul ponticello arpeggios in the violas and/or violoncellos. This motive also contrasts the primary leitmotif by being chromatic and made up of more seconds, whereas the main motive is mostly fourths and fifths.
Example 3.2. The “Omens” leitmotif.

Along with the two leitmotifs, the ballet is given continuity through three motives. Two of these motives are rhythmic and one is an ostinato figure that, when it occurs, is predominantly in the violins. The ostinato figure (see Example 3.3) first appears in Movement I, “Overture,” and recurs in two latter sections of the ballet, the tenth movement, “The First Calamity,” and the final movement.

Example 3.3. The ostinato motive in the violins, “Overture,” mm. 2-8.
Example 3.4 shows the first of two rhythmic motives that are used throughout *The Ruination of Atlantis*. This simple figure, with hemiola-like qualities, is associated with the more warlike parts of the Atlantian culture. It is prominent in the “Overture,” “War Dance,” and “Fanfare and the Arrival of Poseidon.” This figure is always presented in loud, low-pitched drums such as concert bass drum, timpani, and taiko drum ensemble.

Example 3.4. The “War Drum” motive, “War Dance,” mm. 1-6.

In contrast to the “War Drum” motive, is the lighter, mixed-meter motive that first appears in the “War Dance” movement subtly, and is the central rhythmic device in Movement VIII., “The Temple of Cleito and the Wives of Poseidon” (see Example 3.5). This division of the 9/8 time signature, 2+2+2+3, is used in Dave Brubeck’s “Blue Rondo ala Turk,” and has always been a favorite rhythmic device of mine.

Example 3.5. Mixed-meter 9/8 rhythmic motive.
CHAPTER 4

ANALYSES OF INDIVIDUAL MOVEMENTS

In this chapter the unique aspects of each movement and how they fit within the overall framework of *The Ruination of Atlantis* will be discussed. In the first movement the harmonic structure and use of the “Poseidon” leitmotif was discussed, as well as the ostinato motive. The discussion of the second movement focuses on how it was constructed using the “Poseidon” leitmotif. The third movement, “War Dance” will address its structure, based on the Sonata form, new themes introduced, and part of its inspiration. “None Return from Athens,” the fourth movement, has specific textural elements discussed in more detail as well as harmonic and modulation choices. The fifth movement, “Interlude No. 1,” features many exotic instruments and acts as a bridge to Part 2 of the ballet. The use of these instruments will be discussed.

In the analysis of “Requiem for the Lost,” the sixth movement overall and the first of Part 2, the use of harmony and how it relates to the rest of the ballet will be addressed, as well as the subtle influence of the “Lacrimosa” from Mozart’s *Requiem in D Minor* to this movement. The use of the “Poseidon” and “Omens” leitmotifs in the seventh movement, “Fanfare and the Arrival of Poseidon” will be the focus of its analysis. There will be a demonstration of how the eighth movement, “The Temple of Cleito and the Wives of Poseidon,” is constructed around the mixed meter 9/8 time signature and an exchange between different solo instruments. In the analysis of the ninth movement, “The
Three Oracles and Dark Omens,” there will be an elaboration on how the “Omens” leitmotif was used as the basis for an entire movement and there will also be a discussion of choices that were made in orchestration and how they relate to the atmosphere of this movement. The use of motivic material in “The First Calamity,” movement ten, and how fugal techniques in the middle section of this movement were used will be the examined. The “Interlude No. 2,” is the final movement of Part 2, and material from the “Requiem for the Lost” was brought back in a reprise. There will be a discussion of the “Omens” leitmotif’s use in this movement and how it was treated.

The final part of the ballet consists of only two movements. “Meditation to Poseidon” represents the Atlantian’s final prayers to Poseidon before their ultimate destruction. In the analysis of that movement, an examination of how textural motives and clusters were used instead of traditional melodic or rhythmic elements is presented. In the discussion of the final movement, “The Ruination Scene,” the structure of the movement, motivic material that recurs, orchestration choices, and the ending of the movement and ballet as a whole is detailed.

Movement I. “Overture”

_The Ruination of Atlantis_ begins with an overture called the “Overture.” This movement is a simple ternary form that is driven by the “Poseidon” leitmotif and the ostinato motive that was mentioned in Chapter 3. The “Overture” was composed around the ostinato motive, and was moderately inspired by some minimalistic technique.

In the “Overture,” the ostinato is based mostly around a C minor tonality that is supplemented by pandiatonicism, or “the technique of free use of all seven degrees of the
diatonic scale, melodically, harmonically, or contrapuntally.” The basic C minor pattern in the ostinato is present in the violins (see Example 4.1), and demonstrates a common harmonic root movement used throughout the ballet by thirds. In this movement, the ends of phrases are marked by a root movement other than a third, such as the movement by a second from the Fm9 chord to the Gm7 chord at the end of the first eight-measure phrase.

In measures 15-16 the flutes, oboes, clarinets, and bassoons supplement the ostinato figure with one of their own, that with extended harmonies, adds another pandiatonic element by subtly focusing on the F minor tonal center. After delaying the dominant functioning harmony with minor v7 chords at the ends of phrases, there is finally a more traditional cadence with the following progression: N6, V, i.

Example 4.1. A harmonic analysis of the opening of the “Overture.”

It should be noted that the traditional harmonic function exists within the pandiatonic framework. In Example 4.2, which shows measures 21-25, the implied roman numeral analysis is shown. In measure 21, for example, the F minor and Eb major chords are combined, but the F minor is emphasized in the basses and timpani. The

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The technique of stacking chords a major or minor second apart is used throughout the “Overture.”

The “B” section of the first movement is more lightly orchestrated, but the eighth-note rhythmic drive continues, although it has an irregularly accented pattern instead of the straighter ostinato in the “A” sections. Example 4.3 shows how the woodwinds take a more prominent role in the texture. The solo voice is from the “Voices of Passion” sample library by EastWest. The voice is actually singing in Bavarian, but none the words are in an order that would make sense, thus creating the sense of it occurring in a different language. The melodic material is also loosely based on the primary “Poseidon” leitmotif, although it is more chromatic and stepwise (see Example 4.3).

When the “A” section returns, the violins play a counter melody over the ostinato. The main melodic material is still present in the violas and cellos. The brass have long clusters beginning in the second half of the second “A” section, followed by a thinning of the orchestration to violins playing the ostinato accompanied by pizzicato figures in the lower strings. The ostinato and eighth-note rhythmic drive finally begins to dissolve during this section and become more arhythmic until it ceases. After that the brass and choir have tone clusters that are built from three chords a minor second apart: C minor, D major, and Db major. The different chords are played by different sections: the trumpets play D major, horns play Db major, and the trombones play C minor. Each section crescendos at different times, temporarily bringing each of the individual harmonies to the forefront. The choir has notes from the C minor and Db major chord, and reinforces the cluster (see Example 4.4). The complete score for this movement is in Appendix A.
Example 4.2. The Neapolitan and pandiatonicism, “Overture,” mm. 21-25.
Example 4.3. The “B” section, “Overture,” mm. 34-37.
Movement II. “Dawn of Poseidon”

The second movement of *The Ruination of Atlantis* was built from the “Poseidon” leitmotif. To create a sense of the rising sun, the movement begins in the low strings and bass clarinet, then voices are introduced above based on portions of the “Poseidon” leitmotif. Instead of using the exact motivic material, the theme is expanded or contracted depending on how much material was needed to finish each phrase. A subtle, evolving, synthetic pad is added to the texture that increases in complexity throughout the phrase. Example 4.5 shows the first phrase of the five-phrase movement. This example shows the different iterations of the primary leitmotif as used in this movement.

Two sections of similar pairs of gentle, rising phrases are interrupted in the middle of the movement by loud, descending bell-tone brass figures that outline minor chords with major 7ths, foreshadowing the disasters to come. These figures return in the final movement. The rising phrases return after this interruption with the addition of a Chinese erhu solo. At the end of the movement a much lighter section occurs featuring the erhu over artificial harmonics in the violin. The beginning of the erhu solo in this last section is loosely based on the brass figure earlier that gives way to a direct statement of the primary leitmotif (see Example 4.6).

Movement III. “War Dance”

The “War Dance” begins with low percussion playing the “War Drum” motive mentioned earlier and follows a quasi-sonata form. To define the “War Dance” as any type of sonata form one needs to establish the following parts in some form, which are traditionally defined by their tonal centers: an Exposition, Development, and Recapitulation. Since this movement is not as tonally based as the previous movements, the sections are delineated by individual themes instead of tonality.

The main theme of the “War Dance” is first introduced in the horns, clarinets, and oboes (transposed up a fourth) and is shown in Example 4.7. The beginning and end of this melodic line are based on the phrygian scale, while the middle of it is derived from a whole tone scale. Throughout this ballet whole-tone figures are implemented to create an uneasy mood and tension to some of the melodies. This melody is the defining feature of Theme I of the exposition in this movement.

Example 4.7. Theme I of “War Dance,” mms 14-17.
Theme II of this movement uses the 9/8 time signature and features less percussion, strings, and brass, focusing instead on the woodwind section. The main melodic material that defines Theme II is shown in Example 4.8, and is exchanged and varied throughout different voices in the woodwinds.

Example 4.8. Theme II of “War Dance,” mm. 30-31.

Example 4.9 shows how this short theme is voiced in the woodwind section. A voice will introduce the theme in its normal form, then an inversion will follow as another voice enters over that. This continues in a semi-canonic form with occasional rhythmic interruptions as seen in Example 4.9 during measures 33 and 35 in the double reeds and bass clarinet. Over the course of this section, the rhythmic interruptions begin to outweigh the main theme of the section, eventually having equal weight to Theme II itself.

Later in this section the mixed-meter 9/8 rhythmic figure mentioned earlier in Chapter 3 is first introduced in the ballet as one of the rhythmic interruptions to the canonic form. This dividing of 9/8 into three quarter notes and one dotted quarter note is used more prominently in the eighth movement and was inspired by Dave Brubeck’s “Blue Rondo ala Turk.” Example 4.10 shows the mixed meter parts of the “War Dance” in Theme II of the Exposition.
Example. 4.9. Theme II in the woodwinds. “War Dance.” mm. 30-35.

The appearance of the mixed-meter material seen in Example 4.10 marks the end of variations of Theme II and is the closing theme of the Exposition. The Development begins with a sudden switch to 3/4 and a slight homage to the *Firebird* ballet by Igor Stravinsky. The ostinato figure in the basses and cellos only subtly hints at the introduction to Stravinsky’s noted ballet and serves as an accompaniment for the development of both Themes I and II. Example 4.11 illustrates the Development melody which is a combination of Theme I and Theme II, and is first introduced in the cellos.


The reason the form of this movement is referred to as a “quasi Sonata” in this essay is that in the process of composing the movement, it was decided that Theme I provided a stronger ending. As a result, Theme II does not reappear in the Recapitulation. Although the final form of this movement is not Sonata form in the strictest sense, the Sonata form was the basis for the composition of this movement.
Movement IV. “None Return from Athens”

The fourth movement is meant to texturally contrast the previous movement as much as possible and is also a lament to the Atlantian army that is utterly destroyed by the Athenians in defense of their city. Whereas the “War Dance” movement featured percussion, staccato rhythmic figures, strong brass, and percussive strings, this movement features longer durations, more pad-like sounds and gentle solo vocal melodies.

“None Return from Athens” begins with high, gentle minor chords in the violins, doubled with harmonics to create an ethereal, otherworldly quality to the texture. Over this sound, a solo female voice, the same samples used in the first movement, sings a melody reminiscent of an ancient singer accompanied by a drone. Example 4.12 shows the opening bars of this movement. As with the first movement, the words sung by the soloist are Bulgarian, but they are put in an order that will make little sense to a Bulgarian speaker. Instead, the words are meant only to sound foreign and unrecognizable. The melody is derived from the “Poseidon” leitmotif and from the violins’ countermelody in the final “A” section of the “Overture.” Harmonic modulations are loosely inspired by descending chromatic movement in the “Omens” leitmotif.

This movement features a dialogue between the bansuri flute and solo voice. The piece alternates between sections featuring the bansuri and sections featuring the solo voice, although the first section contains both voice and bansuri. Between the two sections that highlight the bansuri, there is a short section comprised of chorus and solo voice. This section also highlights the use of descending chromatic lines, shown in Example 4.13.

Choir

Bansuri

Solo Voice

Violin I

Violin II

Movement V. “Interlude No. 1”

The first “Interlude” occurs at the end of Part 1, providing a break for the dancers and from the action on stage. This movement places more emphasis on the exotic instrumentation as opposed to the more traditional Western orchestral parts (see Example 2.2). The instruments used in this movement include Alpenhorn, shakuhachi flute, Tibetan singing bowls, and angklungs (which are defined by Grove Music Online as “Tuned bamboo sliding rattle of Java, Madura, Bali, South Sumatra, Central and South Sulawesi, southwestern Kalimantan, Malaysia, Singapore and Thailand.”). Because this movement provides a transition between the end of Part 1 and the beginning of Part 2, it is through-composed, with the only repeated material being the string accompaniment. The through-composed structure abandons a “sense of return” in favor of moving the action forward. Toward the end of the movement, the nonwestern instruments gradually

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stop playing, leaving strings, solo horn, and the solo voice used in the previous movements.

Harmonic motion is achieved predominantly by moving only one pitch of the triad at a time, resulting in more augmented chords. Example 4.14 shows the harmonic motion in the strings achieved by moving only one note at a time by half step as well as how the kora and log drums are integrated in the orchestral texture. The complete score to this movement is in Appendix B.

Movement VI. “Requiem for the Lost”

Part 2 of *The Ruination of Atlantis* begins with a choral piece representing the mourning for the soldiers who died in Athens. Because of the technical requirements, composition of this movement proved to be the most time consuming and difficult. The “Wordbuilder” application that is included with “Symphonic Choirs” was incorporated, to have the choirs sing actual words. Initially those words were going to be English, but the “unidentifiable language” concept used in previous movements was better suited to the continuity of the piece. The “Wordbuilder” was still used, but unrelated syllables were sung instead of actual words. Because of the how “Wordbuilder” functions, the choral harmonization had to be composed in advance because each voice had to be performed live. After recording the voices adjustments had to be made to various elements of the choral parts such as consonants that were too loud or overall volume balance within one phrase.

Parts of this movement, and the ballet as a whole, contain chordal root movement by thirds as a driving factor in the harmonic structure. There is no restriction to progressions in one diatonic key, and often the chord change will move to a distant key in the process. An example would be moving from C minor chord to an E minor chord. The composer finds this type of progression satisfying because it allows for more chromatic melodies and the common tone among the two chords makes for smooth voice leading. In this movement, this root movement is integrated into the choral parts often. Example 4.15 shows the use of root movement by thirds in the chorus. Occasionally the movement by thirds is interrupted with that of a fourth to keep the progression interesting.
Example. 4.15. Root movement by thirds, “Requiem for the Lost,” mm. 59-68.

In this movement, an homage is given to Mozart’s *Requiem Mass in D minor* in a couple of subtle ways. Similarly to Mozart, this movement uses the D minor key signature, although it is not specifically written with many progressions recognizable as establishing D minor, except for the occasional cadence on an A major chord. Example 4.15 demonstrates the use of the A7 chord occasionally. The most obvious imitation of Mozart, loosely, is when the string accompaniment enters at measure 27. This section, with different harmonic structure, is very similar to the string accompaniment in the “Lacrimosa” movement of Mozart’s *Requiem* (see Example 14.6) The complete score to this movement is in Appendix C.
Example 4.16. Imitation of string accompaniment from the “Lacrimosa” in Mozart’s
*Requiem Mass in D minor*, “Requiem for the Lost,” mm. 27-35.

Movement VII. “Fanfare and the Arrival of Poseidon”

A major event in the ballet is the arrival of Poseidon, because it is the last chance
the Atlantians would have had to redeem themselves. To give justice in the music to the
arrival of a Greek god, it was decided to use the full force of the orchestra along with the
santur, whose presence binds this movement with the next movement. Everything in this
movement, except for a brief section after the introduction and the very end, is either
derived from the “Poseidon” leitmotif, or overshadowed by it. In the very beginning the
movement opens with the trumpets and trombones playing eighth-note figures built
mostly on seconds, but soon after the horns, tuba, and Wagner tubas enter with a powerful statement of the “Poseidon” leitmotif.

A second section occurs, with a strong pedal tone repeating in the violins and some new thematic material is introduced, and for a moment the “Poseidon” motive is not heard. The “War Drum” motive does make an appearance in the percussion during this section. This part gives way to what seems like a new theme in the woodwinds, but is merely a countermelody to the “Poseidon” leitmotif in the strings, this time presented with a more major sounding character (see Example 4.17).


In the next section, the woodwinds are featured playing variations on the “Poseidon” leitmotif until the fanfare section returns. When the fanfare section returns, the melody that was in the horns, Wagner tubas, and tubas is presented exclusively in the
low brass, cellos, and basses. Whereas the instance of the melody in the low strings in the beginning of the movement was a direct imitation of the “Poseidon” leitmotif and the countermelody present in the “Overture,” in the second section it has evolved into a combination with the newer thematic material introduced in this movement (see Example 4.18).

Example 4.18. Variations of the “Poseidon” leitmotif, “Fanfare and the Arrival of Poseidon.”

This movement concludes with a statement of the “Omens” leitmotif in the strings. The high first violin harmonics are doubled with violas playing sul ponticello tremolo passages three octaves apart to create a mysterious, uneasy tension. Example 4.19 demonstrates how this would look on a standard musical score.

Movement VIII. “The Tempo of Cleito and the Wives of Poseidon”

The eighth movement is the dance of Poseidon and his many wives, and is meant to be a celebration of seduction and the excesses of life in which the people of Atlantis participate. Cleito was one of Poseidon’s wives and the mother of Atlas, who was king of Atlantis. Housed in the temple, which was at the center of the capital city of Atlantis, were all of Poseidon’s wives. Although it is not specifically stated in *Timaeus and Critias* that Poseidon’s wives are housed in the temple, Plato does mention a shrine to Poseidon and Cleito in the center ring of the city.\(^{12}\) The mixed-meter rhythmic motive mentioned in Chapter 3 has its most prominent role in this movement (Example 3.5, pg. 20). The entire movement is a dialogue between the santur, solo violin, flute, clarinet, and bassoon. To add some spice to the texture, a women’s choir and some unusual percussion such as the berimbau, darabuka, and frame drum are included. The berimbau is a “Brazilian musical bow of African origin, with a single wire string and sometimes a gourd resonator,”\(^{13}\) (see


Figure 4.1. The darabuka is an Eastern European drum played with either the hands or fingers. This movement features the santur in its most prominent melodic role of the entire ballet when it plays at the beginning.

After the first theme of this movement is presented in the santur, a solo violin repeats it in unison with the santur. This instance of the theme is also transposed up a whole step. The flute then plays a response to the first theme, which although similar in character, is different from the initial melody. Example 4.20 illustrates the main theme and the response theme. The entire movement is built around the exchange of these two themes in various forms.

The mixed-meter 9/8 rhythmic motive is primarily present in the percussion as an asymmetrical pulse. Often the other instruments will create tension by resisting the pulse.
Additionally, the pulse itself does not remain constant and often shifts into a standard, three equal beat pattern normally associated with the time signature. Example 4.21 shows how the mixed-meter motive is present in the frame drum (Drm.) and strings.

Example 4.20. The main theme and its response.

Primary Theme

Response Theme

Movement IX. “The Three Oracles and Dark Omens”

After being hinted at several times earlier in the ballet, the “Omens” leitmotif is fully developed in the ninth movement. This movement is sparsely orchestrated and simple. It is dominated by texturally driven ideas and slight chromatic movements, so that the ominous atmosphere is not disturbed by excessively complex music. Some of the sounds explored in this movement are: high string harmonics in the violins, sul ponticello vibrato in the violas and cellos, “offstage” women’s choir that represents the oracles, and mixing Tibetan singing bowls, a giant “Buddha” bell, and erhu with these textures.
To create the “offstage” effect, a reverb effect was added to the choir and its overall volume was reduced. The choir sings the “oo” syllable instead of the standard “ah” used in the vocalese style of music. This choir is meant to represent the oracles, who were all women, who delivered the “divine communications,”\(^\text{14}\) or prophecies, in ancient Greece. The choir also combines the main harmonic concept for the movement, root movements of thirds, with the chromatic half-step motion of the “Omens” leitmotif.

Similar to the harmonic motion in the “Requiem for the Lost,” in this movement there is a common tone between the two chords. The nature of this motion results in some voices moving by the half-steps associated with the “Omens” leitmotif (see Example 4.22). Example 4.23 shows a sample of the score where the violins are playing artificial harmonics of the “Omens” leitmotif, and its inversion over light tremolo in the lower strings while the Tibetan Singing Bowls and Giant “Buddha” Bell sound in the percussion.


Movement X. “The First Calamity”

The tenth movement is the first moment of disaster in the ballet, and because of this the intensity level needed to be very high. To keep up the intensity, a short movement, with a simple form, was composed that featured some new material and still represented some of the main themes of the ballet. Unlike the final movement of the ballet, which starts of very slowly and builds to the climactic music, this movement starts off very suddenly and violently.

“The First Calamity” is in ternary form with the “A” sections being comprised of rising instances of the “ostinato” motive. The last occurrence of the “A” section also restates the “Poseidon” leitmotif. The most unique aspect of this movement is the fugue in the “B” section. The fugue style was chosen because of the constant motion that is
often associated with this type of contrapuntal writing. The fugue is stated in the strings and is supplemented in the texture with brass and percussion hits later in its development.

The subject of the fugue is new material, that returns in the final movement making it a minor leitmotif associated with disastrous events. The only time this leitmotif appears is in the movements where actual disasters are happening in the narrative. Example 4.24 illustrates the subject of the fugue and Example 4.25 is the exposition.

Example 4.24. Subject of the fugal section, “The First Calamity.”
Movement XI. “Interlude No. 2”

“Interlude No. 2” divides Part 2 from the final Part of The Ruination of Atlantis. For the most part, it is a reprise of “Requiem of the Lost,” but instead of being a mostly choral movement it is a mostly instrumental piece meant to have the spirit of an ancient, small ensemble. The final statement of the “Omens” leitmotif occurs at the end of this movement foreshadowing the dark events to unfold in Part 3 of the ballet. Instead of the direct quote of the leitmotif that has happened in previous movements, the choral figures featuring root movements by thirds are quoted here in addition to the leitmotif. These figures are accompanied by sul ponticello tremolo arpeggios in the violas (see Example 4.26).


Movement XII. “Meditation to Poseidon”

The penultimate movement of The Ruination of Atlantis was chronologically the second movement composed in the work as a whole. It was conceived with a focus on texture and orchestration instead of melodic motives or themes. Three different textural figures are used in different combinations throughout this movement that are intended to convey a mystical quality. The “Meditation to Poseidon” represents the rituals that the
ancient Atlantians performed to attempt to soothe the anger of the gods before their imminent destruction.

The first effect is created by the piano and orchestra chimes sounding an Abmaj7 chord followed by a Gm7 chord. These chords are allowed to ring a long time and eventually fade to near silence. On their second sounding, the woodwinds add to the orchestration before eventually creating a shimmering effect by sustaining long clusters that slowly evolve over long durations.

The final effect, the polychords in the brass, were first heard in the first movement and return in the “Meditation to Poseidon.” In this movement the trumpets and trombones form polychords with a major chord in the trumpets and a minor chord a half step below that in the trombones. If the trumpets have a Bb major chord, for example, the trombones would have an A minor triad. Example 4.27 illustrates the part of the “Meditation to Poseidon” where the first effect involving the piano and chimes gives way to the brass polychords and the woodwind clusters.
Example. 4.27. Three different textural effects. “Meditation to Poseidon.” mm. 14-21.
Movement XIII. “The Ruination Scene”

The final movement of a large scale work was the hardest to compose, even though there was plenty of material already available to use in the process. It was began with a loose concept of the “shape” of the movement, or how the intensity would build and wane. When the movement was conceived, it was decided it would start with a low, rumbling that builds to a frantic pace. At its most extreme, the intensity would suddenly be interrupted by a quiet section that attempted to convey a sense of surrealism that can sometimes occur in the midst of disaster. This surreal, or oneiric, sections would then be harshly interrupted by the return of loud, rhythmic music that would build to a powerful climax. After the climax, everything would drop out except a solo instrument playing a melancholic melody with no accompaniment. The actual act of taking this ambiguous plan and putting actual pitches, rhythms, and harmonies is where the difficulty lies.

The movement begins with a minor third being played by the contrabass section using unmeasured tremolo with the timpani and a synthesizer pad. The bansuri flute used in previous movements plays the main theme from the “War Dance” movement as a ghostly reminder of the Atlantian’s past glory soon to be lost forever (see Example 4.28). After that, the music rises to the first climax of the movement, a reorchestrated statement of the brass bell-tones in the second movement, “Dawn of Poseidon.” The music then builds to the climax and the oneiric section.

Before and after the surreal section is an homage to some of the stylistic features of the *Rite of Spring* by Igor Stravinsky. The brass rhythmic figure is made of low polychords, although not the same polychords used in Stravinsky’s ballet (see Example
4.29). This figure is interrupted by the ostinato motive during each instance. During the return of the brass hits after the oneiric section, the “Poseidon” leitmotif returns in the horns for the final time, adding another layer of raucousness to the cacophony before the climax of the piece.

The climax is marked by loud, sustaining brass chords over a pedal tone doubled with pipe organ leading to the final chord, a polychord consisting of a C minor, F minor, and F# minor chord. After the final chord fades, the bansuri plays the final melancholy solo based loosely on the “Poseidon” leitmotif. The last two notes, Bb moving to C, are meant to imply the C minor tonal area from the “Overture.”
CHAPTER 5

A DIFFERENT APPROACH TO COMPOSITION

When composing acoustic music, one might normally write in a notated score first, then render a rough MIDI playback to get an idea how it will sound. With this project, it was decided to approach it the same way one might compose electronic music, where a home studio application called Logic Pro is loaded and the music is composed using a keyboard and MIDI sequencing, only looking at the score to maintain continuity of thematic material. Logic’s musical scoring capabilities are insufficient for publishing purposes, so upon completion of the composition MIDI files were transferred from three movements into Finale to create a clean, concise scores for this essay, even though the piece is not intended for performance by live musicians.

The reason this approach was chosen for the composition of the piece was to free the mind from the constraints that musical notation often presents. One example is the composition of the percussion parts in the ballet where some instruments have no Western notation such as the taiko drums. In addition some percussion samples were used, with names like “Godzilla Hits,” that are collections of many different percussion instruments assigned to different keys on the keyboard. With these sample sets, there is no way to identify what each instrument is specifically, save by ear.
While it is true that some aesthetic decisions were made based on the availability, or lack thereof, of instrument and articulation samples, most of these decisions were based on more traditional orchestrational considerations. This would sometimes lead to compromises that had to be made, usually regarding unavailable articulations. This is not to say that any orchestrational choices were made based on the existence of particular samples. In fact, the way that an electronic piece based more on texture and sound than melody, harmony, and rhythm is created was combined with the way an acoustic piece might normally be composed. Most of the choices regarding the exotic instruments were made based on hearing the samples and deciding if that sound fit in the ballet somewhere.

EastWest’s orchestra instruments have a large number of sampled articulations, so most techniques desired were able to be implemented. Some articulations that were not in other sample libraries including string harmonics, col legno, Bartók pizzicato, are included with EastWest. This freed the composer to write almost any technique that could be imagined and realized through computer technology. The ability to use techniques normally only associated with electronic music in an acoustically-based piece also freed the composer to explore new ideas.
CHAPTER 6  

STAGING AND PERFORMANCE  

To increase accessibility to a wide variety of dancers, there is a lack of specific instructions regarding staging and performance. This ballet’s actual performance considerations are left entirely up to the choreographer. There are no preconceived notions about the set, costumes, or even number of dancers.

Part of the idea behind making a fixed media recording of the music is to enable any ballet or dance group to be able to stage a performance. There is no specification of style, and it should not be restricted only to ballet dancing. Any style of dance, short of those whose style is more specific (such as jazz dance) could make valid choreography to this work.

While it would be nice to see the work with a large cast of dancers, extravagant sets and costumes, and elaborate lighting, this piece could have the same impact when performed on an empty stage by five dancers. The only thing that could be suggested to the choreographer is to read Plato’s account of the final days of Atlantis. Further than that, they could interpret the story however they choose.


Appendix A

SCORE IN C

I. “Overture”
The Ruination of Atlantis
A Ballet for Virtual Orchestra

I. Overture

Score in C

\( \text{\textbf{\textit{\( q = 108 \)}}} \)

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Solo Voice singing random Bulgarian syllables:
Appendix B

V. “Interlude No. 1”
V. Interlude No. 1

Allegro  \( \frac{\text{m}}{\text{p}} = 120 \)

Gyril

Angklungs

Tibetan Singing Bowls

Giant Buddha Bell

Log Drums

Tong Zi Percussion

Solo Horn

Solo Voice

Shakuhachi

Alpenhorn

Kora

Violin I

Violin II

Viola

Violoncello

Contrabass
Appendix C

VI. “Requiem for the Lost”
VI. "Requiem for the Lost"

Flute
Clarinet
Bassoons
Gongs
Timpani
FNC Flute
Kora
Soprano
Alto
Tenor
Bass
Violin I
Violin II
Viola
Violoncello
Contrabass
Largo $\frac{\text{Largo}}{\text{Fl.}} = 56$

FNC Fl.

P. 26

Vln.I

p  molto espressivo

Vln.II

p  molto espressivo

Vla.

p  molto espressivo

Vc.

p  molto espressivo

Cb.