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Waves of Light

for

Chamber Orchestra

A Thesis Presented for the Master of Music Degree
The University of Tennessee, Knoxville

Bruce Hurley Johnston
May 2008

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ABSTRACT

Waves of Light is a symphonic poem written for chamber orchestra. The piece was written to fulfill a portion of the requirements for a Master of Music Composition degree from the University of Tennessee in Knoxville. Inspiration was taken from the healing powers of the ocean. The composition was completed in late March of 2007, but editorial revisions have occurred through March 2008. This paper presents an analysis of *Waves of Light*. Along with this analysis, there is a reflection upon particular compositions of the late nineteenth to mid-twentieth century that have influenced the conception of this work. There is a comparative study of these works with *Waves of Light*. The parameters of comparison are based upon the musical principles of form, melody, harmony, rhythm, texture, and orchestration.

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CHAPTER I
Introduction

Waves of Light is a synaesthetic painting of sound celebrating the serenity and the momentum of the ocean. The rhythmic motives of the piece symbolize the crash and flow of rolling waves. These motives are given harmonic color through a musical language involving symmetry and tonal poles that create a musical gravity. Furthermore, the melodies within the work are based upon a personal synaesthetic view of intervallic momentum comparable to the effects of gravity that will pull the listener's ear just as the ebb tide retracts. The early sketches of this piece actually were born through piano improvisation. This series of piano improvisations were recorded by the use of Finale notation software. Over time, the work has developed beyond those early transcriptions through the application of melodic, rhythmic, harmonic, formal development, and orchestration

A chamber orchestra is a small orchestra typically in the range of two dozen players. The instrumentation is very similar to a symphony orchestra—the main difference being that there are solo wind parts as well as considerably less strings and percussionists. The choice to orchestrate this piece for chamber orchestra was based on the idea that it would receive more performance opportunities, and it is worth noting that the piece was accepted into a regional composer conference very quickly after completion. The recording provided is the world premier of the work—a performance by the Louisiana State University Philharmonic as part of the College Music Society Southern Super-Regional Conference in February 2008.

In any new music, there undoubtedly will be characteristics that have a basis in

tradition. With this idea, the comparative study that is to follow will reflect upon influential pieces of music in relation to *Waves of Light*. Following is the list of influential works that comprise the study: *Dance Suite*, *Music for String Instruments, Percussion and Celeste*, as well as *Syncopation* by Béla Bartók; *Dance Symphony* by Aaron Copland; *Fall River Legend* by Morton Gould; *Mathis Der Maler* by Paul Hindemith; *Op. 74 no. 2* by Alexander Scriabin; *Song of the Nightingale*, *Symphony in Three Movements*, and *Symphonies of Wind Instruments* by Igor Stravinsky; *Symphony No. 1* by Jean Sibelius; *Symphony No. 3* by Arthur Honegger; and *Variations for Orchestra* by Elliott Carter. Analysis will be done through the key musical concepts of form, melody, harmony, rhythm, texture, and orchestration.

CHAPTER II
Form

The overall form of *Waves of Light* follows this thematic pattern: A-B-C-D-A'-Coda. Each section of the piece is quite intricate in its phrase structure. In this chapter, great detail will be given to the form of the work at both the macro and micro levels of musical form and structure.

There is no introduction in this piece; the exposition of the work begins with measure one. The phrase structure of the exposition—also known as Theme A—contains three successive realizations of the opening phrase (*a-a′-a″*) these work as a whole to create a homogenous theme with two separate answer phrases (*b* and *c*) that are developed independently. The initial phrase structure is characterized by the following pattern: *a-a′-a″-b-c*. Phrase *c* receives immediate development at measure 12 through a monophonic episode featuring violin I and violin II. Meanwhile, the development serves to transition back to phrase *a* for a variation of form whereas the phrase structure follow the pattern of *a-b-a-c*. At measure 25, the exposition comes to an end with the first climactic point of the piece (*minor climax 1*).

A development section begins at measure 26 and continues to the recapitulation beginning at measure 55. The recapitulation is abbreviated as phrase *a* leads directly to phrase *c* with no recap of phrase *c*. The abbreviated recapitulation ends with minor climax 2 at measure 58 bringing conclusion to the theme in a quasi-sonata fashion.
On the following page, Figure 1 displays the phrase structure for Theme A in *Waves of Light*. Take note of the fact that Phrase *a* is always the initial phrase in each entrance, while *b* and *c* are used with discretion.

Measure	1	7	9	12	18	20	22	24	26	55	57
Phrase	*a - a'- a''*	*b*	*c*	*transition development*	*a''*	*b*	*a*	*c'*	*development*	*a'''*	*c'*

Figure 1. Waves of Light Theme A form outline.

Theme B begins at measure 59 with a contrapuntal texture involving the woodwinds and horn. The four note ascending melody is developed to the downbeat of measure 72. At that point, the well-developed antecedent is answered with a consequent phrase *b* beginning where the oboe and clarinet intercept the line. This phrase leads to a cadential extension at measure 74 that builds to a minor climax characterized by a trilling flute in measures 76 and 77.

The second section of Theme B contrasts the binary phrase of section *a* with a choral texture that follows a slow harmonic rhythm pattern in three cycles. The pattern sets the foundation for a melodic phrase group. The initial delivery of phrase *c* spans measures 78 to 83 through a series of five sustained chords with a sustained decorative melodic device voiced in the register high above the chord progression. In the measures to follow, phrase *c* is followed by phrases *d* and *e* in the same textural pattern. The continuity of a single textural pattern through phrases *c, d,* and *e* might lead one to the conclusion that each phrase is merely a variation of itself following a strophic pattern. However, each phrase maintains its own individual chord progression and each melodic phrase maintains its own individuality; thus the second section of Theme B is complex in form rather than texture. It follows a phrase group pattern of *c - d - e.*

Theme B's original phrase *a* returns in measure 97 via the clarinet and serves as an abbreviated recapitulation. With this recapitulation, a conception of ternary form is revealed. As opposed to the elaborately developed 4-note phrase of the initial section *a*,

the recapitulation of the 4-note phrase in the form of *a′* is merely stated as an antecedent that is immediately answered by its consequent. The cadential extension is brought back in measures 103 through 106 leading to another minor climax to end the theme. Following the theme there is a brief playful transition that is carried out by the flute from measures 107 through 112. The entire outline of Theme B's ternary form can be seen on page 11.

Theme C begins at measure 113 with phrasing that is very similar to a fugue subject/countersubject scenario. Phrase *a* of Theme C involves a dovetailing sixteenth-note and triplet motive passed between the clarinet and the trumpet voiced above another motive of a flowing legato nature. The development of phrase *a* continues until measure 121; at that point, the legato and sixteenth note motives swap registers. The legato phrase *b* is very prominent at this point; meanwhile, the sixteenth-notes and triplets in the bass register maintain a motor rhythm initially generated by the dovetailing phrase *a*. Phrase *b* maintains its dominance as the sixteenth-note and triplet accompaniment subsides in measure 123. Phrase *b* is answered by another incantation of phrase *a* in measure 128. After a brief rhythmic rest in measures 130 and 131, the sixteenth-note motor rhythm begins again and continues through the conclusion of the theme. Phrase *a′* is a development of the dovetail phrase, and its development is sustained from measures 128 to 137. This leads to a culminating phrase *b′* in which the powerful legato melody is accompanied by a barrage of sixteenth-notes and triplets that lead to a climactic voicing of the dovetailing phrase *a″* in measure 140. The brief realization of phrase *a″* in measure 140 serves to transition into the climactic Theme D.

The quasi-fugal Theme C builds tension through its contrapuntal and rhythmic

nature before releasing into the more flowing Theme D at measure 143. Theme D is built upon a phrase group consisting of four separate melodic phrases that serve to create a longer thematic melody. In its initial rendering, phrase *a* is found in the string section in measures 143 and 144. Phrase *b* offers an answer to phrase *a* in measures 145 through 147. After sustaining the pitch E5 in measure 147, phrase *c* follows in measures 148 and 149 and provides an answer for phrase *b*. Concluding the phrase group, phrase *d* is introduced in measures 150 through 152, and once again answers its preceding phrase. Following phrase *a*, each of the three additional phrases build upon its preceding melody, thus deeming it a phrase group. This phrase group is then re-orchestrated and transposed at measures 154 through 160 as the texture thickens. At measure 166, phrase *a* is re-introduced but is submersed in an extremely thick texture. As tension is beginning to build toward a climax, the phrase group concept is disrupted following phrase *a″* at 168. From this point, the phrase group theme is cast aside, and all attention is diverted to an ascent which culminates in the main climax of the piece in measure 176.

The energy level of the climax is sustained through an intense transition that takes the listener back to the initial Theme A. In its new incantation, Theme A' is once again bringing the flavor of sonata form to the work, as it is recapitulated after the climax of the piece. Theme A' is much faster and more intense than its original counterpart Theme A. However, the form of the exposition follows a similar path. This recapitulation serves a more condensed—and perhaps a more clear—version of the opening through its phrase structure (*a* - *a′* - *a″* - *b* - *c*). After this condensed version is recapitulated, another development section begins at measure 192 carrying on the energy created by the climax. The development section is similar to the development sections found in the original

Theme A, and thus continues the feeling of recapitulation. This development section serves dual function as a quasi-codetta as Theme A' comes to a climactic end with three tutti hits in measures 204 and 205 followed by a full measure of silence in 206. From an intensity standpoint, the climax that began at measure 176 is carried through the whole recapitulation and development that comprises Theme A'.

Figure 2 gives a diagram of the phrase structure of Theme A' in comparison to Theme A. There are numerous similarities in the opening phrase group as well as the efficiency of Theme A'. As can be seen in the illustration below, Theme A' in its entirety is the same length as the initial exposition of Theme A. The development in A' is similar to the transition development in Theme A, measure 12. However, there is no phrase group return in Theme A'. Instead, a furious development section serves as a codetta in bringing the recapitulated theme to a climactic end.

The piece comes to an end with a passionate coda section beginning at measure 207. This final section follows binary phrase structure. The initial *a* phrase is comprised of two motives found earlier in the work. Motive 1 found in violins I and II in measures 207 and 208 is actually an embellishment of Theme C phrase *b*, while motive 2 found on beat four of measures 208 through 209 is a rhythmic diminution of the opening phrase of

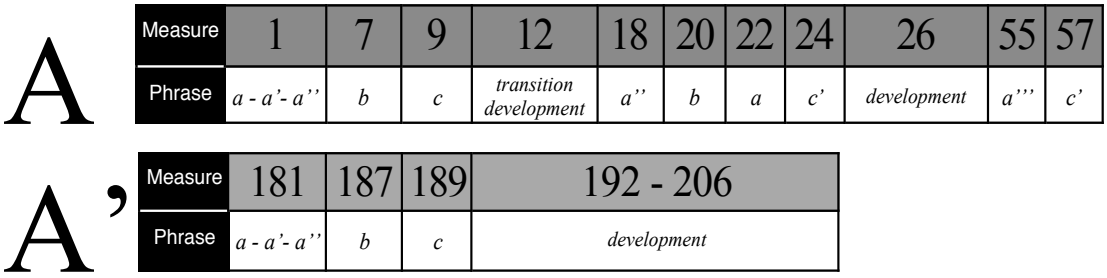


Figure 2. Theme A and A' form comparison.

the movement (Theme A phrase *a*). These 2 motives are combined in an antecedent/consequent relationship to create phrase *a* of the Coda section. The phrase is voiced and re-voiced three times in a stretto-like fashion finally coming to a cadence at measure 220. After the cadence, the chorale texture stays and brings a calming resolution to the piece as the initial phrase *a* of Theme A is dramatically diminished rhythmically in a tutti voicing that occurs at measure 221 and again in measure 224 bringing the piece to a quiet close at measure 230.

Bartok's *Dance Suite* follows a similar approach in form and character with *Waves of Light*. Both are multi-thematic works within the confines of a single movement. Bartok was attempting to return to the original baroque form of a suite using Hungarian, Rumanian, Slovak and Arab dances. The concept of a ritornel connecting the individual dances is also an homage to tradition. Bartok wanted to create a single form that embraced the entire work. This same notion of a grand form describes the multi-thematic character of *Waves of Light*. In fact, there is a true recapitulation at a new transposition level in Waves of Light whereas Bartok's fifth dance and the finale developed are a shortened recapitulation including the three quick dances and two occurrences of the ritornel. As seen in Figure 3, Bartok's Dance Suite is best analyzed as a through-composed multi-movement work with implications of ternary form encompassing the entire work.[1] With regard to this work, Bartok stated:

> All the five dances have original, popular but non-folk music themes. Instead of a pause between the individual dances I used a little ritornel, an orchestral interlude.

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1. Bartók, Béla. *Dance Suite*: *accompanying supplement*, edited by Ferenc Bónis (Budapest: Balassi Kiadó, 1998), 22-23.

A	B	A'
(I - R1 - II - R2 - III)	(IV - R3)	(V - Finale)
Bars 1 - 412	Bars 413 - 449	Bars 450 - 673

Figure 3. Form analysis of Bartok's Dance Suite [2]

> There is such a ritornel between the first and second, the second and third and the fourth and fifth movements. The fifth movement, or dance, is also followed attacca by a finale repeating all the themes that have been used. [3]

This is similar characteristic of *Waves of Light*, as it is based upon melodic improvisations that were developed into themes and encapsulated into a single movement. They are similar in the fact that they are both highly homogenous. Both works are based upon thematic development. In the case of Bartok, each theme is a unique dance, and the recapitulation serves to unify all the melodies. *Waves of Light* is homogenous in the fact that the phrase development of each theme is related to and often an outgrowth of all that has come before it in the work.

Judging by the fact that Bartok actually interjected movement numbers into the score, he was looking at this "one movement work" as one continuous piece of music based upon several themes that were tied together through the use of a ritornella interludes. In the case of Waves of Light, it is also a single movement work based upon several themes tied together through the use of transitional interludes.

On the following page, Figure 4 diagrams the form of the complete work. As can

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2. Ibid.
3. Ibid.

be seen in the illustration, the form of *Waves of Light* seems to fall somewhere between a large sonata form and a dance suite. The individual themes could be seen as developmental material for a large sonata as they are all motivically related. However, the themes have strong individual character and flow from one to another in a fashion similar to a dance suite. Perhaps the best summation is that it is a multi-thematic suite arranged in a single movement, modified sonata form.

Theme	Form	Mood	Phrase Structure	Measures
A	Modified Sonata	Vivaciously	Exposition Phrase Group:a - b - c	1 - 25
		Passionately	Development	26 - 54
		Vivaciously	Recapitulation	55 - 58
B	Ternary	With Sentiment	a	59 - 71
			b	72 - 77
		With Sadness	Phrase Group c - d - e	78 - 98
		With Sentiment	a'	99 - 100
			b'	101 - 106
		Playfully	Transition	107 - 112
C	Quasi-Fugal	Mournfully	a	113 - 120
			b	121 - 127
			a'	128 - 137
			b'	138 - 139
			Transition	140 - 142
D	Strophic	With Gratitude	Phrase Group a - b - c - d - link	143 - 153
			a' - b' - c' - d' - link	154 - 165
			a" - Climax Ascent	166 - 176
A'	Recapitulation of Theme A	Furiously	Transition	177 - 180
			Recapitulation	181 - 191
			Development	192 - 206
Coda	Strophic	With Conviction	Quasi-Stretto a - a' - a"	207 - 220
			Final Cadence	221 - 230

Figure 4. ***Waves of Light*** **thematic outline**

CHAPTER III
Melody

The opening melody of the piece is a phrase consisting of two motives that begin with a slow three-note descent of major thirds. A consequent follows with a faster, more linear descent to resolve the phrase. This opening three-note motive will serve as a major building block of the piece from the standpoint of both melodic intervals and rhythmic texture. Figures 5, 6, and 7 illustrate the relationship and similarities between phrase *a* and the two variations of *a′* and *a″*.

The initial three note motive varies in *a′* to a tritone descent—rather than the original major third descent. This presentation of the tritone is another foreshadowing, as the tritone is a strong harmonic characteristic for the piece. In Figure 6, the intervals of three-note motive are diminished to a major second and a minor second while the consequent motive is transposed up a tritone from its original voicing in phrase *a*, thus



Figure 5. Theme A phrase *a*



Figure 6. Theme A phrase *a′*



Figure 7. Theme A phrase *a″*

further foreshadowing the significance of the tritone. The more linear consequent motive contains a chromatic character as there are three successive descents of a minor second; this use of the minor second is the birth of another harmonic concept, as the harmony of a minor second is used throughout the piece in order to create homogeneity.

In Paul Hindemith's symphonic work *Mathis Der Maler*, a similar descending motive is explored throughout the first and third movement. It reaches its full fruition in the third movement at measure 125.

Figure 8 illustrates a seed of Waves of Light Theme A phrase *a* motive 1. Hindemith took a similar approach through his intervallic variation on the descending motive. This same type of variation is exploited in every presentation of the motive in Waves of Light.

Phrase *b* is an outgrowth of phrase *a* as the descending four-note motive is developed in an irregular sequential pattern. This sequential pattern offers another instance of homogenous design, as the four-note motive is transposed first a tritone and then a minor 2nd. Figure 9 offers an isolation of phrase *b*. The relationship between

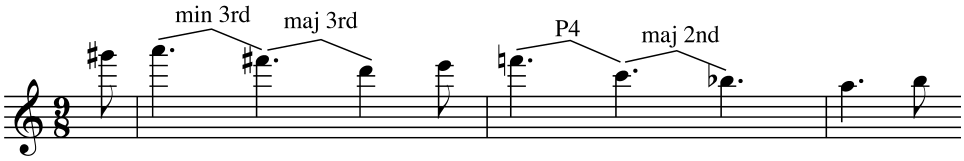


Figure 8. Measures 125 and 126 of *Mathis Der Maler* by Paul Hindemith



Figure 9. Theme A phrase *b*

phrase *a* and phrase *b* is unifying factor in the piece, but phrase *b* maintains its own character by taking the listener to a new place via an upward ascent to A5--the climactic note of the phrase group comprising Theme A.

The final phrase of the theme, phrase *c*, is characterized through the use of syncopation. The use of strong beats that comprise the penultimate phrase *b* is contrasted with eighth note anticipations to downbeats seen in phrase c shown in Figure 10. This syncopated phrase is developed through variation in measures 10 and 11 briefly settling into a rhythmic groove. The groove offers a strong textural aspect to the piece; however, the groove is merely development. Figure 11 illustrates the phrase development seen in measures 10 and 11. Although the rhythmic groove of measures 9 through 11 is dominating in character, the actual building block of phrase *c* is one measure.

In Figures 12 and 13, phrase *c* is utilized as a consequent phrase for phrase *a*. Although phrase *b* is absent in the above examples, Theme A is in its most clear voicing. Without phrase *b*, each motive fragment of the theme is still present in the *a* - *c* grouping. The lack of a dominant motive actually creates a more balanced sound between the phrases. This balanced sound is a clear and concise ending to a highly developed Theme A.

Theme B begins with a short motivic introduction in measure 59. This three-note motive serves as background and transitional support for the entire theme (Figure 14). This three-note motive will be addressed in further detail in Chapter VI. Theme B phrase *a* begins at measure 60 as an ascending melody that is developed by imitation and retrograde through measure 71. Figure 15 shows Theme B phrase *a* in its simplest form.



Figure 10. Theme A phrase *c*

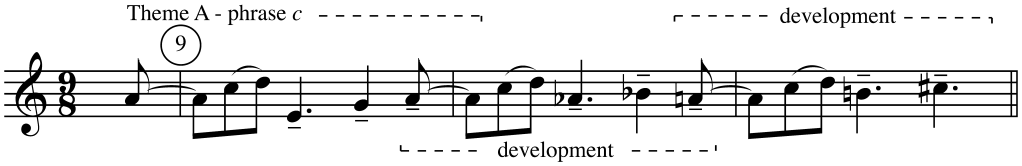


Figure 11. Theme A phrase *c* development

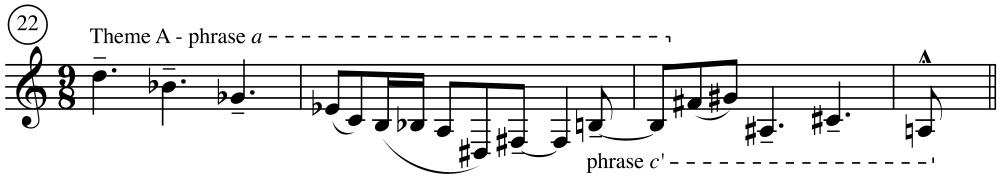


Figure 12. Theme A phrase *a* to phrase *c′*



Figure 13. Theme A phrase *a′′′* to phrase *c′′* abbreviated recapitulation

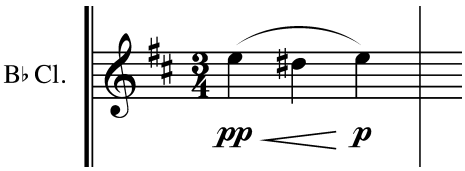


Figure 14. Measure 59: three-note support motive



Figure 15. Theme B phrase *a*

The opening interval in Theme B phrase *a* is a minor 3rd to be followed by an ascent from F# through G# to the final note A#—which is a span of a major 3rd. Treating G# as merely a passing tone, this intervallic ascent offers a slightly embellished retrograde inversion of the opening motive of the piece (Theme A phrase *a*) discussed at the beginning of this chapter.

Morton Gould used these two key components of *Waves of Light* Theme B in his ballet suite *Fall River Legend*. Although it is found earlier in the piece, its most prominent presentation of the two components comes from Clarinet 1 in measures 105 and 106 of the first movement (Figure 16). From this illustration, it is evident that Theme B phrase *a* of *Waves of Light* is actually a retrograde inversion in relation to Gould's *Fall River Legend* phrase. Furthermore, this reoccurring three-note neighbor motive from *Fall River Legend* is prevalent throughout all of *Waves of Light* Theme B.

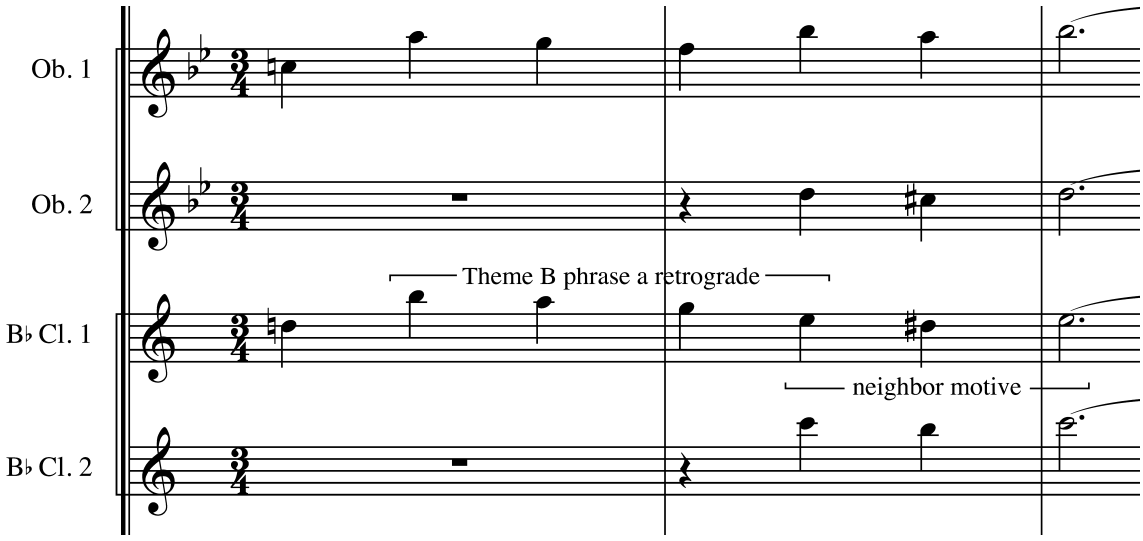


Figure 16. Excerpt from Gould's *Fall River Legend*: measures 106 and 107



Figure 17. Excerpt from Sibelius' *Symphony No. 1*: measures 194 through 197



Figure 18. Theme B phrase *b*

A melodic fragment similar to Waves of Light Theme B phrase *a* was used by Jean Sibelius in Movement I of his first symphony (Figure 17). The difference between the two phrases lies in the last interval. *Waves of Light* Theme B phrase *a* expands the last interval from a minor to a major second.

After immense development of phrase *a*, a descending retrograde inversion of the phrase by the flute at measure 70 leads to the first voicing of the consequent phrase *b* at measure 72 by the oboe and clarinet. This consequent can be seen above in Figure 18. Note that the opening interval of phrase *b* is a tritone followed by an interval of a minor second, thus alluding back to Theme A phrase *a'* and phrase *b* in which the tritone and minor second were initially revealed as character motives in Figures 5 and 7.

As discussed in the last chapter, Theme B's ternary form offers a middle section

characterized mainly by a chorale texture. The chorale texture is broken up into 3 melodic phrases comprising a phrase group. The initial chorale idea was found to be a bit stagnant, so the three phrases were presented in a high register in order to maintain a background existence. The phrases are rich in intervallic leaps that have characterized much of the phrases seen thus far. Much of the melodic content was designed with the idea of creating and maintaining symmetry with the harmonic content.

In ternary fashion, phrase *a′* and *b′* create a strong recapitulation in measure 99. As was seen also in Theme A, the recapitulation in Theme B offers the most clear and concise presentation of its *ab* phrase. (Figure 16) The melodic development brought through sequencing and nebulous fragmentation to a climactic presentation of simple clarity is beginning to grow as a melodic thematic characteristic of the work, as both Theme A and B have followed this design.

In Theme C phrase *a*, a similar design of melodic development is followed. From measure 113 to 118, the key ingredients to phrase *a* are presented in fragmented motives. This development leads to the presentation by the flute of the phrase in its full context at measure 119 (Figure 20).

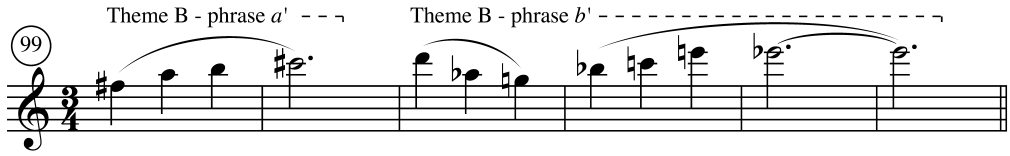


Figure 19. Theme B phrase *a′* and *b′* recapitulation



Figure 20. Theme C phrase *a*



Figure 21. Theme C phrase *b*

Upon this grand statement of the phrase, there is an immediate contrasting phrase *b* led by the flute and oboe in unison. Figure 21 illustrates the initial entry of phrase *b*. With phrase *b* being so clearly stated with each entry at measures 121, 125, and 138, there is a contrast to the notion created in Themes A and B of fragmentation leading to melodic clarity. Phrase *a* is realized completely only once in the theme. The contrast stems from the fact that phrase *a* reached clarity before the initial entry of phrase *b*. With its clarity, phrase *b* is used as an anchor for the theme, while phrase *a* is developed with no true recapitulation. The anchoring effect of the entries of phrase *b*, along with the continuous use of both phrases as contrapuntal background and support for their counterpart, gives a fugal feel to the theme.

Theme D is the most melodically clear idea of the work. It is built upon the repetition of an *a-b-c-d* phrase group. There is essentially no developmental material until the end of the theme, whereas the Climax begins to unfold at measure 166. At that point, the music is really not developing—it is transitioning.

Figure 22 provides phrase *a* of Theme D. When comparing this phrase to Theme A phrase *c* seen in Figure 7, there is a relationship of melodic variation between the two phrases. Theme D phrase *a* is a more developed conception of the original idea in Theme A phrase *c*.



Figure 22. Theme D phrase *a*

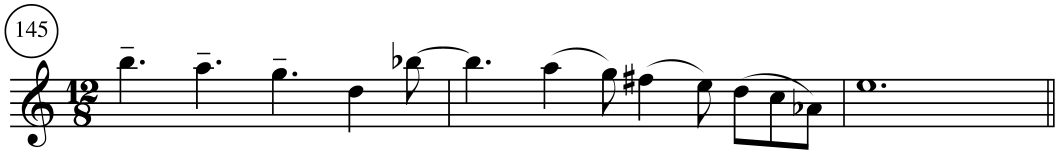


Figure 23. Theme D phrase *b*

Theme D phrase *b* is conceived of two motives that each relate to earlier phrases in the piece (Figure 23). The first four notes of phrase *b* relate to Theme B phrase *a* in a retrograde inversion manner. In Figure 24, a comparison of the two motives can be seen, as Theme B phrase *a* at measure 60 is directly compared to Theme D phrase *b* motive 1 at measure 145. The difference lies in fact that the minor 3rd interval initially written in Theme B phrase *b* expands to a perfect fourth in its retrograde inversion counterpart Theme D phrase *b*.

The second motive in Theme D phrase *b* has a dovetailing effect. It essentially matches pitch-for-pitch Theme C phrase *a* motive 1. The clarinet at measure 113 played this initially.

In Figure 25, Theme C phrase *a* motive 1 has been transposed to the same transposition level as Theme D phrase *b*. The rhythm is the only variable up until the last note. From the penultimate note, Theme C phrase *a* motive 1 descends a minor 6th while Theme D phrase *b* motive 2 ascends a minor 6th to its resolution.

Theme D phrase c is more fragmented in development than previous phrases. The initial three-note E5-C5-E♭5 brings back the thirds relationship from Theme A phrase *a* motive 1 with a major third descent followed by a contrasting minor third ascent. The descent of E5-D5-B4-F4 is a further retrograde inversion embellishment of Theme B phrase *a* initially addressed in Figure 21. Furthermore, measure 149 begins with another play upon the major/minor third relationship through the passage G4-B4-G♭4 (Figure 26).

With the entrance of phrase *d*, the phrase group of Theme D comes to completion (Figure 27). Developmental material once again builds the phrase through motivic fragmentation. The first four notes of phrase *d* (E♭5-D♭5-F5-C5) are a retrograde inversion of Theme C phrase *a* motive 1 seen in Figure 28. The final three notes of phrase *d* are the exact notes used in Theme A phrase *a* motive 1 (Figure 29).

Due to its lack of development and consistent clarity of phrases, Theme D has the most formal contrast with any other theme in the entire piece. However, the individual phrases are strongly connected to the previous themes. This connection of motivic fragments linking the phrases together offers a dramatic surge in homogeneity and helps to propel the work to its climax.

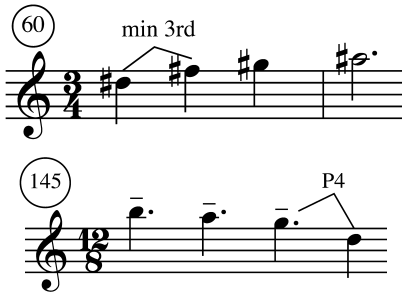


Figure 24. Theme D phrase *c* (m. 145) comparison with Theme B phrase *a* motive 1 (m. 60)

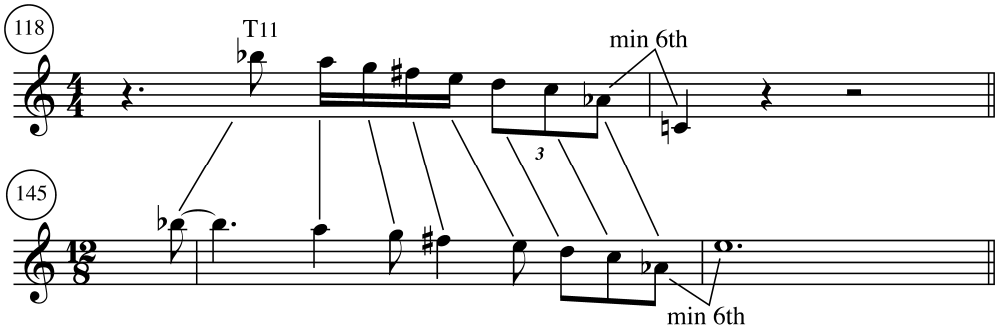


Figure 25. Theme C phrase *a* motive 1 at T11 over Theme D phrase *c* motive 2



Figure 26. Theme D phrase *c*

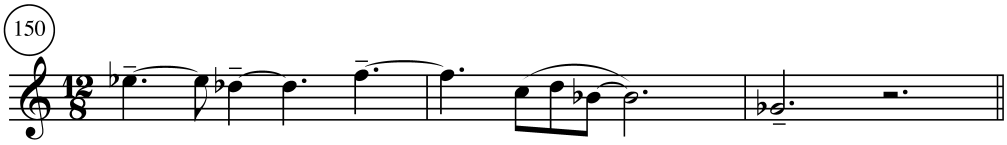


Figure 27. Theme D phrase *d*

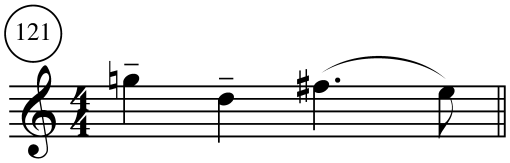


Figure 28. Theme C phrase *a* motive 1



Figure 29. Theme A phrase *a* motive 1

At the climax in measure 176, there is an immediate rush of activity to set up the recapitulation. The original *a-b-c* phrase group of Theme A is brought forth in perhaps its most clear and dramatic representation. The entire phrase group has been transposed up a major third plus an octave. After one concise expression of the phrases, a furious development section carries the theme to a climactic close with a hush of silence at measure 206.

The final melodic theme of the piece is actually a single phrase melodically sequenced through the Coda section. Once again, no new material is introduced as phrase *a* is another case of fragmented motives. Motive 1 of the Coda phrase is comprised of another retrograde inversion of Theme C phrase *a* motive 1, as seen in Figure 28. Meanwhile, motive 2 is simply a rhythmic diminution of Theme A phrase *a* motive 1 as seen in Figure 29. A detailed illustration can be found below in Figure 30. The final descent of the piece can be seen in measure 221 as the full orchestra begins a three-note motive that embellishes Theme A phrase *a* motive 1. The dramatic rhythmic diminution offers a slow resolution to the piece while the initial drop of a major third has expanded to a perfect fourth as seen in Figure 31 with the G4-D4 descent. Note that the final D4-B♭3 descent illustrated above is the actual opening melodic interval of the piece (Theme A phrase *a* motive 1) transposed down an octave.



Figure 30. Coda phrase *a*



Figure 31. Rhythmic Diminution / Intervallic Expansion of Theme A phrase *a* motive 1

The overall melodic conception of this piece is characterized through themes that begin in a fragmented state and through development arrive at a clear voicing of the theme. Often, this does not happen until the theme is coming to a close. Each theme has its own take on this concept. Theme A is highlighted by a strong recapitulation that has eliminated repetitive motives. Theme B's recapitulation offers the first presentation of the melody without background melodic sequencing and counterpoint. Theme C begins to stray from the concept with an ever-present clear phrase *b*. However, phrase *a* is highly developed and only achieves its completeness following several measures of fragmented development. Theme D stands out due to its lack of phrase development. However, this lack of development is primarily due to the fact that the whole theme is a fragmented development that serves the purpose of building to the climax. The piece as a whole seems to gain melodic clarity to the end.

CHAPTER IV
Harmony

The harmonic language that is used in *Waves of Light* is based upon symmetrical relationships similar to what is found in two specific works: *Syncopation* by Béla Bartók and *Op. 74 no. 2* by Alexander Scriabin. It is crucial to remember that *Waves of Light* began as a piano score; thus these specific piano works offer influential harmonic insight.

Tonal centers that are created in this work do not really provide a key. They actually are more descriptive as harmonic changes that may last only a few measures or a melodic phrase. This can be related to chord changes in a chorale or perhaps a jazz standard. The difference lies in the fact that there is no particular key for the piece as a whole. Symmetrical relationships are used in lieu of chord changes typically associated with traditional tonality.

In measure 1, there is an instance of non-symmetrical harmony that actually resolves in measure 2 with the first two notes E♭ and C. An asymmetrical harmonic language is used in the first measure, and E♭ – C immediately answers this effect in the melodic line of measure 2. This type of harmonic call and melodic answer is an attempt to give a subliminal balance to the harmony by giving the ear the two notes needed to create symmetry in the beginning of the melodic line in the next measure (Figure 32).



Figure 32. Isolation of pitches C and E♭ in measure 1 followed by immediate statement in measure 2

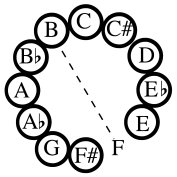


Figure 33. Symmetrical conclusion of measures 1 and 2



Figure 34. *Syncopation* measures 25 through 31

Next, this call and answer is continued by creating a symmetrical conclusion that envelops the harmony and melodic content of measures 1 and 2 together. The symmetrical conclusion can be seen in Figure 33. Asymmetrical imbalance is relieved through by symmetrical melody and harmony. This type of implied cadence is a common harmonic characteristic of the work.

A very similar scenario happens in measures 25 through 31 of Bartok's *Syncopation*. In the phrase leading up to measure 31, the A♮ is avoided and the harmony is asymmetrical as a result. Just after the next phrase begins in measure 31, an A♮ is interjected to complete the last phrase thus overlapping the phrases (Figure 34). With the addition of the A♮ to the phrase, harmonic closure is created through symmetry (Figure 35).

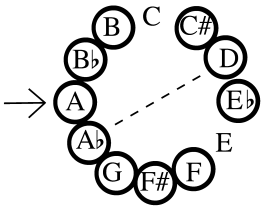


Figure 35. ***Syncopation*** **measures 25 through 31 symmetrical conclusion**

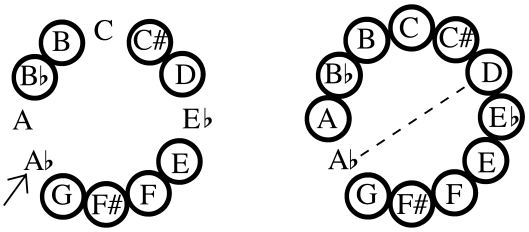


Figure 36. ***Waves of Light*** **measure 22 and its symmetrical conclusion in measures 22 and 23**

Another variation from this harmonic concept can be seen in measure 22 of *Waves of Light*. The A♮ is the only note missing from a symmetrically harmonic measure. Instead of giving you that note immediately in measure 23, the A♮ is avoided altogether thus creating centricity within the two measures by isolated avoidance of the note (Figure 36). This pitch-avoidance method is another common characteristic that embodies harmonic symmetry in this piece.

In measures 26 through 33, a whole phrase in the development section is involved in a symmetrical resolution. By incorporating the entire phrase into a circle graph, there is no evident centricity because all twelve notes are used. Upon further scrutiny, the D♮ bass note in measure 32 is the final note to be used thus completing the entire chromatic scale. The use of D♮ as root resolution of the phrase is another common method used in this piece for creating stability in a seemingly atonal passage (Figure 37). The initial

voicing of each pitch-class has been circled with a visual emphasis on the resolving D♭ in measure 32, as the D♭ is reinforced as the bass note in measure 33. This same type of tone emphasis is used in measures 34 – 40 and again in 41 – 44 with emphasis on D♮. This type of emphasis is another harmonic tool used throughout the piece.

Bartok used this sort of harmonic cadencing in measures 11 and 12 of his work *Music for String Instruments, Percussion and Celeste.* In this fugue setting it would appear that harmonic content would be purely incidental. However, by accounting for the notes within this conclusion to counter-subject two, a clear direction can be seen in the unfolding of the notes (Figure 38).

The main difference between Bartok's passage in Figure 38 and *Waves of Light* measures 26 through 33 in Figure 37 is that the reinforcement of the tonal center comes from the melody in the Bartok passage while coming from the bass note in *Waves of Light*. This is a very subliminal approach to the idea of centricity. It is used to bring the subtlest feeling of conclusion to an otherwise atonal passage. This concept is used throughout *Waves of Light*.

In measures 49 and 50, a true centricity is completed as all the notes used within the measure create a B♭ - E tonal pole. The cadential note of the melodic phrase is an isolated B♭ that is played in unison by the flute, oboe, and violins (Figure 39). The final two notes of the bass are C - C#, the final notes missing from the equation, that in their voicing create the B♮ tonal pole.

The opening two measures of Theme B phrase *a* offer an example of another type of symmetry. In measures 61 and 62, there is complete symmetry in the harmonic/melodic language; however, there is no pitched tonal center. Instead, the

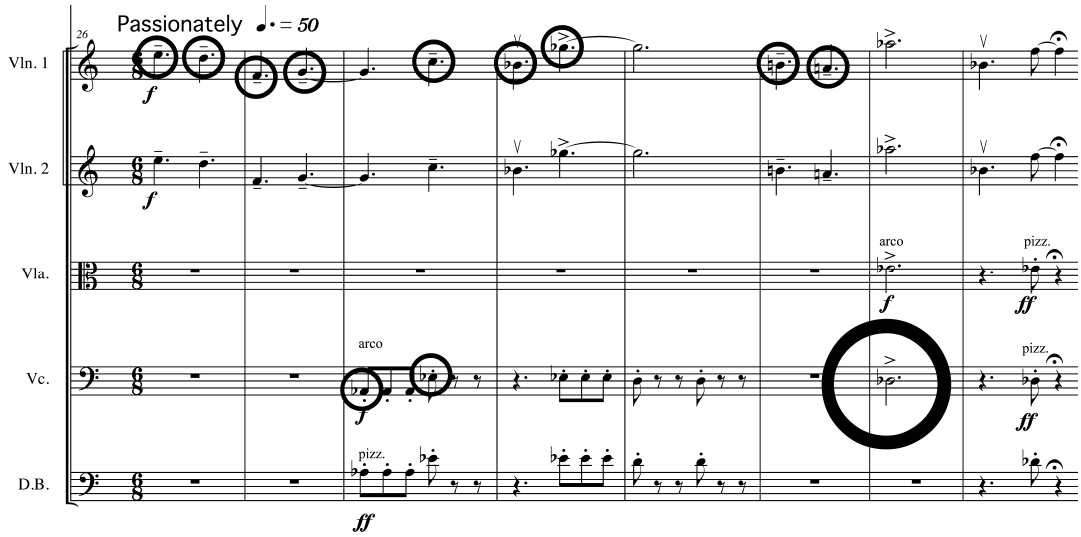


Figure 37. Measures 26 through 33: tonal implication in the midst of an atonal passage



Figure 38. ***Music for Strings, Percussion, and Celeste*** **measures 11 and 12: centric implication**

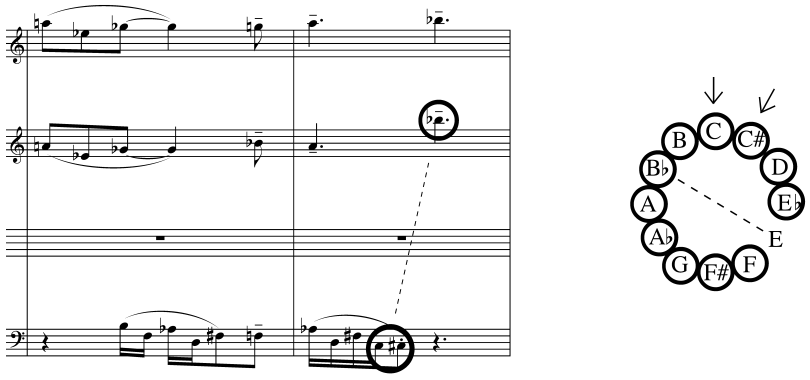


Figure 39. ***Waves of Light*** **measures 49 and 50: partial score extract with centric analysis**

symmetry falls between the pitches C# and D at one end of the pole while falling between A♭ and G on the opposing side. At the bottom of this page, Figure 40 provides an illustration of this phenomenon.

This is a perfect example of the notion that this piece is not dependent upon a tonal center. Furthermore, this shows an example of a symmetrical conclusion that does not rely upon eleven pitches in order to create symmetry. There are many examples throughout the work of symmetry with a varying inordinate number of pitches.

Scriabin used this same set-class at T9 in measure 11 of *Op. 74 No. 2*. In this short work, Scriabin explores simultaneous centric relationships as he exploits an F# - C♮ relationship through the bass note while a measure-by-measure analysis shows a constantly shifting harmonic polar axis (Figure 41). This same simultaneous tonal axis can be seen at the end of *Waves of Light*, as the harmonic interval of the tritone may suggest a polar axis relationship while the cumulative harmony of the moment might suggest an entirely different tonal pole.

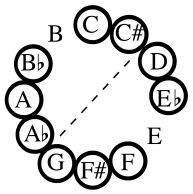


Figure 40. Measures 60 and 61: example of symmetry without a definite pitch center



Figure 41. Measure 11 of *Op. 74 No. 2* and its centric harmony

These aforementioned instances of harmony within the opening two themes summarize the harmonic language used throughout the piece. Rather than pointing out every instance of these harmonic episodes, it would be more pertinent to point out the exceptions that arise in the latter part of the piece as the music gains momentum. The ascent to the climax is perhaps the most appropriate starting point.

At measure 165, the music begins to make its initial surge to the climax. From here to the climax at measure 176, the harmonic language is not concerned with tonal centers, as all twelve pitches are consistently used. This atonal ascent to the climax is a tool to create tension. Up to this point, the music has been characterized by extreme chromaticism as well as tritone relationships, both melodically and harmonically. Finally at measure 176, there is a harmonic release as the climax is placed in the upper registers. The chord that is voiced in this moment of release is a Gsus4. The root is not necessarily the significance of the chord; its power stems from a chord that has expanded beyond the minor second and the tritone to a symmetrical conclusion (Figure 42).

Following the climax, the music begins another surge to the Recapitulation. In this surge, the music once again builds in tension at the cadence with an atonal ascent in measure 180 once again spanning the entire chromatic scale. Measure 181 sparks the beginning of the Recapitulation, and in this there is another harmonic anomaly as the content of the measure presents the only instance of whole-tone language in the entire work. This is another attempt to subliminally lift the listener to a new height by once again expanding the minor second language that has created much tension in the work (Figure 43).

This brief whole-tone expression is gone just as quickly as it came, as the

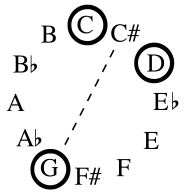


Figure 42. Measure 176: symmetrically balanced Gsus4 at the climax

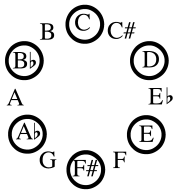


Figure 43. Measure 181: recapitulation with whole tone implication

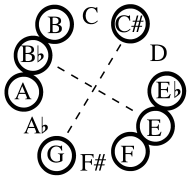


Figure 44. Measures 204 and 205: dual symmetry

Recapitulation harmonic language stems from the same symmetrical relationships that have come before. The conclusion of the Recapitulation involves symmetry as the final cadence involves another atonal surge in measures 202 and 203 to be followed by a symmetrical conclusion in measures 204 and 205, whereas the content of the measures are symmetrical at two separate axes (Figure 44).

The Coda phrase follows, and with its long flowing melodies, the harmonic language is reminiscent in character to symmetrical concepts that have been present throughout the work. As the piece comes to a close at measure 220, the harmonies have thinned to a vertical texture involving two to three pitches per measure. From measures 220 to 226, many intervallic relationships are explored. These harmonies are completely

the result of the melodic sequencing. After back-to-back measures involving a lush (025) voicing, the dissonance level alternates the key ingredients of the piece as measure 222 is a minor third harmony while 223 is the minor second harmony (012). In measure 224, the music moves back toward consonance with a major second harmonic interval to be followed in measure 225 by a major third harmonic interval. The final voicing of the piece follows this consonance with a tritone harmonic conclusion.

With the use of vacillating consonance and dissonance as well as the use of the tritone and minor second as harmonic/melodic characteristics within the work, there has been a role reversal that is revealed at the conclusion of the piece. This is in complete contrast with traditional music theory. In ironic fashion, the consonance serves a dominant function as the work reaches its final cadence. The final chord that follows is a resounding tritone that serves to resolve the piece.

CHAPTER V
Rhythm

The opening phrase of the piece contains rhythmic building blocks that will provide a homogenous relationship with all the themes of the piece. Figure 45 dissects the particular rhythmic blocks within the phrase. The initial three-note motive 1 will become a major counter-motive for the theme. No sooner than it is voiced, there is already a three-note support motive that can be seen in Figure 46. The staccato motive voiced by the viola (along with the brass, cello, and bass) becomes a rhythmic motive consistently used throughout the opening movement.

Theme A phrase *b* (Figure 7) is rhythmically based upon cell 1 of motive 2 as illustrated below in Figure 45. In phrase *b*, the motive is repeated three times in succession, creating a strong feeling of downbeats while simultaneously keeping the sweeping effect via the sixteenth-note leading in to each downbeat. Meanwhile, the previously mentioned three-note counter motive is driving the rhythm (Figure 47).

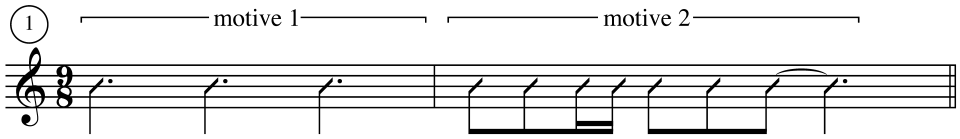


Figure 45. Analysis of Theme A phrase *a* rhythmic structure

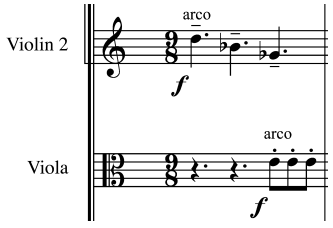


Figure 46. Initial voicing of the three-note motive in measure 1

The counter motive seen in the viola line will continue to add support through the development section, as can be seen initially in measures 28 and 29.

The syncopated eighth-note in cell 2 of Theme A phrase *a* (Figure 45) is the final characteristic that contributes to this notion of a sweeping rhythm. Out of this syncopated cell, Theme A phrase c is born. In this phrase, which spans one measure, the syncopation both begins and ends the phrase (Figure 48). When this rhythm is repeated, there is a groove-like effect. This groove can be heard in measures 9 through 17 and again in measures 188 through 196 of the work.

Stravinsky used a similar syncopated groove concept in measures 174 through 180 of his work *Symphonies of Wind Instruments*. The eighth-note anticipation on every other measure of the solo bassoon passage creates a temporary groove with an off-balanced nature (Figure 49).



Figure 47. Theme A phrase *b* and its counter motive



Figure 48. Theme A phrase *c* rhythmic motive



Figure 49. An excerpt of a vacillating groove in Stravinsky's *Symphonies of Wind Instruments*

This instance of syncopation in combination with the sixteenth note motive gives a sweeping feeling to the music that is very similar in character to the feel of *Waves of Light* Theme A.

Each phrase of *Waves of Light* Theme A has the potential to groove. Part of the rhythmic character of the theme is its vacillating nature. In this, the rhythmic nature is asymmetrical, thus mimicking the feel of crashing waves in a strong tide. Stravinsky uses this concept of groove vacillations in his *Symphony in Three Movements*. There are multiple episodes in Movement I. Figure 50 illustrates the rhythmic pulse created in several of these episodes.

When comparing the oscillating behavior of groove episodes between *Symphony in Three Movements I* and *Waves of Light* Theme A, the main difference in the two stems from the concept of momentum. From a synaesthetic point of view, *Symphony in Three Movements* begins in duple meter promoting strong forward momentum while *Waves of Light* begins in triple meter that suggests more of a circular, symmetrical motion. In

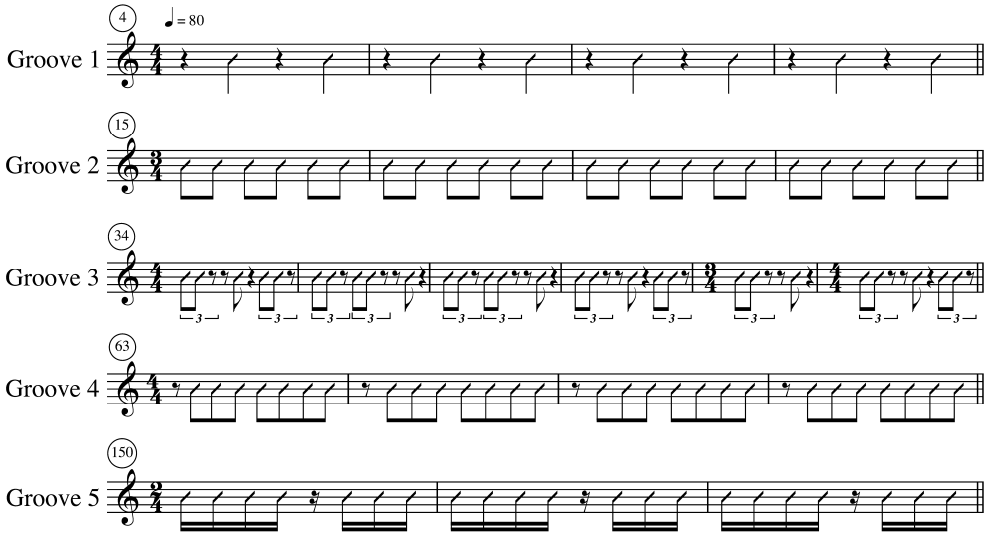


Figure 50. Groove vacillations of *Symphony in Three Movements I*

contrast to the vacillating predecessor, Theme B maintains a quarter-note motor rhythm through the entire opening section of the ternary movement (Figure 51). This is quarter-note walking rhythm in 3/4 was used quite effectively by Arthur Honegger in the second movement of his *Symphony No. 3*. In Figure 52, the string section illustrates this quarter-note pulse.

The use of this motor in *Waves of Light* has been simplified in comparison to Honegger's rendition. Furthermore, in *Waves of Light*, the woodwinds are responsible for the motor rhythm where Honegger uses the string section. Over time, Honegger generates more and more rhythmic activity as the movement continues whereas *Waves of Light* Theme B actually slows in rhythmic activity to a chorale texture. However, the motor rhythm re-enters after the chorale to conclude the theme.

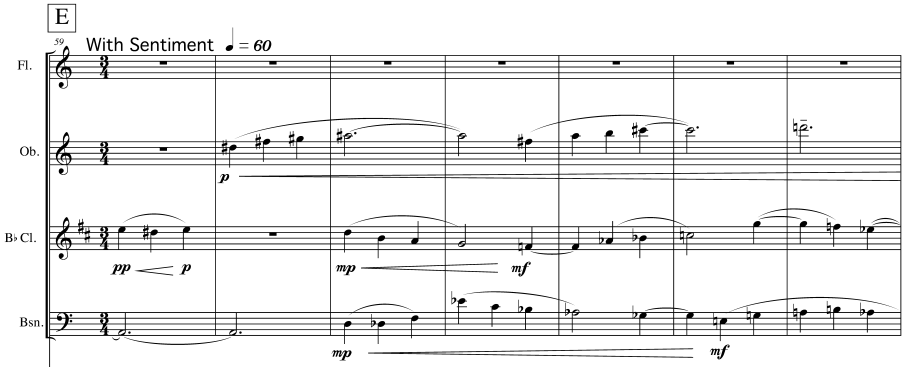


Figure 51. ***Waves of Light*** **Theme B phrase *a* quarter note motor rhythm**



Figure 52. Movement II measures 13 -24 of Honegger's *Symphony No.3*: quarter note motor rhythm

The chorale texture in the middle section of the ternary movement offers great contrast as the music once again has a moment to breathe. The space created in the chorale texture is actually held together by a steady tempo (Figure 53). The contrast between the two sections of Theme B is based upon the pulse; the A section is based upon a quarter-note pulse, while the B section follows a cycle that features a whole-note pulse with some decorative half-note phrasing. The recapitulation offers no new rhythmic surprises, as the quarter-note rhythm returns to the end of the theme.

The rhythmic character of Theme C is based upon a walking quarter-note pulse with dovetailing sixteenth-notes slowing to triplets. This rhythmic effect gives a feeling elasticity to the groove. Elliott Carter used this effect in his work *Variations for Orchestra*. Figure 54 illustrates this outburst of activity.

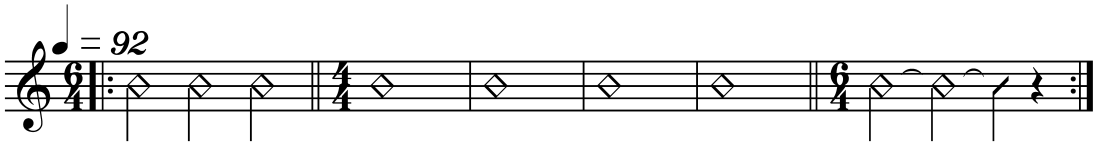


Figure 53. Theme B chorale section whole note pulse and phrase cycle



Figure 54. Measures 369 and 370 of Elliott Carter's *Variation for Orchestra*

In Waves of Light Theme C, this rhythmic elasticity is used in cooperation with a dovetailing melodic phrase, and it is interpolated throughout the theme. This constant interpolation of the phrase helps to give continuous rhythmic contrast. Although the pulse remains at the quarter note level, the level of rhythmic activity for phrase *a* creates a vacillating motor rhythm that moves back and forth between sixteenth-notes and triplets (Figure 55). The vacillation is further pronounced by the contrasting quarter note driven phrase *b* (Figure 56).

As the theme develops, there is a tug-of-war effect based upon the contrasting rhythmic effects of the two phrases. As they follow a phrase pattern of *a-b-a'-b',* a fugal type of pattern helps to organize the phrasing so that the foreground phrase is accompanied by the alternate phrase which is fragmented in a background setting.



Figure 55. Theme C phrase *a* sixteenth note and triplet vacillating motor rhythm



Figure 56. Theme C phrase *b* quarter note rhythm

An example of this can be seen on the previous page in Figure 55, as the tuba initially plays phrase *b* underneath phrase *a* in measure 113. This support relationship between phrase *a* and *b* grows throughout the theme. At measure 135, the sixteenth/triplet phrase begins to assert dominance as it is developed. This development leads to a final presentation of *b′* in measure 138, whereas the development of phrase *a* begins to sound polymetric when played simultaneously with phrase *b′* (Figure 57). The sixteenth-note descending figure in phrase *a* eventually leads to a metric modulation that transitions into Theme D (Figure 58). This type of modulation can be seen in Elliott Carter's *Variation for Orchestra*. Where *Waves of Light* involves a sixteenth note modulating to an eighth-note, Carter modulates a quarter-note to an eighth-note. In his rhythmic ingenuity, he adds complexity to this modulation by syncing a quintuplet in 3/4 with a 5/8 eighth note pulse (Figure 59).

The metric modulation from Theme C to D is less complicated and can easily be seen through the use of mathematics. In order to modulate from 4/4 to 12/8, the eighth-notes in measure 142 will have the same real-time value as the sixteenth-notes in measure 141. In a 4/4 measure there are 16 sixteenth-notes. In a 12/8 measure, there are 12 eighth-notes. By dividing 16 by 12, the answer 1.333 is achieved. By multiplying the metronome marking of the 4/4 measure by 1.333, the result will be the necessary metronome marking to modulate to 12/8 by way of sixteenth- notes to eighth-notes (Figure 60). As can be seen by the figure, the appropriate metronome marking for measure 142 actually leans more toward 89 than 90. The choice to move to  was an intentional compositional choice to offer a subtle lift to the music that is appropriate as the piece moves to the climax theme.



Figure 57. Theme C: example of polymeter

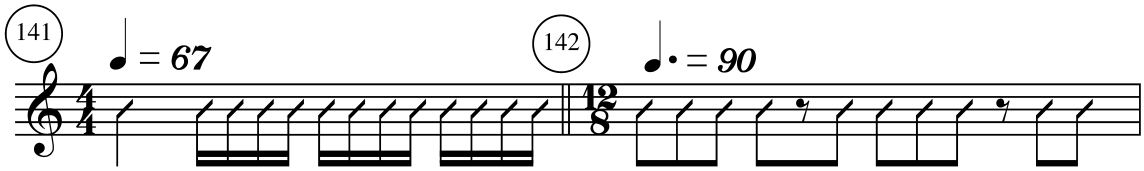


Figure 58. Metric modulation from Theme C to Theme D at measure 141

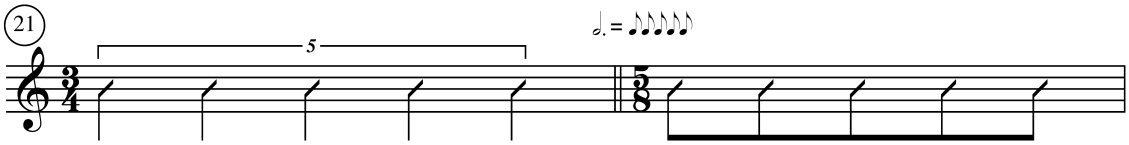


Figure 59. Elliot Carter's complex version of metric modulation

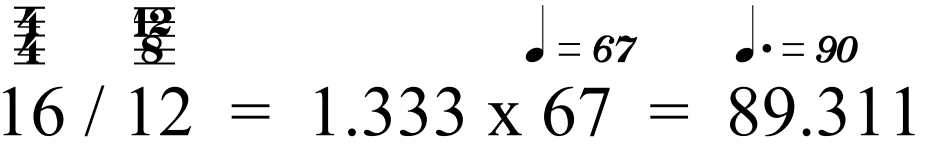


Figure 60. Metric modulation equation from measures 141 to 142

Theme D is characterized by an eighth-note ostinato. The rhythm is based upon the time signature 12/8, while the melodic and harmonic structures are based upon 12/8 measures. The ostinato figure is broken up with asymmetrically interpolated eighth-note rests. Though the rests usually serve to stop momentum, the rests in the ostinato figure actually serve to keep the momentum going. An ostinato figure typically has a repetitive nature, and with this repetition it will settle into stagnation. By interpolating unexpected rests in the figure, a feeling of forward progress is achieved, and the ostinato becomes the driving force for the movement.

Stravinsky uses this same effect in Movement I of *Symphony in Three Movements*. Figure 61 illustrates a simplified usage of the broken ostinato by Stravinsky. The sustaining harmonic progression offers no major rhythmic momentum. Without the interpolated eighth- rests, the ostinato would become static within a matter of seconds. Even with the continuously repeated note, the eighth note rests help to create a strong forward momentum that keeps the listener's attention. The melodic rhythm in Theme D shows great contrast with the 12/8 ostinato. A phrase-by-phrase analysis reveals another example of vacillation in this piece, as the melody drifts back and forth between polyrhythm, polymeter, and a unified rhythm.

In his third symphony, Arthur Honegger created a similar climactic rhythmic texture at the end of Movement 1. He created an eight-note ostinato with a melody that creates a polymetric scenario. This is illustrated on the following page in Figure 62. This concept of polyrhythm within an active ostinato was influential in the climax of *Waves of Light*. In measure 143, the first measure of phrase *a*, the ostinato implies a 4/4 swing rhythm over the 12/8 ground as the melody implies a 6/4 quarter note pulse (Figure 63).



Figure 61. The broken ostinato effect in Stravinky's *Symphony in Three Movements*



Figure 62. Measures 225 and 226 in Movement I of *Symphony No. 3*: polymetric implications



Figure 63. Theme D phrase *a*: illustration of polymeter between the melody and ostinato

In contrast to the complex rhythmic implications of phrase *a*, the next phrase (phrase *b*) is characterized by a reunification to the single metric pulse of 12/8 (Figure 64). Although measure 146 has a melodic anticipation, all other melodic rhythms are strongly grounded in 12/8.

Figure 65 is the transition out of phrase *b* into *c*. As illustrated, phrase *c* motive 1 has the quarter note pulse of a measure in 5/4 due to its delayed attack entry in measure 148. Motive 2 of phrase c has a polymetric quality within the span of a single measure, as the melody implies a 3/4 feel over the first half of the measure while concluding with an implication of 6/8 in the second half (Figure 66). While the melody vacillates between 6/8 and 3/4, the ostinato implies a steady rhythm that divides the 12/8 measure into a 6/8 + 6/8 feel.

In the final phrase *d* of the phrase group comprising Theme D, the melody slows going into the cadence. The melodic rhythm at measure 150 begins to expand in eighth-note increments. A final instance of polymeter is illustrated in a two-measure phrase (Figure 67). The initial episode of expansion results in an implication of 15/8 while the phrase conclusion gives the feeling of an eighth-note pick-up leading to a 4/4 figure.



Figure 64. Theme D phrase *b*: re-unified meter in the melody and ostinato

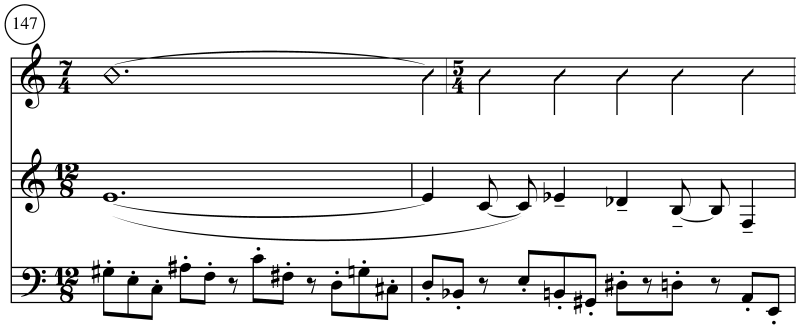


Figure 65. Theme D: polymetric transition across the bar line to phrase *c* at measure 148

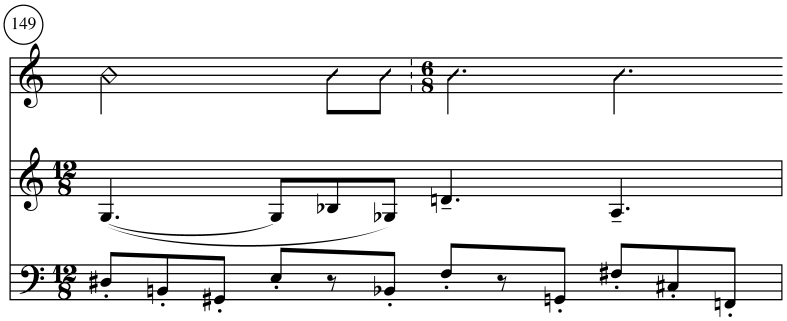


Figure 66. Theme D phrase *c* motive 2: example of polymetric phrasing



Figure 67. Theme D phrase *d*: melodic rhythm expansion and polymetric phrasing

After the initial phrase group, a sixteenth note feel slowly begins to overtake the rhythm and texture of Theme D. This sixteenth-note activity gathers momentum as it leads to the climax of the work. Beginning at measure 153, there is a foreshadowing of this sixteenth-note rhythm (Figure 68). The violins and violas as well as the oboe and clarinet are part of this initial foreshadowing that occurs in the link between phrase group *a-b-c-d* and *a'-b'-c'-d'*.

In phrase *d'*, the next foreshadowing of the sixteenth-note rhythm happens as a sixteenth-note motive is interpolated into the exact spot where the rhythmic expansion occurred in phrase *d* (Figure 69). The melodic phrase is interpolated by a sixteenth-note arpeggiation at measure 161. Between measures 163 and 171, short sixteenth-note phrases begin to appear sporadically in the orchestration. As measure 171 approaches, the sixteenth-note texture grows thicker (Figure 70). The rhythmic feel shifts from the eighth-note ostinato to a more frantic sixteenth-note ostinato by measure 171.

This sixteenth-note feel continues as tension rises toward the climax of the piece. This swarming sixteenth-note rhythm is sustained for five measures as the melody ascends to its climax. Rhythmic intensity peaks at measure 176 with a sustained chord involving only the violins, viola, and flute. Following the climax, a furious four-measure transition occurs with the full orchestra surging to the Recapitulation.

The Recapitulation receives a dramatic rhythmic boost in comparison to the exposition of Theme A, as the tempo of the Recapitulation is 23 beats per minute quicker. The vacillating phrase rhythm remains through the entire Recapitulation. The rhythm and tension created in the aftermath of the climax is released as the three orchestra hits at measures 204 and 205 bring the fierce rhythm to a climactic halt (Figure 71).



Figure 68. The initial foreshadowing of the sixteenth note climax



Figure 69. Measures 159 – 161: Phrase *c'* followed by an interpolated sixteenth note motive

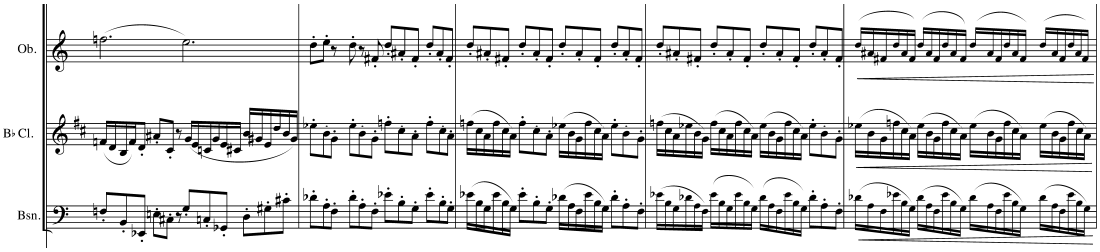


Figure 70. Measures 167 – 171: the rhythmic pulse transition from eighth note to sixteenth note



Figure 71. Measures 202 – 206: the conclusion of the recapitulation

The flourish of sixteenth-notes that build to the climax in measures 202 and 203 are initially used in measure 180 as the climax transition back to the Recapitulation. When brought back at measure 202, they are twice as long. The pause at measure 206 allows the activity to dissipate, as the silence serves to transition to the dramatic Coda.

Paul Hindemith used this type of climactic tension in the second movement of *Mathis Der Maler* in order to transition. In measures 54 through 62, he built tension in the strings as they ascend in an eighth-note run to a ***fff*** orchestral hit followed by two more delayed hits in the same fashion. In *Waves of Light*, the use of silence is the key factor in the transition to the Coda whereas Hindemith used a single entrance by the flute between the hits to issue in a monophonic transition to the next section.

A contrasting, slow-paced, "floating" feel that continues to slow all the way to its dissolve in the final measure characterizes the Coda of Waves of Light. The rhythm of the coda is dominated by the melodic phrasing (Figure 73). As can be seen in Figure 73, there is no real feeling of pulse, as the note lengths of the melody are long and inconsistent. The rhythm of the piece slowly diminishes in the Coda until the piece finally comes to a sustained conclusion.



Figure 72. Mathis Der Maler II measures 54 through 62: climactic build followed by three hits



Figure 73. The unpredictable rhythm of the Coda phrase

CHAPTER VI
Texture and Orchestration

The main theme of the work (Theme A) is built upon asymmetrical groove episodes; a groove will begin and dissipate quickly only to be followed by another contrasting groove that quickly dissipates. Within this context, the term "groove" is used to describe a repeating rhythmic pattern with forward momentum. These grooves are based upon melody, thus they differ from an ostinato which is more of an accompanying figure.

In the midst of this groove vacillation, two of the three melodic phrases have syncopation. Furthermore, syncopation is used rigorously in the development section and even more in the recapitulation. There is a brief moment of rest in the development section with a contrasting texture characterized by sustained harmonies and light staccato hits. However, even in this section, the staccato hits have irregular entries. The combination of contrasting grooves and heavy syncopation give an asymmetrical feel to the theme as a whole.

The entire chamber orchestra is active in the opening theme. The texture of the *a-b-c* phrase group is consistently homophonic with little variation. Most of the variation is a result of melodic transposition. Despite dominance of homophony in Theme A, the initial development of phrase *c* is characterized by monophonic texture. Figure 74 illustrates the transition point between the homophony in phrase *c* and its monophonic development. After the short monophonic development section in the violins, the texture once again thickens as the full chamber orchestra becomes involved. At the main Development beginning at measure 26, the orchestration thins to only strings.

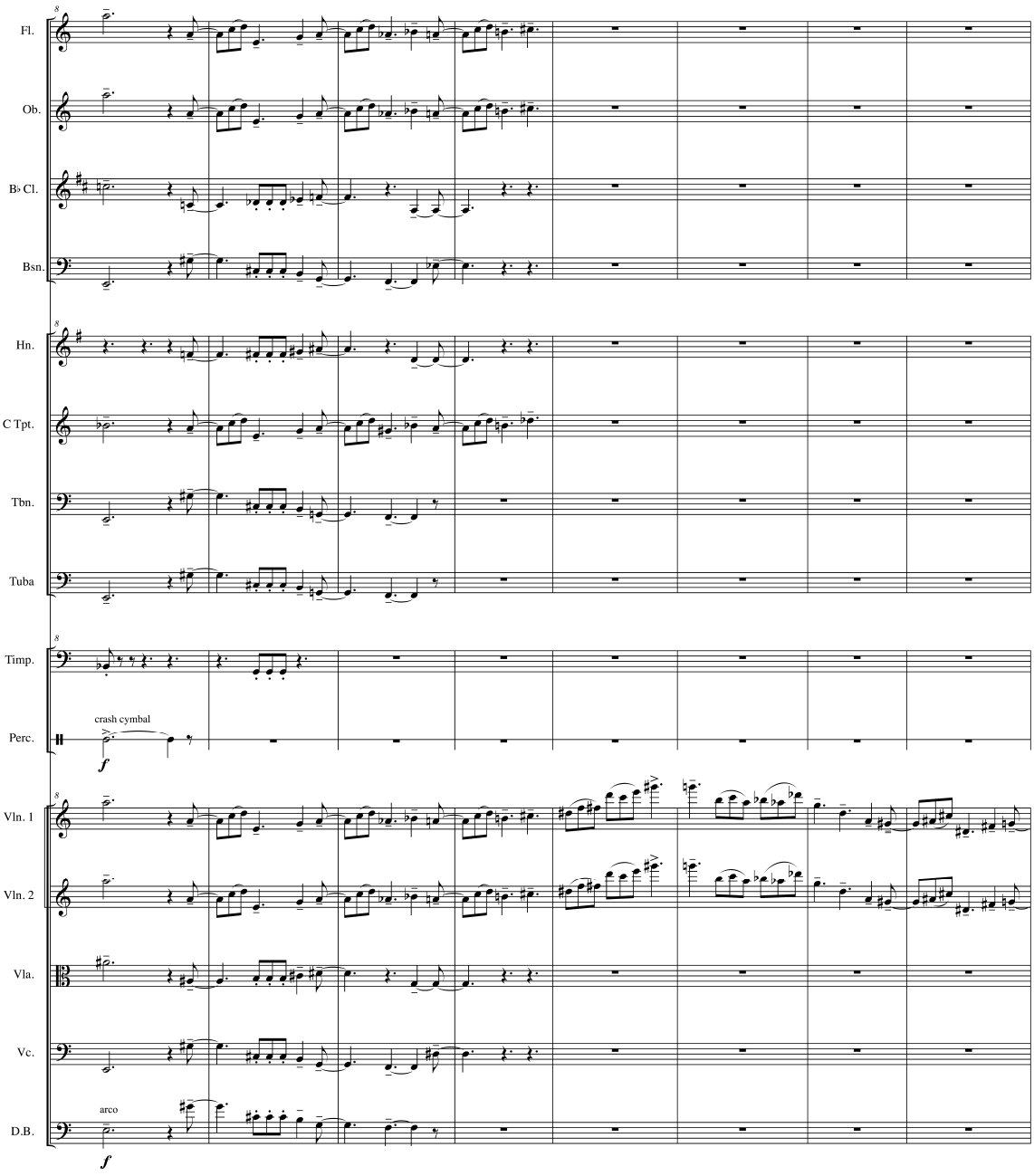


Figure 74. Measures 8 – 15: Theme A transition from homophonic to monophonic texture

The long, flowing melodic lines and the pizzicato accompaniment create a light texture. At measure 42, the woodwinds enter in the midst of an accelerando, creating a swirling texture. A polyphonic section erupts out of the accelerando as the flute, oboe, and violins carry the melody while the bassoon and cello play a countersubject melody in unison. The contrapuntal section ends in measure 54 with an abrupt staccato hit in the strings, percussion, and the woodwinds. This is the first episode of the use of hits followed by silence as a means of transition.

This transition leads to the recapitulation of the opening phrase with the full orchestra as the brass rejoins the woodwinds and strings. Once again, a full orchestra hit is used as a punctuation point with a climactic end to Theme A followed by a lighter orchestration in Theme B. The bassoon is the single sustaining instrument in the transition. The orchestration thins to only woodwinds and horn, simulating the sound and feel of a woodwind quintet.

The highly sequenced and developed melodic phrasing results in an example of heterophonic texture (Figure 75). Béla Bartók used this heterophonic melodic sequencing concept as a character motive in his work *Music for Strings, Percussion and Celeste*. Figure 76 is an example from the score of this layering of melodic lines.

The whole texture is actually created by a descending line in stretto with a contrasting ascending line in counterpoint. The structuring of each instruments individual entry creates a highly rhythmic character. The melodic lines are related through reverse retrograde. *Waves of Light* takes a liberal approach as its alterations of the melodic lines and asymmetrical entries are an expansion to this concept.

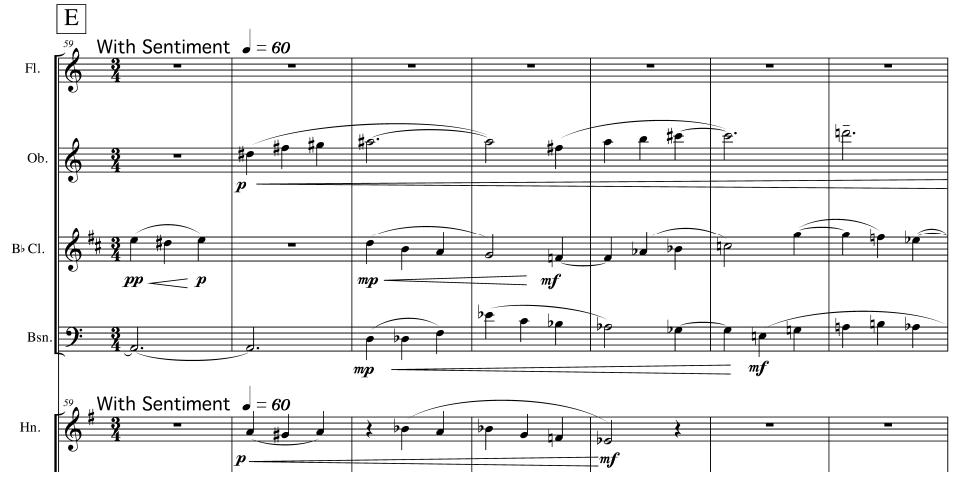


Figure 75. *Waves of Light* measures 59 – 65: heterophonic texture



Figure 76. Heterophony in Movement IV of *Music for Strings, Percussion and Celeste*

In measure 58, a three-note neighbor motive begins as an introduction to the theme and then continues as a major counter motive for the entire theme. This motive is merely a development of the initial descending three-note motive 1 of Theme A phrase *a*. To bring the heterophonic section to a close, the neighbor motive suddenly becomes a foreground figure as it builds to a cadence at measure 77 (Figure 77). The mirror writing in the oboe, clarinet, and bassoon create a climactic effect.

With another dramatic use of silence, there is a transition to the middle section of Theme B. This section is based entirely upon a homophonic chorale texture. (Figure 78) With this contrasting shift in texture, there is also a contrasting shift in the orchestration, whereas the strings and brass become the harmonic voice of the texture. With each phrase, the orchestration thickens to a fuller sound, lacking only the percussion by the final phrase of the section. At measure 78, the middle chorale section of the theme follows a cycle that runs a total of three times. In this cycle, a dramatically slow pick-up measure is followed by five chords in a slow rhythm with a slight sustain on the final chord.

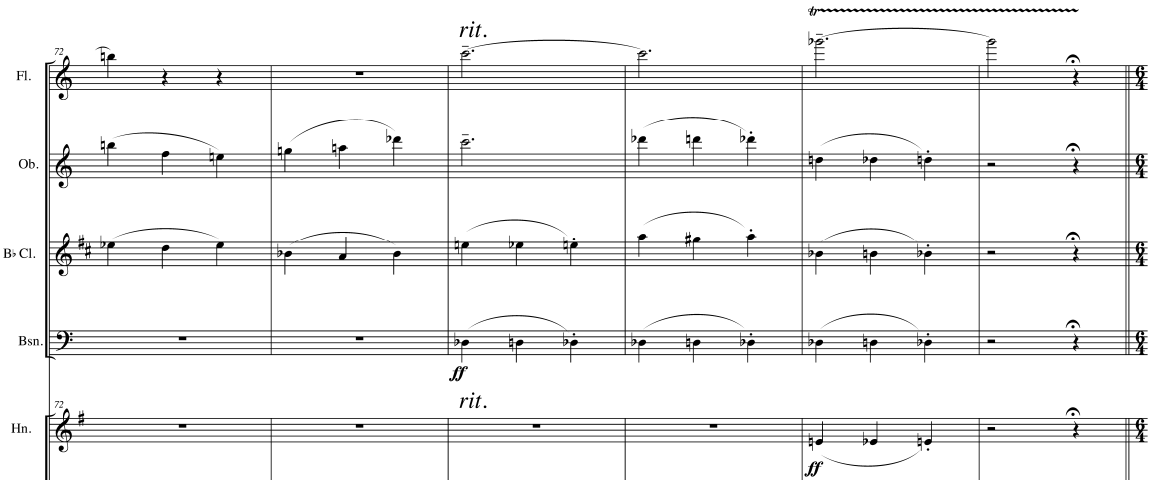


Figure 77. Measures 72 – 77: cadential extension with dramatic pause

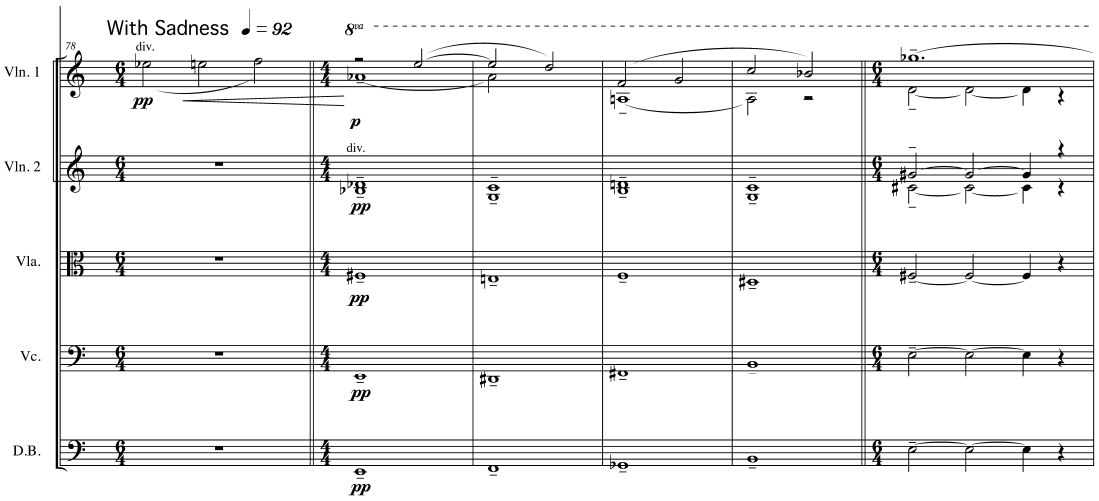


Figure 78. Measures 78 – 83: Theme B chorale texture score extract

The recapitulation of the first section of Theme B transitions out of the middle section through the use of the three-note neighbor motive. This motive is voiced by the clarinet beginning in measure 97. The woodwind quintet feel is once again present. However, this short recapitulation results in a contrapuntal texture less complex than the original heterophonic texture in the opening of the theme. The concise statement of the phrase leads immediately to the three-note neighbor cadential extension in measure 103.

Through the solo flute, a monophonic transition to Theme C begins in measure 107. After a brief use of pointillistic texture through pizzicato strings, silence is again used in measure 112 for the transition to Theme C. In Theme C, the full instrumentation of the orchestra is employed again (Figure 79).

The texture of Theme C is best described as fugal in nature. The phrasing alternates back and forth between *a* and *b* within a contrapuntal texture. With this fugal nature, there is also a rhythmic and textural quarter-note staccato drive in the string



Figure 79. Measures 107 – 114: transition to Theme C

section. In measures 118 through 123, this staccato feel is texturally and harmonically enhanced through the use of mirror writing. By the end of Theme C, the brass section has completely dropped out of the orchestration; the return of the brass does not happen until the middle of Theme D.

Theme D is texturally defined through an eighth-note ostinato in the bassoon, cello, and bass. The orchestration of the theme begins with only the timpani, string section, and the added ostinato support by the bassoon. This initial orchestration lasts through the first presentation of the phrase group. At measure 153, a link is interpolated as a means for transitioning back to the beginning of the phrase group; with this return, the orchestration expands to include the whole wind section in combination with the timpani and strings. By the middle of the second presentation of the phrase group, the brass section begins to enter the orchestration.

Upon the third and final entry into phrase *a*, the sixteenth motive—discussed in great detail in chapter V—is beginning to overtake the texture. The initial homophonic nature of the theme has morphed into a heterophonic texture. However, the heterophonic texture is short- lived; by measure 168, the music has settled back into a homophonic texture that will build in tension through orchestration. The ascent to the climax gains momentum as the orchestration thickens to include all instruments either contributing to the ostinato or sustaining an anticipatory chord. The busy climax ascent begins to give a static feel as the momentum moves from the rhythm to the ascending melody in measure 174 (Figure 80). The climax is finally reached at measure 176. The overactive sixteenth-note texture thins to a single layer of sound in the upper register of the flute, violins, and viola.



Figure 80. Measures 174 - 176: the ascent to the climax

This flourish of activity leading to a sustained climax is a concept that was borrowed from Jean Sibelius. He used this method with great effectiveness in Movement I of his *Symphony No. 1* (Figure 81). Sibelius' climax is more pulsating as its activity comes in bursts and the crescendos follow these bursts. This can be seen as far back as measure 272. In *Waves of Light*, the textural ascent to the climax is also gradual, however it builds consistently in tension all the way to the climax.

In *Symphony No. 1*, the mirror counterpoint effect of the descending line in measures 290 and 291 helps to expand the orchestra in both direction and leads to a climactic full-bodied chord. The *Waves of Light* climax seen in Figure 80 is purely an ascending melodic concept that is carried out by the whole orchestra; thus the upper register chord at the peak of the ascension is the goal in creating a dramatic, uplifting conclusion. This bright chord is followed by a transition at measure 177 to the full orchestra surging in homophonic texture, as a sixteenth note run builds at measure 180 to a climactic recapitulation of Theme A.

The Theme A Recapitulation is similar in texture to the original exposition of Theme A, as the full orchestra is voiced in a homophonic texture with an occasional drift into contrapuntal texture. The Recapitulation has a surge in tension level that can be seen as a result of the racing tempo. The original tempo of Theme A is mm. = 82, while the Recapitulation has very noticeable raise up to mm. = 105. At measures 202 and 203, a sixteenth-note run builds in flute, oboe, clarinet, bassoon, trumpet, violins, viola, and cello leading to a dramatic final climax involving three separate orchestra hits. This is the final, and possibly most extravagant use of silence in the work, as silence is inset between each hit with a dramatic pause lasting a full measure at 206 (Figure 82).



Figure 81. Sibelius Symphony No. 1 Movement I measures 290 through 292



Figure 82. Measures 202 – 206: the conclusion of the Recapitulation



Figure 83. Transitional silence in Stravinsky's *Song of the Nightingale*

The use of silence as a musical effect has been used effectively for hundreds of years. Stravinsky's influence upon this particular circumstance can be seen in Song of the Nightingale beginning at rehearsal number 87. Figure 83 illustrates this particular excerpt. Once again there is a flourish of activity leading to a climax. However, in this excerpt, silence actually becomes the apex of the climax. The transition to the *Piu tranquillo* section feels like a release of pent-up emotion that has been accomplished with pure silence, and this is the exact same effect that *Waves of Light* attemptings to achieve.

With this full measure of silence in *Waves of Light*, there is a transition to the Coda. The orchestration at the beginning of the Coda thins to only strings at measure 207. The imitative melodic phrasing in the Coda results in contrapuntal texture. With each repetition of the Coda phrase, the orchestration thickens. Initially a melody in the

strings, upon the second entry at measure 211, the brass section enters with the strings. On the third entry at measure 215, the woodwinds join the brass and strings. Finally, the full orchestra is involved as the sustained chord at measure 220 brings the entry of the basses, timpani, tuba, and percussion. The full orchestra plays the final phrase at measure 223, as the treble instruments and timpani shift on beat two while the basses, trombone, and tuba remain are sustained.

The work as a whole is structured around a homophonic texture; the music continually strays from homophony only to find its way back. The overall texture and orchestration characteristics of the piece involve the use of climactic orchestral hits and silence. The use of silence and extremely thin textures are the main components utilized in transitioning between themes as well as sections. Furthermore, these themes and sections are clearly defined through contrasting principles of orchestration. Each theme is unique in texture and orchestration, and this is visible merely through scanning the score.

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APPENDICES

APPENDIX A
Waves of Light Recording

(Click here to listen)

APPENDIX B

Waves of Light
for Chamber Orchestra

Duration: 10’30”

Bruce Hurley Johnston
03/28/2007

Waves of Light is a symphonic poem written for a chamber orchestra consisting of the following instruments:

Flute
Oboe
Clarinet in B-flat
Bassoon
Horn in F
Trumpet in C
Trombone
Tuba
Timpani
1 Percussionist: Tam Tam, Snare Drum, Crash Cymbals, Suspended Cymbal
Violins I and II
Violas
Cellos
Double Basses

Waves of Light



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Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
crash cymbal
f
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
pizz.
ff
arco
f


13
Fl.
Ob.
B♭ Cl.
Bsn.
13
Hn.
C Tpt.
Tbn.
Tuba
13
Timp.
Perc.
13
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


18
Fl.
Ob.
B♭ Cl.
Bsn.
18
Hn.
C Tpt.
Tbn.
Tuba
18
Timp.
suspended cymbal
soft sticks
Perc.
crash cymbal
18
Vln. 1
Vln. 2
Vla.
Vc.
pizz.
arco
D.B.


22
rit.
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
suspended cymbal
medium sticks
f
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


A
26
Passionately
♩. = 50
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
f
arco
pizz.
ff


B
With More Energy ♩. = 64
Fl.
Ob.
B♭ Cl.
Bsn.
With More Energy ♩. = 64
Hn.
C Tpt.
Tbn.
Tuba
With More Energy ♩. = 64
Timp.
Perc.
With More Energy ♩. = 64
Vln. 1
Vln. 2
arco
Vla.
arco
Vc.
D.B.


accel.
41
Fl.
Ob.
B♭ Cl.
Bsn.
f
accel.
Hn.
C Tpt.
Tbn.
Tuba
accel.
Timp.
Perc.
accel.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
pizz.
arco
ff


C
Vivaciously ♩. = 82
47
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


51
Fl.
Ob.
B♭ Cl.
Bsn.
51
Hn.
C Tpt.
Tbn.
Tuba
51
Timp.
ff
Perc.
snare
ff
51
Vln. 1
pizz.
ff
Vln. 2
pizz.
ff
Vla.
pizz.
ff
Vc.
pizz.
ff
D.B.
pizz.
ff


D
55
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
suspended cymbal
medium sticks
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
arco


E
59
With Sentiment
♩ = 60
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
p
pp
mp
mf


66
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
f
ff


rit.
72
Fl.
Ob.
B♭ Cl.
Bsn.
fff
rit.
72
Hn.
fff
C Tpt.
Tbn.
Tuba
72
rit.
Timp.
Perc.
72
rit.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


F
78
With Sadness ♩ = 92
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
f
p
pp
div.
8va


84
Fl.
Ob.
B♭ Cl.
Bsn.
f
ppp
pp
84
Hn.
C Tpt.
Tbn.
Tuba
84
Timp.
Perc.
84
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
90
f
mp
pp


G
With Sentiment ♩ = 60
99
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
tam tam
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
unis.
pizz.
p
mf
f
ff
mp


H
Playfully ♩. = 60
107
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
pp
mp
mf
f


I
113
Mournfully ♩ = 60
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
f
mp
ff


118
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


124
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
crash cymbal
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
p
f
ff
pp


J
With More Energy ♩ = 67
132
Fl.
Ob.
B♭ Cl.
Bsn.
ff
With More Energy ♩ = 67
Hn.
C Tpt.
Tbn.
Tuba
With More Energy ♩ = 67
Timp.
Perc.
crash cymbal
With More Energy ♩ = 67
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


135
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
arco
pp
f


138
Fl.
Ob.
B♭ Cl.
Bsn.
138
Hn.
C Tpt.
Tbn.
Tuba
138
Timp.
Perc.
138
arco
Vln. 1
arco
Vln. 2
arco
Vla.
Vc.
D.B.


K
With Gratitude ♩. = 90
142
Fl.
Ob.
B♭ Cl.
Bsn.
With Gratitude ♩. = 90
Hn.
C Tpt.
Tbn.
Tuba
With Gratitude ♩. = 90
Timp.
Perc.
f
crash cymbal
f
With Gratitude ♩. = 90
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
arco
f


146
Fl.
Ob.
B♭ Cl.
Bsn.
146
Hn.
C Tpt.
Tbn.
Tuba
146
Timp.
p
Perc.
146
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


150
Fl.
Ob.
B♭ Cl.
Bsn.
150
Hn.
C Tpt.
Tbn.
Tuba
150
Timp.
p
Perc.
150
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


153
Fl.
Ob.
B♭ Cl.
Bsn.
153
Hn.
C Tpt.
Tbn.
Tuba
153
Timp.
Perc.
153
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


156
Fl.
Ob.
B♭ Cl.
Bsn.
156
Hn.
C Tpt.
Tbn.
Tuba
156
Timp.
p
Perc.
156
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


159
Fl.
Ob.
B♭ Cl.
Bsn.
159
Hn.
f
C Tpt.
f
Tbn.
f
Tuba
f
159
Timp.
Perc.
tam tam
crash cymbal
159
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


162
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
ff
fff


165
Fl.
Ob.
B♭ Cl.
Bsn.
165
Hn.
C Tpt.
Tbn.
Tuba
165
Timp.
fp
ff
snare
Perc.
fp
ff
165
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


168
Fl.
Ob.
B♭ Cl.
Bsn.
168
Hn.
C Tpt.
Tbn.
ff
Tuba
168
Timp.
fp
Perc.
168
Vln. 1
Vln. 2
8va
Vla.
Vc.
D.B.


171
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
pizz.
fff
mp


174
Fl.
fff
Ob.
B♭ Cl.
Bsn.
174
Hn.
C Tpt.
Tbn.
Tuba
174
Timp.
ff
suspended cymbal
hard sticks
Perc.
snare
mf
fff
8va
174
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


L
Furiously ♩. = 105
177
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
arco
f


181
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
medium sticks
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
ff
fff


187
Fl.
Ob.
B♭ Cl.
Bsn.
187
Hn.
C Tpt.
Tbn.
Tuba
187
Timp.
Perc.
187
8va
Vln. 1
8va
Vln. 2
Vla.
Vc.
D.B.


193
Fl.
Ob.
B♭ Cl.
Bsn.
193
Hn.
ff
C Tpt.
Tbn.
Tuba
ff
193
Timp.
p
ff
Perc.
193
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


197
Fl.
Ob.
B♭ Cl.
Bsn.
197
Hn.
C Tpt.
Tbn.
Tuba
197
Timp.
Perc.
197
Vln. 1
Vln. 2
Vla.
Vc.
D.B.


202
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
snare
suspended cymbal
hard sticks
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
pizz.
mf
fff
ff
f
8vb


M
207
With Conviction
♩ = 82
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
ff
p


213
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
tam tam
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
p
pp


N
221
With Courage
♩ = 50
Fl.
Ob.
B♭ Cl.
Bsn.
Hn.
C Tpt.
Tbn.
Tuba
Timp.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
D.B.
pp
8vb


226
Fl.
Ob.
B♭ Cl.
Bsn.
226
Hn.
C Tpt.
Tbn.
Tuba
226
Timp.
Perc.
p
226
Vln. 1
Vln. 2
Vla.
Vc.
D.B.

VITA

Bruce is an award-winning composer and an avid performer on both electric and acoustic bass. He grew up in Arkansas and was playing blues on Memphis' famous Beale Street by the age of 21. At the age of 25, he received a "Talent Scholarship" from Berklee College of Music based on his instrumental performance as well as his compositions. While in Boston, Bruce studied with composers John Bavicchi, Thomas J. McGah, Arthur Welwood, and bassists Barry Smith and Anthony Vitti. Bruce graduated *Summa Cum Laude* from Berklee with a Bachelor of Music Composition degree.

In October 2002, his string quartet *Micromovements* was awarded a performance by the Esterhazy Quartet as part of a composition contest at Berklee College of Music. Between 2003 and 2005, Bruce focused his efforts in teaching privately and maintained a roster between 35 and 40 students. In the fall of 2005, he entered the University of Tennessee as a graduate teaching assistant in music theory. While attending the University of Tennessee, he was honored with a multitude of performances through conferences sponsored by the College Music Society, Southeastern Composers League, and the Society of Composers, Inc. In February of 2006, he was honored with an Award of Merit for Outstanding Student Composition at the College Music Society Southern Chapter Conference in San Juan, Puerto Rico. His solo electric bass piece *Fantasia for Electric Bass* was awarded a performance at the Society of Composers, Inc. National Conference in February 2008. Later that month, his chamber orchestra work *Waves of Light* was honored with a performance as the College Music Society Super Regional Conference in Baton Rouge, Louisiana.

In May 2008, Bruce completed his Masters degree in Composition under the direction of Dr. Kenneth Jacobs at the University of Tennessee. While in Knoxville, he was the resident composer of the University of Tennessee Studio Orchestra and received numerous commissions by the orchestra. He also studied jazz composition with Donald Brown and acoustic bass with Rusty Holloway. Today, Bruce can be seen performing throughout the Southeast both as a soloist and also with a variety of groups encompassing a broad spectrum of contemporary music.