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Analysis and Performance Practice of Selected Works

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ANALYSIS AND PERFORMANCE PRACTICE OF SELECTED WORKS

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By

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ANALYSIS AND PERFORMANCE PRACTICE OF SELECTED WORKS

by

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THESIS

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Preface

The purpose of this paper is to discuss specific musical aspects in three different disciplines of percussion which are; timpani, marimba and multiple percussion. The discussion is designed to inform the performer of ways in which to deal with the theoretical and performance practice of these works. Through this discussion the performer will be advised how to perform the pieces as well as how to interpret various theoretical and musical aspects contained within each work.

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Chapter 1

Elliott Carter; Eight Pieces for Four Timpani (one player)

VII. Canaries

VIII. March

1.1 Canaries

Elliott Carter composed the movements *Canaries* and *March* in 1950. The original version of this book of etudes in which these movements were contained was titled, *Six Pieces for Kettledrums*. This original version did not include the movements *Adagio* or *Canto*, and were never intended to be published.¹ He wrote this work as a preliminary study in the concepts he would use before composing his *String Quartet No.1*. The work was premiered on 6 May 1952 by Al Howard. After the premiere Carter was dismayed because of the unclear sounds that were produced by the ringing nature of the timpani. Fourteen years later in 1966, Jan Williams helped Carter rework the pieces. This retooling aimed at heightening the timbral variety of the pieces by mallet choice and varying the striking point on the drum. In 1966 Carter added the movements of *Adagio* and *Canto* to his original set.² Carter still felt that these pieces were not unified and wrote in the performance notes that no more than four of the pieces should be played together at any one time.³

Canaries is derived from an up tempo, triple meter baroque dance, one that is similar to a gigue. The movement makes use of all of the interval tetra chords, [0146], with pitches of E2, B2, C#3 and F3. The movement begins in a 6/8 meter with the lively tempo of the dotted quarter

¹ Felix Meyer, and Anne C. Schreffler, *Elliott Carter; A Centennial Portrait in Letters and Documents*. Woodbridge, Suffolk: The Boydell Press, 2008, p. 96

² Ibid, p. 96

³ Elliott Carter, *Eight Pieces for Four Timpani (one player)* (Associated Music Publishers, Inc.) p. 2

note equaling 90 beats per minute. The performer must take into account Carter's performance notes from the beginning of this piece. At measure 1 the playing area of the drum is indicated above the staff. The "C" at this point indicates that the performer strike the timpani in the center of the head. The playing area coupled with the *mezzo forte* dynamic allows the dotted eighth note figures to be clear without being overbearing.⁴ To help to bring out this clarity further, as well as to help with the clarity of intricate *piano* passages, it is essential that the performer uses a medium hard to staccato timpani mallet. These types of mallets allow for both projection and clarity, which is paramount in this movement. At measure 3 Carter uses a combination of triple and duple meter by contrasting his dotted eighth figure with dotted sixteenth notes. This measure foreshadows the duplicitous nature of the entire work by using both triple and duple rhythmic notation.⁵ By the end of measure 3 and into measure 4 the playing area of the drum begins to change. This change is notated by a dotted line leading to a large "N." This "N" indicates to the performer that the playing area has changed to the normal playing area of the drum. Also, the dotted line indicates that the performer must gradually move to this new playing area.⁶ As the performer moves to measure 5 the playing area once again changes. This time an "R" above the stave indicates that the player move the striking point of the drum to the rim. This playing at the rim notation actually means that the performer is to strike as near to the edge of the timpani as possible without hitting the rim, so as to retain the sound of a membranophone. Moreover, the dynamic of this triple style figure helps the contrasting nature of the striking

⁴ Elliott Carter, *Eight Pieces for Four Timpani (one player)*(Associated Music Publishers, Inc., 1995) p. 19

⁵ Ibid, p. 19

⁶ Ibid, p. 19

point.⁷ At measure 6 there is a shift in dynamics, rhythmic texture and playing area. These shifts help to propel the piece into a duple style, which allows the use of the dotted sixteenth note figures that were introduced in measure 3. The use of these dotted sixteenth note figures are used by Carter to set up his first of many metric modulations contained within *Canaries*.⁸ Measure 9 uses a dotted sixteenth note figure that contains accents on the first, fourth, and seventh dotted sixteenth notes. In the following measure a 3/8 meter is used that has an accent on the second dotted sixteenth. This accent pattern sets the preparation for the upcoming metric modulation which allows the dotted sixteenth note to be equal to the quarter notes contained in measure 11. This metric modulation causes the tempo to increase from 90 beats per minute to 120 beats per minute. Carter continues to use a triple style rhythmic notation, along with various playing areas until measure 15.⁹ At this point in the piece Carter uses three measures of 5/8. This figure leads us to another change in meter. In measure 18 the meter shifts to a 3/4 time signature with accents on the beats. This new meter is easily felt by the performer and by the listener because of Carter's use of the playing area of the center of the timpani.¹⁰ The metric modulation is employed again in measures 20-21 by allowing the value of the quarter note in measure 19 to equal the dotted quarter in measure 20, then allowing the quarter note to be equal in measure 21. This modulation along with the shift from a 3/8 meter in measure 20 to a 3/4 meter in measure 21 causes the quarter note now to be set at 270 beats per minute. The increasing tempo is accompanied by a *forte* dynamic.¹¹ In the next three measures (measures 22-24) the melodic content of the piece slows to dotted half notes. This slowing of

⁷ Ibid, p. 19

⁸ Ibid, p. 19

⁹ Ibid, p. 19

¹⁰ Ibid, p. 19

¹¹ Ibid, p. 19

momentum is coupled with another metric modulation which allows the dotted half note to be equivalent to the dotted quarter notes contained within measure 25. The performer must heed the mutings in the piece which are denoted by small “x” shaped note heads. These mutings at measure 24 and measure 25 allow only certain sonorities to be heard.¹² This last modulation causes the tempo of the work to be at 90 beats per minute which is what the original tempo was. By measure 26 there is a nearly identical restatement of the opening triple quality theme, but this time at a *pianissimo* dynamic and a playing area near the rim of the timpani.¹³ This triple quality is interrupted in measures 30-31 by *forte* dotted quarter notes that are played in the center of the timpani head.¹⁴ Carter moves back to a light dynamic and triple style through measures 32-37 until the dance like rhythmic notation is again interrupted by *forte* dotted quarter notes.¹⁵ This dynamic is continued in the next measures until Carter again employs the same style of metric modulation that he had used in measure 10. At measure 42 there is a recurrence of the dotted sixteenth note figure with accents on the fifth and eighth sixteenth. In the next measure the dotted sixteenth becomes equal to the eighth note, but the meter has now changed to 4/4 which results in the speed of the figure to be equal to the previous measure’s material. A crescendo from a *mezzo piano* dynamic accompanies this figure. The accents continue in measure 43 on the third and sixth eighth notes which help the performer to play the new meter and tempo that are achieved in measure 43.¹⁶ At measure 43 the eighth note from the previous measure is equivalent to the new eighth note, but because the meter has changed to 6/8 the tempo of the piece has again increased to 120 beats per minute.¹⁷ At measure 44 the dotted eighth note figure

¹² Ibid, p. 19

¹³ Ibid, p. 19

¹⁴ Ibid, p. 19

¹⁵ Ibid, p. 19

¹⁶ Ibid, p. 19

¹⁷ Ibid, p. 19

is again used with a continuing crescendo to *forte* in measure 45.¹⁸ Measures 47-48 are in the meters of 2/4 and 3/4 and contain sixteenth note melodic passages. These passages are accented in a way that outlines a rhythmic notation of four beats on top of an overall five beat structure.¹⁹ This notation is confirmed in measure 49 by the same pattern in accents carried on over different melodic material. This “four over five” texture creates a metric modulation to allow the quarter note value of 120 beats per minute to be slowed to 96 beats per minute by making the double dotted quarter note in measure 49 equal to the value of the quarter in measure 50.²⁰ For the performer it is important to note that measures 44-50 represents the first occurrence of an extended period of the use of the normal playing area. This passage must be allowed to be very sonorous. Measures 51-52 contain the same melodic material, but differ in respect to their use of dynamics (*forte* and *mezzo piano*) as well as playing areas (center and rim.) This material is played twice again at measure 56 and measure 59.²¹ Measures 60-76 contain numerous metric modulations, as well as a change in the style of playing. The performer must take note that at measure 60 one must play with two hands simultaneously. The meter is changed to 6/8, but functions more like a syncopated 3/4. This style is confirmed by measure 62 when the performer’s right hand plays a pattern of three while the left hand plays a pattern of two. This “three against two” pattern is continued in measure 63 in which the meter shifts yet again to 3/2 or 12/8. The performer is required to bring out the accent pattern of their right hand in order to set up the rhythm of the coming metric modulation. The accent pattern takes place on the 23rd timpani with the pitch of F3. This pattern sets up a “three over four” pattern when thought of in relation to right hand versus left hand. Measure 64 marks the beginning of multiple metric

¹⁸ Ibid, p. 19

¹⁹ Ibid, p. 20

²⁰ Ibid, p. 20

²¹ Ibid, p. 20

modulations which cause the overall speed of the work to increase. The interesting aspect of this section is that the performer's left hand plays an ostinato pattern on the 29" and 32" timpani (B2 & E2) while the speed of the right hand continually increases. The intricate rhythms contained in this passage create a dense texture, but Carter allows these rhythms to be heard clearly by indicating that this passage is to be played on the center of the timpani heads, until the left hand gradually moves towards the normal playing area from measures 68-76.²² By measure 78 the tempo of the piece has sped from 96 beats per minute to 162 beats per minute.²³ It is at this point where the performer must take care to use the mutings which are denoted by a small "x." This is because the sonority of F3 must be heard alone without interference from the C3, which occurs in measures 78-79.²⁴ The sonority of this F3 is also important to the light passage in measures 81-83 that is played at the rim position on the drum as well as at a *pianissimo* dynamic. This F3 is meant to carry through these measures.²⁵ This melodic material is expanded in measures 84-88. The demanding nature of these passages is that the performer must play clearly and quickly at a very light dynamic.²⁶ Measure 89 breaks this light texture by introducing a *fortissimo* roll on C#3 in the normal playing area of the timpani.²⁷ Measure 91 introduces the meter of 10/8 that is accompanied by a *forte* dynamic which causes the performer to make a choice in sticking. Double strokes must be used in this section in order for the player not to cross their sticks and arms in an unnecessary fashion.²⁸ By measure 95 Carter returns to his opening dotted eighth note figures as well as the meter of 6/8.²⁹ Measure 96 introduces another playing technique for

²² Ibid, p. 20

²³ Ibid, p. 20

²⁴ Ibid, p. 20

²⁵ Ibid, p. 20

²⁶ Ibid, p. 20

²⁷ Ibid, p. 21

²⁸ Ibid, p. 21

²⁹ Ibid, p. 21

which the performer must account. Carter indicates above the staff that one must play dead-strokes, designated by “DS”. These strokes dampen the drum almost completely. The change back to normal strokes in measure 97 is denoted above the stave by “NS.”³⁰ Both these stroke types occur at a *fortissimo* dynamic and are immediately countered by a *piano* passage that is played in the center of the timpani head. Carter superimposes a sense of 3/4 time over a 6/8 meter in measure 100-102 and again uses *forte* dead-strokes followed by a *piano* center head playing in measure 102-103.³¹ In measure 107 a metric modulation is again used, but this time it occurs during a measure of silence. The preceding dotted quarter note is allowed to become equal to the new dotted quarter in the 18/16 time signature in measure 108. This dotted quarter is then made equal to the eighth note in measure 109. These modulations cause the tempo of the piece to once again be equivalent to the opening tempo of 90 beats per minute.³² At measure 120 the occurrence of interjections becomes apparent to the listener and performer. The melodic flow of the 6/8 meter in measure 119 and measure 121 is interrupted by sixteenth note figures that occur in a 2/8 meter. This change in meter is the key to understanding the interruptive nature of these short outbursts, as well as slightly more aggressive dynamic.³³ The melodic material is then truncated into 5/8 meters at measure 123 and measure 125. These materials are also interrupted by a truncated 3/16 interjection in measure 124 and measure 126.³⁴ After this final interjection the piece builds with a three measure passage of “three against two” that is played among all four timpani. This passage is best performed with the cross of the player’s arms. This cross technique works well as a visual for performance, but does require the

³⁰ Ibid, p. 21

³¹ Ibid, p. 21

³² Ibid, p. 21

³³ Ibid, p. 21

³⁴ Ibid, p. 21

performer to exert unnecessary energy. By measure 132 the performer is required to play at the center of each drum, and play both right hand and left hand simultaneously. This allows all possible combinations of timpani to be achieved between measure 132 and measure 134.³⁵ As the movement concludes Carter touches on the original melodic material in measure 141 which is this time played in the rim position.³⁶ The work concludes with a dotted sixteenth note flourish in measure 143 that is followed by a *fortissimo* strike to the E2 on the 32" timpani that is done with both right and left hand simultaneously.³⁷

1.2 March

In contrast to *Canaries*, the final movement of Carter's work, *March* is tonal. This piece uses the pitches of G2, B2, C3 and E3. These pitches outline a seventh chord that is based on the tonic pitch of C. The form of this work is also a bit more formal. The form is ABA'. The first A is from measures 1-14, B is from measures 15-64 and A prime is from measures 65-80. In this movement Carter states in his performance notes that medium hard sticks should be used.³⁸ Much like *Canaries*, this movement calls for extreme articulation in order for the sonorities of the timpani to be clearly heard. The basis for this work is the relationship between the C3 and G2, as well as the E3 and B2. The relation of the interval of a fifth is consistently used in this piece. The movement begins in a 4/4 meter with a tempo marking of the quarter note equaling 105 beats per minute. The first measure of this piece starts with pick-ups on beats three and four. This pick-up measure begins in the *mezzo forte* dynamic.³⁹ The immediate indication to the performer is that the mallets that are to be used must be opposing. This is to say that the mallet

³⁵ Ibid, p. 21

³⁶ Ibid, p. 21

³⁷ Ibid, p. 21

³⁸ Ibid, p. 2

³⁹ Ibid, p. 22

in the right hand must be played normally with the felt side on the drum, while the left hand is to be played in reverse with the butt end of the stick on the drum head. This difference in mallet position helps the listener to differentiate between the ostinato left hand pattern, and the melodic interjections done with the right hand. This technique is effective because it reinforces the fact that both hands are being played simultaneously. Measure 1 indicates that the left hand is to be played *staccato* while the right hand should be played as long tones.⁴⁰ These directions for performance further delineate the difference in the hands and create a multi layered texture. In measure 3 the performer encounters a figure that includes a thirty-second note triplet pick up to a “four against three” pattern that leads back into a solid four sense in the subsequent measure.⁴¹ Measures 5-6 show an interesting feature of the work in the fact that there are different dynamics assigned to individual hands.⁴² This individual dynamic allows the left hand pattern to fade out while the right hand material is brought to the forefront. Measure 7 again uses a rhythmic figure that stresses “four against three.”⁴³ By measure 8 the performer is faced with the problem of crossing of their right and left hands as well as an addition to the left hand material. This new dotted eighth sixteenth motive allows the material in both hands to become a united motive.⁴⁴ Through measures 9-10 there are more hand crossings and an increase in the right hand activity that leads to an interjectory statement at measure 11.⁴⁵ This interjection is brought to the forefront by Carter’s use of a 5/8 meter as well as the dynamic of *forte*. This last measure can pose problems for the performer but can be remedied if the sub-division is strict in ones mind. Measures 12-13 contain hand crossings as well as an increased activity in both hands. The

⁴⁰ Ibid, p. 22

⁴¹ Ibid, p. 22

⁴² Ibid, p. 22

⁴³ Ibid, p. 22

⁴⁴ Ibid, p. 22

⁴⁵ Ibid, p. 22

dynamics of these bars are also more active with the use of both crescendos and diminuendos.⁴⁶

At measure 14 an elongated restatement of the material of measure 3 is seen.⁴⁷ It is at this point

that Carter's intentions behind his use of the four against three rhythmic notations become clear.

Carter uses this notation to establish a metric modulation in which the meter stays constant while

the dotted quarter note value from measure 14 is made equivalent to the quarter note in measure

15. This modulation increases the tempo of the piece to 140 beats per minute.⁴⁸ To ensure that

the new tempo is clear, Carter uses quarter notes in the right hand on E3 and B2 for the entire

measure. The use of only the right hand in this passage (measure 15) is essential to the

performer. This is because at this point the player must flip their stick in the left hand so as to

facilitate both hands playing with the felt end of the mallets. From measures 16-22 it is

necessary that the performer beware of the indications of stick flips as well as dynamics as Carter

is using these texture changes to create a varied sound-scape. It is also noteworthy that in this

section the use of both hands, simultaneously playing stops except for the fourth beat of measure

20.⁴⁹ Carter uses a short eighth note phrase in measure 25 to establish the following measure of

10/8 in which the eighth note value stays constant.⁵⁰ The passage from measures 27-31

reintroduces the use of simultaneous playing between the performer's right and left hands. There

is also the use of the head of the mallet in the right hand and butt end of the mallet in the left. It

is important that the performer's sub-division of the meter is held constant with quintuplets and

in a duple meter. This quality is clear in measures 28-29 when the meter changes from 10/8 to

2/2.⁵¹ The eighth note feel stays constant through a metric modulation where the quintuplets are

⁴⁶ Ibid, p. 22

⁴⁷ Ibid, p. 22

⁴⁸ Ibid, p. 22

⁴⁹ Ibid, p. 22

⁵⁰ Ibid, p. 22

⁵¹ Ibid, p.22-23

allowed to be equal to one another. Measure 31 uses a feel of sextuplets along with a constant quarter note figure in the right hand on E3.⁵² The use of these quarter notes, also done in the prior measure, gives a definition of pulse to the performer and listener. This pulse sets the feel for the upcoming passage in which Carter introduces a new set of material. From measures 32-37 there is an extensive use of sixteenth notes as well as a textural change in respect to the use of the butt ends of both the mallets. Measures 35-37 pose a problem to the performer in respect to the sticking that one chooses. This figure of multiple groupings of seven sixteenth notes can be comprised by using double strokes with a hand cross or by alternating both hands. The double stroke method is the easiest way to perform this passage in the fact that it allows the performer to keep their body in the same position. This body positioning helps because of the passages quick tempo of dotted quarter note being 64 beats per minute.⁵³ As measure 38 the use of different ends of the mallets reappears.⁵⁴ The tempo increases once more in measures 41-42 as the dotted eighth note (64 beats per minute) is made equal to the new eighth note in a 2/2 meter. At measure 42 the new eighth note pulse is a very fast 192 beats per minute.⁵⁵ In clarifying the material, Carter writes this passage at a *mezzo forte* dynamic. The end of this passage once again makes use of the quintuplet. Measure 44 uses a crescendo and quintuplets to lead from the meter of 3/2 into a new meter of 10/8. The quintuplets are allowed to be equal which causes the pulse to be the same.⁵⁶ In addition the performer must ensure the sub-division is constant. This sub-division is necessary because the pulse in mm.45 is 2+3.⁵⁷ By measure 46 the eighth note is

⁵² Ibid, p. 23

⁵³ Ibid, p. 23

⁵⁴ Ibid, p. 23

⁵⁵ Ibid, p. 23

⁵⁶ Ibid, p. 23

⁵⁷ Ibid, p. 23

allowed to be equivalent but it now moves into a meter of 4/4.⁵⁸ The meter changes again at measure 49 to a 2/2 time signature which introduces the groupings of seven sixteenth notes.⁵⁹ Measures 49-58 make use of both the head and butt side of the mallet but the overall texture of the material is flowing with the sixteenth notes being used as interjectory statements.⁶⁰ By measure 59 the meter shifts to 12/16 but the sixteenth notes from the previous measure are allowed to be equivalent. This section, measures 59-61, outlines the pulse of three to four by way of accenting the continuous sixteenth notes. The aggressive use of continuous sixteenth notes is compounded by the fact that both hands must play with butt ends.⁶¹ The use of the butt ends of the mallets causes the texture to be clearly defined. At measure 63 the use of quarter notes in the left hand allows the performer time to flip the right mallet back to the felt head side.⁶² The performer may use an optional *rallentando* in measure 64 in order to give an added weight to the use of original material that occurs in measure 65.⁶³ From measures 65-68 there is use of a thick and interwoven texture that is written for both hands.⁶⁴ This texture is broken at measure 69 when the left hand is allowed to play staccato eighth notes until beat four when the right hand reappears to lead into a meter of 5/4 in which the feel of “four over three” is used again. The usage of this single hand motive is used in this measure so the performer may mute the 26” and 32” timpani’s pitches of C3 and E2 respectively.⁶⁵ The use of these muted drums further intensifies the staccato nature of the use of the butt end of the mallet. Measures 71-74 continue the interwoven multi-hand texture from measure 65 until there is another muting

⁵⁸ Ibid, p. 23

⁵⁹ Ibid, p. 23

⁶⁰ Ibid, p. 23-24

⁶¹ Ibid, p. 23

⁶² Ibid, p. 23

⁶³ Ibid, p. 23

⁶⁴ Ibid, p. 23

⁶⁵ Ibid, p. 23

needed which occurs in measure 75. In this measure, the 29" timpani (B2) must be muted. From this point the right hand plays another four against three rhythmic figure which gives way to the same style of figure in the left hand in measure 77.⁶⁶ This use of the left hand allows the performer to properly mute the 23" timpani (E3) as well as switch their grip of the mallet so both butt ends are being used. The last three measures of the work, measures 78-80, are marked by a dry texture which is caused by the use of muting as well as the use of the butt ends of the mallets.⁶⁷ These last measures also use a long diminuendo that leads to a fermata in measure 80.⁶⁸ This diminuendo allows the dynamic level to simply fade away. The performer must make a decision at the conclusion of the work (measure 80) whether or not to use a single stroke roll. The use of the single stroke here seems to be a natural outgrowth of the accelerando that takes place on beats three and four of measure 79 as well as the fact that the change to a press roll is out of character for the timpani. Additionally the change in stroke may cause the overall texture of the conclusion to be interrupted.

⁶⁶ Ibid, p. 23

⁶⁷ Ibid, p. 23

⁶⁸ Ibid, p. 23

Chapter 2

Eric Ewazen; Northern Lights

Eric Ewazen is an American composer who received degrees from both the Eastman School of Music (B.M. & M.M.) and The Julliard School (D.M.A.). While pursuing these degrees, he studied with Milton Babbitt, Warren Benson and Joseph Schwantner. He has been on the faculty of The Julliard School since 1980. Over his career Ewazen has written a wide variety of literature for solo instruments, chamber ensembles and vocal ensembles. In the field of percussion Ewazen has written two works: *Concerto for Marimba*, which was dedicated to the internationally renowned marimbist She-E Wu and *Northern Lights*, a solo marimba work that was dedicated to Gordon Stout.⁶⁹

Northern Lights' lowest note is an F2 thereby requiring an instrument that is at least 4.6 octaves. The piece begins with a chorale introduction in 4/4 meter which lends itself well to the *Adagio* tempo marking that is 50-54 beats per minute. The opening phrase is a D minor chord that is constructed D3, A3, F4, A4, and appears on the first beat of measures 1-3. This passage contains movement to A minor chords in first inversion on beat four in measure 1 and measure 3. Between these measures there is movement to a G triad in second inversion on beat four in measure 2.⁷⁰ This i-v-i-IV-i-v motion is intensified by the change of dynamics used throughout these introductory measures. The dynamic used within this phrase is a gradual crescendo from *pianissimo* to *mezzo piano* and back to *pianissimo*. The extremely light dynamic of the passage leads to problems for the performer in respect to where and how to play on the bars. These

⁶⁹ Accessed 20 April 2010; available from <http://www.ericewazen.com/new/about.php>

⁷⁰ Eric Ewazen. *Northern Lights* (Keyboard Percussion Publications, 1995) p. 1

problems necessitate two solutions: The first is to begin the rolls in a natural playing position on the nodes, or edges of the bars and gradually move over the resonators as the dynamic increases. The second solution is to begin this section by playing on the tips of the mallets directly over the resonators and gradually dropping the mallets into a natural playing position. This allows the core of the mallets to make more contact with the bars thus creating an increased dynamic. The second solution is preferred because the full tone of the bars is not stifled by the nodal points. The opening eight measures of this work are very delicate and Ewazen accentuates this fact by his use of *caesura* at measure 9.⁷¹ This use of a break gives the piece an airy quality and allows the sound of silence, and hall resonance/decay to become an integral factor in the work. Ewazen next uses a rolled G3 pitch with flourishes of Mixolydian sound that is derived from the use of a F4 in measures 13-14.⁷² This tonicity of the G3 is confirmed by the following chorale section in measures 17-20.⁷³ The material contained in this passage is identical to the opening 4 measures of the work though it is transposed up a perfect fourth and is at a *fortissimo* dynamic. At the conclusion of measure 20 Ewazen makes use of another *caesura*.⁷⁴ The performer must make a decision as to how long this break should last. One can either treat each *caesura* as an equal duration in the stoppage of musical motion, or take into account the dynamic that one is playing prior to the *caesura*. By taking into account the dynamic that one has played prior, the performer is afforded the luxury of experimenting with the amount of hall resonance and decay preferred. Measure 25 introduces an extension of the flourishing motive that is present in measures 13-14. At measure 25 the low F2 is struck in a *sforzando* fashion and is allowed to decay to *piano*

⁷¹ Ibid, p. 1

⁷² Ibid, p. 1

⁷³ Ibid, p. 1

⁷⁴ Ibid, p. 1

before a flourish that once again indicates a Mixolydian sound occurs.⁷⁵ This motive is then expanded upon in measures 27-30 and allowed to swell into a wash of sound that is centered on the pedal point of F2. These sweeping phrases are comprised of arpeggiated like lines that move from D flat major and E flat Mixolydian mode in measure 27 and D flat major and B flat major in measure 28. These phrases are repeated throughout the next two measures. The problem of performance with these four measures is tempo and sticking. The phrase uses an *accelerando* in the latter half of measure 28 which accelerates to a *presto* by measure 29.⁷⁶ This phrase can be played by alternating between the inner mallets, but this poses problems in regards to the tempo. The tempo is an issue because of the wide range of the phrase. There is far too much range to cover while still playing dynamically correct as well as with accuracy. To remedy this problem it is best that the performer allow their left hand to play as many of the white notes as possible while the right hand plays the accidentals. This ensures that the performer's body is always in a position to lean freely to different positions around the instrument without fear of missteps. The dominance of the pitch F2 is continued in measure 31 by way of the use F minor chords that reiterate the chorale nature of this opening section.⁷⁷

The second section of this piece begins at measure 37. This section is marked by an *Allegro Molto* tempo in which the quarter note is equal to 108-112 beats per minute. The sonority of D is clear throughout measures 37-38.⁷⁸ This is achieved through the repetitive occurrence of D3 and D4 as well as the *forte* dynamic. The performer must keep constant the interval of an octave in their left hand throughout this figure as well as the following measures of

⁷⁵ Ibid, p. 1

⁷⁶ Ibid, p. 2

⁷⁷ Ibid, p. 2

⁷⁸ Ibid, p. 2

39 and 40.⁷⁹ Another challenge faces the performer at measures 41-42 in the fact the player must close their octave interval in their left hand, cross mallets, and a drop in dynamic to *piano*.⁸⁰ Measure 43 continues to use D as the predominant sonority with inflections of modality in subsequent measures in the form of Lydian in measure 45 and Mixolydian in measure 46.⁸¹ The nature of this passage is one of growing waves of intensity. Every measure from 43 to 59 is marked by a continually changing dynamic that either crescendos or decrescendos. The melodic material in this section is marked by the repetitive nature of drones which are clear in measures 43-45 and 53-54 with the use of D4 and measures 55-56 with the use of G#3.⁸² These drone sections allow the performer to keep a constant interval of a fourth in the left hand. This helps to facilitate an ease of playing of the melody in the right hand which is full of leaps that require the performer to change their mallet intervals as well as overall arm position. Measures 60-75 serve as linking material. This section is marked by the gradual stoppage of the forward momentum created by the sixteenth note patterns of the previous passage. This stoppage is furthered by the interjectory chordal outbursts in measures 66, 68 and 69. Mutations of these interjections conclude the second section of the piece at measures 74-75.⁸³ At measure 76 one notices the change of meter to 6/8. The change in this meter is not felt at its onset because the drop in dynamic to *piano*. The sonority in these few measures (measures 76-81) is E flat.⁸⁴ This is confirmed by the outlining of the chord throughout these measures. Ewazen again uses wavelike crescendos and decrescendos which follow the contour of the melody in the right hand which primarily consists of stepwise motion. The pitches contained within these figures are grouped

⁷⁹ Ibid, p. 3

⁸⁰ Ibid, p. 3

⁸¹ Ibid, p. 3

⁸² Ibid, p. 3-4

⁸³ Ibid, p. 4-5

⁸⁴ Ibid, p. 5

close together. The condensed nature of this passage eventually is allowed to expand to higher registers at measure 88.⁸⁵ The registers are expanded further after an interjection at measure 90 which makes use of double stops at a *forte* dynamic. The double stops are comprised of the left and right hand intervals of fifths on B flat3 and F4, and B flat4 and F5 respectively.⁸⁶ The last beat of this measure leads rhythmically into the next by dividing beat six into sixteenth notes. This division helps the performer to reset the rhythmic structure that has dominated the previous measures. The rhythm of this interjection is again used in measures 93-94 but this time outlining a B major triad by using the pitches of B3 and F#4 in the left hand while the right hand fills out the triad with B4 and D5.⁸⁷ The importance of these interjections is the fact that they serve as an aural reference to the visual bursts of color that occur when viewing the Aurora Borealis. These interjections also serve the purpose of foreshadowing double stops that occur later in the work. At measure 95 the texture of the piece thickens somewhat because of the extended use of double stops in the right hand. The right hand must keep a steady interval throughout this passage until measure 104.⁸⁸ The problem that persists in this section is that the performer must make constant changes in the angle of attack in respect to the right hand. It is necessary for the performer to continually push and pull their elbow in and out in order to have accuracy during this phrase. Though the motion of this passage is primarily stepwise, the shifting sonorities make it difficult because of the accidentals to which the player must get. To compound this problem the opening few measures, measures 95-100, are at *forte* and increase to *fortissimo*.⁸⁹ By measure 105 the intervals in the right hand are allowed to open to a sixth which helps the

⁸⁵ Ibid, p. 6

⁸⁶ Ibid, p. 6

⁸⁷ Ibid, p. 6

⁸⁸ Ibid, p. 6-7

⁸⁹ Ibid, p. 6

performer to relax in respect to overall movement of this hand.⁹⁰ The left hand now begins to descend further down the marimba which increases problems of accuracy because the player now must cover three octaves. The descent of the bass line continues until measures 109-110 in which the performer must cover four octaves of the marimba simultaneously, from A2 with mallet one to A5 with mallet four.⁹¹ Ewazen compounds this problem by increasing the dynamic to *forte* in these measures. It is important that in this entire section, measures 95-112, the performer take care in bringing out the moving bass line.

The next section in this piece is from measure 113 to measure 131 and is interjectory linking material in a 4/4 meter. Measure 113 re-introduces the use of interjectory phrases that was previously used in measure 66 as well as measure 90. The interjections that are used here are separated by breaks. These breaks allow each interjection to be a self contained musical phrase. These phrases, measures 113-118, use a *sforzando* dynamic but no dynamic shape is given to each phrase. In order to give each phrase character the performer must shape each line individually. The beginnings of each of these phrases is marked by octaves being played in each hand followed by successive sixteenth notes which give the phrase direction to the break that concludes the figure. Measure 124 begins a *Piu Mosso* section that is characterized by flowing sixteenth note figures that are centered on Bflat2 and Bflat3 octaves in the left hand. The performer must lock in octave intervals for the first three measures of this passage in both hands. The intervals of both hands gradually decrease through this passage until a decrescendo and *ritardando* in measures 130-131 leads to a *caesura* which concludes the section.⁹²

⁹⁰ Ibid, p. 7

⁹¹ Ibid, p. 7

⁹² Ibid, p. 7-8

At mm.131 we reach the next section of the piece which begins at the original tempo of 50-54 beats per minute and is a restatement of the original chorale material from measures 5-7 transposed down a major third.⁹³ This chorale transforms into a synthesis of the faster sixteenth note sections and the opening chorale. This is illustrated by the use of the independent roll in the right hand and quick melodic material in the left. The synthesis is further illustrated by the nature of the independent rolls movement. The right hand moves on beat four (measures 140-141 and measures 144-145) just as the chorale did at the opening of the piece.⁹⁴ The right hand in this section is once again subordinate to the left and is there for accompaniment purposes. The melody in the left hand is laden with sixteenth notes in either groupings of four or six. The performer must keep the independent roll continuous in order to give the melody a foundation as it is sparse and interjectory in nature. The movement of the independent roll is generally stepwise with only a few leaps. The stepwise motion adds a sense of growing tension when ascending and release when descending. This tension and release is accompanied by appropriate dynamic swells. At measure 160 the independent rolls give way to a chorale interjection which is expounded by the use of pick-up flourishes that lead to new chorale material in measures 163, 164, 165, 168 and 169.⁹⁵ These pick-up lines can be tricky in performance as the use of all four mallets is required. The performer can choose to play them as metered which would value them as sixteenth notes or play them as independent material that can be expanded and contracted metrically.

⁹³ Ibid, p. 8

⁹⁴ Ibid, p. 9

⁹⁵ Ibid, p. 10

At measure 173 another section begins at the *Allegro Molto* tempo marking of 108-112 beats per minute.⁹⁶ The interesting feature of this section is the use of total synthesis. Ewazen is using all of his previously introduced material to create new musical gestures. Measure 178 makes use of double stops in both hands, an idea that was touched upon in interjectory material in measures 70-73, 90, and 93-94.⁹⁷ These double stops are comprised of the intervals of fifths in both hands. This continuity of intervals in both hands makes the movements to different positions on the marimba a bit easier for the performer; however, there are still awkward positions that the player will encounter in this passage that lasts from measures 178-182. One instance of these awkward positions is in the final measure of the passage, measure 182. On beat five of this measure the performer must play a B3 and F#4 in the left hand while also playing a B flat4 and F5 in the right hand.⁹⁸ The only way to accomplish this move is to step back from the marimba and move the elbows in towards one another. What makes this movement necessary is the B minor chord that occurs prior to this on beat four. Measures 183-192 also contain the use of synthesis. Measure 183 is in 6/8 meter but has a sense of duple which is created by the movement of the bass line on beats one, two-and, four, and five-and. This is coupled with the use of mallets three and four playing vertically the interval of a sixth, a feature that was touched upon earlier in measures 61, 65 and 67. Ewazen also creates acceleration in relative speed of this passage towards the *caesura* in measure 192.⁹⁹ This change in relative speed is created by his duple effect in measures 183-185, which gives way to a triple style rhythmic pattern by measure 186.¹⁰⁰ This change is compounded by the move from sixteenth notes to the use of sixteenth

⁹⁶ Ibid, p. 10

⁹⁷ Ibid, p. 5,6,10

⁹⁸ Ibid, p. 11

⁹⁹ Ibid, p. 11

¹⁰⁰ Ibid, p. 11

note based triplets. Throughout this section there is a use of tonal chords which is accentuated by the last phrase on beat two of measure 192 which uses a I-V-I motion moving from a B flat to F and back again to B flat.¹⁰¹ The use of double stops in both hands is continued to the conclusion of this section at measure 216 that is denoted by both a *caesura* and a *fermata*.¹⁰² The passage that precedes this break is perhaps the most demanding within the piece. The interval of a fifth in both hands is consistent in the double stops through out the section of measures 200-216.¹⁰³ What makes this section demanding is the distance covered between the performer's hands, as well as the fact that in some instances there are double stops which do not alternate from hand to hand. The first issue in this section occurs in measure 200 which is in a meter of 6/16.¹⁰⁴ The performer's right hand must make a stepwise move downward from G5 and D6 to F#5 and C#6 which leaves little time for the player to lift mallets three and four. To alleviate this problem it is essential that the performer use their wrist to produce the sound from the bars and not rely on the dropping of the mallets for sound production. This problem is encountered numerous times in measures 201-205 and measures 207-212.¹⁰⁵ Though this problem occurs many times, the degree of difficulty is built upon by way of distance. By measure 212 the right hand must traverse a distance of a perfect fourth from D4 and A4 to A4 and E5.¹⁰⁶ The second problem is that the distance between the performers hands increases to a maximum of four and a half octaves between mallets one and four in measure 214 where mallet one must strike a G2 while mallet four hits a C#6.¹⁰⁷ The player must nearly leap in order to make the beginning of

¹⁰¹ Ibid, p. 11

¹⁰² Ibid, p. 12

¹⁰³ Ibid, p. 12

¹⁰⁴ Ibid, p. 12

¹⁰⁵ Ibid, p. 12

¹⁰⁶ Ibid, p. 12

¹⁰⁷ Ibid, p. 12

this phrase possible. What increases its difficulty is the fact that this move occurs within the span of consecutive sixteenth notes.

Measures 217-287 mark the final section of the work and are also reflective in nature in that they use fragments and permutations of the opening and developmental material. The first three measures of this passage make use of the opening chorale material. Measure 217 begins in a 4/4 meter at the *Adagio* tempo with a D minor chord that moves on beat four.¹⁰⁸ This chord is at a *piano* dynamic and its movement on beat four mimics the opening thematic material but this time the D minor chord does not move to an A minor chord but rather an arpeggiation of this chord. This mimicry is furthered in the next measure in which the D minor chord moves to an arpeggiation of a G chord. Ewazen employs flourishes once again in measures 220-225.¹⁰⁹ These flourishes are arpeggiations of subsequent chords that are similar to measures 8-11.¹¹⁰ By measure 233 there is a change in tempo that moves to the *Allegro Molto* tempo marking in which Ewazen uses the same vertical sixteenth note motion that was introduced in measure 37, though this time with the predominant sonority being B with some modal inflections.¹¹¹ In subsequent measures there is use of double stops in both hands as well as the use of *caesuras*. This linking section comes to a close with the use of quartal harmony in measures 247-249 when there is a *sforzando piano* whole note roll that is accompanied by a fermata.¹¹² By measure 250 the meter has shifted to 6/8 and there is a use of a moving bass line in the left hand while the right plays double stops, a feature that was introduced in measure 76.¹¹³ It is important the performer use the dynamic markings in this section as the gradual crescendos lead to *caesuras* which, as earlier

¹⁰⁸ Ibid, p. 13

¹⁰⁹ Ibid, p. 13

¹¹⁰ Ibid, p. 1

¹¹¹ Ibid, p. 2,13

¹¹² Ibid, p. 14

¹¹³ Ibid, p. 5,14-15

in the work, the performer may experiment with in relation to resonance and decay of sound. Measures 250-257 are harmonically concerned with the sonorities of B minor and F major, which outline a I-V motion.¹¹⁴ Moving forward there is a use of an F# pedal point from measures 258-265.¹¹⁵ In this passage the performer must change the interval of mallets three and four in the right hand, as well as make leaps of intervals up to a sixth in measures 261-262.¹¹⁶ The final page of the work is dominated by the sonority of G major. This sonority is accentuated by the move from G major to D Lydian and D major and back to G major in measures 269-272.¹¹⁷ By this time there is no given dynamic but the drive towards the conclusion of the work informs the performer to play at a strong dynamic level. By measure 280 a given dynamic of *sforzando piano* is given and the player is instructed to play a crescendo to *forte*.¹¹⁸ This crescendo is coupled with a change to a meter of 12/16 which informs the player to bring out a duple style rhythmic notation of four strong beats to the measure. Measure 281 mimics this character and repeats the melodic material at an octave lower.¹¹⁹ There is a *caesura* at measure 282, change in meter to 2/4 and a drop in dynamic to *pianissimo*.¹²⁰ This is coupled with a metric modulation that allows the dotted eighth of the previous measure to be equal to the quarter note. This modulation allows the previous pulse of the 12/16 meter to be consistent. The performer must come down in dynamic as much as possible in this final phrase to accentuate the crescendo to the final chord. The material in measures 282-284 is a near arpeggiation of a G chord which also sounds quartal in nature in respect to the intervallic relationship between the G

¹¹⁴ Ibid, p. 14-15

¹¹⁵ Ibid, p. 15

¹¹⁶ Ibid, p. 15

¹¹⁷ Ibid, p. 16

¹¹⁸ Ibid, p. 16

¹¹⁹ Ibid, p. 16

¹²⁰ Ibid, p. 16

to C and C to F.¹²¹ The work concludes with a D major chord in first inversion that leads to the final chord of G major which is to be played at an *fff* dynamic level.¹²² This final chordal motion should be experimented with by the performer in respect to the resolution and how to dynamically contrast the final chords.

¹²¹ Ibid, p. 16

¹²² Ibid, p. 16

Chapter 3

Iannis Xenakis; Rebonds pour percussion solo

a

Iannis Xenakis is a Greek composer who earned degrees in engineering and worked as an architect prior to becoming a composer. Xenakis studied with Oliver Messiaen while living in exile in France following the Second World War. While studying with Messiaen, Xenakis began to use his knowledge of mathematics in experiments with rhythmic exercises. Over his career he has written for choirs, orchestras, chamber works and solo instrumental compositions. He has written three works for percussion ensemble; *Persephassa*, *Pleiades* and *Okho* as well as two solo percussion works; *Psappha* and *Rebonds*. Xenakis used the mathematical Golden Mean proportion in many of his works including *Rebonds*.¹²³

Rebonds is a multiple percussion work that is designed for a single percussionist. The work is divided into two movements; *a* and *b*. Movement *a* uses only “skinned” instruments, which means that the only percussion equipment used in this movement are membranophones. The instruments needed for this movement are two bongos, three tom-toms and two bass drums. There is no strict formation given for this ensemble of drums, which allows the performer to suit their own playing style and technique in respect to the placing of the drums. It is also widely accepted that the player may substitute instruments. This means that it is acceptable to substitute very large tom-toms for the bass drums. The use of such substitutions allows the performer to create a very ergonomic and compact formation. This facilitates conservation of motion which is required while attempting this deceptively quick movement. It is also vital the performer know

¹²³ Greg Beyer, “All is Number; Golden Section in Xenakis’ *Rebonds*,” [on-line journal] (*Percussive Notes* 40, February 2005); available from <http://publications.pas.org/Archive/feb05/articles/0502.40-51.pdf>

their limitations. If the player has the facility to move very quickly over large distances the drum placement may be more spread out to give the audience visual representations of the intricate nature of the interwoven rhythms. If the performer is not as dexterous, they may opt for a compact setting in lieu of using visuals. For the purpose of this discussion we will concern ourselves with a visually oriented placement of instruments. This placement is as follows from left to right: one bass drum to the far left followed by a large tom-tom (substitute for the second bass drum), a medium low tom-tom, a medium tom-tom and then a small tom-tom all in a semicircle. In front of the small tom-tom is a set of bongos set with the lower of the two on the left. The performer faces two hurdles in this movement. One is technical in respect to the speed of some of the passages; the other is musical in respect to the phrasing needed to bring out melodic contour.

The movement opens in a meter of 4/4 (though it is not marked) with the quarter note being equal to 40 beats per minute. The opening phrase is marked at a *forte* dynamic.¹²⁴ This dynamic level stays consistent until the measure 54. It is thus necessary for the performer to use their own musical intuition to create different dynamic sound-scapes throughout the movement. The opening material is marked by the introduction of the highest and lowest pitches available within the instrumentation, which are the high bongo and the low bass drum. The use of the high bongo and low bass drum give a foundation for the rest of the work. The player must take care in playing the accents that Xenakis writes because these accents are designed to bring out a melodic line throughout the work. The first three accents are used to set the pulse of the work. In the first three measures of the piece all of the drums are used in different sixteenth note

¹²⁴ Iannis Xenakis, *Rebonds pour percussion solo* (Salabert Editions, 1987-1989) p. 1

patterns.¹²⁵ These first measures act as an introduction of all the tones that will be used within the work. The overall structure of this movement is through composed and it derives its intensity from continuous rhythmic motion. This continuous rhythmic motion becomes apparent by measure 6. Until this point the performer has only needed to be concerned with playing with both hands working in conjunction with one another. By measure 6 it becomes necessary that the performer use their hands independently of one another.¹²⁶ This use of independence is caused by the figure on beat three of this measure. The interjection of a sixteenth note triplet within the body of a grouping of four sixteenth notes calls for this independence and also renders a texture of “two over three.” The use of this rhythmic notation is not a novel innovation, but what makes it unique is the fact that the triplet figure is embedded within a figure but it does not begin on a downbeat. The use of an accent on the third sixteenth note of this figure in the right hand further accentuates this two over three character. A visual aspect is also created by this figure in the fact that the triplet figure is between the medium low and medium tom-tom. This movement gives a visual representation of the movement to the audience. These figures are used again in subsequent measures, each time being mutated to begin on different sixteenth notes as well as being played between different drums or hands and using different contours (measures 7-9).¹²⁷ Measures 13-14 begin to pose musical problems for the performer. The player must make decisions in regards to the dynamic shaping of each of the “two over three” phrases, which causes the player to decide when and where to crescendo or decrescendo.¹²⁸ It would make sense that a performer would crescendo the descending triplet figure on beat two of measure 13 to lead into the accented third sixteenth note. This decision making process is tested again in

¹²⁵ Ibid, p. 1

¹²⁶ Ibid, p. 1

¹²⁷ Ibid, p. 1

¹²⁸ Ibid, p. 1

measure 14 on beat one in the third sixteenth note triplet figure that leads to an accent in beat two of the same measure. Progressing further it is apparent that the tempo marking of 40 beats per minute was generous because of the appearance of sixty-fourth notes. These very quick figures begin to appear at measure 17, which seems mundane at first because it is not necessary for the performer to play them independently on one hand.¹²⁹ This lack of independence soon gives way in measure 24.¹³⁰ It is at this point that it is vital the performer play in a relaxed manner. If the player is tense there is little chance that the movement from bass drum to tom-toms will be achieved, let alone the actual rhythm. It is essential to the performer that they use fingers in these quick figures. By using the fingers in these figures it allows the player to rely less on arm and wrist motion. The overuse of the arm and wrist in this movement requires far too much energy and also diminishes the phrasing capabilities that are required to bring out the melodic contour of each figure.

Within the framework of the aforementioned figures there are slower interjections that occur. These interjections are generally accompanied by an accent mark. The first of these interjections occurs in measure 25 on the third sixteenth note in the bass drum.¹³¹ This interjection harkens back to the original rhythmic statements at the beginning of the work in which the bass drum was used as a foundation of sound. This same interjection is again used on the third beat of this measure as well as the fourth beat of the measure 26.¹³² The problem of phrasing becomes interwoven with the technical aspects of the movement in measure 32.¹³³ In this measure it is apparent that there are sweeping melodic lines that must be considered in

¹²⁹ Ibid, p. 2

¹³⁰ Ibid, p. 3

¹³¹ Ibid, p. 3

¹³² Ibid, p. 3

¹³³ Ibid, p. 4

respect to their shape and direction. This problem is compounded by the apparent independent hand usage on the fourth sixteenth note of beat one. It is essential that the performer continue to shape the melodic line with both hands, while not letting the technical demands cloud the musical gesture. It is also vital that the player decide where the dominant melodic line is; moreover, it is necessary that the performer use dynamics independently as well. The triplet sixty-fourth notes in the left hand become an extension of previous material, while the grouping of four sixty-fourth notes in the right hand seem to lead to the next figure began on beat two. This causes the performer to crescendo and decrescendo simultaneously. This type of rhythmic figure occurs at measures 33-35.¹³⁴ In these cases, however, one of the four against three figures is subordinate to the overall melodic contour. This fact is illustrated by beat two of measure 35. It is easy to see this subordination because the grouping of four sixty-fourth notes stays static on the high bongo and is not related to the melodic line but rather a rhythmic interjection.

The intensification of the work continues in subsequent measures and a sense of a growing dynamic is clear to the performer. This growing dynamic, though not stated in the movement, can be inferred by the use of the double accent markings that are used at an increased frequency beginning at measure 40.¹³⁵ This double accent mark made its first appearance in measure 23, but Xenakis now begins to use it multiple times within each measure. These markings also outline shortening musical phrases that become interjectory. The phrases also begin to have a sense of call and response where the second figure is predicated by the first. Measures 41-46 show the nature of this statement by using a less intricate figure on beats one and three which are followed by a more intricate figure that concludes the overall musical

¹³⁴ Ibid, p. 4

¹³⁵ Ibid, p. 5

idea.¹³⁶ These figures are also outlined by the aforementioned use of double accent markings. By measures 48-50 the length of these call and response figures is shortened to only one beat. The performer is required to bring out the accents in this passage in order to delineate the phrases as well as give each phrase an individual dynamic contour. This contour should be informed by the shape of the line in respect to the drums that are being used. Measure 49 shows this point in the third sixteenth note of beat two where there is a beautiful descending left hand triplet figure. This point is illustrated again in measure 50 with an ascending right hand sixty-fourth note figure that occurs on the second sixteenth note of beat one. In these phrases the accent markings begin to denote goal pitches instead of the beginnings of phrases. This use of accents is then transformed yet again to bring out different rhythmic textures within each phrase. The use of the accent markings to denote different textures is shown in measure 50 on the third sixteenth note on beat three.¹³⁷ Xenakis outlines the last two pulses of a sixteenth note triplet that is embedded within two thirty-second note triplets. This intensification of rhythm is allowed to subside by measure 52 in which there are the first uses of rests.¹³⁸ This space allows the drums to resonate and decay, the space also foreshadows the slowing of motion that is used in subsequent measures. The slowing of the overall motion of the movement is shown in measure 54 by the figure that occurs on the high bongo.¹³⁹ These interjections give way to quarter notes at an *fff* dynamic on the high bongo, which are intensified by grace notes that are played on the low bass drum. The uses of these two drums signal the completion of the work by using the foundation pitches that were introduced in the beginning of the movement. It is vital that the performer respect the dynamic at this juncture in the movement because it is the first instance, other than

¹³⁶ Ibid, p. 5

¹³⁷ Ibid, p. 6

¹³⁸ Ibid, p. 6

¹³⁹ Ibid, p. 6

the beginning of the movement, in which Xenakis has denoted a dynamic, which means it is important. As measure 55 progresses there is a *diminuendo* to *piano* on the first beat of measure 56.¹⁴⁰ Xenakis continues to use the bass drum and the high bongo until the conclusion of the movement. The final four measures of the movement are marked by slow rhythms at a *pianissimo* dynamic on the bass drum that are interrupted by two *forte* eighth note interjections.¹⁴¹ The final pitch played in this work is the low bass drum and seems as though it is in the distance. The performer must make this pitch final. This means that the performer should use a visual to signify to the audience that the movement has concluded. An elongated *legato* stroke is required.

¹⁴⁰ Ibid, p. 6

¹⁴¹ Ibid, p. 6

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Curriculum Vita

Mark Aaron Grimm was born in Des Moines, Iowa. He is the oldest child of Mark LeRoy Grimm and Catherine Grimm; he graduated from East High School, Des Moines, Iowa. In the spring of 2003 he began to pursue a Bachelor of Music degree at Drake University, which he received in 2008. While attending Drake, Mark performed with jazz artists Dick Oatts and Ryan Kisor, as well as performing at the Montreux Jazz Festival in Montreux, Switzerland. Upon completion of his B.M. Mark received a teaching assistantship at The University of Texas at El Paso for the 2008-2010 academic school years. In the fall of 2010 Mark will attend Michigan State University to pursue doctoral studies.

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