A PERFORMER'S GUIDE TO JAMES WOODWARD'S CONCERTO FOR TUBA NO. 1 (2000, REVISED 2010) AND CONCERTO FOR TUBA NO. 2 (2013)

by

MATTHEW SHIPES

(Under the Direction of David Zerkel)

ABSTRACT

James Woodward (b. 1978) is a contemporary composer who has written several prominent works for brass, including his *Concerto for Tuba No.1* (2000, revised 2010) and *Concerto for Tuba No. 2* (2013). The purpose of this paper is to explore and better understand these concertos through a focused examination of the form, compositional devices, and performance practice issues. This paper will serve as a guide to each concerto, both to help comprehend the form and theory behind each work, and to acknowledge the need to develop a strategy in order to approach the technical and musical challenges present in the repertoire.

The technical challenges that Woodward presents in both pieces can be overcome more effectively with a greater understanding of what makes up the harmonic and melodic language Woodward is using, as well as the use of a performance practice guide. The idea of quick changes in range and dynamics in various situations is prevalent throughout each movement of each concerto. Furthermore, the harmonic and melodic language that Woodward uses is unique, and utilizes both dissonant, atonal harmonies, as well as altered tertian non-functional harmonies.

This study will analyze the form and both the harmonic and melodic language utilized in each concerto. With the harmonic and melodic analysis, a guide of pitch-class sets will be established first in order to define the type of sounds Woodward uses. The harmonic and melodic language Woodward uses is certainly post-tonal, and will be analyzed using aspects of both set-theory and traditional harmonic analysis when appropriate. The performance practice guide will address notable issues related to technique with a focus on range, style, and dynamics, as well as unique challenges presented to tubists when approaching concertos like these.

Two main ideas that will be guiding this analysis include: What methods can be used to help approach the extreme technical and lyrical demands of these concertos? What compositional devices and aspects of music theory are utilized by Woodward, and how can the recognition of these aspects aid the performer to enhance his or her presentation?

INDEX WORDS: tuba, concerto, James Woodward, Alan Baer, post-tonal, contemporary, performance practice, tone-color, range, style, dynamics, harmonic language, melodic language, technique, interview, air flow, embouchure, tuning, pitch-class set, prime form, referential collection, tertian harmony, scalar

A PERFORMER'S GUIDE TO JAMES WOODWARD'S CONCERTO FOR TUBA NO. 1 (2000, REVISED 2010) AND CONCERTO FOR TUBA NO. 2 (2013)

by

MATTHEW SHIPES

B.M.Ed., Baylor University, 2008

M.M., The University of Arkansas, 2010

A Dissertation Submitted to the Graduate Faculty of the University of Georgia In Partial Fulfillment of the Requirements for the Degree

DOCTOR OF MUSICAL ARTS

ATHENS, GEORGIA

2014

A PERFORMER'S GUIDE TO JAMES WOODWARD'S CONCERTO FOR TUBA NO. 1 (2000, REVISED 2010) AND CONCERTO FOR TUBA NO. 2 (2013)

by

MATTHEW SHIPES

Electronic Version Approved:

Julie Coffield
Interim Dean of the Graduate School
The University of Georgia
December 2014

Major Professor: David Zerkel
Committee: Joshua Bynum
Dorothea Link

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF MUSICAL EXAMPLES

CHAPTER 1: Introduction

James Woodward (b. 1978) is a contemporary composer who has written several prominent works for brass, including his *Concerto for Tuba No.1* (2000, revised 2010) and *Concerto for Tuba No. 2* (2013). He is currently an Assistant Professor of Music Theory and Composition at Jacksonville State University, composer in residence for the Etowah Youth Orchestra, and a concert pianist.[1] While his *Concerto No. 1* is quickly becoming an accepted work in the standard repertoire, his *Concerto No. 2* is less well known, having been published only in 2013. It is very uncommon for composers to write more than one concerto for the tuba, and Woodward is one of only a handful to do so.[2] The purpose of this paper is to explore and better understand these concertos through a focused examination of the form, compositional devices, and performance practice issues. This paper will serve as a guide to each concerto, both to help comprehend the form and theory behind each work, and to acknowledge the need to develop a strategy in order to approach the technical and musical challenges present in the repertoire.

Both of Woodward's concertos were written for Alan Baer, who has been the principal tubist with the New York Philharmonic since 2004. Formerly of the Milwaukee Symphony Orchestra, Long Beach Symphony Orchestra, and the Louisiana Philharmonic Orchestra, Mr. Baer first met Dr. Woodward while teaching the tuba and

---

[1] James Woodward, "Biography," Dr. James Charles Woodward website, http://www.jameswoodwardmusic.com/biography---upcoming-events.html (accessed Dec 17, 2013).

[2] Morris, R. Winston, *Guide to the Tuba Repertoire: The New Tuba Source Book,* 2nd edition (Indiana: Indiana University Press, 2006) 1-188. Elizabeth Raum wrote two concerti: *Pershing Concerto* (2000), and *The Legend of Heimdall* (1991) and Rodney Newton wrote *The Kraken* (2002) and *Millenium Concerto* (2000) for example.

euphonium studio at the University of Wisconsin in Milwaukee.[3] According to interviews with both parties, Baer's involvement with Woodward as a composer began while the former was teaching him private lessons in the studio at Milwaukee. Woodward had written a movement of his first concerto and asked Baer to play through it after a weekly masterclass. Baer thought the piece had potential and encouraged him to complete the concerto, leading to the four movement work that has now been published and revised in 2010. Both concertos contain the label "Written for Alan Baer," and the first was premiered by him in all of its forms: with band, with orchestra, and with piano. The second concerto was premiered, again by Alan Baer, with the Kennesaw State University Orchestra, directed by Dr. Michael Alexander, who was previously a euphonium student of Mr. Baer.[4]

A. Need for Study

Both of Woodward's concertos are relatively new pieces of music and the tuba community will greatly benefit from an in-depth look into each piece. The technical challenges that Woodward presents in both pieces can be overcome more effectively with a greater understanding of what makes up the harmonic and melodic language Woodward is using, as well as the use of a performance practice guide. The two inner movements of *Concerto No. 1* contain several cadenzas that especially demonstrate many of these challenges.[5] For example, in spaces of just one or two measures in

---

[3] The New York Philharmonic, "Alan Baer - Principal, Biography," New York Philharmonic website, http://nyphil.org/about-us/artists/alan-baer (accessed October 6, 2014).

[4] Alan Baer, interview by author, New York City, NY, July 3, 2014, Appendix 1, 103.

[5] David Zerkel, Liner notes to recording of James Woodward, *Tuba Concerto,* Conducted by John Culvahouse with the University of Georgia Wind Ensemble (Mark Custom Recording Service Inc., 5348, 2004) CD.

movement two, the music will often cover a range of over three octaves, move from pianissimo to fortissimo, utilize complicated variations of articulation and style, all while the musician is playing in a free style or even in a cadenza.[6] This idea of using quick changes in range and dynamics in various situations is prevalent throughout each movement of each concerto. Furthermore, the harmonic and melodic language that Woodward uses is varied, and utilizes both dissonant, atonal harmonies, as well as altered tertian non-functional harmonies. Both of these concertos can be seen as contemporary examples to what is possible in composition and performance on the tuba, and an analysis of each piece can aid in establishing the qualities of the tuba as a solo voice.

B. Methodology

This study will analyze both the form and the compositional language utilized in each concerto. Also, performance practice issues will be addressed in regards to the many challenges presented by these concertos specifically, as well as challenges presented by playing the tuba in general. With the harmonic and melodic analysis, a guide of pitch-class sets will be established first in order to define the type of sounds Woodward uses. From this guide and score-study, tertian ideas will be picked out and defined throughout each concerto. The compositional language Woodward uses is certainly post-tonal, and will be analyzed using aspects of both set-theory and traditional harmonic analysis when appropriate. Many of the harmonies Woodward uses are based on alterations of tertian harmonies, triads with added pitches, that often can

---

[6] Woodward, *Concerto for Tuba and Piano* (Salem, CT: Cimarron Music Press, 2010).

be defined either as “atonal” or tertian in nature.[7] While the form of each movement does not usually fit into a classical structure, there are certainly large sections and ideas in each movement that need to be pointed out. The performance-practice guide will address notable issues related to technique with a focus on range, style, and dynamics, as well as unique challenges presented to tubists when approaching concertos like these.

Two main ideas that will be guiding this analysis include: What methods of study and practice can be used to help approach the extreme technical and lyrical demands of these concertos? What compositional devices and aspects of music theory are utilized by Woodward, and how can the recognition of these aspects aid the performer to enhance his or her presentation? Since little research has been done on Woodward or his tuba concertos, much of the information for this document will come directly from Dr. Woodward and Alan Baer through interviews and correspondence. A summary and transcript of these interviews will appear as an appendix to the document.

[7] James Woodward, interview by author, Jacksonville, AL, September 27, 2014, Appendix 2, 123-5.

CHAPTER 2: Analysis

A. Analytical Tools Used

Woodward's tuba concertos are among the newest major works written for the instrument. His first concerto is described as being written with an "accessible harmonic language," similar to the minimalist works of John Adams.[8] While the harmonic language is indeed accessible when compared many other pieces written for the tuba, it is best analyzed using a combination of post-tonal methods, and as well as finding the tertian harmonies used. Woodward will often utilize general key-centers, as well as diatonic referential collections to distinguish different sections of his movements. While there are instances of true tertian harmony throughout his writing, most of the harmonic and melodic language is best defined using pitch-set classes as defined in Straus's *Introduction to Post Tonal Theory*.[9] This method provides an accurate label for the types of sounds that are heard in the melody and harmony throughout each concerto. However, many of the harmonies can also be described tonally, often as a major triad with an added pitch, usually some type of 9th or 11th. For example, when given the pitches F-A-B ♭ -C, the harmony can be written either as F^{11} or with the pitch class set [0237] to describe what sound is being produced. There are situations in which either label would be useful depending on what else is going on in the music.

---

[8] Morris, R. Winston, *Guide to the Tuba Repertoire: The New Tuba Source Book,* 2nd edition (Indiana: Indiana University Press, 2006), 187.

[9] Joseph N. Straus, *Introduction to Post-Tonal Theory,* 3rd edition (US: Pearson Education, 2004), 261-264.

In terms of form, Woodward's music ranges from through-composed formats to a very defined sonata-allegro. His music is not written specifically to serve or adhere to a particular form, rather the form is fit to serve the music. Finally, Woodward's writing is also described as being heavily influenced by rhythmic motifs, especially in the solo voice.[10] Aside from the harmonic and melodic language used, the rhythmic activity is the most defining characteristic of the outer movements of the two concertos. The inner movements, however, rely more on many forms of contrast, either stemmed from dynamics, range, or tone color.

B. Pitch-class Sets

Woodward uses a very distinctive and recognizable harmonic language in his tuba concertos. It is certainly post-tonal, but cannot be defined specifically as serialism, or atonal. While there are definite tonal centers as implied tertian harmonies, to truly explain the language being used, the most specific and accurate method to implement is the pitch-class set. The advantage of using this system is that whether patterns occur harmonically or melodically, either horizontally or vertically, they can be defined by an identical labeling system that refers to the same groupings of notes. This type of analysis can be identified as *non-serial atonality,* which describes music that does not adhere to tertian harmony, is not fully atonal or does not use a twelve tone row, but is "freely" atonal.[11] These groupings directly relate to and define the sonority that is being heard in the music.

---

[10] Morris, *Guide to the Tuba Repertoire,* 187.

[11] Stefan Kostka, *Materials and Techniques of Twentieth-Century Music,* 2nd edition (New Jersey: Prentice-Hall, Inc., 1999), 176.

With pitch-class sets, the analysis is concerned with the number of half-steps between notes. For example, the pitch-class set [012] refers to any grouping of three notes with one half step between them: *0* represents the first note in the "chord," *1* represents the next note one half step away from the first, and *2* represents the third note one half step away from the second, or two half steps away from the first.[12] Two possible examples of this set would be C-D ♭-D, or B ♭-B-C, both of which would have identical sonorities when heard in context.

The appearance of common threads between sections, either in the harmony or melody, is defined as *segmentation,* which refers to the process of labeling and identifying prominent pitch-class sets in order to specifically analyze what is being heard and seen.[13] One possible segmentation would be a simple melodic idea that repeats itself through portions of a movement, before changing to a new melodic idea in the next major section of the piece. The analyst would pick out this melodic segment, find its pitch-class set, and then search through the harmonies and counter-melodies to find common threads. Ideally, these segments will have commonalities throughout each section of the piece, while also sounding identifiable aurally to the performer and listener.

There are several other unique issues that pertain to using pitch-class sets as a method for harmonic and melodic analysis. These issues are octave equivalence, transpositional equivalence, and normal order.[14] Much like with tertian harmonic

---

[12] Kostka, *Twentieth-Century Music,* 185-6.

[13] Ibid*,* 178.

[14] Ibid, 179-82.

analysis, the label of a pitch-class set is considered to be the same regardless of the octave, ordering of notes, or range between notes. For example, any arrangement of the notes *C, E,* and *G*, regardless of octave or range between notes can traditionally be labeled as a C-Major chord. These same three notes, regardless of octave and range again can also be defined as the pitch-class set [047], whose prime form would be [037]. This example demonstrates octave equivalence. The idea of transpositional equivalence implies that any grouping of notes that form a major chord would be labeled by the same prime form, [037], since the relationship between the notes is the same.[15] This fact can also be seen in traditional tertian harmony, as the term "major" is used to define a certain grouping of notes, regardless of the key-center. For example, *C-E-G* and *F-A-C* are both major chords, C Major and F Major respectively, and are both analyzed in set-analysis by using the prime form [037]. This labeling refers to a specific sonority or harmony, not reliant on pitch, range between notes, or octave.

Finally, the idea of normal order must be defined to understand the analytical methods being used. Normal order describes the ordering of notes that spans the smallest possible total interval.[16] This method is inherently utilized when analyzing music with tertian harmonies, where regardless of the ordering of notes, a C Major chord is still a C-Major chord. In this traditional harmonic analysis, the ordering of notes is often labeled by using an inversion symbol. The difference between this method and the method used with pitch-class sets is that there are no inversions used, the note groupings are labeled the same way regardless of order. For example, the note

---

[15] Ibid, 180.

[16] Ibid, 179.

grouping: E3, D4, and C6 spans over two octaves on paper. Since it has already been defined that pitches have transpositional and octave equivalency, these notes are simplified into just C-D-E. Since this is the smallest possible grouping of these notes, fitting into the span of a major third interval, this is defined as the *normal order* and can be labeled with the prime form [024].

Furthermore, there is an idea of *best* normal order. This concept considers pitch-class sets related by inversion to be considered the same set.[17] For example, a major triad, C-E-G, consists of a major third interval followed by a minor third. The inversion of this chord is a minor triad, which consists of the reverse intervals: a minor third followed by a major third. For pitch class sets, these two groupings of notes are analyzed using the same prime form: [037], with “03” representing the minor third interval, and “37” representing the major third interval. This concept is somewhat destructive in traditional harmonic analysis, since the quality of the chord always needs to be realized. However, in atonal and often post-tonal music there is not always a clear definition of major or minor aurally, and the groupings of notes and their sonorities is what takes precedence.[18] While these concertos are not atonal, the major and minor triads written within many of the harmonies are not always meant to be heard specifically as major or minor triads.

Before starting the analysis, it is important to realize that there should be a difference between the way tertian harmony and non-serial atonality are labeled. Woodward often implements tertian harmony into these concertos, which adds to the

---

[17] Ibid, 183.

[18] Ibid.

approachable nature of his harmonic language. In these cases, a distinction will be made between C Major or D dominant seventh, for example, instead of simply labeling the prime form [037] or [0258], respectively. This latter labeling is meant for sonorities that do not fall strictly into tertian harmony, and are best analyzed as pitch-class sets. However, these harmonies often fit into a gray area, where a major triad is presented with several added pitches. While these examples may still resemble F Major, with an added 9th, or 11th, the labeling provided by set-theory is often more accurate in stating what the harmony actually is (e.g. [0237] instead of F Major add 11).

C. Harmonic Language

In order to successfully analyze Woodward's concertos, and create an accurate representation of what is being heard and written, a list of harmonic language being used needs to be implemented. Woodward's harmonic language consists of traditional tertian harmonies, referential collections that are both functional and otherwise, and note groupings best analyzed with pitch-class sets. With the goal of finding the most prominent and important items in mind, a list of all used devices will be made. A list of possible referential collections and their meanings will be provided as well to ease comprehension. To best describe what language is being used in the music, terms such as Diatonic Referential Collection will be used instead of referring to a key center such as C Major, unless an actual key center is implied by the writing. The Diatonic and Acoustic collections each refer to seven-note scales made up of five whole steps and two half steps, and only differ in the locations of their half steps. The diatonic collections are the sources from which major and minor scales are produced. The acoustic collections represent the notes produced by the 8th-14th partials of the harmonic

overtone series. Due to the arrangement of whole steps in these collections, a whole-tone scale effect can often be produced.

TABLE 1: Diatonic and Acoustic Referential Collections[19]

Diatonic Collection	Pitch Classes	Acoustic Collection	Pitch Classes
DIA-6	C ♭, D ♭, E ♭, F, G ♭, A ♭, B ♭	AC-6	C, D ♭, E ♭, F ♭, G ♭, A ♭, B ♭
DIA-5	C, D ♭, E ♭, F, G ♭, A ♭, B ♭	AC-5	C ♭, D ♭, E ♭, F, G, A ♭, B ♭
DIA-4	C, D ♭, E ♭, F, G, A ♭, B ♭	AC-4	C, D, E ♭, F, G ♭, A ♭, B ♭
DIA-3	C, D, E ♭, F, G, A ♭, B ♭	AC-3	C, D ♭, E ♭, F, G, A, B ♭
DIA-2	C, D, E ♭, F, G, A, B ♭	AC-2	C, D, E, F, G, A ♭, B ♭
DIA-1	C, D, E, F, G, A, B ♭	AC-1	C, D, E ♭, F, G, A, B
DIA0	C, D, E, F, G, A, B	AC0	C, D, E, F♯, G, A, B ♭
DIA+1	C, D, E, F♯, G, A, B	AC+1	C♯, D, E, F, G, A, B
DIA+2	C♯, D, E, F♯, G, A, B	AC+2	C, D, E, F♯, G♯, A, B
DIA+3	C♯, D, E, F♯, G♯, A, B	AC+3	C♯, D♯, E, F♯, G, A, B
DIA+4	C♯, D♯, E, F♯, G♯, A, B	AC+4	C♯, D, E, F♯, G♯, A♯, B
DIA+5	C♯, D♯, E, F♯, G♯, A♯, B	AC+5	C♯, D♯, E♯, F♯, G♯, A, B
DIA+6	C♯, D♯, E♯, F♯, G♯,A♯, B	AC+6	C♯, D♯, E, F♯, G♯, A♯, B♯

As mentioned before, Woodward's harmonic language often uses major triads with added pitches, usually the 9th, flat-9th, 11th, and sharp-11th. These instances will be analyzed using pitch class sets rather than tertian labels, while more traditional tertian chords such as major triads and types of 7th chords will be labeled under the "Tertian Harmony" column as C Major, or C^{M7}, for example.

---

[19] Adrian P. Childs, "Scalar Referential Collections," unpublished course notes.

It is important to note that while each of the diatonic collections does correspond to a key center (e.g. C Major for DIA_0 or D Major for DIA_{+2}), they are not labelled this way since they do not necessarily function in the music as a traditional key center with tertian harmonic elements.

The prime form labels for a major triad with a 9th, flat-9th, 11th, and sharp-11th is [0247], [0147], [0237], and [0137], respectively. The prime form labels for a minor triad with the same added pitches are [0237], [0137], [0247], and [0147], respectively. It is important to note that the actual sonorities created when playing a major triad with a 9th or flat-9th, are identical to a minor triad with an 11th or sharp-11th, respectively. This is also true when there is an added 11th or sharp-11th with a major triad compared to an added 9th or flat-9th with a minor triad.

TABLE 2: Harmonic Language in Woodward's Tuba Concerto No. 1[20]

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
Movement 1 mm. 1-8	[0156] and [0257]	none	DIA_{+2}
mm. 11-22	[0257]	-	DIA_{-1}
mm. 23-4	[0257] [013568] with pedal	-	DIA_{-2}
m. 25	[0158]	CM7	DIA_{0}
m. 26	[0257] [024579] with pedal	none	DIA_{-1}
m. 27	[0257]	-	
mm. 28-30	[0257]	-	-
mm. 31-2	[01358]	-	-
mm. 33-5	[0257] [027] on cadence	-	DIA_{0}
mm. 36-8	[027] on each vertical harmony	-	-
mm. 39-42	[0257]	-	DIA_{+1}
Letter A - m. 43	[027]	-	-
m. 44	[027]	-	DIA_{+3}
m. 45	[07] P5	-	DIA_{+5}
m. 46-8	[027]	-	not specific
mm. 49-50	[0257]	-	DIA_{0}
mm. 51-2	none	C Lydian	DIA_{+1}
Letter B mm. 53-4	[0257]	-	DIA_{+1}
mm. 55-6	[01568]		DIA_{-3}
mm. 57-8	[027]		DIA_{+5}
mm. 59-60	[01358], [0237]	(A)	DIA_{+3}
mm. 61-2	[01358], [0247]	(F)	DIA_{-1}
mm. 63-4	[0257]		DIA_{-1}

[20] For reference in these tables, any time a "-" is used, it means the label in the previous row still applies

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
mm. 65-7	[027]		DIA_{+1}
m. 68	none	C Lydian	DIA_{+1}
mm. 69-70	[0257]		
mm. 71-2	[0257]	A♭ Lydian	DIA_{-3}
mm. 73-4	[027]	E Lydian	DIA_{+5}
mm. 75-6	[0237]	A Lydian	DIA_{+4}
m. 77	[0158]	F Lydian FM7	DIA_{0}
m. 78	[037]	F Major	DIA_{0}
m. 79	[0247]		DIA_{0}
m. 80	[027]		DIA_{0}
mm. 81-4	[027]	A Lydian	DIA_{+4}
Letter C mm. 85-90	[0257], [0156]		DIA_{+5}
m. 91	[0257], [0156], [0358]	F♯m7 G♯ Major	
mm. 92-3	[0257], [0156]		DIA_{+4}
m. 94	[02357], [0257]		
mm. 95-6	[0257], [0156]		
m. 97	[0237], [0257]		
m. 98	[0237], [0156], [027]		
m. 99	[0237], [027]	E Major scale	
Letter D mm. 100-1	[0247]		DIA_{+3}
mm. 102-3	[0158]	FM7	DIA_{-1}
mm. 104-5	[0247]		DIA_{-5}
mm. 106-7	[01357], [0257]		DIA_{-6}
mm. 108-112	[0358], [027], [025], [0257]		DIA_{-1}
mm. 113-5	[0257]		DIA_{0}
m. 116	[027]		

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
mm. 117-9	[027], [01368], [0237]		DIA_{+2}
mm. 120-7	[027]	D Major Scale	DIA_{+2}
mm. 128-33	[0257], [0156]		
m. 134	[0257]		DIA_{0}
mm. 135-6	[027]		
mm. 137-8	[0247]		DIA_{-5}
m. 139	[0158]	B ♭ Major	DIA_{-2}
mm. 140-1	[0158]	A ♭ Major	DIA_{-3}
mm. 142-4	[0247]		DIA_{-1}
mm. 145-6	[0358]	Dm7	DIA_{0}
m. 147	[0158]	E ♭ Major	DIA_{-3}
m. 148	[0257] inversion		DIA_{-1}
m. 149	[01568], [02479]		DIA_{-3}
m. 150	[0257], [02479]		DIA_{-1}
m. 151	[0358], [0257]	GM7	DIA_{-1}
mm. 152-5	[027]	C Lydian	DIA_{+1}
Letter E mm. 156-60	[027], [0257]	C Lydian	DIA_{+1}
mm. 161-2	[0247]		DIA_{+6}
mm. 163-4	[037]	G Major	DIA_{+1}
mm. 165-6	[037]	E ♭ Major	DIA_{-3}
mm. 167-8	[037], [027]	A ♭ Major	DIA_{-4} DIA_{-3}
mm. 169-72	[037], [0237]	G Major	DIA_{+1}
mm. 173-4	[027]		DIA_{+1}
m. 175	[0237]		DIA_{+2}
mm. 176-7	[027]		DIA_{+2}
m. 178	[05]	G-D P5	
Movement 2 mm. 1-8	none	none	None

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
mm. 9-10	[0258]	C7, G7	
m. 11	[0258]	D♭7	
mm. 12-3	[036]	C♯ dim	
m. 14	[037]	A Major	
mm. 15-6	[0268]		
Letter A m. 17	[037]	D Major	
m. 18	[015]		
mm. 19-21	[037]	D Major	AC_{+2}
m. 22	[016]		
m. 23	[037]	D Major	
m. 24	[016]		
m. 25	[0358]	Am7	
m. 26	[0158]	AM7	
m. 27	[037]	D Major	
mm. 28-30	[037], [014]	D Major	
mm. 31-2	[037]	E Major	
m. 33	[037]	G Major	
m. 34	[0148]		
mm. 35-8	[0258]	D7	AC_{+2}
m. 39	[0158]	DM7	
mm. 40-2	[0258]	A♭7, C7, E7	
mm. 43-7	[0258]	D7	AC_{+2}
m. 48	[0258]	D♭7	
m. 49	[026]		
m. 50	[0258]	D7	
m. 51	[0258]	A7	
m. 52	[0369]	G♯ dim 7	
m. 54	[0258]	E7	

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
m. 55	[0369]	G♯ dim 7	
m. 56	[0258]	G7	
mm. 56-7	[026]		
mm. 57-8	[016]		
Letter B mm. 60-4	[01357]	D Major	DIA_{+3}
mm. 65-8	[0157]		DIA_{+7}
mm. 69-72	[01357]	D Major	DIA_{+3}
mm. 73-6	[01357]	B Major	DIA_{+6}
mm. 77-80	[037]	C Major	DIA_{0}
mm. 81-6	[016]		DIA_{+1}
mm. 87-8	[036]	A dim, D dim	
m. 89	[037]	C Major	
mm. 90-1	[0157]		DIA_{+3}
m. 92	[01368]	E 1/2 dim 7	
m. 93	[0246]		Whole tone
m. 94	[037]	B Major	AC_{+5}
m. 95	[0236]		
m. 96	[0258]	B7	
m. 97	[026]	D ♭ 7	
mm. 98-9	[0258]	E7, E ♭ 7, C7, A ♭ 7	
Letter D mm. 100-2	[0258]	D7	AC_{+2}
mm. 103-5	[0258]	A7, D ♭ 7, G7	
m. 106	[037]	E ♭ Major	
m. 107	[0369]	E dim 7	
m. 108	[037]	F Major	
mm. 109-13	[0258]	D7, Ab7, C7, E7	

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
m. 114	[026], [016]		
mm. 115-8	[0258]	D7	AC^{+2}
mm. 119-21	[014]		
Movement 3 mm. 1-2	[0258]	A 1/2 dim 7	
mm. 3-4	[027]		
mm. 5-10	[01257]		
mm. 11-3	many		DIA_{-2}
mm. 14-5	[0258]	A 1/2 dim 7	
m. 16	[0257]		
mm. 17-9	[0127]		
mm. 20-1			AC_{+2}
m. 22	[0158]	E ♭ M7	
m. 23	[0156]		
Letter B mm. 24-7	[015], [025]		DIA_{-1}
mm. 28-33	[0157]		DIA_{+1}
m. 34			DIA_{-2}
mm. 35-6	[0127], [01257]		
mm. 37-40	[0257]		DIA_{-1}
mm. 41-2	[0157]		
Letter D mm. 44-6	[0258]	A 1/2 dim 7	
mm. 47-8	[027]		
mm. 49-50	[0127]		
mm. 51-6	[027]		
Movement 4 mm. 1-4	[0157], [0247], [037]	G, A Major	DIA_{+2}
mm. 5-8	[0157], [0247], [037]	C, D Major	DIA_{+1}
mm. 9-12	[0157], [0247], [037]	G, A Major	DIA_{+2}
mm. 13-16	[0157], [0247], [0257]		DIA_{+1}

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
mm. 17-8	[027]		
mm. 19-23	[0157], [0247], [0257]		DIA_{+2}
mm. 24-33	[0157], [0247], [0257], [037]	C, D Major	DIA_{+1}
Letter A mm. 34-41	[027], [037], [0237]		DIA_{+1}
mm. 42-58	[027], [037], [0237]	E Minor D Major	DIA_{+2}
mm. 59-66	[027], [0237]		-
Letter B mm. 67-82	[0157], [037], [0257]	G, C, D Major	-
Letter C m. 84	[027]		DIA_{+1}
m. 85	[0257]		DIA_{+1}
m. 86	[0247], [02479]		C Pentatonic
m. 87	[0237]		DIA_{+1}
m. 88	[027]		-
m. 89	[0257]		-
m. 90	[0247]		C Pentatonic
m. 91	[0237]		DIA_{+1}
m. 92	[027]		-
m. 93	[0237]		-
m. 94	[0247]		-
m. 95	[027]		-
m. 96	[0257]		-
m. 97	[0247]		-
m. 98	[015]		-
m. 99	[027]		-
mm. 100-15	[027], [0237], [0247], [0257]		-
Letter D mm. 116-8	[0157], [0247]		DIA_{+2}
m. 119	[0237]		-
mm. 120-8	[0157], [0247], [0257]		-

Concerto No. 1	**Pitch Class Sets**	**Tertian Harmony**	**Referential Collections**
mm. 129-31	[027]		-
mm. 132-5	[0157], [0257], [037]	G Major	-
Letter E mm. 136-42	[027], [037], [0257]	E Minor	DIA_{+1}
mm. 143-4	[037], [0247]	E Minor D Major	-
mm. 145-8	[01358]		-
m. 149	[0157], [037], [0257]	C, D Major	-
m. 150	[0247], [015], [037], [0158]	E Minor, D Major, GM7, DM7	DIA_{+2}
m. 151	[0135], [037]	C, D Major	-
m. 152	[0246], [0247], [0257], [037]	G, D Major	-
Letter F mm. 153-4	[0157], [0247], [037]	G Major	-
m. 155	[027], [026], [037]	G Major	-
m. 156	[025], [026] [037]	G, C major	-
mm. 157-163	[027], [0257], [037]	C Major Final Chord	DIA_{+1}

TABLE 3: Harmonic Language in Woodward's Tuba Concerto No. 2

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
Movement 1 m. 6	[037], [025], [015], [0257]	none	none
m. 7	[0135], [0247], [0257]	-	-
m. 8	[013], [027]	-	-
m. 9	[0247], [01357]	-	-
m. 10	[0257], [0237]	-	-
m. 11	[05], [02357]	-	-
m. 12	[05], [025]	-	-
m. 13	[01358], [02479]	-	-
m. 14	[0246], [0247], [01357]	-	-
m. 15	[013], [027], [0247]	-	-
m. 16	[025], [0247]	-	-
mm. 17-8	[01357], [02347]	-	-
Letter A mm. 19-30	melody only and octaves	-	DIA_{-1} DIA_{0}
mm. 31-3	[0248]	-	DIA_{-5}
mm. 34-6	[0247]	-	DIA_{+3}
mm. 37-8	[0247], [0136]	-	AC_{-1}
m. 39	[05]	-	DIA_{0}
Letter B mm. 41-3	[05], [025], [027], [02357]	-	-
m. 44	[024579]	-	-
m. 45	[037]	G Major	-
m. 46	[013568t]	Diatonic Scale	DIA_{0}
m. 47	[037], [025], [027], [0237]	F Major	DIA_{+1}
m. 48	[05], [037]	G Major and Scale	DIA_{0}
m. 49	[025], [026], [016]	none	none
m. 50	[0246], [0247], [01357]	-	-

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 51	[0237], [01367]	-	-
m. 52	[01248]	-	-
m. 53	[013568t]	Diatonic Scale	DIA_0
m. 54	[0247], [02479]	Same Diatonic Scale	-
mm. 55-6	[01358], [024579],	Same Diatonic Scale	-
Letter C mm. 57-9	[0257], [02357]	none	-
mm. 60-3	[0247], [01358], [02479]	-	DIA_{+3}
mm. 64-6	[0137], [0158]	F^{M7}	DIA_0
mm. 67-9	[0237]	none	DIA_{-1}
mm. 70-5	[0157], [0247]	-	DIA_{-2}
Letter D mm. 76-9	[01358], [0358], [037], [0237]	G Major, Em7	DIA_0
m. 80	[0237], [0358], [037]	B Major, G♯m7	DIA_{+5}
m. 81	[01568], [0358], [037]	E Major, G♯m7	-
m. 82	[0237], [037]	B Major	-
m. 83	[037], [0358]	G♯ Major, G♯m7	-
m. 84	[037]	G♯ Major	-
m. 85	[0358]	G♯m7	-
m. 86	[0247], [037]	G♯ Major	-
m. 87	[0247], [0137], [025]	none	DIA_{+3}
m. 88	[0358], [037], [0237]	Bm7, D Major, F♯ Minor	-
m. 89	[037], [0147], [05]	B Minor, D Major	-
m. 90	[024]	Octaves	-
Letter E m. 91	[037], 1/2 step motion in bass as well	Major Triads ascending by 1/2 step	none
m. 92	contrasting lines, chromatic	none	-
m. 93	[036], [024], [013569] combined	-	-

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 94	contrasting lines, chromatic	-	-
m. 95	[037], [0157], [026], [0236], [0126], chromatic contrast	-	-
m. 96	[0137], [0246]	-	-
m. 97	[0248], [015], [0237]	-	DIA_{-3}
mm. 98-100	[0247]	-	DIA_{+3}
mm. 101-3	[0247]	-	DIA_{0}
m. 104	[0247]	-	DIA_{-5}
m. 105	[0247]	-	AC_{-1}
m. 106-7	[05], Diatonic Scale	-	DIA_{0}
Letter F m. 108	[037], [0137], [0157], [0237]	G ♭ Major, D ♭ Major	DIA_{-5}
m. 109	[0237], [01568], [01358], [037]	G ♭ Major, D ♭ Major	-
m. 110	[037], [0237]	G ♭ Major	-
m. 111	[037], [0247], [0237]	D ♭ Major	-
m. 112	[0158], [01358], [025]	C ♭ M7	DIA_{-6}
m. 113	[0247]	none	-
m. 114	[037], [013], [025]	C ♭ Major, C ♭ M7	-
m. 115	[027], [026], [0237], [01568]	none	DIA_{+2}
m. 116	[025], [037], [01358]	D Major	-
m. 117	[0358]	Bm7	-
m. 118	[037], [0358]	G Major, Bm7	-
m. 119	[0237]	none	-
m. 120	[027]	-	-
m. 121	[02357], [027]	-	-
m. 122	[0135]	scalar motion	-
Letter G mm. 123-4	[0257], scalar motion	-	DIA_{-3}

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 125	scalar/chromatic motion	-	DIA_{-4}
m. 126	[05]	none	DIA_{-6}
m. 127	[05], [015]	-	-
m. 128	[015]	-	-
m. 129	[027], [037], [015]	E ♭ Minor, scalar motion	-
m. 130	[025]	none	unclear
m. 131	[0237], [037]	D Minor	DIA_{-2}
mm. 132-5	[013], [024] ascending, with descending pedal point	none	DIA_{0}
Letter H mm. 136-7	[024], [0135], [0257]	-	DIA_{-1}
m. 138	[025], [027], [0257]	-	-
m. 139	[024], [025], [0247]	-	-
m. 140	[024], [037], [015], [05]	F Major	-
m. 141	[027], [02357]	none	-
m. 142	[02357]	-	-
m. 143	[0135] Scalar motion up and down	-	DIA_{0}
m. 144	[025]	-	-
m. 145	[0358], [013]	Dm7	-
m. 146	[0257], [02479]	none	-
m. 147	[0358], [013]	Dm7	-
m. 148	[027], [015], [025]	none	-
m. 149	[025]	-	-
m. 150	[025], [0235]	-	-
m. 151	[025], [027], [0157], 0247]	-	-
m. 152	[05], [027], [0237]	-	-
m. 153	[025], [0257], [016]	-	unclear

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 154	[015], [0156], [016]	-	-
m. 155	[0156], [025], [0125679], [02479]	-	-
m. 156	contrary 1/2 step motion - [05] in bass, [037] in tenor/ alto, [05] in soprano	-	-
m. 157	[0156]	-	-
m. 158	cadenza	-	-
Letter J m. 159	[0247], [0237], [015]	-	DIA_{-4}
m. 160	[025], [0158]	A ♭ M7	-
m. 161	[02479], [01357]	none	-
m. 162	[0135], 01357]	-	-
m. 163	[01357]	-	-
m. 164	[0234579]	-	-
m. 165-6	[01357], [01258]	-	-
Movement 2 mm. 1-4	[0158]	FM7	Unclear
m. 5	[0137]	none	-
m. 6	[037]	F Major	-
m. 7	[0158]	FM7	-
m. 8	[01457]	none	-
m. 9	[037], [0158]	F Major, FM7	-
m. 10	[0137], [023579]	none	-
m. 11	[0147], [012358]	-	-
m. 12	[0147]	-	-
m. 13	[0258],	F7	-
m. 14	[012468], [037]	F Major	-
m. 15	[0158]	FM7	-
m. 16	[0358]	Dm7	-

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 17	[0358], [012569]	Dm7	-
mm. 18-9	[0158]	FM7	-
Letter A m. 20	[0237]	none	DIA
m. 21	[0237], [01358]	BM7	-
m. 22	[0237], [01568]	GM7	DIA_{+1}
m. 23	[01357]	none	DIA_{0}
m. 24	[0247], [01358]	BM7	-
mm. 25-8	[037], [0158]	FM7 A Minor	-
m. 29-31	[0158]	FM7	-
m. 32	[0167], [01367]	none	transitioning
m. 33	[01568]	B ♭ M7	-
m. 34	[0158]	FM7	-
m. 35	[01478]	none	-
m. 36-9	[01357]	-	-
m. 40	[037]	D ♭ Major	-
Letter C mm. 41-2	[01458]	Bi Tonal section A Minor and D ♭ Major	Unclear
m. 43	[01367]	E ♭ Major, A Minor	-
m. 44	[014589]	A Minor, D ♭ Major	-
m. 45	[013679]	D ♭ Major, G Major	-
m. 46	[013479]	F Major, A ♭ Minor	-
m. 47	[01478]	A ♭ Major, A Minor	-
m. 48	[013479]	A ♭ Minor, F Major	-
m. 49	[014679]	E ♭ Major, A Minor	-
m. 50	[013478]	A ♭ Minor, A Minor	-
m. 51	[013478]	A ♭ Minor, A Minor	-
mm. 52-3	[0158]	FM7	-

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 54	[015], [037]	FM7, E ♭ Major	-
m. 55	[0137], [037]	A ♭ Major	-
mm. 56-7	[0147], [037]	A Major	-
mm. 58-9	[0147], [013479]	A ♭ Major, F Major	-
mm. 60-1	[013479]	A ♭ Minor, F Major	-
mm. 62-8	[0137]	B ♭ Major with #11	-
mm. 69-71	[015]	-	-
Movement 3 mm. 1-3	[015]	implied CM7	DIA_{0}
mm. 4-6	[015]	implied D ♭ M7	DIA_{-5}
mm. 7-10	[015]	implied CM7	DIA_{0}
mm. 11-4	[0137]	A ♭ Major #11	DIA_{-3}
mm. 15-6	[015]	implied CM7	DIA_{0}
Letter A mm. 17-20	[037], [0158]	A Major, AM7	DIA_{+3}
mm. 21-4	[037], [0158]	E ♭ Major, E ♭ M7	DIA_{-3}
mm. 25-9	[0167]	-	Unclear
mm. 30-2	[015]	implied CM7	DIA_{0}
mm. 33-41	[015]	-	-
Letter B mm. 42-3	[0237]	D ♭ Major with 11th	DIA_{-5}
m. 44	[0157], [0158], [0247]	DM7	unclear
m. 45	[015], [027]	none	unclear
m. 46	[0237]	-	DIA_{-4}
m. 47	[0157], [0237], [0135]	-	DIA_{-3}
m. 48	[0158], [037]	E ♭ M7, E ♭ , E Major	changing
m. 49	[037]	C, B ♭ , D ♭ Major	-
mm. 50-1	[0237]	none	DIA_{+5}
mm. 52-6	[0237]	none	Multiple collections

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
mm. 57-60	[01358]	Bitonal - B/E Major, and A/D Major	DIA_{+3}
mm. 61-4	[01458]	Bitonal - F/D ♭ Major, and A/F Major	multiple collections
Letter C mm. 65-74	[0237]	none	unclear
mm. 75-6	none	none	unclear
mm. 77-80	[037]	G, A ♭ , E, D, E ♭ , E, C, B ♭ Major	multiple collections
m. 81	[0237], [0148], [02358]	none	Multiple collections
m. 82	[0158], [0248], [0258], [0147]	A ♭ M7	Multiple collections
Letter D mm. 83-93	[015]	implied CM7	DIA_{0}
mm. 94-7	[0137]	C ♭ Major with #11	DIA_{-6}
mm. 98-9	[015]	implied CM7	DIA_{0}
Letter E mm. 100-3	[027], [0268] unclear	unclear	unclear
mm. 104-5	unclear	unclear	unclear
mm. 106-7	[037], [0158]	A ♭ Major, A ♭ M7	DIA_{-3}
mm. 108-12	[0167]	none	DIA_{0} DIA_{+1}
mm. 113-8	[015]	implied CM7	DIA_{0}
Letter F mm. 119-25	none	none	DIA_{0}
mm. 126-9	[023579]	G11	DIA_{0}
mm. 130-1	[0137]	F Major with #11	DIA_{0}
m. 132	[027]	none	-
mm. 133-5	none	scalar	DIA_{0}
m. 136	[0137]	F Major with #11	-
mm. 137-8	[05]	none	-
m. 139	[04]	C Major	-

D. Melodic Language

As with the harmony Woodward uses in his tuba concertos, his melodic language consists of traditional tertian harmonies, referential collections and note groupings that form pitch-class sets. What follows is a list of each of these items used in both pieces, so that common threads can be seen in analysis.

TABLE 4: Melodic Language in Woodward's Tuba Concerto No. 1

Concerto No. 1	Pitch-Class Sets	Tertian Harmony	Referential Collections
Movement 1 mm. 1-4	[027], [0157]	none	DIA_{+2}
mm. 5-8	[025], [0157]	-	-
mm. 9-10	[0247]	-	-
mm. 11-3	[037], [027]	F♯ Major	DIA_{-1}
mm. 14-5	[0157], [027]	-	-
m. 16	[015], [025], [01358]	-	-
m. 17	[027], [0237]	-	-
m. 18	[0157]	-	-
m. 19	[016]	-	-
m. 20	[027], [015]	-	-
mm. 21-7	[015]	-	-
mm. 28-38	[015], [027], [0257]	-	DIA_{+1}
Letter A mm. 39-41	[0157], [027]	-	-
m. 42	[0257]	-	-
mm. 43-4	[0247]	-	DIA_{+1} DIA_{+3}
m. 45	none	Scalar	DIA_{+5}
m. 46-50	[027]	none	different keys
Letter B mm. 51-53	[015]	-	DIA_{+1}
mm. 54-5	[013]	-	DIA_{-3}

Concerto No. 1	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 56	[0247]	-	-
m. 57	[013]	-	DIA_{+4}
m. 58	[027]	-	-
mm. 59-60	[037]	A Major	DIA_{+3}
mm. 60-1	[013]	none	-
m. 61	[013]	-	DIA_{-1}
mm. 62-3	[027]	-	-
mm. 63-4	[037]	B ♭ Major	-
m. 64	[0158]	B ♭ M7	-
mm. 65-8	Scalar	Scalar	DIA_{+1}
m. 69	[015] ([0257] counter melody])	none	-
m. 70	[0237]	-	-
m. 71	[013]	-	DIA_{-3}
m. 72	[01357]	A ♭ Major	-
m. 73	[013]	none	DIA_{+5}
m. 74	[027]	-	-
mm. 75-6	[037]	A Major	DIA_{+4}
mm. 77-9	[0247]	none	DIA_{0}
m. 80	[025]	-	-
mm. 81-2	[01568]	-	DIA_{+4}
mm. 83-4	[015]	-	-
Letter C mm. 85-9	none	-	DIA_{+5}
mm. 90-4	[015], [013]	-	-
mm. 95-9	[015], [027], [0157]	-	DIA_{+4}
Letter D mm 100-1	[015], [0157]	-	DIA_{+4}
mm. 102-3	[013], [037]	F Major	DIA_{0}

Concerto No. 1	Pitch-Class Sets	Tertian Harmony	Referential Collections
mm. 104-5	[013], [027]	none	DIA_{-5}
mm. 106-7	[037]	G ♭ Major	DIA_{-6}
mm. 108-9	[05]	none	DIA_{-1}
mm. 110-2	[0135]	-	-
mm. 113-5	[027], [0247], [0257]	-	DIA_{0}
mm. 116-22	[015], [0157]	-	DIA_{+2}
mm. 123-9	[015]	-	-
m. 130	[025], [016]	-	-
mm. 131-6	[027], [015]	-	-
mm. 137-141	[015]	-	DIA_{-4}
mm. 142-6	[015], [027], [0247], [0257]	-	DIA_{-1}
mm. 147-9	[0247], [0257]	-	DIA_{-3}
mm. 150-1	[015], [0257]	-	DIA_{-1}
mm. 152-5	[015], [025], [027], [0257]	-	DIA_{+1}
Letter E mm. 156-60	[015], [016], [025]	-	-
mm. 161-2	[015]	-	DIA_{+6}
mm. 163-4	[027], [015]	-	DIA_{+2}
mm. 165-8	[015]	-	DIA_{-3}
mm. 169-72	[0237]	-	DIA_{+2}
mm. 173-8	[015], [027]	-	DIA_{+2}
Movement 2 mm. 1-8	irregular, [013], [0157], [016]	none	unclear
mm. 9-16	irregular, much half-step motion	-	-
Letter A mm. 17-20	none	-	AC^{+2}
m. 21	[013]	-	none
m. 22	[0157]	-	-

Concerto No. 1	Pitch-Class Sets	Tertian Harmony	Referential Collections
m. 23	[016]	-	-
m. 24	[0157]	-	-
m. 25	[0137]	-	-
m. 26	[015]	-	-
m. 27-9	[013], [014], [0134]	-	-
mm. 30-3	[01468], [037]	E, G Major	-
mm. 34-5	[016]	none	-
mm. 36-8	[013], [014]	-	-
m. 39	[015]	-	-
m. 40	[014]	-	-
mm. 41-2	[013]/[0123]	-	-
mm. 43-7	[015]	-	-
mm. 48-9	[014], [016]	-	-
mm. 50-2	Chromatic, and [06]	none	-
mm. 53-5	[0258]	E7, G7	-
mm. 56-8	[0146]	none	-
mm. 59	[016]	none	none
Letter B mm. 60-4	[013]	-	DIA_{+3}
mm. 65-72	[015]	-	DIA_{+7} DIA_{+3}
mm. 73-6	[016]	-	-
mm. 77-80	[015]	-	DIA_{+1}
Letter C m. 81	[015]	-	none
mm. 82-5	[0123]	-	-
m. 86	[0347]	-	-
m. 87	[0236]	-	-
m. 88	[0156]	-	-

Concerto No. 1	Pitch-Class Sets	Tertian Harmony	Referential Collections
mm. 89-91	[013], [012]	-	-
mm. 92-4	[015], [014], [016]	-	-
mm. 95-6	[014], [013]	-	-
mm. 97-9	[015], [016], [0156]	-	-
Letter D mm. 100-5	none	-	-
mm. 106-7	[012456]	chromatic	-
m. 108	[01267]	-	-
mm. 109-10	[014], [015]	none	-
m. 111	[012]	chromatic	-
m. 112	[0258]	E7	-
m. 113	[0123]	chromatic	-
m. 114	[0123678]	-	-
mm. 115-8	[014], [015], [016]	none	-
Cadenza	[012], [013], [014], [015] FONT and chromatic motion	-	-
Movement 3 mm. 1-6	none	none	none
mm. 7-8	[015], [0237]	-	DIA_{-1}
m. 9	[0247]	-	-
m. 10	[0257]	-	-
mm. 11-3	[015], [025]	-	DIA_{-2}
Letter A mm. 14-5	[027]	-	-
m. 16	[037]	D Minor	-
m. 17	[0235]	-	-
mm. 18-9	[015]	B ♭ M7	-
mm. 20-1	[0135]	none	-
mm. 22-3	[027]	-	-

Concerto No. 1	Pitch-Class Sets	Tertian Harmony	Referential Collections
Letter B mm. 24-34	[0257], [015]	-	DIA_{-1}
Letter C mm. 35-6	[027], [015]	-	DIA_{-1} (in melody)
mm. 37-8	[0257]	-	DIA_{-1}
mm. 39-41	[0135]	-	-
m. 42	[015]	-	-
Cadenza	[027], [015], [0237]	-	-
Letter D mm. 45-8	[01358], [0136]	-	DIA_{-2}
m. 49	[0158]	B ♭ M7	DIA_{-1} with D ♭ pedal
mm. 50-6	[0237]	none	DIA_{-1}
Movement 4 mm. 1-4	none	none	none
mm. 5-10	[027], [015]	none	DIA_{+1}
mm. 11-2	[0237]	-	-
mm. 13-4	[0257]	-	-
m. 15	[0137]	-	-
m. 16	[027]	-	-
m. 17	[0237]	-	-
mm. 18-23	[0257]	-	-
mm. 24-5	[0237]	-	-
m. 26	[0257]	-	-
m. 27	[0237]	-	-
mm. 28-9	[027]	-	-
mm. 30-3	[0257]	-	-
Letter A mm. 34-9	[015], [027], [0237]	-	DIA_{+1}
mm. 40-1	[0157], [0158]	G^{M7}	-
mm. 42-4	[02358]	none	DIA_{+1}

Concerto No. 1	Pitch-Class Sets	Tertian Harmony	Referential Collections
mm. 45-8	[015], [0237]	-	-
m. 49	[0257]	-	-
mm. 50-1	[015], [0237]	-	-
mm. 52-8	[015], [027], [0237]	-	-
mm. 59- 61	[02358]	-	DIA_{+2}
mm. 62-83	[027]		-
Letter C mm. 84-107	[015], [027], [0237]	-	DIA_{+1}
mm. 108-15	-	-	DIA_{+3}
Letter D mm. 116-35	[0237], [0257]	-	DIA_{+1}
Letter E mm. 136-52	[027], [0237]	-	-
Letter F mm. 153-63	[015], [027], [0237], [037]	Final chord C Major	-

TABLE 5: Melodic Language in Woodward's Tuba Concerto No. 2

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
Movement 1 mm. 1-6	[027], [037]	C Major	unclear
mm. 7-11	[05]	Scalar Motion	DIA_0 DIA_{-1}
mm. 12-4	[037]	C Minor	DIA_{-3}
mm. 15-8	[026]	none	DIA_{-5}
Letter A mm. 19-24	[015], [025], [02357]	-	DIA_0
mm. 25-30	[0257], [0237]	-	-
mm. 31-3	none	Scalar Motion	DIA_{-5}
mm. 34-6	-	-	DIA_{+3}
mm. 37-8	-	-	DIA_{-2}
mm. 39-40	[0237], [0257]	none	DIA_0

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
Letter B mm. 41-6	[015], [0247], [0237]	-	DIA_{0}
mm. 47-8	[015]	-	DIA_{+1}
mm. 49-50	[016], [026]	-	unclear
mm. 51-2	[025], [026], [013]	-	several collections
mm. 53-6	[015], [025], [027]	-	DIA_{0}
Letter C mm. 57-9	[0235]	Scalar Motion	DIA_{0}
mm. 60-3	[0135], [0237]	-	DIA_{+3}
mm. 64-6	[0135]	-	DIA_{0}
mm. 67-9	[0235]	-	DIA_{-1}
mm. 70-5	[0246], [015]	-	DIA_{-2}
Letter D mm. 76-9	[0235]	-	DIA_{0}
mm. 80-6	[0135]	-	DIA_{+5}
mm. 87-90	none	-	DIA_{+3}
Letter E m. 91	[015]	none	several collections
m. 92	[026]	-	-
mm. 93-6	none	Chromatic motion	-
mm. 97-8	-	Scalar motion	DIA_{-3}
mm. 99-100	-	-	DIA_{+3}
m. 101	-	-	DIA_{-1}
mm. 102-3	[015]	-	DIA_{0}
m. 104	-	-	DIA_{-5}
m. 105	-	-	AC_{-1} Whole Tone
mm. 106-7	[0237]	-	DIA_{0}
Letter F mm. 108-11	[0246]	-	DIA_{-5}
mm. 112-4	[0135]	-	DIA_{-6}

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
mm. 115-22	[0135]	-	DIA_{+3}
Letter G mm. 123-31	[027], [0235], [0237]	none	several collections
mm. 132-5	[0237], [0257]	Scalar motion	DIA_{0}
Letter H mm. 136-41	[0235], [0257]	none	DIA_{-1}
mm. 142-3	[0237]	-	DIA_{0}
mm. 144-51	[0235]	Scalar motion	-
Letter I mm. 152-7	[0235]	none	several collections
Cadenza m. 158	[014], [0147], [036], [015]	Scalar motion	several collections
Letter J mm. 159-64	[0235], [0246]	-	DIA_{-4}
mm. 165-6	[015]	none	unclear
Movement 2 mm. 1-11	[02357], [0257], [0247]	-	DIA_{-1}
mm. 12-3	[01357]	-	DIA_{-3}
mm. 14-5	[0258]	-	unclear
mm. 16-19	[016]	-	-
Letter A mm. 20-4	[015], [027], [0257]	none	DIA_{0}
mm. 25-8	[0247], [0235], [0135], [0237]	Scalar motion	-
Letter B mm. 29-31	[02357]	-	-
mm. 32-9	[02479	-	unclear
m. 40	[0247]	none	-
Letter C mm. 41-7	[0235], [0136]	Scalar motion	unclear
m. 48	[0134]	none	-
m. 49	[0258]	E7	-
mm. 50-2	none	Scalar Motion	-

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
Letter D mm. 53-61	[02357], [0247], [0246]	none	-
mm. 62-71	[023579], [0247]	-	-
Movement 3 mm. 1-3	none	Scalar motion	DIA_{0}
mm. 4-6	-	-	DIA_{-5}
mm. 7-10	-	-	DIA_{0}
mm. 11-4	-	-	DIA_{-3}
mm. 15-6	-	-	DIA_{0}
Letter A mm. 17-20	-	-	DIA_{+3}
mm. 21-4	-	-	DIA_{-3}
mm. 25-9	[025], [0246]	-	unclear
mm. 30-41	none	-	DIA_{0}
Letter B mm. 42-3	[027], [015], [01357]	-	DIA_{-5}
m. 44	none	-	DIA_{-3} DIA_{+2}
m. 45	[0237]	-	DIA_{+1} DIA_{0}
mm. 46-7	none	none	DIA_{-4}
mm. 48-9	[026], [036], [037]	B ♭ Major, E Minor	several collections
mm. 50-1	none	none	DIA_{+5}
mm. 52-6	none	Scalar Motion	several collections
mm. 57-60	none	-	DIA_{+3}
mm. 61-4	none	-	DIA_{0}
Letter C mm. 65-71	none	-	several collections
mm. 72-3	[027], [01357]	none	DIA_{+6}
mm. 74-5	-	-	DIA_{0}
mm. 76	none	Scalar Motion	unclear

Concerto No. 2	Pitch-Class Sets	Tertian Harmony	Referential Collections
mm. 77-82	[036], [037]	-	several collections
Letter D mm. 83-6	none	Scalar motion	DIA_0
mm. 87-9	-	-	DIA_{-1}
mm. 90-3	-	-	DIA_0
mm. 94-7	none	-	DIA_{-6}
mm. 98-9	none	none	DIA_0
Letter E mm. 100-1	none	Scalar motion	DIA_{+3}
mm. 102-3	none	Scalar motion	DIA_{+3}
mm. 104-7	none	Scalar motion	DIA_{-3}
mm. 108-12	[016]	none	unclear
mm. 113-8	none	Scalar motion	DIA_0
Letter F mm. 119-25	none	-	-
mm. 126-9	[025]	-	-
Letter G mm. 130-5	[027], [0237]	-	-
mm. 136-9	[027]	-	-

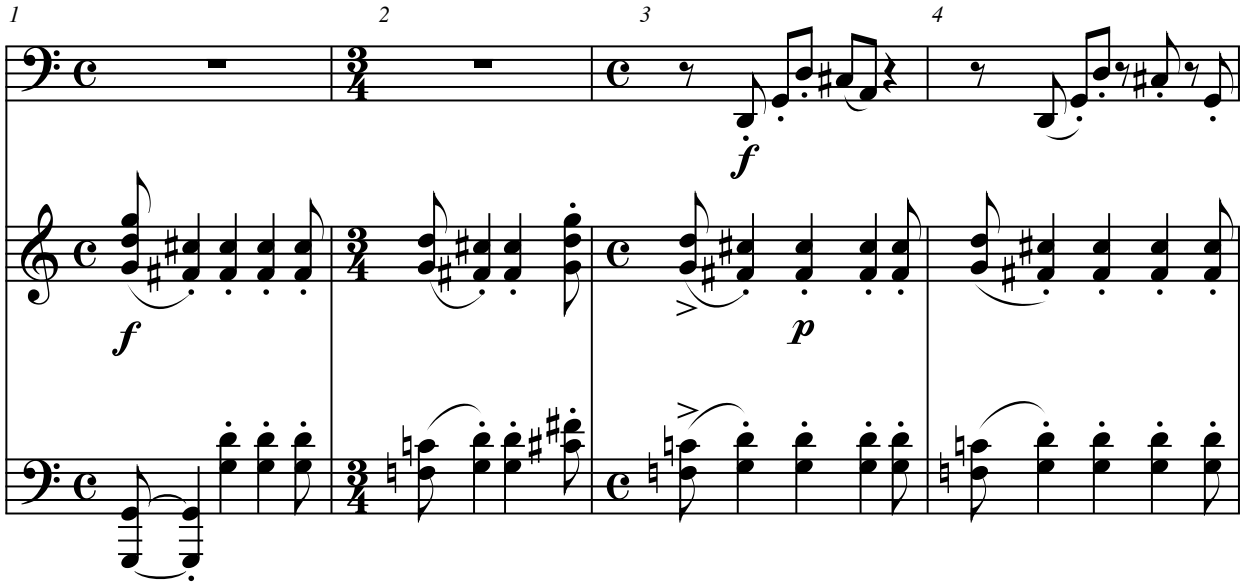
E. Concerto No. 1

1. Movement 1

From the very beginning of Woodward's Concerto No. 1, the harmonic and melodic elements presented are characteristic of many of the main themes of the entire work. It can be seen in Tables 2 and 4 that the initial note collections are [0257] in the harmony, and [027] and [0157] in the melody. As mentioned earlier in Chapter 2, pitch-class sets have been used to aid in the analysis of these pieces since Woodward does not usually adhere to traditional tertian harmonic elements in his composition. This fact

can be seen at the very start of his first concerto with these main themes presented. The prime form [0257] in the harmony refers to the syncopated chord structure, and is contrasted by [0156] on the upbeats.[21] These collections of notes are not tertian, and are both made up of different arrangements perfect 5th intervals. The main melodic idea of [027] also presents elements influence by the perfect fifth. The "[07]" in measure 3 refers to G to D, while the "2" refers to A. These three notes can also be arranged, and often are, by stacking intervals of a perfect fifth.

EXAMPLE 1: CONCERTO NO. 1, MVT. 1, MM. 1-4



The second main melodic theme of the concerto is seen in the second prime form listed in the melody of [0157]. The "[015]" refers to the D-C♯-A line in measure 3.[22] This intervallic relationship can be seen in the melody throughout the entire concerto, and is certainly a main thematic idea of the piece. The first overt example of this fact is the melody in measures 23-26, where this prime form, or pf, is presented and then

[21] See Example 1.

[22] Prime form will be labelled as "pf" or "pfs."

repeated in a different “key,” or tonal center.[23] Moving forward, the juxtaposition of pfs [015] and [0257] can be seen first in the melody at measures 28-29, as these are clearly stated in each measure.[24] This melodic statement is in direct relation to the first measure of harmony in the concerto, where [0156] is followed by [0257]; the pf [015] is a subset of [0156], and the former collection of notes only lacks one of the pitches of the latter[25]. The idea of some grouping of notes being subsets of other groupings is significant because of how these collections sound. A pf, or pitch-class set says just as much about what a group of notes sounds like as what it looks like. For example, one could deduce that the pf [0156] used in measure 1 will sound more dissonant than the pf [0257] which immediately precedes it. This dissonance is a result of the number of half steps located in the harmony compared to whole steps in the following pf. [0156] contains two half-steps, between “01” and “56, ” while [0257] contains two whole steps in the same locations. On paper, it can be seen that these half steps and whole steps are separated by at least an octave, but the effect of consonance and dissonance can still be heard in context.

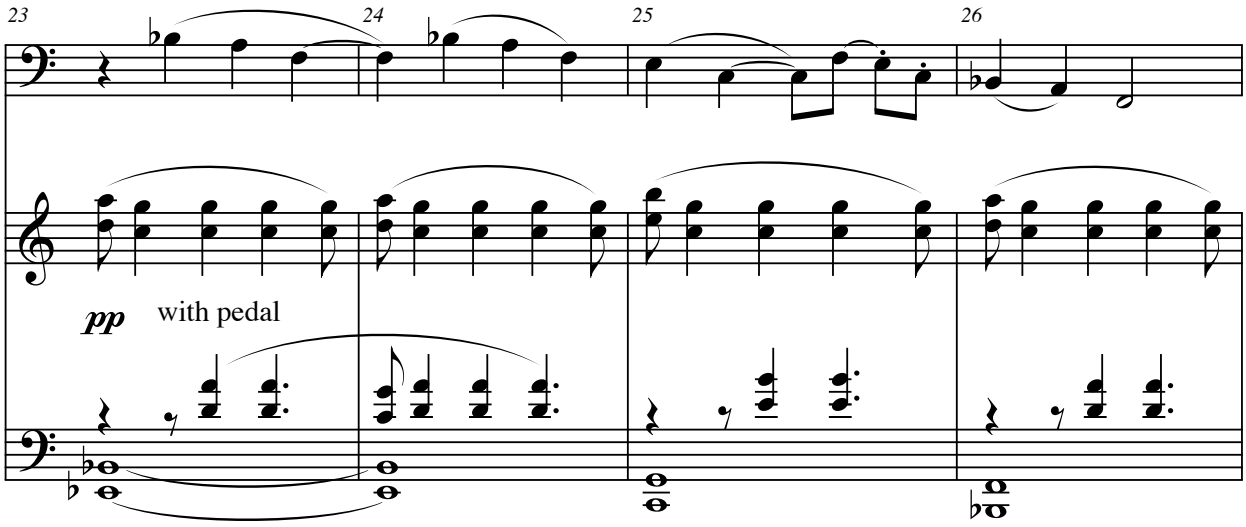
---

[23] See Example 2.

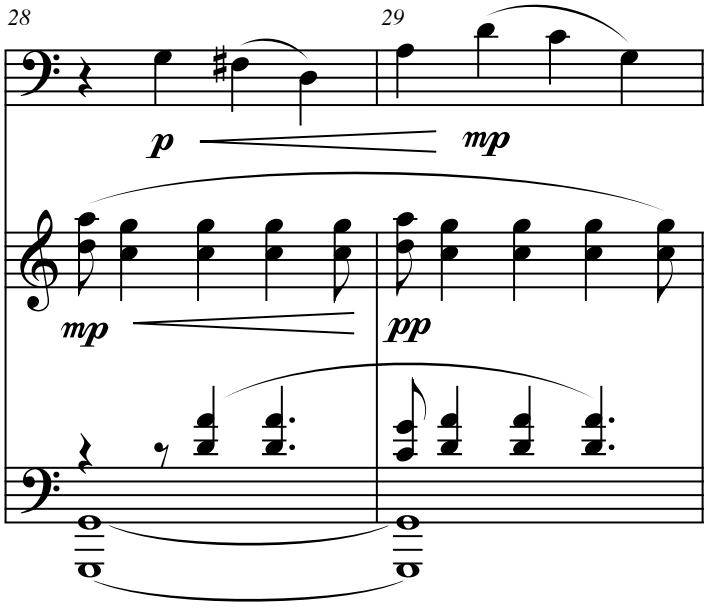
[24] See Example 3.

[25] A subset refers to any pitch-class set that can be derived from another. For example [012] can be pulled out of [012345] several times. Either from the pitches [012], [123], [234], or [345].

EXAMPLE 2: CONCERTO NO. 1, MVT. 1, MM. 23-26



EXAMPLE 3: CONCERTO NO. 1, MVT. 1, MM. 28-29



Browsing the first movement, the prominent pfs in the harmony include [0257], [0237], [0247], with some instances of tertian harmonies with [037], [0158], or [0358]. Prominent pfs in the melody include [015], [027], [0257], [0247], and examples of purely scalar motion. There are many similarities between these elements used, several of

which can be seen simply by reading the pfs. Much of the harmonic and melodic content contains [02], indicating the presence of a whole step in the music. Most pfs also contain either [05] or [07], indicating both the presence of a perfect fourth and perfect fifth in the music. Since there are twelve pitches[26] and octaves are not considered important in set analysis, one must consider both the intervals between pitches listed, as well as their relationship to each other looped around the octave. For example, the interval from '0' to '5' is 5 half-steps, but '5' back around to '0' is also 7 half-steps.

This realization is significant in several facets for this initial pf analysis. The prominent pfs [015], [027], [0257], [0247], and [0237] each contain both the perfect fourth interval and the perfect fifth interval. Any pf ending with a '7' contains the perfect fourth as the '7' loops back to '0,' and the pf ending with a '5' contains the perfect fifth as the '5' loops back to '0.' This prevalence of perfect intervals is not unusual, and is seen in tertian harmonic music as well. Every major chord contains both a perfect fourth and fifth as well, which can be seen in its pf "[037]." What makes Woodward's language different is the consistent presence of the [02] subset in most of the pfs used. While only appearing as a whole step on paper, this [02] typically represents perfect intervals being stacked on top of each other, as in measure 2 of the first movement. The pf [0257] shows a perfect fifth between '0' and '7', another fifth between '7' looped around to '2' and another between '5' looped around to '0.' This fact is realized by the stacked nature of the chords written as F-C-G-D.[27]

---

[26] Technically, the pf of a chromatic scale would be indicated by the dodecachord [0123456789te].

[27] See Example 1.

While these concepts of quartal and quintal harmony dominate much of the first movement, the additions of tertian harmony cannot be ignored. The general vocabulary that Woodward uses is based in traditional harmonic elements rather than being completely random or purely atonal. The fact that there is almost always some sort of diatonic referential collection being used to produce the melody and harmony shows the presence or idea of some sort of key center. For example, the presence of C♯ and F♯ at the beginning of the movement lead to D Major as a key center. Since there is usually no tertian harmony to back up a key center based on the notes used, these are defined as referential collections, in this case DIA_{+2}.[28] Woodward uses many different referential collections, and changes them frequently to identify sections in the movement and establish contrast. Starting with the collection of DIA_{+2} at the beginning of the movement, the "key-center" moves to the collection DIA_{-1} at the completion of the first melodic statements in measure12. This shift emphasizes the completion of the melodic statements since these are immediately restated in the new "key"[29] in measure 14[30]. Similar shifts can be seen in measure 28 and measures 43-44, where melodic ideas are being repeated in the new referential collection to add emphasis.

This idea of using referential collections to emphasize thematic sections of music can be seen later in the first movement by Woodward's return to the original "key" in measure 128. This return to DIA_{+2}, along with the repeated melodic statements, form a

---

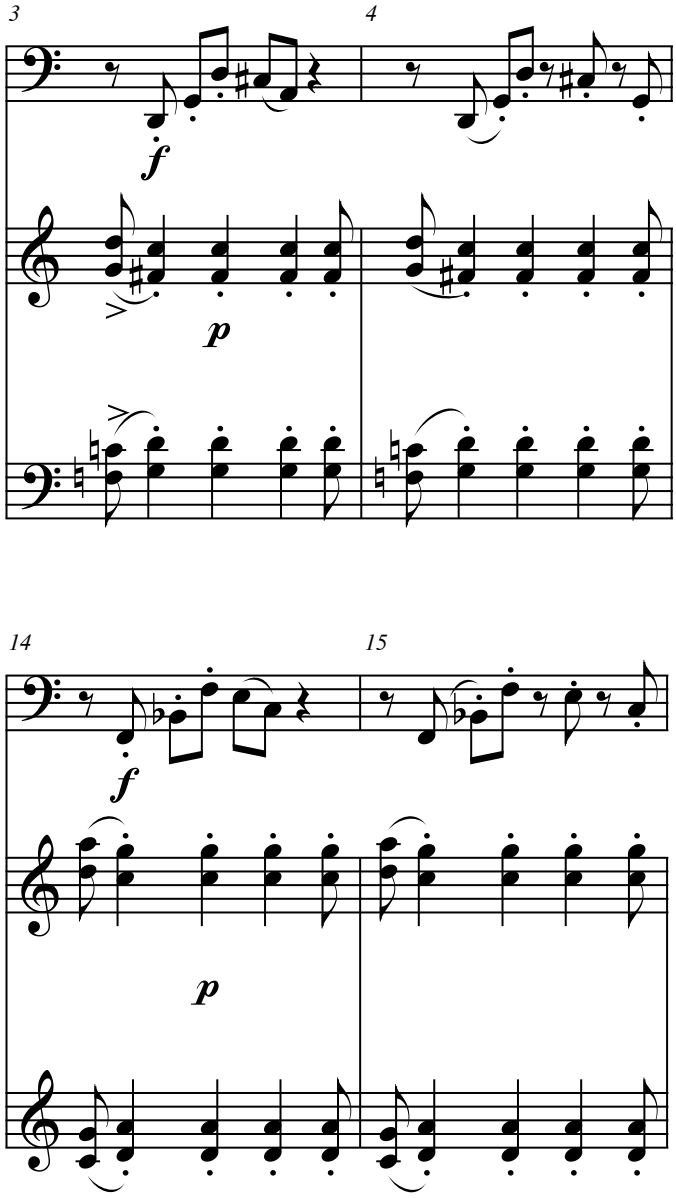
[28] Adrian P. Childs, "Scalar Referential Collections," unpublished course notes. All further references to diatonic or acoustic referential collections refer to Table 1.

[29] Again, the collections of notes are not truly a key or key-center, merely an established collection of pitches.

[30] See Example 4.

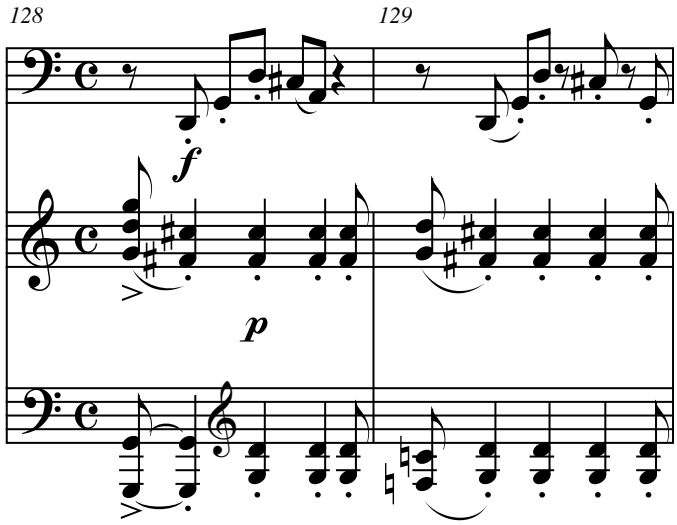
recapitulation heralding the end of the movement shortly afterwards. After moving through many different referential collections throughout the movement, this exact repeat of the initial material is unmistakable as a true recapitulation.[31]

EXAMPLE 4: CONCERTO NO. 1, MVT. 1, MM. 3-4, MM. 14-15



[31] See Example 5.

EXAMPLE 5: CONCERTO NO. 1, MVT. 1, MM. 128-129



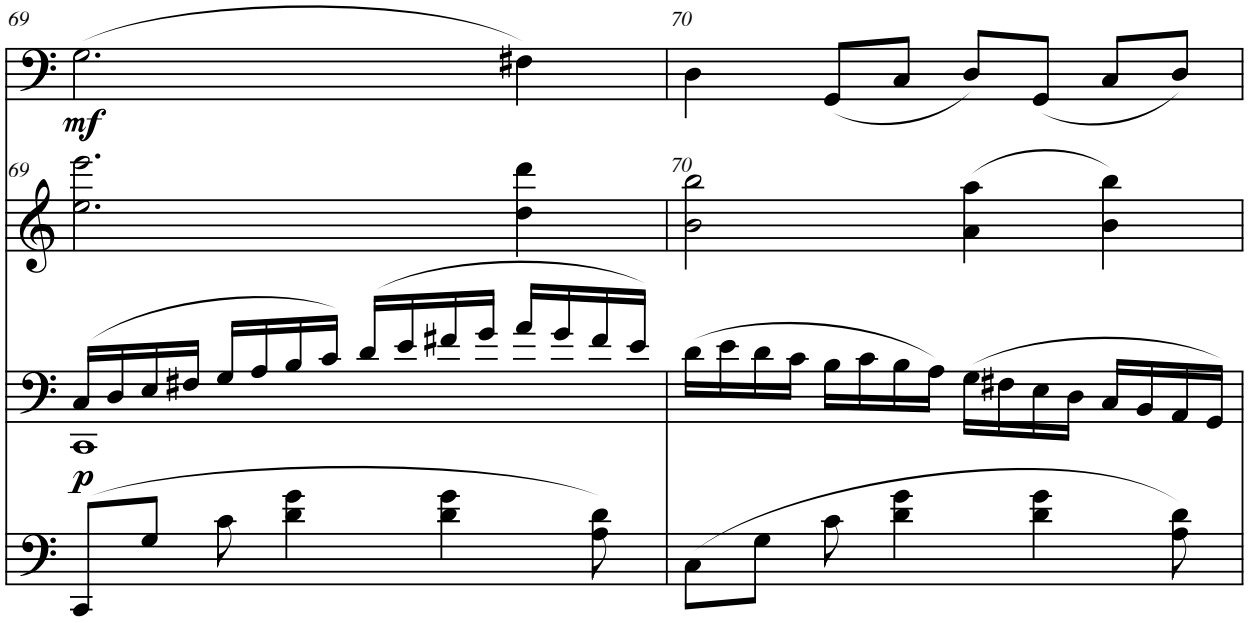
Finally, the presence of actual tertian harmonies must be addressed. Most "chords" in this movement are coincidental, and are never functional. For example, the harmony in measure 25 clearly displays a C^{M7} chord, but it is neither approached nor resolved in any way that would be acceptable. This tertian harmony is merely incidental, and is a result of passing motion in the upper and lower voices.[32] Many of the chords listed under "Tertian Harmony" in Table 2 function in the same way, either presented to produce type of sound or tone quality rather than participating in a chord progressions. The most striking example of utilizing a true key center comes at measures 68-85, where Woodward presents referential collections, and uses a bass line that corresponds with those collections. In measures 68-70, the collection used is DIA_{+1}, which corresponds with the key of G Major. The scalar motion and bass line used are representative of C Lydian, which is also the same collection of pitches.[33] This same

[32] See Example 2.

[33] See Example 6.

idea is presented afterwards, moving through several different key centers of A ♭ , E, A, F, and A again, all in the lydian mode.

EXAMPLE 6: CONCERTO NO. 1, MVT. 1, MM. 69-70



This section in mm 68-84 also utilizes a compositional tool that Woodward uses in his writing. He discusses in his interview a method based on major triads that he uses to create distinct harmonies, stating that one of his favorite things to do is to use a triad with one added note, usually some kind of 9th or 11th.[34] This method is clearly seen starting in measure 69-70, even though all members of the major triad are not always present. He will also often use the major 7th, but not the dominant 7th because he considers that to be a dated or "cheesy" sound.[35] Here he is using the pitches C-D-G, which outline a C Major triad with an added 9th, just without the third of the chord. Moving forward in measures 71-72 the harmony is an A ♭ Major triad with an added G,

[34] Woodward, interview by author, Appendix 2, 123-5.

[35] Ibid.

forming A ♭^{M7}. Then every two measures afterwards the harmony shifts, starting with E ♭^{M7}, then E^{9} but without a third, then an A^{M7} that also has a 9th, and finally F^{M7} that again has a 9th as well.

Examples of this method can also be seen overtly at letter D. In measures 100-101 Woodward uses A Major with an added 9th of B, in measures 102-103 it is F Major with an added 7th of E, making it an F^{M7} chord, and in measures 104-106 it is D ♭ Major again with an added 9th of E ♭ . In these instances, each of the chords with added 9ths can be labeled with the pf [0247], and in other instances major triads with added 11ths or sharp-11ths can be labeled with the pf [0137] and [0237], respectively. Each of these pfs is very prevalent in both of his concertos, reflecting the consistency with which he uses these types of harmonies.

The form in this first movement is more clear than any of the others, and is representative of sonata form. Woodward writes clear “A” and “B” themes, moves through a development incorporating aspects of each theme, presents a clear recapitulation and ends with a short coda. The “A” theme is broken into smaller sections of *a*, *b*, and *a-prime* from measures 1-52, leading to the “B” theme in one through-composed form from measures 53-84. The development begins with ideas from the “A” section in measures 85-99. Even though the harmonic and melodic material is very similar to its original presentation, this section is best described as development due to its quick movements between thematic material. The “B” theme is presented in measures 100-108, and almost immediately moves back to material from the “A” section in measures 109-122. The recapitulation is also abbreviated in its material compared to the original “A” and “B” sections, but is best described as a true recapitulation due the completeness of both sections. The “A” section here lasts from measures 123-160, and

presents all thee sub-sections: *a*, *b*, and *a-prime* in measures 123-136, 137-155, and 156-160, respectively. The B section is heavily abbreviated, only lasting from measures 161-168, but still presents one complete phrase before ending. Finally, the coda in measures 169-178 utilizes ideas from the *a* theme in section *A*, returning back to the original referential collection of DIA_{+1}.

2. Movement 2

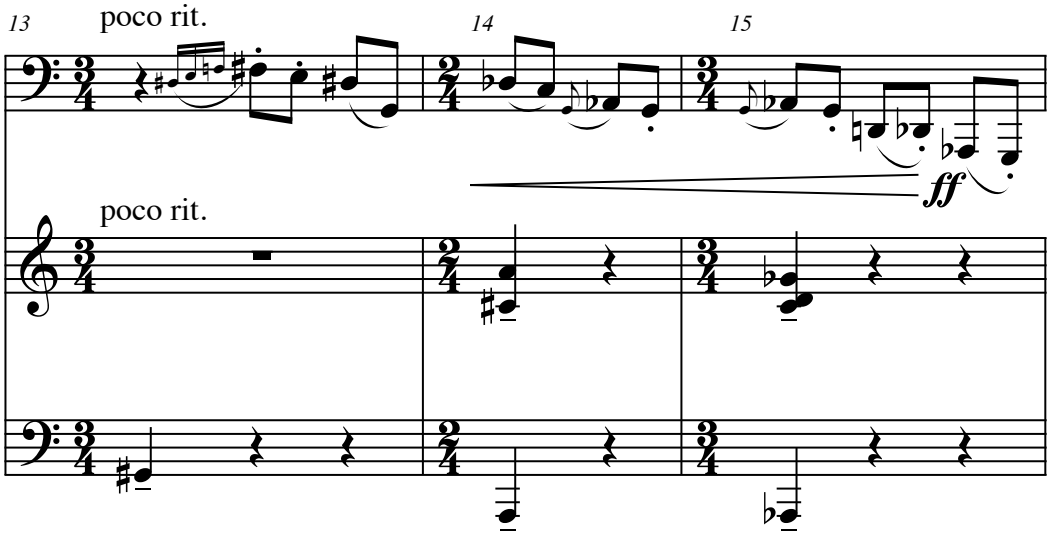
In stark contrast to movement 1, which almost fits into an altered sonata form and regularly adheres to established referential collections, movement 2 is much more thinly scored and often lacks any harmonic content.[36] Self described as "quirky," this movement does not have the constant material of referential collections that helped describe the first movement, and is less structured in its melodic and harmonic content. To deviate further from any established norms, the pfs used in this movement are much more chromatic in nature. A survey of Tables 2 and 3 shows many more sequential numbers in the pfs Woodward uses, which translates to dissonance and chromaticism. In fact, almost every melodic statement in this movement is based on chromatic motion, which gives a sense of instability to the listener. Perhaps alluding to the "quirky" nature of the movement, this melodic chromaticism is provided in contrast to a harmony that is often non-functionally tertian. For example, in measures 9-11 the accompaniment can be analyzed as the chords C^7, G^7, and D ♭ Major, against a somewhat chromatic melody.[37]

---

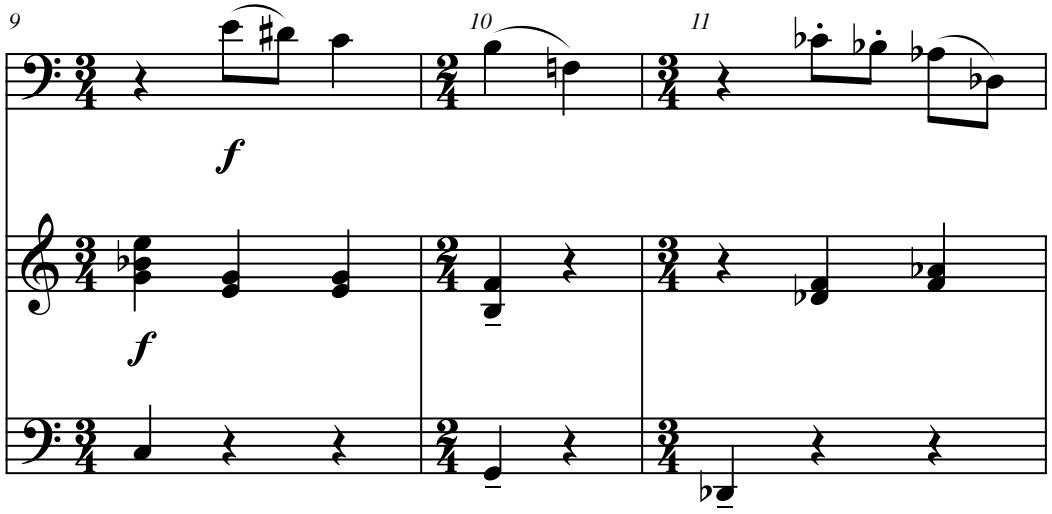
[36] See Example 7.

[37] See Example 8.

EXAMPLE 7: CONCERTO NO. 1, MVT. 2, MM. 13-15



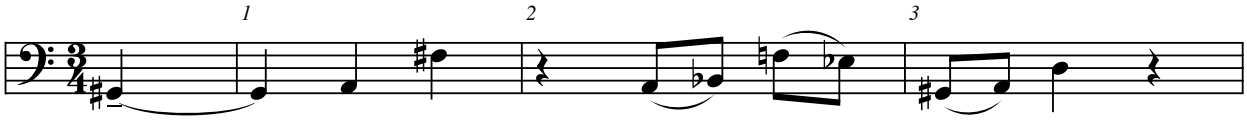
EXAMPLE 8: CONCERTO NO. 1, MVT. 2, MM. 9-11



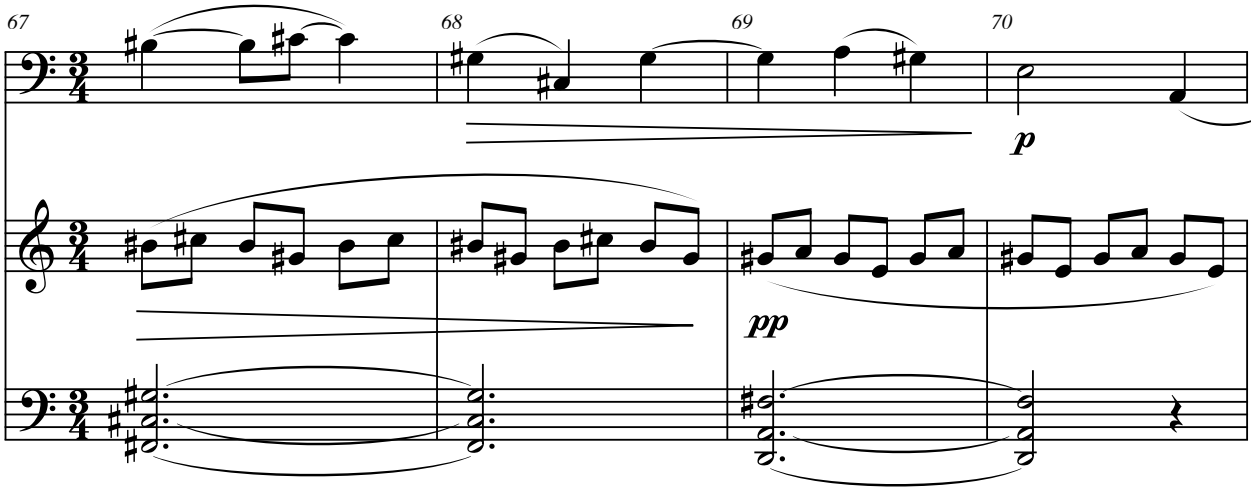
Despite this irregularity, some of the main themes of the piece identified in movement 1 can still be seen. One of the main melodic ideas defined by the pf [015], is often presented or alluded to in movement 2. This similarity is most often seen by the chromatic motion before the first notes in most of the melodic statements. Sometimes the melody outlines some version of [015], [016], [013], or [014], but it almost always

begins with that first chromatic step. The very first melodic statement presents these ideas and is repeated heavily throughout the movement.[38] These melodic ideas also differ from those in movement 1 by the fact that they are presented in inversion; the line moves upwards most of the time instead of downwards. More complete examples of pf [015] do appear later in the movement however. At Letter B Woodward begins regularly using referential collections again, and also adheres mainly to pf [015] in the melodic content. In a few places the identical melodic thematic material from the first movement is presented as well. In Example 10, the accompaniment is using the collection DIA_{+7} while both melodic statements can be formed from the pf [015] using the notes B♯, C♯, and G♯ in measures 67-68, and the notes A, G♯, and E in measures 69-70.[39]

EXAMPLE 9: CONCERTO NO. 1, MVT. 2, MM. 1-3



EXAMPLE 10: CONCERTO NO. 1, MVT. 2, MM. 67-70

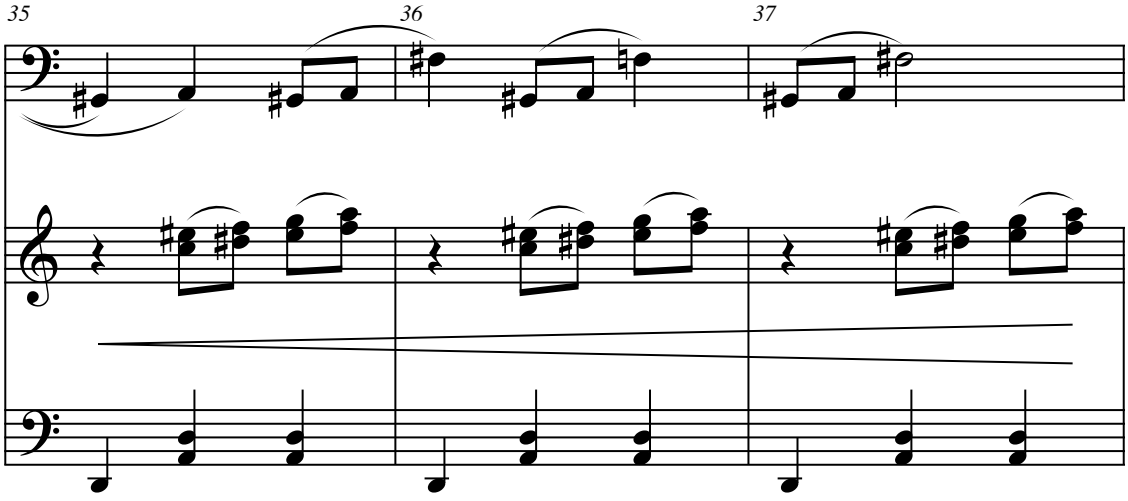


[38] See Example 9.

[39] See Example 10.

Another facet of this movement that adds to its “quirky” nature is Woodward’s use of the acoustic referential collection.[40] As described in Chapter 2-A, this collection is made up of notes from the harmonic series rather than any diatonic collection. Whether or not this grouping of notes was intentionally used by the composer, it produces a unique effect, similar to using a whole-tone scale. This collection is identified by its irregular collection of accidentals. While a diatonic collection would contain flats or sharps in a particular order, the acoustic collection does not follow the same order. In this instance at measures 35-37 with collection AC_{+2}, only F♯ and G♯ are presented.[41] Evidence points to this being an intentional use of this collection of notes, since these same notes are mirrored in the melody.

EXAMPLE 11: CONCERTO NO. 1, MVT. 2, MM. 35-37



[40] See Table 1.

[41] See Example 11.

Perhaps making its only appearance in either concerto, the dominant 7th chord is used often in this movement purposefully, as if to make fun of the harmony. Woodward again states that this sound is very dated and similar to harmonies used in a barbershop quartet, likewise the French augmented 6th chord and both the fully and half diminished 7th chord sounds.[42] He goes on to say that he is intentionally poking fun at each of these harmonies. There is actually an intended narrative in this movement of the interactions between Dr. Woodward and Alan Baer when he was taking tuba lessons with Baer as an undergraduate at the University of Wisconsin-Milwaukee.[43] The "quirky" label represents the uneasiness Woodward felt while trying to play his material in lessons, and much of the interplay between soloist and accompaniment represent the corrections Baer would make back and forth with Woodward in their tuba playing. A great example of these tertian harmonies can be seen in measures 9-12, where several dominant 7th chords make an appearance, followed by a diminished triad. Likewise, a similar idea can be seen in measures 39-42, which consists entirely of dominant 7th chords.[44]

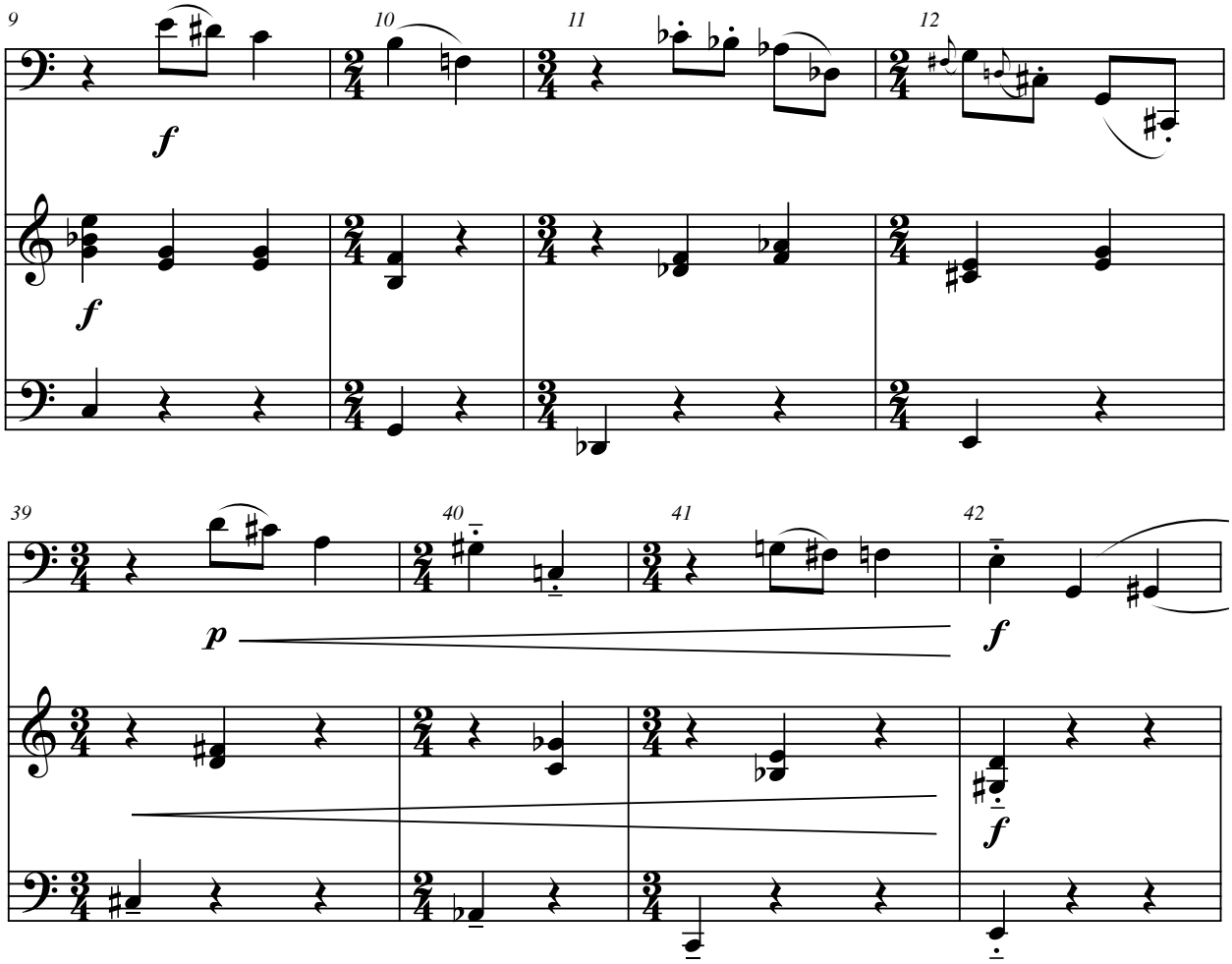
---

[42] Woodward, interview by author, Appendix 2, 122-3.

[43] Ibid, Appendix 2, 117.

[44] See Example 12.

EXAMPLE 12: CONCERTO NO. 1, MVT. 2, MM. 9-12, MM. 39-42



The middle section of this movement returns to Woodward's more representative compositional style at Letter B, where the aforementioned major triads with added notes are used instead of the dominant 7ths. In measures 61-64 the base harmony in the accompaniment is a D Major triad, but the moving eighth notes outline both the 9th and the sharp-11th, creating the same harmonies that were used in the first movement. Likewise, in measures 65-68, and in measures 73-75 the same format is used, just in different key-centers. In measures 65-68 the implied key is F♯ Major, with the moving notes outlining B♯ and G♯, the sharp-11th and 9th, respectively, and in measures

73-75 the key is B Major, with E♯ and C♯ in the moving notes again outlining the sharp-11th and 9th. Through all of these key changes, the same pf of [01357] can be used to label the particular sound that is being made. However, it is useful to distinguish between what sound is being produced, and the actual implied key centers being written when tonal influences take over in the music.

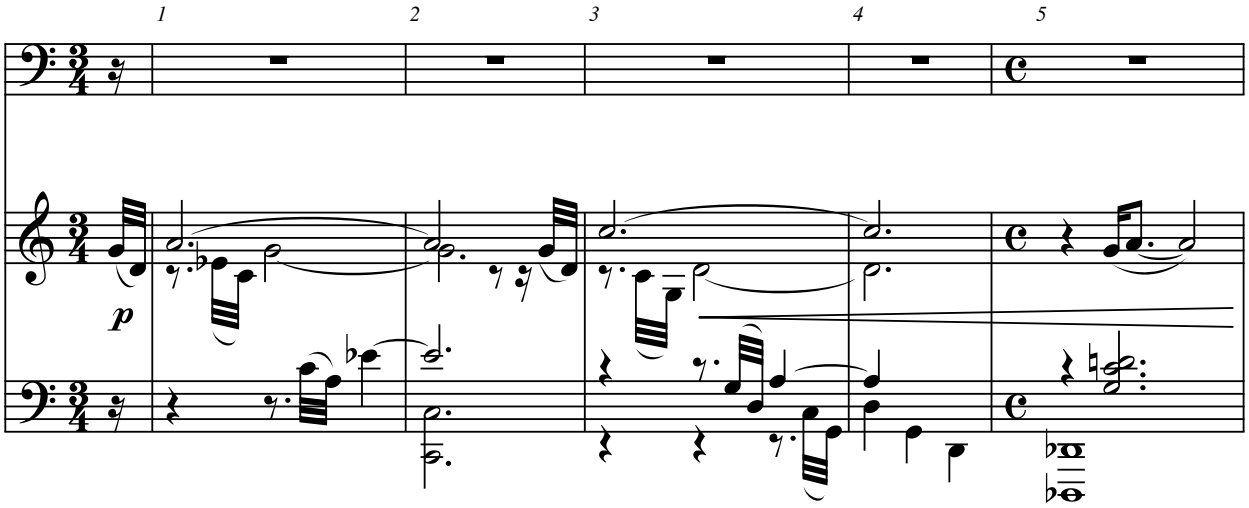
Speaking to this movement's "Freely" and "Quirky" nature, the form is much less structured than the first movement, and is mostly in a through-composed format. If any overall structure can be assigned to the music it would be a type of ternary form, as it contains three distinct sections and themes in the music. Preceding the actual *A* section is a brief introduction which utilizes ideas from melodies in the *A* section. This beginning takes place in measures 1-16, and is somewhat like a cadenza mirroring the end of the movement. The true *A* section begins when the theme returns in a more consistent format in measures 20-47 with some semblance of structure with three sections: *a, a-prime*, and *b* in measures 20-26, 27-43, and 44-59. A more expansive *B* section begins in measure 60, but quickly winds back down while utilizing thematic material from the *A* section until returning back to *A-prime* in measure 100. This shorter *A* section in measures 100-118 presents material from both *a* and *b,* in shorter segments not staying consistent to one idea or the other. Finally the movement ends with a substantial cadenza that uses melodic material from the *A* theme with many chromatic flourishes.

3. Movement 3

While movement 3 is just as harmonically sparse and movement 2, the harmonic and melodic content differs significantly. Much of this content returns to the thematic material of the concerto, including the pfs [015] and [0257] in both the melody and harmony. While the initial harmony in measure 2 presents $A^{ø7}$, this statement acts as a

dissonance leading to the more stable harmony in measure 4 of [027], which is then pushed aside in the following measure. This movement is all about instability while giving the tuba the opportunity to present a soliloquy in the latter half of the movement. The harmony in measure 6 of [01257] combines the previous stable harmony with dissonant thirds and half steps in the pedal voice to present this instability.[45] This dissonance is in stark contrast to the tuba melody when it begins in measure 6, which strictly adheres to referential collection DIA_{-1}, and almost exclusively presents melodic ideas taken from the pfs [015], and [0257], the main thematic material of the concerto. Even the lengthy cadenza at measure 43 maintains these elements, DIA_{-1} and the pfs [015] and [027] almost completely.[46] From a performer's standpoint, it is important to outline and highlight these statements when they occur to add continuity to the concerto. The final chord of this brief movement ends on pf [027] in the form of stacked perfect intervals to remove any doubt of this harmony's importance to the piece.

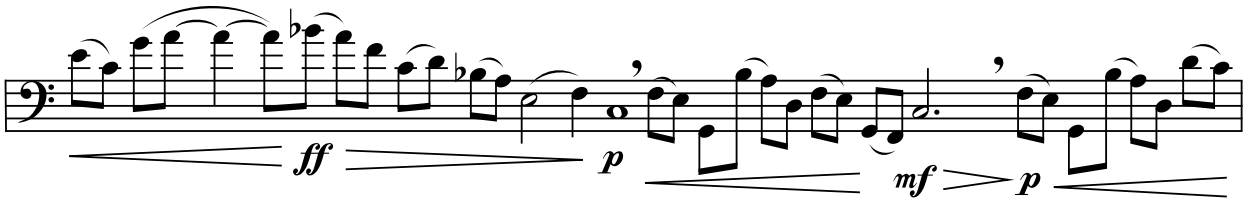
EXAMPLE 13: CONCERTO NO. 1, MVT. 3, MM. 1-5



[45] See Example 13.

[46] See Example 14.

EXAMPLE 14: CONCERTO NO. 1, MVT. 3, CADENZA



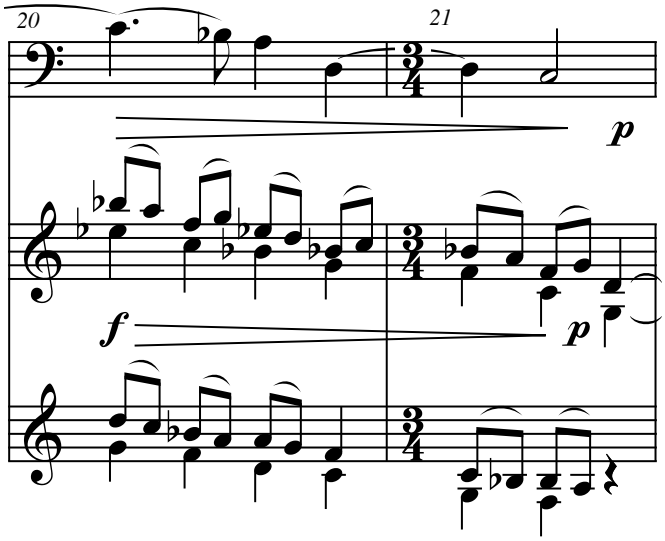
Looking at the first two measures of the movement, the half-diminished quality of the chord could represent a bridge between the second and third movements of the concerto. Since the second movement represented “poking fun” at seemingly tired tertian harmonies such as the half diminished 7th chord, the inclusion of this chord shows how it can be changed to better suit the needs of the composer. The following chord arriving in measure 5 shows a more “current” harmony by presenting what can be seen as a G Major triad with an added 11th and 9th with the C and A, respectively (labeled by pf [0257]). The pedal D ♭ provides added dissonance and also retains the presence of a tritone between itself and the G.

Another recurring harmonic idea in this movement can be seen in measures 20-21, with moving eighth notes in the accompaniment. In these measures, every beat of time presents another example of the harmonic material that Woodward uses; he presents a major triad with added pitches, almost exclusively the major 7th, or some type of 11th or 9th. For example, in beat 1 of measure 20 he presents E ♭ Major with a D for the major 7th and an A for the sharp-11. In beat 2 it is F Major with a G for the 9th and a B ♭ for the 11th. Beats 3 and 4 of that measure repeat the same harmonies in different inversions and forms, but with the same added pitches to the major triads.[47]

[47] See Example 15.

These similar patterns appear again as well in measure 11 and 34, each time using the major triad as a base harmony to present the added pitches.

EXAMPLE 15: CONCERTO NO. 1, MVT. 3, MM. 20-21



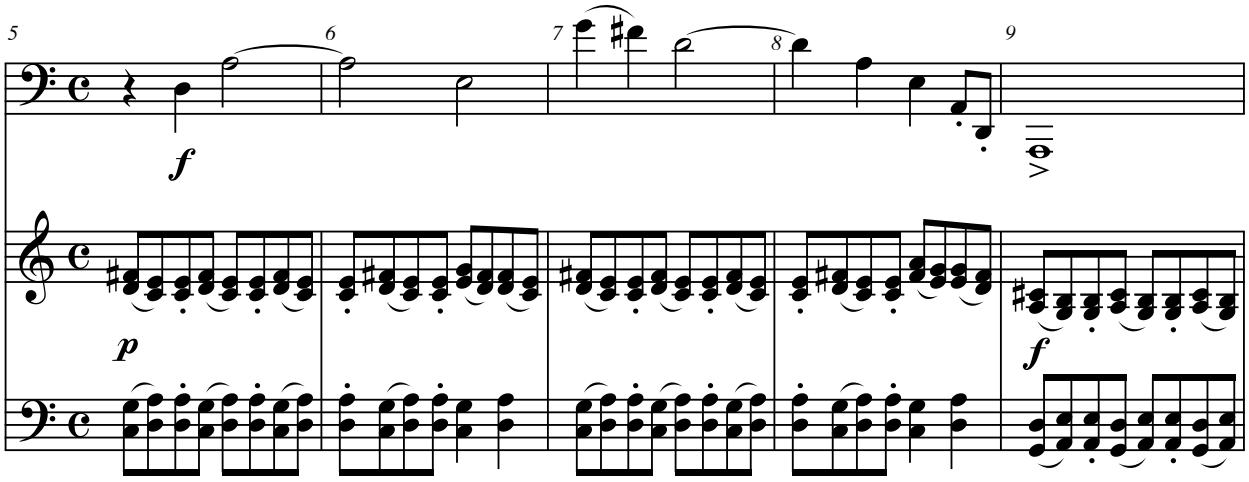
This movement has the least overt structure of the entire concerto, and is almost an accompanied soliloquy for the solo voice. A brief introduction by the accompaniment leads to the first melodic statements that form the *A* section, which lasts from measures 1-23. While the *B* section uses much of the same melodic material as the previous section, the accompaniment is more active and plays more than a supporting role to the melody. This more dramatic section leads seamlessly to the cadenza, which continues expanding on the melodic ideas presented in the previous two sections, leading to extremes in register and dynamics. The conclusion of the movement in measures 44-46 returns to ideas from the *A* section that also ends with another short cadenza.

4. Movement 4

From the very beginning of the fourth movement, many of the conclusions drawn from the previous three show themselves through the harmonic and melodic content.

The opening harmonies are more characteristic of the thematic material of the concerto (pfs [027] and [015]), as they contain both of these sub-sets. The downbeat of measure 1 presents the pf [0157] which obviously contains [015]. While this is a dissonant harmony, it is more stable than the opening harmonies of the first movement which contain two half-steps in the pf [0156].[48] The resolution harmony on the upbeat of beat 1 is represented by the pf [0247] which contains [027]. Both of the thematic pfs are also seen immediately in the melody in this movement. The first melodic statement in measures 5-9 is made up entirely of these two pfs, [027] and [015]. Woodward is consciously adhering to this thematic material to set the stage for the movement, and it is the performer's responsibility to demonstrate these examples. Measures 5-8 demonstrates both of these examples in the melody and harmony, even though the harmony is in a different "key center" than in measures 1-4.[49]

EXAMPLE 16: CONCERTO NO. 1, MVT. 4, MM. 5-8



[48] See Example 1.

[49] See Example 16.

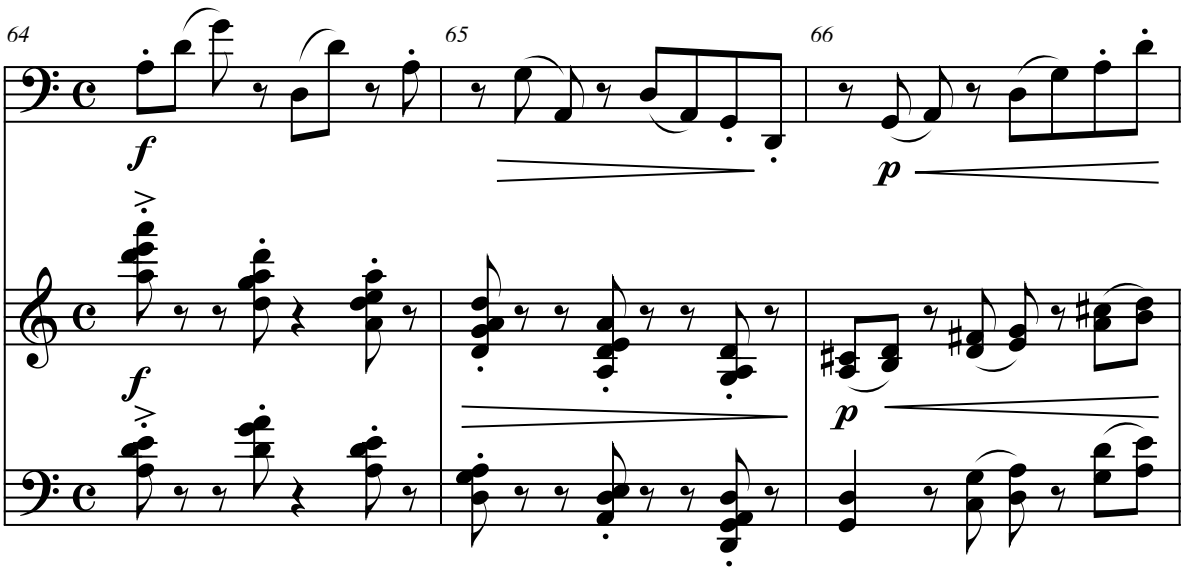
Moving away from pf analysis, each of these harmonies presented also have a tonal backing. For example, the chord labeled with pf [0157] on the downbeat of measure 5 can also be labeled as a C Major triad with an added 9th and sharp-11th, similarly to many other examples throughout this concerto. Woodward is adhering to the same harmonic language, which utilizes altered major triads while avoiding the dominant 7th, or half and fully diminished 7th chords.

In both the melody and harmony the two “thematic” pfs of [027] and [015] often combine and can be analyzed together as [0237]. More than any other movement, the content of this one adheres more to the ideas of [015], [027] and their aggregate [0237]. Aside from a few examples of incidental tertian harmony, every instance of vertical harmony in this movement contains [027]. This idea, again, stems from Woodward’s use of the 9th and sharp-11th. When one forms a harmony using the root, fifth, and ninth of a chord the resulting pf is [027], which is also the case when the root, 11th (4th), and 5th are used. If the sharp-11th is used in a harmony with only the 9th, sharp-11th, and 5th, then the resulting pf is [015]. The aggregate pf of [0237] is likewise formed with a harmony that contains the root, 3rd, 5th, and 11th, for example.

Even where there is dissonance, as in the first measure with [0157], the pf [027] can still be seen as a subset. These pitches in measure 1 are G-D-A, and likewise C-G-D in measure 4. The concept of perfect intervals is ever-present in this movement, and for a time takes over completely. The melody from measures 62-83 is entirely composed of [027] with the pitches G-D-A, aside from a few scalar flourishes. This dedication is

briefly mirrored in the harmony from measures 64-65, eliminating any forms of dissonance from the music.[50]

EXAMPLE 17: CONCERTO NO. 1, MVT. 4, MM. 64-66



Following this example, every bit of melodic material for the rest of the piece comes from [027] and [015]. Sometimes the pf [0247] is used, which merely utilizes the third of the chord different than with the pf [0257]. There are several instances where another whole step appears in the melodic lines, forming the pf [0257], but it can be seen that it is a combination of two separate instances of [027]. [027] is clearly the first subset, but the second subset is formed by the numbers 0-5-7, which in reverse order form the same intervals as [027]. This example appears in places like measure 126, where the notes D-E-A form the pf [027] while the notes A-G-D form another example of [027].[51] This same idea can be heard in the harmony as well with the ascending perfect fifth intervals, which always produce the same pf, [0257].

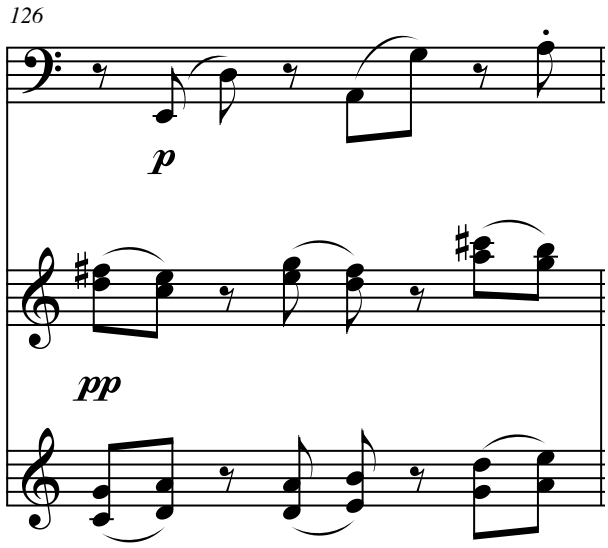
---

[50] See Example 17.

[51] See Example 18.

It is easy to assume that these harmonies come from stacking perfect fifths on top of each other (G-D-A-E), but because of the previous material corroborated with Woodward's interview, these harmonies all stem from tonal roots.[52] In that same measure, the down beat presents C-D-F♯-G, which represents a C Major triad with the added 9th and sharp-11, represented by the pf [0157]. The upbeat of beat 1 presents A-C-D-E, which is now a minor A triad with an added 11th, represented by pf [0247]. The following harmony on the upbeat of beat 2 presents D-E-G-A, again implementing a D triad with added 9th and 11th, shown by the pf [0257]. This harmony is followed by B-D-E-F♯, showing a B Minor triad with an added 11th, again represented by pf [0247]. The horizontal "harmony" presented by the solo voice is also D-E-G-A, identical to the harmony on the upbeat of 2.

EXAMPLE 18: CONCERTO NO. 1, MVT. 4, M. 126



In contrast especially to the previous two movements, this movement stays exclusively in two "key centers:" DIA_{+1} and DIA_{+2}. The regularity of this movement

[52] Woodward, interview by author, Appendix 2, 123-5.

further establishes and concludes what Woodward's thematic material consists of throughout the previous three movements. There are no distractions presented that lead away from the idea of [027] and [015] forming the basis for the piece, or from the fact that the piece is not strictly tertian and is not in any sort of "key."

Woodward presents very melodic and tuneful themes in this movement that lead one to believe another sonata form will be produced, but the composition is far more whimsical in nature than originally thought when listening. Rather than presenting larger-scale sections like *A* or *B,* and then moving through a development or recapitulation, Woodward presents a handful of different themes that move to and from each other before abruptly ending seemingly in the middle of a final theme. After a 10 measure introduction, the first pointed, syncopated theme is presented from measures 11-23. This idea is repeated in measures 24-33 but concludes differently in a more expansive melody. The "Dance-like" section starts in measures 34-41 and alternates with a more passive cut-time melody in measures 42-49.[53] These two segments repeat in measures 50-58 and measures 59-66, respectively but with somewhat different content. Instead of developing these main ideas presented so far, Woodward presents a new idea in measures 67-83 that slightly resembles the harmonic material of the first *A* section, but differs completely in the melody. The *cantabile* melody in measures 84-99, and then in measures 100-115 as well is also new material instead of a development of previous material. This new material serves as a bridge to measures 116-135, in which a further altered *A* section makes a return, though the original melodic material does not return until measure 125. The following two sections are also previously stated material,

---

[53] James Woodward, *Concerto for Tuba and Piano* (Salem, CT: Cimarron Music Press, 2010) 23.

in measures 136-142, and 143-152. The piece finally ends very abruptly with a coda in measures 153-163, which utilizes material from the first two sections of the piece, *A* and *B*.

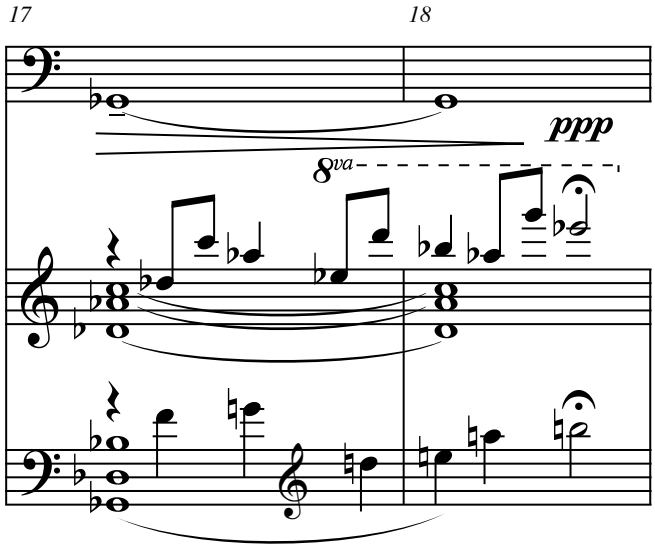
F. Concerto No. 2

1. Movement 1

One of the most apparent differences between Woodward's first and second concertos is the lack of harmonic and formal regularity present in the second concerto, especially at the start of the first movement. Beginning with a miniature cadenza, there is no stable referential collection until Letter A (DIA_{-1} and DIA_0). There is also much more harmonic variety in this piece compared to the first concerto. While [027] and [015] certainly have a place in the thematic material, much more variety and dissonant harmonies are presented. This dissonance is clearly stated first in the cadence at the end of the "introduction" in measure 18. The held vertical harmony forms the pf [02347], which contains two half step intervals, between the written D ♭, D, and E ♭ in various octaves.[54]

[54] See Example 19.

EXAMPLE 19: CONCERTO NO. 2, MVT. 1, MM. 17-18

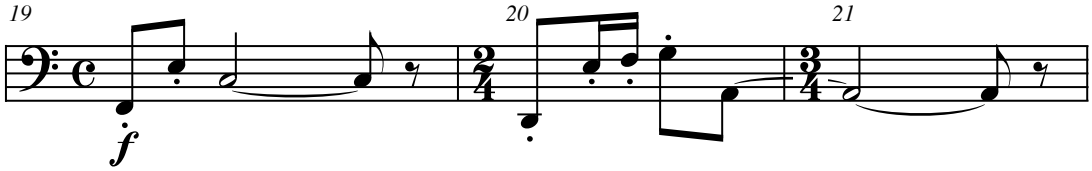


The main thematic material from Woodward's first concerto is ever present in this piece as well. The pfs [015] and [027] are both present in this first extended vertical harmony, and are also the first main ideas presented in this movement, however in a different format. The opening melodic statements at Letter A outline [015] and [027] in measures 19 and 20, respectively, and while the melodic content deviates quickly away from these foundations, they remain important throughout the movement.[55] This is largely due to the nature of Woodward's compositional methods, which largely focus on altered major and minor triads for the harmonic material. Adding 9ths and sharp-11ths are more likely to produce chords in which the pf contains [027] and [015]. The tertian influences can be seen in this small melodic example as well. The first statement in measure 19 of F-E-C, can be analyzed two ways: either as a C triad with an added 11th (the F), or as an F triad with a major 7th (the E). The following statement in measures 20-21 of D-E-F-G-A more clearly fits as a D Minor triad with both the 9th and 11th (E

[55] See Example 20.

and G). These tertian-themed ideas are corroborated by the first real vertical harmonies after letter A; for example, at measure 33, the harmony represented by pf [0247] can be labeled a G ♭ Major chord with an added 9th of A ♭ . The fact that the 9th is in the bass masks the tertian nature of the chord, but the harmony is still there.

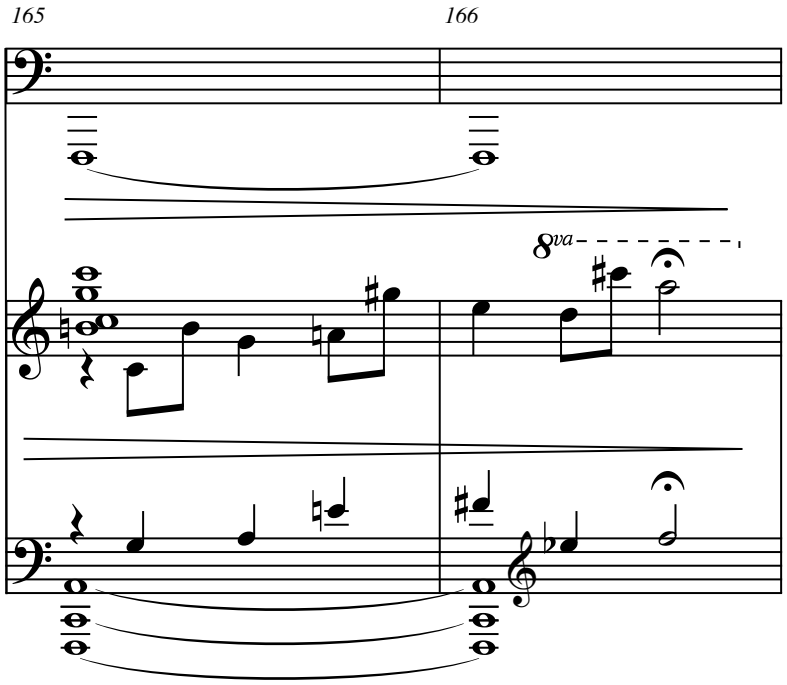
EXAMPLE 20: CONCERTO NO. 2, MVT. 1, MM. 19-21



The rest of the melodic content in this movement takes on one of three forms: either purely scalar motion following a defined referential collection outlined in Table 4, chromatic motion, or leaps whose pf always consists of some facet of [015] or [027]. This analysis is encouraging because the referential collections that are utilized in the melody are always mirrored in the accompaniment. The final vertical harmony of the movement in measures 165-166 mirrors the first real cadence in the movement at measure 18 by presenting an equally dissonant harmony through the held notes in moving voices throughout the two measures. In this case, the harmony consists of an F Major triad with both the 9th and sharp-11th, forming the pf [01357].[56]

[56] See Example 21.

EXAMPLE 21: CONCERTO NO. 2, MVT. 1, MM. 165-166



Like the first concerto, this opening movement is structured similarly to sonata form, with the first 18 measures serving as an introduction, and foreshadowing of the "B" theme of the movement. The "A" section begins at Letter A, and continues until measure 56, broken into three sections, *a* (measures 19-31), *b* (measures 32-40), and *a-prime* (measures 41-56). Woodward clearly moves to the "B" section in measure 57, which continues in one through-composed segment until measure 90. Still following a type of sonata form, the next portion of the movement is representative of a development, but there is no true recapitulation as in the first concerto. Altered forms of both major sections are presented, starting in measure 91 with "A". Within this larger section, the sub-themes *a* and *b* present themselves in altered forms moving through different keys from measures 91-97 and measures 98-107, respectively. The development is more capricious in nature and quickly shifts between alterations of the

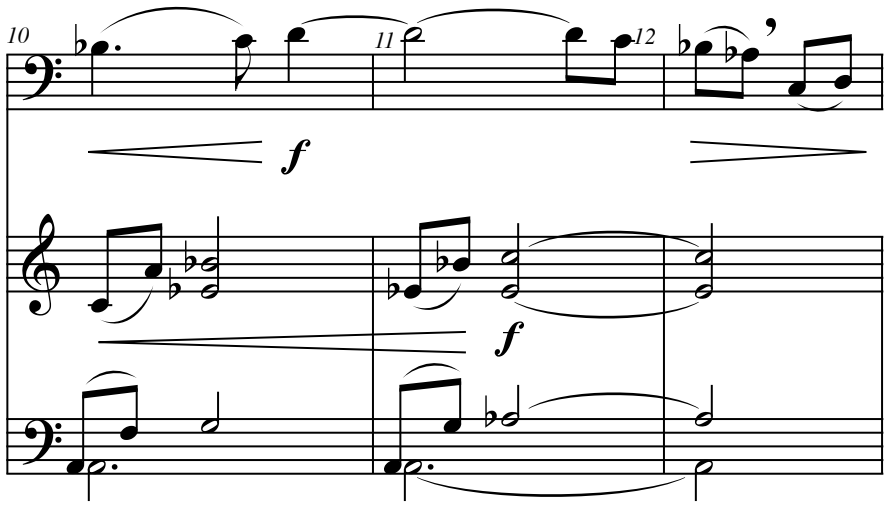
main themes. The “B” section is presented in measures 108-122 before moving back to “A” with the *a* sub-theme in measures 123-135. This movement lacks a recapitulation, but what sounds like a conclusion begins in measure 136 with an augmentation of the original “A” section’s *a* theme, which leads immediately to a final statement of the “B” theme. Instead of an exciting flourish at the end, the first movement concludes with an extended cadenza, working through ideas from the “A” section and introduction, before ending finally with a coda that utilizes material from the introduction as well.

2. Movement 2

The second movement of this concerto is unique from the others in that no referential collections are consistently used either in the melody or harmony to form a foundation for Woodward’s material. The harmony relies on non-functional tertian harmonies most of the time, often centered around the key of F, and even develops into bitonality at one point. Woodward’s compositional style can be seen clearly with the first few harmonies presented. The most commonly used tonality used in this movement is the major seventh chord, defined by the pf [0158]. Woodward never uses this chord in any functional way however, and instead uses it for the dissonant tonality inherent to the chord. The harmony in measures 1-4 all present F^{M7}, characteristically avoiding any sense of dominant, half-diminished, or fully-diminished seventh chords. When the tonality shifts in measure 5 to pf [0137], this harmony is based on an E ♭ Major triad with the sharp-11, A, in the bass. This A remains as a pedal point fairly consistently until letter A, either providing dissonance or serving as a member of the triad for each

harmony. Most jarringly, this A acts as an enharmonic flat 9th in an A ♭ Major triad in measures 10-12, before returning to being the 3rd of an F^{M7} chord immediately after.[57]

EXAMPLE 22: CONCERTO NO. 2, MVT. 2, MM. 10-12

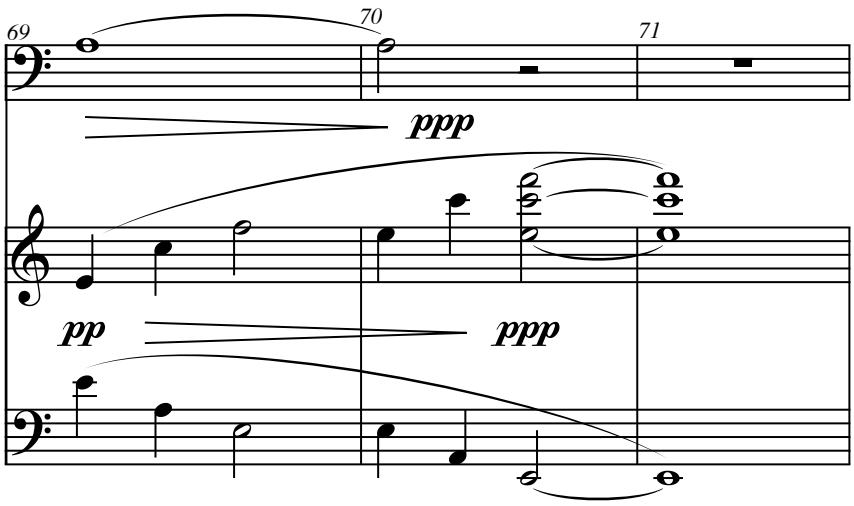


The use of the major 7th chord is also implied by the ever-present pf [015], which is spelled out by writing the root, seventh, and fifth of the chord. The best example of this event is the final cadence of the movement, which ends on a type of F^{M7} chord in third inversion. The missing third is provided by the tuba at the beginning of measure 70, leaving little doubt which tonality was intended by that collection of notes.[58]

[57] See Example 22.

[58] See Example 23.

EXAMPLE 23: CONCERTO NO. 2, MVT. 2, MM. 69-71

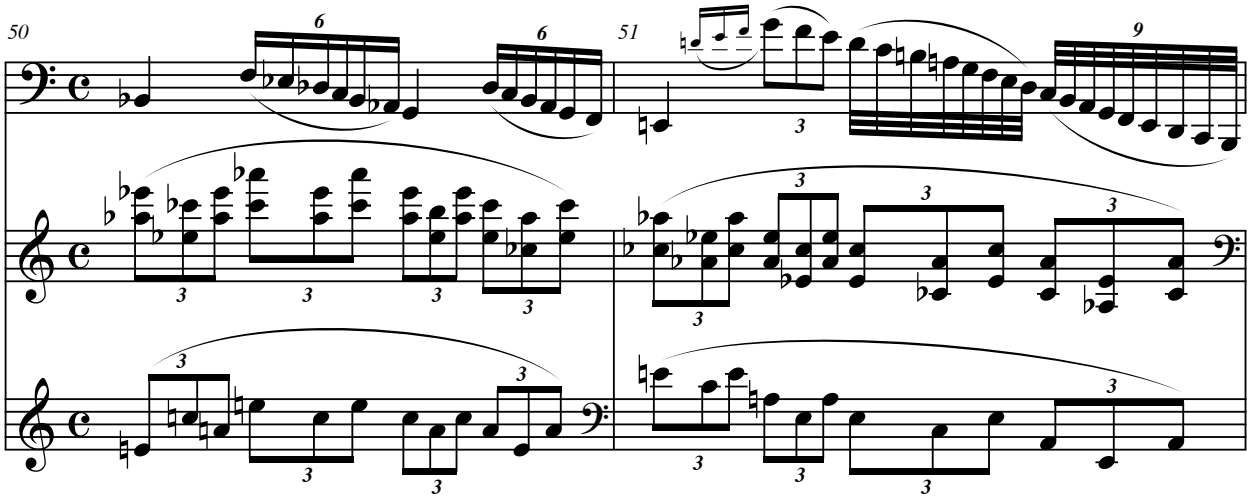


Woodward's altered tertian harmonies continue their presence throughout this movement especially at letter B, labeled "With Motion." The harmony begins with F^{M7} represented by pf [0158] in measures 29-31, but then moves through several different implied key centers. In measure 32, the harmony fits into an E ♭ Major triad with another enharmonic flat-9th and sharp-11, before shifting to a $B\flat^{M7}$ chord in measure 33 with a sharp-11. In each measure from measures 32-40, there is a clear major triad with added pitches, usually a 9th or 11th, fitting into Woodward's established compositional style.

These ever changing harmonies grow in intensity until letter C, which moves into complete bitonality for a time, from measures 41-62. This tonal shift coincides perfectly with the middle section of the movement, which is labeled "Even More Motion." A bitonal analysis is also preferable in this section as there are little or no patterns implied by studying the pfs. It can be seen from analyzing Table 3 that almost every measure yields a completely different and unique pf, unlike every other movement of either of Woodward's concertos. While a pattern of tonal centers used in this segment is not

overtly apparent, there is certainly an arrival point at measure 50 with the amount of pure dissonance between each key center. The keys of A ♭ Minor and A Minor cannot be more different from one another with the half-step relationship between each voice in the accompaniment, and this dissonance accompanies a drastic arrival point in the melody in measures 50-51. The tuba voice reaches it highest point in the movement so far in measure 51 and falls down to a low A in a flourish.[59] Since many of Woodward's harmonies come from altering major triads with added pitches, moving to bitonality represents the most drastic sounds that can be produced from simply utilizing major and minor triads.

EXAMPLE 24: CONCERTO NO. 2, MVT. 2, MM. 50-51



3. Movement 3

The opening measures of the third movement again demonstrate the use of the pf [015] as an implied major seventh chord. This method was previously seen at the conclusion of the second movement with the held harmony in measures 70-71. One major difference in this movement is the near-establishment of a true key center. The

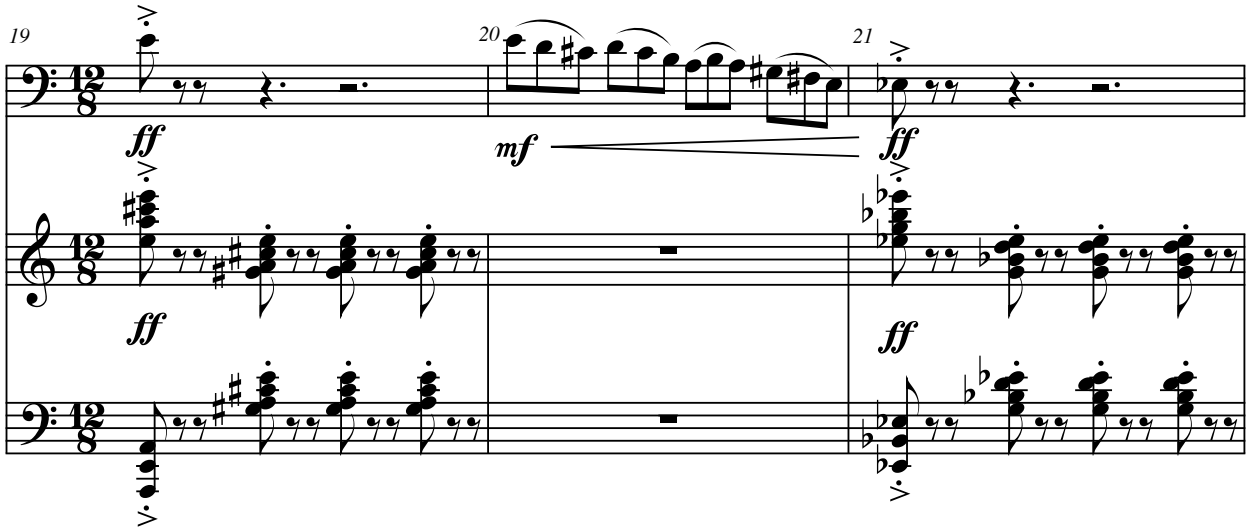
[59] See Example 24.

referential collection DIA_0 is used to serve as a home key in measures 1-3, and dissonance is implied by the use of DIA_{-5} in measures 4-6 before returning back to DIA_0 in measure 7. What is unique about this interchange is that both the melody and harmony are functioning in actual key centers, almost in a traditional sense, for the first time in either concerto. While there is no chord progression, the pf [015] in the form of incomplete major seventh chords remains consistent throughout this section in both "keys." The scalar nature of the melody also holds true to an idea of C Major, moving to and from D ♭ Major. Woodward diverges back into a more "atonal" harmony with the use of pf [0137] starting in measure 11. The pf [037] represents either a major or minor chord, and in this case that chord is A ♭ Major, with an added D. This sonority is not unlike his previous use of [015], with the presence of one half-step in the chord, but is certainly not functional or representative of any key center. However, the melody in measures 11-14 remains consistent to the scalar ideas presented so far, and remains squarely in DIA_{-3}, this time not backed up with an E ♭ Major harmony to match.

The next large segment of the movement remains true to these same ideas; presenting a scalar melody in an almost tonal key center that is backed up with a corroborated harmony. For example, at Letter A this key center is more clearly A Major (DIA_{+3}), and then E ♭ Major (DIA_{-3}) in measure 21, continuing in different key centers until Letter B.[60]

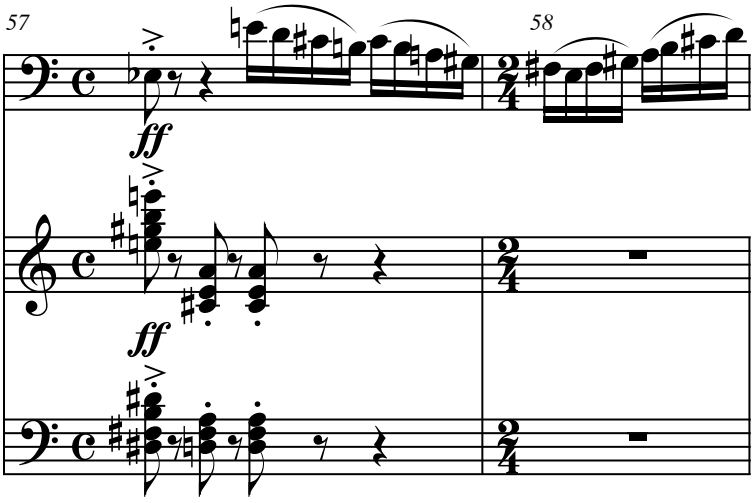
[60] See Example 25.

EXAMPLE 25: CONCERTO NO. 2, MVT. 3, MM. 19-21



These same ideas are used from measures 83-118 as well; using something resembling a major seventh chord in the harmony to support a scalar melody in the same implied key. This minimalist accompaniment adheres to the “light and crisp” definition of the third movement, and allows for the solo voice to maintain a dance-like melody for much of the piece.

EXAMPLE 26: CONCERTO NO. 2, MVT. 3, MM. 57-58



Bitonality makes a reappearance in this movement as well, in measures 57-63, serving as a development from the initial theme of the movement. Instead of strictly adhering to one referential collection or key, Woodward now uses two, presenting the scalar melody on top of two major chords in the accompaniment.[61] This harmonic complexity helps establish this larger section of the movement as a true development before returning back to the original theme and key center for a recapitulation at Letter D.

The final section of the concerto returns to previous ideas from the piece, adhering strictly to DIA_0 while presenting scalar ideas in both the solo voice and accompaniment. The harmony grows extremely dense in measures 125-132 with the pf [023579]. Pfs like this one often do not reveal any interesting information as it is almost representative of an entire diatonic scale, but the arrangement of notes in this harmony are displayed as a type of 'G' chord. The spelling G-B-D-F-A-C spells out a type of G^{11} chord, and in this case represents a large-scale dominant chord to the final cadence of the piece to arrive a few measures after. As this movement is mostly tonal, or at least almost-tonal, it is fitting to have a dominant-tonic motion at the conclusion, which is exactly how the piece ends. After a final scalar flourish with DIA_0 in the tuba voice, the piece ends on an actual C Major chord, verifying the question of whether or not tonality was intended with the minimalist accompaniment throughout the movement.

The form of this final movement is more structured than the middle movement, but not nearly as regular as the first. Much like the closing movement of Woodward's first concerto, this movement consists of several different sections that return at some

---

[61] See Example 26.

point later on, but do not easily fit into a specific form. The movement can roughly be arranged into three large sections, *A*, *B*, and C. The *A* section consists of three different sub-sections. The first in measures 1-16 contains the opening melodic material of the movement. The second sub-section in measures 17-28 presents another melodic idea in the form of a call-and-response with the accompaniment, which leads seamlessly to a third subsection of music in measures 29-41. The *B* section begins with a new tempo marked *Broaden* in measure 42, and consists of 5 smaller sections similar to the *A* section. The first in measures 42-49 presents a new melodic idea, which also returns later in the *B* section. The last new melodic material is presented in measures 50-56, and leads seamlessly to a restatement of the second section from *A* in measures 57-64. The second statement in *B* is restated in measures 65-71 as well, which now leads seamlessly to the first statement from *B* in measures 72-82, the first of which take place entirely in the accompaniment. The *C* section begins in measure 83 and may be considered a type of recapitulation as it only contains material form the *A* section of the piece, but in altered formats. The sections mirror each section from *A*, and take place in measures 83-98, 99-108, and 113-25 respectively. The final section of the piece in measures 126-139 also presents mostly new material, along with some melodic statements taken from the very beginning of the first movement of the concerto, and acts as a coda to the entire work.

G. Conclusions

After examining Woodward's tuba concertos, his compositional style and language has become clear. Even though his music often sounds dissonant or atonal, it is usually tonally based, and most of the harmonies come directly from altered major and minor triads. The harmonic and melodic tables provided in this study serve as a

reference for any inquiries as to what is going on the music. Of particular value are the labels of referential collections, which show what “key” the music is in at that point in time, as well as the examples of tertian harmonies that appear throughout each concerto. The established “thematic material” of each concerto is also important to realize for the performer, as these repeated pfs in the melody, for example [015] and [027] in Concerto No. 1, need to be extenuated in the music to show their prominence. Furthermore, as a performer or listener, it is often easy to write off many of the harmonies being used as “crunchy,” and leaving it at that. While exact knowledge of every prime form being used in the piece is certainly not necessary to perform it well, it is valuable to be able to hear a harmony, look up what the prime form is, and then see what significant connections can be made.

For example, choose a measure at random, in this case measure 25 in movement 3 of Concerto No. 1. The note in the tuba voice is G3. The performer knows to crescendo this note by looking at the music, but what about the intonation? By studying the score, the harmony occurring in the accompaniment is something made up of F-A-B ♭-C-E. Based on this information, it might be unclear how the G fits into what is going on. From learning about Woodward’s compositional style, and studying the prime forms presented in this measure, which include [015], [027], and [0237], it becomes more clear what is actually happening and how the solo voice fits into the harmony. In this case, Woodward is basing the accompaniment on an F Major triad, with the added 9th in the solo voice, the 11th (B ♭) and the major 7th (E). This would suggest that the G should be tuned slightly sharp, since it is the 9th of the chord and is a perfect fifth above C. This same G is usually a flat note on the F tuba, and needs to be corrected, either by adjusting the embouchure or pushing the first valve slide inward.

Without the knowledge that the G is a ninth in the harmony, this adjustment might not be made effectively, leading to distortion in the sonority that Woodward intended. Using this information, studying the harmonic and melodic language, is a form of performance practice in and of itself; it is the practice of trying to hold true to the ideas that the composer originally intended, while using one's own voice to present it.

CHAPTER 3: Performance Practice Issues

The concept of 'performance practice' refers to the study of how music was performed in certain time period, on each particular instrument, in order to ensure the authenticity of performances in the future.[62] The study of performance practice with regards to Woodward's tuba concertos will focus on different issues that either pertain specifically to the concertos themselves, or aspects of tuba performance that present significant or unique challenges. Some of this information will be gathered from interviews of Woodward, as well as Alan Baer (for whom the pieces were written) while other concepts are taken from journal articles, and method books focusing on tuba and low-brass pedagogy. Aside from presenting the music, many aspects of playing the tuba deal with the physical demands required by and technical challenges presented by the instrument. While the issues addressed pertain directly to the content of these concertos, the methods and techniques referenced can also be applied to tuba-playing in general.

A. Range

One of the most challenging aspects of Woodward's concertos are the range requirements: high, low, and especially the transition between the two. A general concept for range on the tuba, as well as most wind instruments, is that to play higher notes, the air speed needs to be fast, and to play low notes, the air speed needs to be slow. Also, in general the embouchure is much looser and more open for low notes, and

---

[62] Michael Upshall, *Hutchinson Pocket Dictionary of Classical Music* (Oxford: Helicon Publishing Ltd., 1994) 163.

perhaps more closed and firmer for high notes. These are general ideas of brass pedagogy that will be expanded upon as it pertains to the tuba specifically.

In each movement of both concertos, there are opportunities to play low. The lowest notes in both pieces are F1 and E1, located at the end of Concerto No. 1 Movement 2, and the end of Concerto No. 2 Movement 1. There are several instances of G ♭ 1, G1, A1, and above in the rest of each piece. Since these pieces are written with bass tuba in mind, an instrument pitched in F specifically, these notes represent the lowest pitches in the conventional range, and the pedal register is used for F1 and below.[63] In all cases in both concertos, the notes in the low register[64] are approached from above, and usually by step. Staying in line with Alan Baer's tactic of creating exercises from the repertoire to fix what "ails you," long-tone studies can be crafted from each particular low-range requirement in each concerto.[65] Perhaps the best application for this practice strategy can be found at the conclusion of the first movement of Concerto No. 2. Starting at Letter J, the tuba begins at B ♭ 2 and gradually descends, step-by-step to the pedal tone of F1. This example can be practiced by changing each pitch into a long tone, at least a whole-note, and slurring each note downward, taking full breaths when needed, at most every two whole notes.

To maintain a fullness of tone in the low register, certain overt changes must be made gradually to the embouchure and air flow. The aperture of the lips must be opened more the lower the range, in order to accommodate a wider column of air. One

---

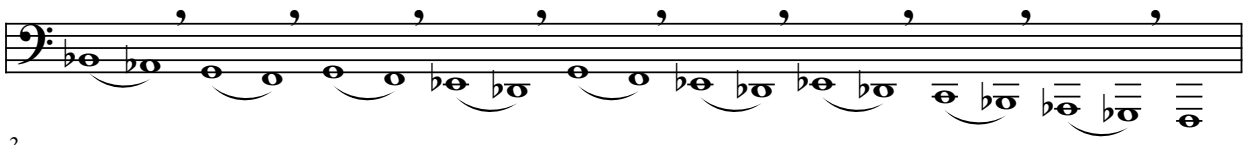
[63] All tubas are different, some 6-valved tubas can play the pedal tone of F1 with all 6 valves depressed.

[64] For the purposes of this study "low register" will refer pitches below C2.

[65] Alan Baer, interview by the author, New York City, NY, July 3, 2014, Appendix 1, 109-10.

can think of opening the jaw gradually (bringing the jaw down and forward) to help this shift. Also, this wider, thicker air will need to be slower in velocity in order to utilize the growing resistance of the horn, especially in notes using several valves, such as G ♭ 1 or G1 on the F tuba.[66] Since these pieces move from high to low, and low to high, often very quickly, it is important not to shift too violently when approaching the low register. The jaw and aperture should both be gradually opened and closed when moving to and from the low notes, even the pedal tones, but this should all reside within the same general embouchure setup.[67] Many players have a "pedal embouchure" that they switch to at some point in the low register. This shift should not need to occur anywhere in these pieces, as E1 should still lie within the conventional low-range embouchure.

EXAMPLE 27: LOW RANGE EXERCISE



The high range requirements in Woodward's concertos will probably present a much greater challenge to most, especially if playing F tuba is not a main focus. There are many methods one can utilize to develop the high register in general. Having a strong buzz on the mouthpiece in increasingly high ranges is good practice. Limited practice on smaller mouthpieces, such as euphonium, trombone, and even trumpet mouthpieces can be beneficial to approaching the extreme demands presented by these concertos, at least to establish the air speed requirements and a general idea as

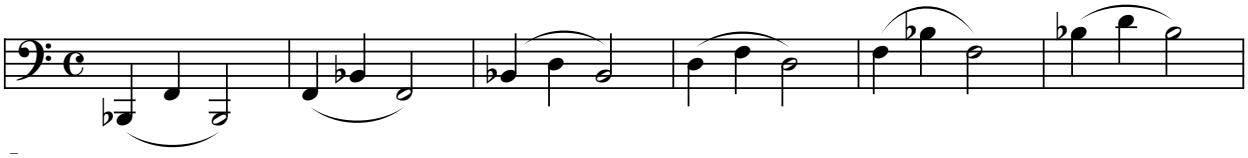
---

[66] Fritz Kaenzig, "Tuba Pedagogy: Building a Successful Low Register," *International Tuba and Euphonium Association Journal* 13, no. 1 (Aug 1985), 24.

[67] Fritz Kaenzig, "Tuba Pedagogy," 24.

to what the lips need to do to play the higher notes.[68] On the tuba mouthpiece, however, buzzing ascending arpeggios in a measured range is a good exercise to develop the high register. The same fullness of tone must be maintained as the range increases, focusing on both cloning the tone quality, and ensuring there are no gaps in the sound. The highest note in both concertos is C3, so this should be the goal for buzzing on the mouthpiece. Inevitably, this range will not be immediately comfortable or even approachable at first, so gradual growth of the range will have to take place. This provided exercise should be played with everything glissed together with a drone or keyboard providing a pitch reference. Once the exercise can be completed comfortably with everything sounding consistent, then it should be moved upward one half step until at least the C3 can be played on the mouthpiece alone as a final goal.

EXAMPLE 28: MOUTHPIECE BUZZING EXERCISE



In addition to buzzing on the mouthpiece, practicing lip-slurs on the instrument up to the 12th partial of the harmonic series is necessary to develop the range. On an F-tuba, C5 is the 12th partial of the horn with no valves pressed. This provided exercise in Example 29 is one possible lip slur to practice.

[68] Patrick Sheridan, 2004, Masterclass, Baylor University School of Music, Waco, TX, February 1.

EXAMPLE 29: LIP SLUR EXERCISE

Again, it is important to start lower than the final goal and not go further than can be consistently played. In this case, C5 is likely a note that will never be “comfortable” on the F tuba, but a higher degree of comfort should still be able to be achieved. This provided exercise should be played with the lowest finger combination, in this case starting on low G ♭ , and repeated chromatically upwards.[69] Leaving out the pedal, every other partial leading up the 12th is presented in this exercise. If the high D ♭ is still too high to be played comfortably, then leave out as many of the upper partials as needed. Repeating the exercise up by half step will still develop the high range and these partials can be added later on. It is vital that when practicing high range, lip slurs start in the low register and return to the low register, in order to help ease the tension that will inevitably grow in the embouchure. This action will also prepare the player for skipping between registers, as required in these pieces as well. Also, it is important to maintain a resonant quality to the sound, just as when buzzing.[70] Whether buzzing or playing on the horn, the player should always maintain an open, “OH” shape to the mouth and oral cavity, while freely allowing progressively faster air to move through the lips the higher

---

[69] This exercise should be played with the lowest possible finger combination on the instrument. This example shows the lowest combination of a 5-valved F tuba, for example.

[70] Fritz Kaenzig, “Improving Tone in the High Register,” *International Tuba Euphonium Association Journal* 13, no. 2 (Nov 1985), 20.

the range ascends.[71] In reality, the vowel shape will often close to “OO,” “AH,” or “EE” in the extreme high register to help produce the air speed necessary to play the notes. It is important to still consider “OH” as the basis for one’s tone so an uncharacteristically tight sound is not created.

A considerable challenge with the high-register especially is avoiding lip tension when trying to expand one’s range. While it is true that the lips will become firmer to accommodate the faster vibration and smaller aperture, they can never become forcibly tight or tense. Just as with a violin, with higher notes comes quicker vibrations and a shorter string, or lip. If too much tension is introduced into the embouchure, the sound will become harsh and stagnant, just as if a violinist were to press the bow too firmly against the string, cutting off its vibration.[72]

Finally, additional challenges are often presented in these two concertos involving quick motion from low to high range and vice-versa. The first set of exercises to develop dexterity when jumping around registers are interval studies, as presented in Arban's *Complete Method* book. Due to the generally higher range requirements in Woodward’s concertos, the euphonium/trombone edition of these exercises are more beneficial. Just as in the Arban, this exercise should be repeated taken up by half step until the next octave is reached. This entire exercise should also be practiced in the “tuba register,” taking everything down an octave.

Of course, by looking at each concerto it becomes apparent that there are many skips that go beyond the maximum range of an 11th provided in this exercise. These

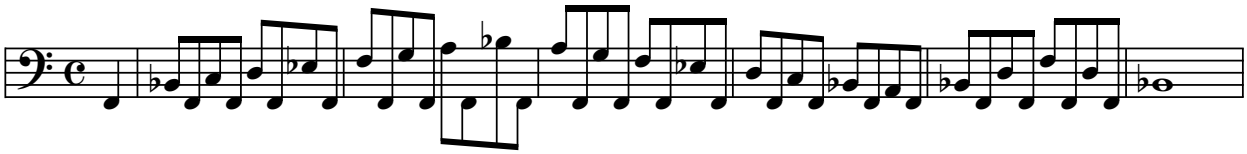
---

[71] Kaenzig, “High Register,” 20.

[72] Ibid, 21.

instances will need to be isolated and practiced specifically, but the provided exercise will help with one's dexterity growth in general. Aside from developing dexterity, one should develop the ear to increase note accuracy in relation to skips. Practicing "sight-singing" these examples, especially with solfeggi syllables will also increase the accuracy with which the intervalic skips can be played.[73] If a player has the muscle memory to perform different notes and skips, and can also sing the notes accurately, then this will go a long way to ensuring it is played accurately. The physical motions described in order to accommodate different range requirements are basic guidelines, and the focus should be placed on what actually sounds the "best," or is the most resonate.

EXAMPLE 30: INTERVAL STUDY[74]



B. Air Flow and Embouchure

Perhaps the most prevalent issue related to playing the tuba is how the performer manages his or her air to complete demanding solo passages. There are certainly several challenges presented in Woodward's concertos, either due to the length of phrases, lyrical and technical challenges, or quickly changing styles or registers. The first overt example of managing air flow comes in measures 28-39 of the

---

[73] F. Chester Roberts, "A Singer Looks at Brass Playing," *International Tuba Euphonium Association Journal* 16, no. 1 (Fall 1988): 47.

[74] Jean Baptiste Arban, *Complete Method for Trombone and Euphonium,* edited by Joseph Alessi and Brian Bowman (Michigan: Encore Music Publishers, 2000) 139.

first movement of Concerto No. 1. Within the span of a few measures, the register changes more than two octaves in range, foreshadowing many of the challenges that are yet to come in the piece. In addition, the phrase length in measures 31 is between 8 and 9 measures, presenting a challenge in regards to breathing and lung capacity. When playing the tuba, the challenges related to air involve in equal parts both the intake of air, and its use moving through the horn. The discussion on proper use of air can be broken into three parts: where to actually take in air, the air speed and air support as it is pushed out by the lungs and diaphragm, and the regulation of air by the embouchure.

One of the most important aspects of breathing in solo literature is to plan ahead where the breaths are going to be taken, and physically mark them in the score or solo part. In the heat of the moment at a performance, it is very unlikely that one will inherently remember where to breathe all of the time. There can be some discussion about finding the “best” place to breathe in a piece. Generally, all rests can be used freely to breathe, but in these concertos there are often phrases that are too long without a rest to make through in one breath. In these examples, care should be taken not to interrupt any of the thematic elements as discussed in chapter 1. For example in measures 68-85 of Movement 1 of Concerto No. 1, there is not a single rest in the solo part. Obviously a breath will need to be taken somewhere, and the best places are those that immediately follow the dotted-half to quarter note idea that repeats every few bars. The first in measures 69-70 presents the pf [015], which has been established as a main idea of the movement in the melody. Although the following statements do not necessarily fit into that same pf, the same idea is being developed and shouldn’t be interrupted. This same idea can be seen in measures 100-108 of the same movement.

The tuba is distinguished from all other brass instruments by requiring the largest embouchure to produce a sound. A tubist must learn to regulate the embouchure and make adjustments based on aspects of playing such as dynamics, style, and range in order to both facilitate the air required and create the sound needed. In many phrases in these concertos, for example measures 31-39 in the first movement of Concerto No. 1, there is a drastic variety in several different aspects of playing. First, the dynamics shift extremes from pianissimo gradually to fortissimo. Second, the range moves from the high register of middle-C to the low register two octaves below, though still not approaching *extreme* high or low register. Finally there are a range of stylistic and articulation differences that are characteristic of the outer movements of both concertos; Woodward utilizes smooth, lyrical passages as well as separated and accented playing within the same phrase. These drastically different challenges presented require a large degree of flexibility, embouchure and air control, and relaxation in order to perform successfully.

To accommodate shifts in range, the performer must increase the velocity of air moving through the instrument; the higher the pitch, the faster the air must move. It is important to allow free vibration of the lips when moving to the high register especially. Especially when presented with extreme challenges with range, many players will try to utilize tension in the lips to force the notes out, or drastically change the vowel shape to an ‘EE’ in the oral cavity. While these methods will artificially help with the high range, they are not conducive to having a good tone on the instrument. It is important to maintain an ‘OH’ quality to the sound at all times, even when approaching the high

register.[75] In fact, as little tension as possible should be used when practicing for the high register requirements of these concertos.

The next step in managing the air flow comes at the embouchure itself, which is comprised of two distinct ideas: the shape of the embouchure, and the size of the aperture.[76] A good embouchure can be formed simply by saying the vowel and syllable combination “ehm” as pronounced in the word “ember,” while maintaining firm corners without smiling or puckering the lips.[77] Given this embouchure, the air flow is most effected by changing the aperture, or the hole in the embouchure that air passed through.[78] In general, the aperture should be large to play the tuba, especially when compared to higher brass instruments. This hole represents the last point that a tubist’s body can effect the air flow, support, or speed, and control over it drastically changes the clarity of notes played, especially when skipping through different octaves as in these concertos.

Instead of relying on the tiresome adage of “Use more air!” to fulfill vague range or tone requirements on the instrument, thinking about the aperture size while maintaining consistent air flow is a more effective way of playing the instrument.[79] A good analogy for overcoming high range requirements is to equate the aperture

---

[75] Fritz Kaenzig, “Improving Tone in the High Register,” *International Tuba Euphonium Association Journal* 13, no. 2 (Nov 1985): 21.

[76] Jack Tilbury, "Think Big!" *International Tuba Euphonium Association Journal* 39, no. 3 (Spring 2012): 66-7.

[77] Benjamin Pierce, *Professor’s Assistance Program, Class Materials for Teaching Low Brass,* The University of Arkansas, 2003, 15.

[78] Tilbury, “Think Big!” 66-7.

[79] Ed Vinson, “Tips for Tuba: The Young Tuba Player’s Use of Air,” *International Tuba Euphonium Association Journal* 41, no. 3 (Spring 2014): 62-3.

mechanism to a garden hose spraying water. As one might cover the end of a garden hose to spray the water further and faster, so can one shrink the aperture to move the air further and faster, assuming consistent water or air flow.[80] In the case of these concertos, great care should be taken to isolating sections with varying range requirements, and focus on managing the aperture instead of tightening or loosening the lips themselves. Scientifically, notes are not actually *high* or *low*, and the embouchure should not necessarily be *tight* or *loose* to accommodate the range requirements. A better method of thinking is *fast* or *slow* air to support the *fast* or *slow* frequency of pitch that is asked. Referring back to the garden hose analogy paired with the distance between the teeth, a wider aperture along with a more open jaw will better support *slow* notes, and a smaller aperture with a more closed jaw will support the *fast* notes.

Alan Baer refers to maintaining a "smooth flow" when shifting registers in these concertos, and utilizes practice with a "beatbox" or metronome to ensure consistency.[81] A very common cure-all for playing problems is to focus on slow practice, but that alone is not enough to improve a passage with the greatest consistency. A full understanding of the mechanical requirements of the body must be established first along with the slow practice. A great general exercise to encourage a natural increase in air speed as one ascends in range is to practice slurring notes upwards in various settings, Baer refers to this as "going against gravity."[82] On brass instruments it is difficult to slur upwards more

---

[80] Vinson, "Tips for Tuba," 62-3.

[81] Alan Baer, interview by the author, New York City, NY, July 3, 2014, Appendix 1, 104-5.

[82] Ibid, Appendix 1, 115.

than a half-step, and this fact is exponentially so on the tuba due to its size. If the air flow and support is not consistent, and the aperture and air speed are not adjusted smoothly, then the note will likely crack or stutter before arriving on the next pitch. A simple exercise to accomplish this task would be to play an ascending scale in whole notes with a metronome, paying attention to the smoothness of the transition between notes, especially at any of the points with whole-step intervals. This exercise can be modified to a wide variety of alterations, with any scale or any ascending interval. Applying this to Woodward's concertos would follow a similar example. Taking any of the ascending lines with extreme range requirements in either concerto at a slower tempo with the same goals in mind as with the simple scale will help improve both the muscle memory and inner ear of the player. For example, in measures 96-100 of Concerto No. 1 movement 1, there are plenty of substantial intervallic skips and range requirements. Taking this passage with everything slurred, one note at a time, and focusing on the same clarity of transitions between notes in regard to air flow will show the tubist how the air should continue moving when the articulations are added back in, and then when the tempo is increased. Every passage with range difficulties in both concertos can be turned into an exercise in air management in the exact same fashion.

It is important to note that equal attention should be paid to passages that are descending as well. The same air flow, embouchure, and vowel-shape requirements are present, but in the opposite direction. After focusing on ascending accurately for a long period of time, moving back to the low register can seem unwieldy if equal attention is not paid to that skill.

C. Articulation and Technique

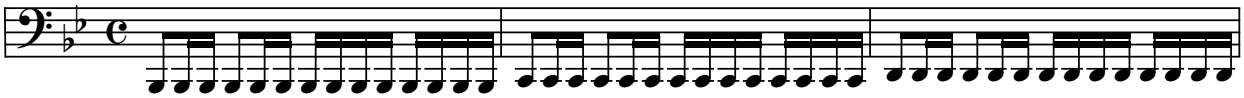
Part of Woodward's attraction to the tuba comes from both the general eagerness of the musicians that play the instrument, as well as the large range of sounds, articulations, and tone colors that can be produced on the instrument.[83] With these ideas of contrast held in such high regard by the composer, it is vital to show clear differences between the different stylistic markings in each concerto, and also to play repeated articulations with consistency. For example, in the beginning of Concerto No. 1, there are many eighth notes with staccato markings, and several that are slurred to staccato markings. Each of these staccato eighth notes should have the same note shape, and the same note length, regardless of the range of the pitch.[84] General articulation studies should be undertaken to work on the consistency of these note shapes. A simple scalar study with a repetitive rhythm is best used to work on this skill. Using Example 31, played with a metronome starting at a comfortable speed, one should focus on maintaining consistent note shapes, as well as tone color as the range moves up and down the scale. This exercise should be played up and down the major scale, single-tongued, in various articulation styles, and at increasingly faster tempos, once a previous tempo is mastered. To approach the range requirements often placed on the performer, paired with consistency of articulation, this same approach can be taken with the Example 30. The player should pick an articulation, such as staccato, and play the exercise at a systematically increasing speed, while maintaining the consistency of the articulation.

---

[83] James Woodward, interview by the author, Jacksonville, AL, September 27, 2014, Appendix 2, 120-1.

[84] Alan Baer, interview, Appendix 1, 107.

EXAMPLE 31: ARTICULATION EXERCISE



Probably the most challenging aspect of performing this music is not only playing accurately consistently, but making the technical aspects of the piece flow together seamlessly. Alan Baer mentions specifically using a “beatbox” or metronome to constantly push the player and keep the music flowing forward.[85] While utilizing metered slow practice is a commonplace idea in terms of learning technically challenging music, the idea of “flow” goes a bit beyond simply playing correctly in time. The idea of “flowing” is difficult to clearly describe because it lies beyond the objectivity of playing correct notes at the correct time. Baer likens this lack of flow to listening to a comedian who says all the right things, but with poor timing, spoiling the affect of the joke.[86] Despite the acrobatic requirements presented in these concertos, and many other examples from the tuba’s repertoire, it is the musician’s role to make everything move forward in such a way that the audience is blissfully unaware of the extreme demands they are experiencing.

Using the metronome is the first step to accomplishing this feat; also measuring the time during rests so that different sections can be practiced together as they would be in performance. The next idea is keeping the air moving through the technically demanding passages. Once the technical challenges are mastered, all the notes and rhythms are learned, practicing the piece should come from a musical standpoint and

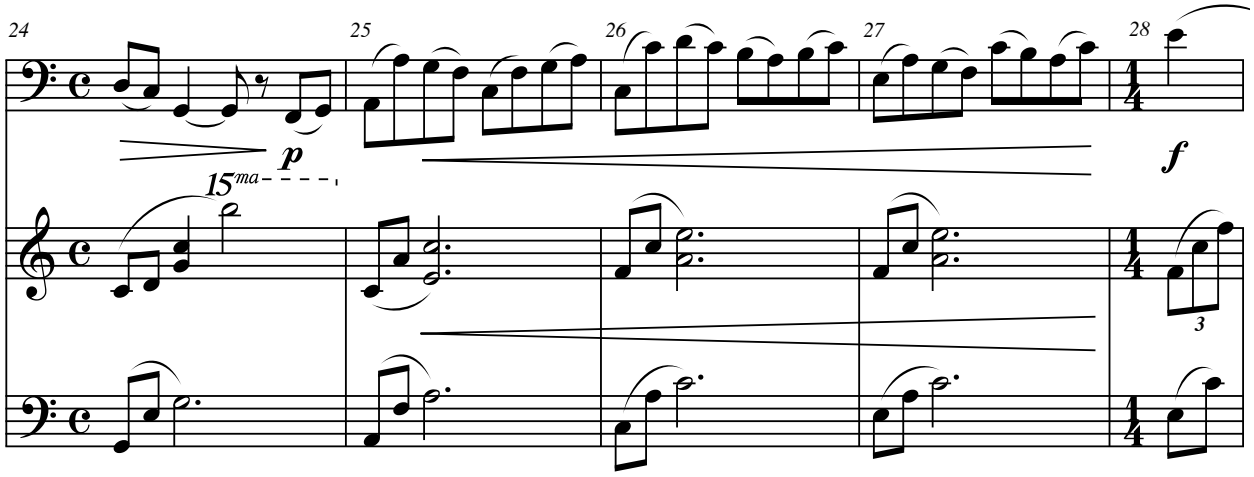
---

[85] Ibid, Appendix 1, 107.

[86] Ibid, 105.

focus on the air moving each line forward. A good way to practice this idea is to always have a goal, or arrival point for each phrase. This note or notes represents where one is leading with their air and “flow,” and can either be a high point musically or range-wise, mark the end of a phrase, or the conclusion of a thematic idea. This idea is often printed in the music already. For example, in measures 24-29 of movement 2 of Concerto No. 2 there is an extended lyrical line. The range extends from F2 to E4, almost two octaves, and may present technical challenges to the player. Seeing the high point of the phrase as a final goal, which is that final E, the musician can “flow” horizontally toward that note, keeping the air speed moving freely until it is reached.

EXAMPLE 32: CONCERTO NO. 2, MVT. 2, MM. 24-28



A much more technical example of this idea can be seen in measures 77-83 of movement 3 of Concerto No. 2. This extended passage presents numerous technical demands that will need to be practiced extensively to work out the finger, tongue, and air coordination required to play it accurately. Beyond this objective work, the “flowing” idea again needs to be used to find arrival points in the music to aim for horizontally with the air. These points could be the E ♭ in measure 77, the B on the downbeat of

measure 78, the high D on the downbeat of measure 79, the B on beat 3 of measure 79, the G on the downbeat of measure 80, the A♯ in measure 81, the G on beat 3 of measure 81, the E♭ on the downbeat of measure 82, and finally completely arriving on the C at the downbeat of measure 83. Once the basic technique has been mastered, focus should move to expressing these larger ideas to give a sense of "flow," allowing the air and musical line to arrive at certain key points in the music.

D. Tuning

A comprehensive guide to the tuning tendencies of every tuba and every player is impossible to create, but there are certain concepts that are worth noting in regards to intonation or "shading" the notes.[87] It goes without saying that the performer's goal is to play every note in tune, shaded the correct direction to fit in with the underlying harmony. Another consideration is the tone quality that arises from using different fingerings. For example, in measure 31 of movement 3 of Concerto No. 1, the arrival point for the preceding phrase is A3. On F tuba, this note is typically played with an open fingering and is the 5th partial in the harmonic series, which is a flat partial. Depending on the instrument, some tubists may choose to play this note with a 1-2 fingering to compensate for the intonation.[88] This use of alternate fingerings to correct tuning is fine if done correctly, but Baer suggests a further use of this method. He considers alternate fingerings as a way to not just fix the intonation, but to alter the tone of a note as well. With a string bass, a D can be played open on the D string, or with the

---

[87] Baer, interview, Appendix 1, 107.

[88] With a 1-2 fingering on F tuba, A3 is now in the 6th partial, which is typically sharp instead of flat. It is usually easier to "lip" the pitch downwards to correct tuning instead of upwards.

fourth finger depressed on the G string.[89] While each pitch is identical in terms of tuning, the D played on the D string will always have a more resonant, open quality that is slightly muffed by the finger on the G string. This idea holds true on the F tuba, where most notes with an open fingering will resonate more than those same notes produced with an alternate fingering. In this case at measure 31, the idea is to maintain consistency of tone as well as intonation, so the alternate fingering may be preferred to an open one.

This idea can appear in more technical lines as well in these pieces. Another idea is seeing which partial is the arrival point in the music. For example in measure 98-99 in movement 1 of Concerto No. 1, the line arrives at a high point of B, arriving immediately after that same A at the top of the bass clef staff. In this case, both the shading and intonation of the note would benefit from using the alternate fingering of 1-2 on most f tubas. Furthermore, another idea of staying within the same partial as much as possible is worth considering. If the 1-2 fingering is used, leading to a 2 fingering for the B, then both pitches remain in the 6th partial, which will also encourage the tone color to be very similar.

Aside from alternate fingerings, the consistent use of pulling slides is required to truly play in tune. A negative aspect of “shading” can occur if tubists rely on the embouchure to fix tuning issues, such as the aforementioned A in measure 31. If the alternate fingering of 1-2 is used, the note will be sharp, so some type of adjustment must be made. Technically, using the embouchure to lip the pitch down distorts the tone and makes it less resonant. A preferable method, in terms of tone production that is, is

---

[89] Baer, interview, Appendix 1, 108.

to adjust the first-valve slide by pulling it out until the note is in tune. Utilizing this method maintains the purity of resonance on the horn, since the note is not being "forced" to fit a certain pitch frequency.[90]

E. Physical Challenges

Due to the size of the instrument, and the amount of air it takes, as well as the length of these concertos, the tuba can be a very physically challenging instrument to play. Considerations have to be made when performing these pieces in their entirety, and especially with a large ensemble, either band or orchestra. According to Woodward, the first concerto was written with the idea in mind of creating a showcase for the technical and lyrical abilities of the instrument.[91] Because of this, what ended up being written was a very lengthy, and consistently challenging concerto. By itself, the solo part certainly presents challenges in regards to fatigue. Woodward goes on to state that in the second concerto, he actively tried to limit the technical challenges, especially related to the high range, as well as limit the length to 12 or 13 minutes total. A new challenge is presented with both concertos when the soloist performs with the large ensemble instead of piano reduction. The most obvious reason for this physical challenge is that since the accompaniment is louder, the solo voice must also be played louder to be heard. This idea is compounded by the type of harmonic language that Woodward uses. As explored in this study, many of the harmonies fall into the category of dissonance rather than consonance, and, as a result, the large ensemble accompaniments are fairly consistently thickly scored. This thickness extenuates the larger volume created by the

---

[90] Baer, interview, Appendix 1, 109.

[91] Woodward, interview, Appendix 2, 121.

accompanying ensemble, and requires not only a consistent tone from the soloist, but also a much louder one.

Perhaps uniquely situated to overcome this challenge, Alan Baer offers several suggestions to help with fatigue. The first is to choose the smallest equipment possible for each performance situation; the smaller the horn, the less physically challenging it is likely to play.[92] Tubists will not likely have the option to pick different size F tubas for different situations, but a larger F tuba will aid the soloist in producing a larger sound to cut through the band or orchestra. Take this idea in contrast to performing the solos with the piano reduction, where being heard clearly is never an issue. In this case the smallest F tuba should be used. A slightly more practical aspect of changing equipment is adjusting the type of mouthpiece used in performance. Baer suggests experimenting with different weights of mouthpieces or different alloys.[93] The most approachable example of this experimentation comes from switching between mouthpieces made of titanium and stainless steel. The steel equipment can potentially speak faster and carry through the ensemble more the harder the composition of the metal, whereas the titanium material is very hard, but so light that the sound can potentially not travel as far, assuming the same type of playing from the performer.[94]

On the other end of the spectrum, the tubist could often be at risk of overpowering the accompaniment when performing these concertos with piano, especially due to the extreme dynamic and range requirements. A physical challenge in

---

[92] Baer, interview, Appendix 1, 112.

[93] Ibid, 113-4.

[94] Ibid.

regards to this issue is being aware of where the instrument is being “aimed.” When playing with piano, one should have a flush orientation to the audience, so the bell is facing toward the ceiling stage-left. This arrangement will allow both the piano and soloist to be heard with the best efficiency. When playing with the large ensemble, however, the soloist should be sitting in front of the ensemble on stage-left, and orient the instrument so that the bell is facing upwards, and toward the audience at close to a 45 degree angle. This will help the tuba to project more into the audience without having a full-on “directional” approach to the instrument. This orientation is only appropriate for band or full orchestra, as with chamber ensembles the tuba may still very likely overpower the ensemble. The angle the instrument faces the audience can be adjusted accordingly as well, either toward or away, to provide more or less presence for the instrument. Due to the thickness of scoring in these concertos, the provided 45-degree angle orientation of the instrument will most likely be required. Especially by the end of the 20 minute Concerto No. 1, fatigue will start to set in if the soloist is forced to try to be heard over a loud ensemble if not properly oriented on stage.

Referring back to tuning issues, the action of pulling slides represents a significant physical challenge, especially when taken in context of a performance. Again, all tubas and musicians are created differently, so specific intonation issues will differ from person to person. Regardless, if the slide pulling technique is used, much practice will need to go into knowing where and when which slide needs to be pulled. Most likely, notations in the music should be made in order to serve as reminders. The most prominent tuning requirements will likely be in the three slow movements, movements 2 and 3 of Concerto No. 1 and movement 2 of Concerto No. 2. A general idea is that when a slide is pulled, it likely needs to be returned to its neutral state afterwards. Referring

again to measure 31 of of movement 3 of Concerto No. 1, if one chooses to play the A at the top of the staff with the 1-2 fingering, the slide will probably need to be pulled out to be in tune. This slide will then need to be pushed back in to play the G's that follow in measures 32-3 and beyond, since this is a flat partial of the 1 fingering. Obviously, this feat of pulling and returning a slide to place needs to be practiced specifically to be done accurately during a performance, when there is everything else to worry about as well.

F. Storytelling

It is the performer's ultimate goal to go beyond playing the notes and rhythms and take their audience on a journey; tell a story with the music. It is often helpful to go through the motions and literally write a narrative that fits what one is trying to convey emotionally in the music. There are limitless options for one to think about when interpreting music, but in these concertos there are some portions of them that the composer had a clear idea in mind. Woodward states that the second movement of the first concerto was inspired by his private lessons with Alan Baer at the University of Wisconsin in Milwaukee. The "quirky" aspects stem from the emotions Woodward felt trying to accomplish what Baer was asking of him in lessons. Much of the interplay between solo voice and the accompaniment represents Woodward attempting to play something on tuba, and then Baer correcting him in the accompaniment. Several of the high points in the movement represent Baer scolding Woodward for his mistakes.[95]

Furthermore, Woodward describes a story invented by the Milwaukee Youth Wind Ensemble about his first concerto that he thought captured the essence of the

---

[95] Woodward, interview, Appendix 2, 117.

piece quite well. Since their personal interaction with the concerto was performing it with Alan Baer, this youth ensemble created a tale about Alan Baer and his experiences with them. This story candidly describes Baer performing with the ensemble in the first movement, going to a bar in the second movement, mourning a broken tuba in the third movement, and plotting revenge against those who broke his instrument in the fourth.[96] When listening to the concerto, it is not hard to imagine these events taking place in the music. Almost any idea one could think of can be shown in their performance, the key is taking that leap to have these ideas in the first place. Even if the idea is as simple as "Alan Baer goes for a walk," having a visualization for the music in mind will enhance one's performance.

Beyond thinking of a narrative, the character one brings to a piece can drastically change how it is performed. Woodward describes the differences between recordings of his Concerto No. 1, by Alan Baer and David Zerkel. He lauds Baer's "power-house" character that he brings to the piece, and comments on the fact that he adds his own interpretations to many of his musical lines throughout the piece.[97] To corroborate this fact, Baer mentions in his interview that he will often actively paraphrase ideas presented by the composer.[98] He believes that it is the performer' job to say what the composer wrote, but that "you can say it the way you want to, as long as [the composer's] point is getting across."[99] Woodward describes Zerkel's interpretation of his

---

[96] Ibid, Appendix 2, 117,

[97] Ibid, 116.

[98] Baer, interview, Appendix 1, 103.

[99] Ibid.

Concerto No. 1 as falling on the other end of the spectrum. Presenting a “studious” approach that accurately displays the music that Woodward wrote into the score throughout the entire piece. The key to approaching storytelling and character in music is realizing that there is no one correct answer. Part of the beauty of music making is the infinite possibilities musicians are able to present in identical pieces of music; no two performances ever sound exactly the same or provide the exact same emotional response. One can spend time creating their own story, their own voice, and perform the music with these ideas in mind.

G. Conclusions

There is no way around the fact that Woodward’s two concertos for tuba are extraordinarily virtuosic. Many of the performance practice issues discussed in this study provide original and refined advice from various sources to help combat these difficulties in practice. Despite the technical difficulties presented, there are no real problems with comprehending how something is meant to be performed, or in what manner it is to be played. All of this information is clearly stated in the score. The issue of “performance-practice” stems only from the sheer and virtuosic requirements placed on the performer, and how they might accomplish them. The true body of work comes from each individual approaching the challenges that exist in these concertos, and working to develop their own technique to overcome them.

The analysis of each concerto is meant to provide a framework by which performers can base their own studies of the piece. The provided tables present information that can be used as a quick reference, or guide further analysis of each section of music. The musical examples in the analysis chapter represent significant sections of every movement that either display thematic material, or particularly

important melodic and harmonic ideas. It has been mentioned that these pieces are not overtly formal, but the information about form in this study is meant to give a baseline from which one can interpret the form of each movement themselves.

The provided interviews with Alan Baer and Dr. James Woodward provide a good deal of primary insight into both issues presented in this paper: the analysis of each concerto, and practical ideas about preparing to perform them. With the insight provided by them, along with the information presented in this study, the goal of performing Woodward's concertos successfully is made much more attainable.

APPENDIX

1. Interview with Alan Baer

Shipes: How much experience do you have working with composers to write pieces for tuba?

Baer: Woodward's concerto was the second or third one I've done with a composer. It's very seldom that we get to invoke what we want in a concerto, and I really didn't get to do that here. Woodward wrote this [Concerto No. 1] as an undergrad. He was a … tuba player at UWM [University of Wisconsin Milwaukee], and was taking tuba lessons from me. He came to me his second year and wanted to go back to playing [euphonium]…I didn't even know he played [euphonium]! He said they gave him a scholarship to play tuba because he can play some tuba. One night he came to me in tuba ensemble and said "Hey Mr. Baer I'm writing you a concerto!" I'm thinking ok … great, great. He plops this music down in front of me and he sits down at the piano and starts playing like a wiz. I'm thinking "where did this come from?!" So we play through the first movement and I was just knocked out. I asked him if he had more and he said yes I'm working on a second, third, and fourth movement now. "Get it kid, let's go!"

The only input that I really had in the first concerto was telling him some of the things that were not going to be possible. So we changed some things … that I didn't feel [most] would be able to do on a consistent level. Inevitably, the piece would not be played that much [without those changes]. Originally, we did the premiere with band. I told Jim [Woodward] that if he wants to get this performed, score it for orchestra, for band, and for piano; everything you can think of and it will get played. I did the premiere

with the orchestra and the band, and I guess the piano too. The only input I really had with this was letting him know that this section is really tough, and you may not want to do that, or this is very awkward, the way it has been written. Jim has always been very open with taking criticism and understanding the parts that won't work, the parts where its too thick or the register is too low for as fast as you have it written.

One thing I have always pushed with my students is to tell a story with the music. He came up with his own ideas, like this quirky second movement [Concerto No. 1]. This is how he felt when he was trying to do lessons and he felt really awkward [trying to do what I asked]. I thought it was very cool that he was able to put some of his feelings and what we talked about in lessons into the writing. Other than putting my own two cents into it that was about it.

S: Did your involvement increase with the second concerto or was it the same?

B: It was pretty similar. He came up with the ideas. We premiered it in Kennesaw with orchestra. Mike Alexander was another one of my students, a euphonium student from my past. He is the orchestra conductor there [at Kennesaw State University]. We wanted to use that ensemble, which is why this is scored for orchestra. I don't know if Jim has plans to do it with band or take it further. I didn't have all that much to do with this. I try to stay out of the way. It's instilled in me that this is what the composer wrote. It's your job to say what the composer wrote but you can paraphrase it, you can say it the way you want to, as long as his message is getting across. This is Jim's stuff. There were a couple of things but it went by so fast when we put this together and performed it. I had to print this out today because I couldn't remember what we had done, I was having trouble remembering the piece. I've only done this piece once; I've only lived with it once and I don't feel I even know the piece as well as the first concerto. In this

one, one of the things I had him change was where he had some low stuff that was pretty darn fast. I feel very confident on F tuba and I think some of the stuff he was asking guys to do was…well I was having a [hard] time.

S: So was the final product simplified, or is this mostly what he intended?

B: It's pretty much what he intended. Some of the things we altered…such as: I need a place to breathe … let's get some air… let's take a couple of notes out here, or let's simplify this line. I was going back through the emails we sent. In measure number 103 this actually had a sextuplet on beat 1 as well. It goes by so fast and there was just no way you could get a hold of it and make it sound convincing. We simplified it by giving ourselves a foothold there so the rest of the line could breathe. That was about it with regards to simplifying issues.

When I started practicing it [the second concerto] I remember thinking "this is going to be really, really easy." But then once I started putting it with time and getting it to be what he was asking for, it was eye opening. Anything that I do on the outside I do with SmartMusic. When I rehearsed this I was with SmartMusic, with the beatbox. I was pulling at every direction that I could because we only had a couple of rehearsals and had to lay it down. Do you have a recording of that performance?

S: It's on YouTube!

S: What do you consider to be the most challenging aspects of each piece? Either musically or technically.

B: The thing that kicks my butt is to make it flow, to take the acrobatics out of it. He does have you changing ideas so fast and changing octaves… and then it stops and it's all over. To make a smooth flow. I liken this to [Encounters II by William Kraft] where you have all these things that Roger [Bobo] could do that Bill Craft put together. If you don't

find a way to merge this first section with regards to timing and the break then it sounds very fragmented. To me this kind of stuff and the Encounters is like watching a comedian; if their timing is off, the joke is not funny, then the music is just not as good. To me everything is time related, that's why I use the beatbox so much in everything. It gets my flow of the air moving with the time and shows me how I have to make that work with the printed page. That's the toughest thing for me with this stuff. I'm doing the John Williams [Concerto] next year with the orchestra here (NY Philharmonic), and I went back and listened to a recording I made when I was nineteen years old, when I won a concerto competition at Cleveland Institute. I had done it back then…I think Chester [Schmitz] has done it, he premiered it…. then [Ronald] Bishop had it…Bobo did it, and then I did it with CIM orchestra. I think I actually got the piano premier of that…I did it on a recital at CIM. I remember… ignorance is bliss…just going though it and just whipping that thing off and not really worrying about flow and just "playing" it. In a sense, [with] the knowledge that I've gained over the years I feel crippled from it because I'm listening to everything now and you end up over-analyzing everything. I think the John Williams now is musically harder for me than it was when I was nineteen, because I want to do so much more with it. I think I was doing a lot then but it was more like "get the high note…" "yeah I got all 17 notes there." It's the knowledge that you gain that makes it difficult. The first time I performed this we actually took this concerto to Europe with UWAY [The University of Wisconsin, Milwaukee Youth Wind Ensembles program]. This is a youth group out of UWM [University of Wisconsin, Milwaukee]. Jim [Woodward] played string bass in the group. He was a college student at that time and I was teaching at UWM then. They took me along as a soloist. We did it almost every three days … not the entire thing but we would do like [movement] 1,2,4, or 1,3 …

something like that every other concert. I remember thinking that was no big deal, and I think now I would be scared. I would be looking at every single note. For me now it's just the flow and getting what I want musically out of this. [I try to] get the mechanical stuff out of my head, out of the music.

S: Would you say that the issue of flow ties directly to what you talked about earlier about communicating clear ideas in the music?

B: It all has to do with that. When I was 19 or even mid-thirties, when I did this. I wasn't thinking about, when I played a line, what you [the audience] were going to be thinking … how it is coming across to you. I was just playing what's on the page. As I get older I keep going back to all the lessons I had with Tommy Johnson. He would talk about how things would get on the mic. Over the years, more and more now, I play to *you*, the mic. How are you going to perceive this? If I don't say it clearly, with the correct syllable [pronounced: syllabble] you are going to start scratching your head. As soon as you start scratching your head, all of your focus is now pulled away from the musical line and you are asking "what the hell was that?" What I just said to you is then gone. I try to say this stuff as cleanly and as plainly as possible. I'm a firm believer that the audience I play for knows nothing. That's how I have to approach it because if I don't speak to them like a child, that plainly, that clearly [it won't come across], that's just the nature of the beast. Even if I play it at 100% they may get 65-70% of it. That's about all I can hope for.

S: What are ways that you prepare for these challenges? What do you do to prepare for the flow or the technical challenges?

B: I mentioned the beatbox, I use that for a lot of these challenges. I use that to pull time forward…to keep the note shapes proper. Without the time the note shapes tend to start wandering from note to note.

S: By that do you mean the clarify of the articulation and tone?

B: If you were to draw a picture of the note…that's how I teach it, such as a square head and a body, that would be a short note. A longer note would be that same head and body and now you have that same taper. If I've got all eighth-notes here at the beginning of the third bar…and I've got two of those shaped like this… the next one is shaped like that [motioning inconsistent shapes]. You listen to professional players…I listen to professional players all the time…and that's the kind of [thing] that I hear. I struggle with it myself, I think we all do. I think we have to be consistent. You play these first four bars and you've made your bed baby and if you don't sleep in it, no one will trust what you are doing. [For note-shape and flow] I use a lot of droning, in conjunction with the beatbox, because you can pick rhythms in a single key. That helps immensely. I do a lot of comparisons from the piano part. I never used do that.

I had an accompanist get onto me once about that. She said "you don't even know what I have!" and I responded "You're right, I don't [care], I'm paying you to play piano, tell me what you have!" At that point it dawned on me that if I don't know what she's got, then I'm not doing my job, and I wasn't doing my job. [Now] I take the time to analyze a line and get an idea [of] what the pianist is looking at and to compare what I think the key is in, and what it actually is. It's kind of a game to me to see how close I can get. I'm really into figuring out the chords and how every note is shaded, one way or another. It affects my fingerings, it affects the blow of the instrument…there is a whole series of different things I go through: am I descending, am I going to use a low

fingering here, or a higher fingering [referring to pitch]? For example, [in] measure 31 [Concerto No. 1 movement 3] I marked the A because it's [sharp]. 1 and 2 [fingering], we know is going to be sharp so that's why I have it marked down because an open fingering there would sound really hooty. It's like an open [fingering] E by itself on the C Tuba, it has a different quality and we know it's low [flat]. It's a note that is going to ring in the listener's ear, and if you are low it's going to sound [bad]. Plus, if you look at the line, you have fingered notes all the way up there. You don't have one open note going up there you can't suddenly add an open note. You have to start thinking like a string player. I was a string bass player. On the string bass you have GDAE, on any of the lower strings you can play the fourth finger and get the next string up. You get the same pitch, but do they sound the same? They are completely different. I spent a lot of time looking at that. It's just a simplistic example of this but it really exists. When I was 19 I would have played that open. Do I hear it in the recording that I listen back to? Well the recording quality wasn't all that great so I don't know if I can even pick that out. I don't know if my audience would pick it out but it does affect the blow of the horn. I want to keep as much center when we are blowing out of a horn the size of a sewer pipe. Clarity is a concern. There it is, just by a set of fingerings.

S: So do you actually go through and do a harmonic analysis? How far do you take that?

B: Am I going to analyze every bar of this? No, I don't have time to do that. I will get a sense for the key in each area. Without an idea of key where are you aiming? At least if you have bigger ideas…it's like learning a phone number. If I spout 10 numbers out at you, you are going to scratch your head and wonder "what did he say?" But if I group them 3,3,4, now you are only dealing with speech patterns and it's a lot easier for us.

Now if I am looking at B ♭ triad, C Major, B ♭ , C Major, F Major, C Major, B ♭ . Now I'm looking at a couple of things and I have some idea of where I have to shade the notes. I don't like to lip the horn. I do a lot of slide pulling. No horn is perfect, not even mine. I have to have some idea of where these slides have to be because I don't want that to detract from the music.

S: So that goes back to you always trying to have the pitch centered? Would you say that slide-pulling is a more efficient way of achieving that?

B: Not so much. No matter what, I'm always trying to keep it centered but I want to sound like one tuba player from bottom to top [range]. Bishop had what he called a hemilator on his old Alex. It was a spring loaded main tuning slide kicker that he could go in or out with. I went to an audition and I remember one of the comments was that my sound changed throughout the registers. That's where I first started getting into this. So I built a hemilator for my Hirsbrunner. That was one of the first project that I built on my own, brass-repair wise. That thing stayed on that horn for 15 years.The Hirsbrunner 5/4 rotor was an intonation nightmare so you had to shade a bunch of different notes. This enabled me to play straight down the horn [not lipping the pitch] and make it sound like one tuba player from top to bottom. Tommy [Johnson] was very big on this and different exercises to develop your sound. Its a very aggressive approach it looks at your articulation, your sound quality, and I use that stuff here all the time. I'll play this super short and very articulated at forte. It's like putting your sound under a microscope. If I am having centering issues I'll distort this rhythm and make it double dotted eight sixteenths or thirty seconds. You have to be MacGyver and use what's in front of you as a tool to fix your problems. I can take just this concerto on a tour and just use this concerto for whatever ails me. Whether I'm working on my low-chops, or my melodic

interpretation, whatever, even on tour with this orchestra [NY Philharmonic]. We have to learn as players as musicians to use what's in front of us and learn how to maintain rather than allow the job to tear you down or put you into doing awkward things that cause you problems, harm in the future, i.e. dystonia. It's from people not maintaining… from doing acrobats. Look at the solo literature 30 years ago, look at what players were doing 30 years ago. How often did you hear dystonia? It wasn't even named at that point. You'd hear of old guys losing their lip. As brass players we are put up to do some pretty whack [stuff]. If you aren't maintaining or going about in a proper way you are going to get hurt…plain and simple.

S: Do you tend to look towards the repertoire to focus on issues like that? Or do you to pick out exercises, warm-ups, fundamentals, or etudes?

B: I tend to pick the fundamentals and etudes for the problems that I have in hand. I tend to go about my playing and my maintenance how you would go about maintaining a car. If you are driving down the road and it's pulling to the left then you have it aligned. If I am playing and things are pulling weird I have to figure out what's going on and create some sort of exercise to fix that. I deal with the problems as they come. I do a lot of exercises that I know such as scales, I'm a scale nut. I will do these scales as preventative maintenance. I'm always doing them multiple tongue because I know that it fixes my air, it keeps my air steady and constant, and it keeps me from over articulating. I'm constantly doing scales from mid-register up to the high and then down so I can realize a smooth embouchure switch throughout the register. I know I've got one and if I don't work it, it will go away. You have to constantly look at all this stuff or you are going to get into trouble. I got in trouble here a while ago…I've always considered myself an F tuba player, plain and simple. I've never considered myself a C tuba player. For once in

my life I started to consider myself as more of a C tuba player, and that was here, and my F tuba playing just did not feel comfortable anymore where I can usually kick this stuff off. What it ended up being was just from being in the orchestra and sitting with the tuba on a stand in orchestra, which I've always pushed hard with everyone. I was getting lazy and slouching and the mouthpiece started pushing further and further up on my chops and I didn't realize it. Things started feeling "notchy" it was like someone was holding me down and I couldn't move and then it dawned on me that when I would go on tour all felt good. "What's going on?" When I go on tour, I use that little travel tuba and I stand and pace while I practice and that would bring the mouthpiece down gradually. Then as soon as I brought the mouthpiece down the problem was gone. You have to be willing to search, plain and simple. [These things] will cause you to do some weird stuff because it is demanding. You have to be willing to take a step back and be willing to understand what is happening with your own body with your own playing.

S: How does the theory or the harmonic structure effect the message you are trying to convey, or is it something you think about?

B: I don't know if I think about that that much. If it was that far out of tune, then again, it's going to draw attention away from what you are trying to say. That's how I look at it.

S: So more from preventative point of view?

B: I don't know about preventative but it's more of a clarity issue. It's my belief that with any audition or any performance if you can play it in such a way, it doesn't have to be perfect, that you don't get someone thinking about intonation, sound, etc., then you are successful. Then at the end they are thinking that was really good. For example, if you are driving down the freeway and you suddenly realize 50 miles has gone by; that's the sensation that I want to create with my audience. By the time I get to a new section in

the music, and the style is changing, I want them thinking “that was really good.” I don’t want them thinking that G was really sharp or it stuck out a lot. Intonation plays a huge part in that. It’s something I do naturally so I’m not always thinking about it. I just don’t want intonation to be detrimental effect.

S: We talked briefly about tone color and timbre, with the open A at the beginning of the piece. What are some ways, other than that, that you think about manipulating or changing your tone color? In the slow movements there is a lot of opportunity for contrast with tone color. What are your thoughts on that?

B: The major thing is “edge or no edge?” The older I get it’s probably less edge. I’ve always been pigeonholed as a very aggressive player. Once I changed to the piston horns I realized I was being too aggressive. If I am trying to shade a note and looking at tone color, the horn is already dark enough for me, so I usually focus on brightening it up, and intensifying it. So many tuba players are stuck in this slow, lugubrious air and overly dark sounds and then they add a splat. I play with edge all the time but I don’t think it’s ever a splat. A lot of the times I hear orchestral tubists, whether it be on a solo or in the orchestra, have a very ‘wooffy ooooh’ kind of sound because they are playing an enormous horn. I don't think it’s so much the horn as it is the concept. People are way too open [vowel shape] and then try as hell to get some clarity but it ends up as a splat because of the size of equipment they picked and what they are trying to doing… [like an] egg on the ground. I generally play the smallest piece of equipment that I can play for the job. Yes, I play a huge tuba but as compared to most tubas that size it’s super easy to play. I probably play F tuba 50% more than my predecessor and more than anyone ever has in the NY Philharmonic. For something like this [Woodward’s Concertos], I’m picking the smallest F tuba that I can get away with and then I’m trying

to intensify this [the tone color] with speed of air. Speed of air allows me to shade colors. I'm not thinking darker, I'm thinking brighter.

S: Does that approach change at all depending whether you are playing C tuba or F tuba?

B: I think I definitely try to play brighter on my C tuba because it is a bigger horn. I try to approach my C tuba like an F tuba, that fast of air. I won't play a C tuba that won't take serious air. Over the years I was looking for a piston horn that would take that much air and when I finally switched over to piston, Tommy Johnson had a Gronitz. That was the first Piston C tuba that I ever bought. I called him and asked him 'will it take it?' [the air] and he knowingly said 'oh yeah, it will take it.' I bought that horn from Tony Clements, when he was selling tubas. He was a [Roger] Bobo student. I told Tony to send me the one that could take the most air and I bought it sight unseen. That was the horn that made the rounds, when I won the audition.

S: Are there any other aspects of using the instrument mechanically that would be pertinent to performance practice?

B: I use different [metal] alloys to get different results, on different mouthpieces. I have the luxury of having a mouthpiece made for every instrument, and I love to experiment. I use different alloys and weights for different purposes. For the my solo stuff I usually use the same alloy, titanium at times for different things, I use different weights. For instance, in the orchestra I have a regular stainless steel mouthpiece, it's 15:5 stainless steel. It's a hardenable stainless steel. The harder the material, the faster it speaks. If I'm playing Bruckner and getting the hand, instead of changing horns I'll will switch to a lighter mouthpiece. It won't have as much bite and if that still doesn't work I'll switch to

titanium, which is harder but it's so light it doesn't have the projection value. After that, then I will start changing horns.

I don't know anyone that is doing that with performance practice. As far as I know, I'm the only one. That's how I try to deal with problems and to match what's going on around me. If we are doing Bruckner or something similar, the trumpets are using side-winders [rotary-valve], the trombones drop down to a straight horn or a much lighter setup, otherwise we end up burying the trumpets. For most tuba players, the big change would be going to an F tuba. I want to be able to have several different shades to get me down from C to a drastic F tuba. Also, I use a lot of different horns. I use three different C tubas in this orchestra and two different F tubas. Luckily, I have the equipment to do it and the manufacturers to back me up. The manipulation of slides are just the mechanics of just one horn but in I'm using much different equipment for different things. It also depends on the conductor and what I know they like. I won't pull out certain equipment with certain conductors because I know they won't like it. I will go in there with light equipment. I think you should use the smallest equipment that you can get away with, because it's kind of an unwieldy beast.

S: Is there anything else, pertaining to these pieces, that present unique challenges or unique situations to work towards?

B: Concerto No. 1 is very thickly scored, which we are seeing a lot of lately. I ran across the same thing with the Ziek Concerto that I premiered about a year ago. You are going to have a hard time cutting through the orchestra with these concertos. With piano it's a non-issue, but to be heard and to be able to say what you want to say and how you want to say it through an ensemble…it's getting tougher. That aspect is more difficult because you are having to produce more volume…so I'm always going about my

practice like I am pushing forward all the time, so I'm used to it. I believe that tuba is a very demanding instrument to play physically, especially with the air stream I like to use. If you look at most tuba players, including what you've seen of me in the past, we are mostly out of shape guys. This is a very physically challenging instrument to play. My biggest concerns in doing this with a band or orchestra is having enough energy to support a strong air flow trough the entire piece. Also, I will pick different equipment depending if it's with band or orchestra versus piano. For example, last Saturday I played with a band at Carnegie Hall and I had to pick a larger horn even though it was contrary to my usual motto of use the smallest horn possible. I ended up using my Meinl-Weston F tuba because it cuts through the ensemble. The smaller horn just doesn't sink through as well.

S: Do you think breath control or how you control your air plays into that?

B: Yes absolutely, that is huge. I do a lot of what Tommy [Johnson] called the "Gregoriev rules". You can use this with say a Rochut, all slurred, all forte, and no breath on a up stroke. Meaning that if note 2 is higher than note 1 you can't take a breath there. So you are always pushing forward, going against gravity, or pushing up. It forces you to look way ahead to find your breaths. It's an incredible exercise and it turbo charges your air. Try it, I use it all the time.

2. Interview with Dr. James Woodward

Shipes - What was your interaction with Alan Baer for the composition of each concerto?

Woodward - Something he probably doesn't even remember. My first interaction with him was when I was going into the honor band in high school, and I forgot my euphonium. We were scouring the music department at UWM and we found this piece

of crap. By the end of the weekend I had a green ring around my finger! My first interaction with him, I was just a little punk kid who forgot his euphonium.

I switched back and forth between euphonium and tuba, and he suggested I write something for tuba. My first piece was Variations on the New World Symphony for euphonium, that piece did really well, I sent it to David Miles at Tuba-Euphonium press. I wrote Alan the first movement of the concerto, I played piano, he was playing tuba. He asked “Well why don’t you write some more movements and finish the concerto?” I said “okay!”

I went a little nuts, I wrote four movements which I think was a little too much..you can see with the second concerto, the first one is over 20 minutes long, while the second is only 12. The first time I had written it, I asked about his range and he said that he could play up to an A (above the bass-clef staff) very easily. So you can see in the fourth movement there were at least double the number of high a’s in the first draft until he finally told me to cut them. Then he recorded it and sent it to the ITEC [the International Tube Euphonium Conference] in Saskatchewan, and performed it with the Canadian Air Force Band and at UWM in ’98 or ’99. ITEC in ’00, then in ’01 with Milwaukee Youth Symphony. He basically premiered it in all forms…piano, band, and orchestra. He’s a power house, he has a character to his style of playing that I just don’t hear from anybody else. He adds so much that isn’t even written in the score, he just makes it his own.

And then after that Zerkel recorded it with wind ensemble. Zerkel, I feel, is somewhat the opposite. While Alan adds a lot of character and does what he wants with it, Zerkel is much more studious, does exactly what you tell him to do extremely well.

They are very two opposite directions. They were two people that were extremely supportive of me and my first concerto.

S - Do you feel that Alan Baer displays the characters you have in mind in the music?

W - There is actually a lot of him within the concerto, especially in the second movement of the first concerto. That is Alan playing the melody correctly, then at the end of the movement it is me playing it incorrectly, and that's him scolding me, as in my tuba lessons I had with him. That is a direct interaction between us that I put into the music.

The first movement is very straightforward - sonata allegro, the latter three were supposed to show much more of the character, representative of the fun times we had in Milwaukee. The Milwaukee Youth Symphony actually created a story that goes along with the piece. The first movement is Alan playing along with the symphony, it's very straightforward. The second is Alan at the bar. The third movement - now this is the youth symphony making this up mind you - is a woman knocks over his tuba and breaks it, and he is crying over his lost tuba. The fourth movement is that he realizes he can sue … and he is happy. It was their exact story!

I didn't have any clear-cut form in mind for the fourth movement. I suppose you could almost call it a three part form. I wasn't concerned with the form when I wrote it, it was an adventure.

I will say that the original score is a complete mess, there were no articulations in the accompaniment, so the ensemble actually played the opening the opposite of what I was thinking. I was 20! I didn't know how to write articulations yet, or the dynamics that go nowhere. I believe the first publication was in '99 or 2000, it was written out on Finale '98 - with all of the horribleness that was Finale '98. It was back when, when you added a dynamic marking the marking would appear on the note, and you had to drag it

around. It was such a horrible, long process to do anything. The score was such a mess. Even the reduction was horrid, I'm surprised anyone actually played it. It was so nice doing this new edition in 2010, it was much more accurate and approachable.

S - So Mr. Baer was the first to perform this concerto?

W - Yes, then Zerkel, then Richard Perry at University of Southern Mississippi. I was lucky that a lot of guys were interested in playing it. After that one piece, I kind of took off … had a huge break. I didn't know how to start the next piece afterwards. As far as another substantial tuba piece, I couldn't start anything, especially coming from the first concerto. The first piece starts so well so I was very concerned with how the next piece began. I was afraid what I write would suck because everyone liked the first movement of the first concerto so much.

Finally I realized that it's been over 10 years, I need to figure out something to do to start the next concerto. So I was remembering this other opportunity I had where I was going to play my piano concerto with the Georgia Symphony in Marietta, and I remembered the most horrible thing in the world happening, because I was following a 16 year old playing the Tchaikovsky violin concerto. Never do that! Never! Because it's the Tchaikovsky violin concerto, It's huge! And I'm coming out with my own composition? But I was sharing that information with someone else and remembered that the piece begins with just a single line, and I thought that's how to start the second concerto. Not to compete with the grandness of the first concerto's opening, but just use the tuba in a single line, from there I had no problems at all, it wrote itself.

The second movement I had written before the first, because I had just moved to Jacksonville and was having culture shock. I was feeling not so happy and it was easy to write the dark themed music. The third movement was easy to write because after I

showed Alan the first two movements he said “now you just have to write something very technically advanced.” Something the tuba can use to show off, especially since the first movement is very ‘compositional’ Here’s an A theme, here’s a B theme. I was actually thinking of the Tchaikovsky second piano concerto for the first movement. The third movement is strictly technical and show off - it uses the Hannon piano studies very often throughout for the technical material. Lots of scales, lots of flourishes moving up and down.

S - In the second concerto were you thinking of using sonata form again?

W - Well Sonata form is just basically taking a theme, something happens to it, it is altered and comes back…”Guys gets girl, guy loses girl, guy gets girl back.” Basically that’s all that’s going on. Actually, the first movement of Shostakovich’s second piano concerto was a big influence on the first movement of the second tuba concerto in terms of form. It was fun, I dropped a hint somehow to Mike Alexander (conductor of Georgia Youth Symphony and at Kennesaw State) to premiere the second concerto with Alan Baer.

S - Have there been any recordings so far of the second concerto?

W- We wanted to do a professional recording with Kennesaw state orchestra, it just hasn’t happened yet.

S - What things were you thinking about in terms of harmonic and melodic content?

W - I write a lot at the piano, a lot is just improvised at the piano. Whatever sounds awesome. That means “stealing” from a lot of people. I was thinking about film scores for the first concerto. The second concerto was structured a lot more, I don’t know why anyone plays the first concerto, it’s so difficult … 20 minutes long. I really took advantage of the fact that in the mid-90’s there weren’t a lot of major works for the tuba.

Everyone on earth was writing weird, atonal stuff for the instrument and I'm writing a tonal piece for tuba - it made it that much more attractive. I could understand why tubists played it from that perspective. The fact that there was something tonal for the tuba, that's why it was played.

Since then, every composer on earth has been writing for tuba, there are so many writing for tuba right now. I think it's because you guys are awesome! We come up to you and ask you to play our piece and you say "Sure! I'll even play it here, and here, and here!" And you guys commission things, and look for "ordinary" composers, you don't go for the Coriglianos all the time. Now you're seeing the result of that - back in the mid-90's if you wrote something for tuba, it got played. Now from being so open, it has caught on so there are a lot of pieces. For me, it means I'm probably not going to write that often for tuba because so much is being written. I like to write for the instruments that need it.

I was talking to a group of student about my compositions, and was telling them I would write something for an instrument that doesn't have a lot of material written for it, the steel drum. I could tell the steel drum player in the audience because he was like [raises arms in the air] "Yes!" I mean can you imagine? A violin player would never do that.

However, if you search for tuba pieces at, say, Cimarron music, you will come up with over 1200 scores. Compare that to the Tuba-Euphonium Press from the 90's and there were only a couple hundred. There are so many good composers writing: James Grant, Barbara York, Anthony O'Toole, everyone is asking Barbara to write something for them, Anthony is writing a ton of music right now for tuba. I promised myself I will only write three concertos for tuba, and that's it. Whatever happens with this next one… that's it.

S - Is that a work in progress right now?

W - I haven't even thought of it. But I know it's over after that. Sorry for that huge tangent, the original question was about creating harmonies and melodies…

S - The actual harmonic content, melodic content. How much planning went into it. What were you thinking?

W - There are a few specific things. I just overall thought about what "sounds cool." I have a few compositional processes, but I will give up anything…any system that I have, for something that sounds cool. There's actually a 12-tone pattern in the second concerto. The cadenza in the first movement. It's the only place you'll find it, it just happened to work out that it was cool. In this case I wrote a few notes and realized that it was fitting into a tone-row by chance, so I went with it.

S - I see these concertos largely as a showcase for what the tuba is capable of. Were you trying to push this at all, were you thinking of displaying the range and different tone color capabilities?

W - I was thinking about that for the first concerto, for the second concerto I was thinking that it needs to be easier than the first. I'm hoping that's the case, that it's at least a couple of notches down. That was specifically my goal.

Looking at the original draft of Concerto No. 1

W - As you can see this one lacks many of the accidentals. Here is an example that use for all of my classes of "that is really stupid!" Here in the climax of the first movement of the first concerto, there's an awful arrival on beat 2. The conductor asked what I was trying to do, I wanted it to be a surprise, be out of nowhere, and he said "well it is a surprise, for the musicians too!" One of the first things I did in the new edition was move this arrival to beat one. You can actually hear it on the recordings, [the ensemble not

arriving together], compared to an accent on the downbeat. It was boneheaded. Look at those time signatures, 8/4? 6/4? I had written a measure, and then I wanted it to be a little longer. At first it was 4/4, I realized it didn't have enough beats and wanted to extend it. The problem is with finale it's so easy to just add another beat instead of inserting another measure…so that's what I did. I was an undergraduate, I was lazy.

You'll notice compared to the old edition, the piano reduction in the new edition is actually for piano. The old edition doesn't reflect the orchestral arrangement at all, it was changed to reflect the grand nature of the first movement. I really tried to make the second version actually for piano. I have no idea how the pianist did it in Alan Baer's recording of the first concerto. What this is, is me writing for full orchestra but only using bass and treble clef, in the second edition I was actually thinking about piano when arranging the reduction.

S - How do you make the transition from writing for keyboard and then arranging to a large ensemble?

W - That's very easy for me, it's easy to go from a short score to a large score. The piano part can sometimes be pretty dead compared to the full arrangement. I will always write a part specifically for piano after completing the piece. I did this with the first concerto…it just took me 9 years.

We then go over a section in the third movement of the second concerto that was inspired by a similar sections in Copland's Simple Gifts. This is pertinent because some of the activity in the orchestral score is lacking in the piano accompaniment.

W- You might want to check out how many tritones there are in the second movement compared to everything else. In terms of melody and harmony, the dominant 7th sound is extremely cheesy-and dated to me … [like a barbershop quartet]. Likewise the French

augmented 6th, half and fully diminished sounds are all dated to me, so I'm poking fun of it in the second movement [of the first concerto].

The third movement is nice and dissonant, especially for the time … it is much more dissonant than other things I was writing at the time. There is a connection between the opening of the concerto and here in the third concerto [ascending harmonic ideas].

If you look at the melody here [in the third movement] it has a first movement feel when separated from the harmony. It is just made dissonant by the harmony. One of the worries I did have is that when one is just practicing the solo by themselves they may not know what is going on. It just sounds like the first movement, completely happy.

[The fourth movement was] totally written by piano, I just played it on piano. Alan really wanted this line [in the G Major section], with the repeating material.

S - Do you think about key centers when moving through sections of the piece.

W - No, not really.

S - Most of the time, the notes you use fit into a key.

W - What gets me back is the piano usually [when moving between key centers] … The comfort with playing piano will push me back into different keys.

Here he plays the opening to Tchaikovsky's 2nd Violin Concerto to compare to the opening of the second tuba concerto

W - This is so much more of what I'm writing these days. Lot's of times when I think about melody and harmony, in F Major for example…add 1 flat, it becomes B ♭ , take away 2 flats I'm in C Major. I'm purposely playing with the vagueness of the key at the beginning of the second concerto, playing with how keys can change to one another. I love doing that. One of my favorite things to do is to have a triad plus one note. For

example F Major triad with another note, but not F7, because that's the cheesy sound, it needs to be 9ths or 11ths. [he plays each chord] For example here is C Major with the 9, F Major with the 9, F Major with a major 7th, not a minor 7th, F Major with an 11th, B ♭ Major with a 9th, C Major with a 9th, B ♭ Major with a sharp-11th, C Major with an 11th … those kind of sounds.

S - So all of it has a tonal basis, but in a different context?

W - Yes. A lot of people are using it right now.

Shows an example of O Magnum Mysterium by Lauridsen.

And that's all it is! D Major with 9th, 11th right there, A Major, G Major with 9th, D Major add 9, that's all this stuff is. A Major with 11th, again right there, 9th, and so on. That's how you create those sounds.

One thing I actually did have in mind for this one was having a G ♭ here, leading to F major, just as how the tuba part goes from a low G ♭ to F.

You can tell that I'm much more mature, I'm more proud of how I wrote the second concerto, how the theme returns in the first movement with the second theme behind it. I move from the climax of the slow theme in the first movement of both concertos to the restatement by getting very chromatic.

I was always worried about this part at H in the accompaniment [of the first movement],. It's fantastic for tuba in F, but it is a bad range for trombones at that point, it doesn't carry. I just bit the bullet, but they really can't sing it out like the tuba can.

I think the best way to perform the first concerto is to almost do an attaca between the first two movements…I realize it's a long way to go without a break, especially since the tuba starts the second movement.

Well it's heading toward sharp keys [in the accompaniment at the end of the first movement], you can see it's moving around to different keys. I tried to move all the way around the horn [in this movement]. F Major, and A … I was trying to make it around the circle of fifths.

[At the beginning of the second movement], this is a question of "Am I in F Major or A Minor?" Then I add E ♭ Major above it to compound the problem. Finally this measure shows that I am in A Minor. Notice that I am in A Minor with and F Major feel to it, adding a flat and then compounding it to get to Ab Major with an A pedal.

[In the bitonal section], I wrote this just from playing the piano. I did A Minor with E ♭ Major, A Minor with Ab Minor.

Do you see how this gradually gets further and further apart [during a scalar line in movement 3 of the second concerto]? The next time it comes back, it goes up to D, and then back to C. When you look at the return of the A section later on, I start further apart, and then try to get it that much more further apart. I try to make each of these melodic statements go further and expanded as the movement goes on.

S - What considerations did you make for the length of each concerto?

My first concerto is 20 minutes, I feel that is too long. Especially with the internet age of having 30 seconds to impress someone before they quit, it is tough to know what to do in the concert realm because of that. How long can you write without your audience getting tired? Something I've noticed about the South is that they rarely program concerts longer than an hour, maybe an hour and 15 minutes. I can't remember a concert that was even an hour and a half here in Alabama.

S - What were some considerations you had in regards to performance practice?

W - Again, the first draft of the first concerto just had high A's all over the place, much of the solo line was up an octave. I scaled this back to make it more playable. Then in the second concerto I needed to have something that had a better shot being played by a larger group of people.

S - Was range your main concern?

W- That was a big part of it, although I was flat-out mean to you guys by starting the piece out with skips, but I had to do it. I made sure it didn't have nearly the same high-register requirements [as] the first concerto, and that it was shorter. It's easier to have a first movement that is long and meaty, and then two following movements that are shorter. In the first concerto the last movement is at least as long as the first, which makes it much more difficult. If you think about the length of other concertos, then it's much more understood that the last movement should be shorter.

There's just no other instrument that does these things, you guys are master plumbers. No other instruments experiment like you guys, the others can be snobs. They aren't willing to experiment.

3. Bibliography

Arban, Jean Baptiste. *Complete Method for Trombone and Euphonium.* Edited by Joseph Alessi and Brian Bowman. Michigan: Encore Music Publishers, 2000.

Baer, Alan. Interview by author. New York City, NY. July 3, 2014.

Beauregard, Cherry. “Diversity of Sound and Adaptability.” *International Tuba Euphonium Association Journal* 9, no. 4 (Spring 1982): 9-16.

Bishop, Ronald T. “Fundamentals of Tuba Playing.” *International Tuba Euphonium Association Journal* 5, no. 2 (Winter 1978): 9-11.

Childs, Adrian P. "Scalar Referential Collections." unpublished course notes.

Conner, Rex A. “Tuba Dipthongs.” *International Tuba Euphonium Association Journal* 4, no. 3 (Spring/Summer 1977).

Funderburk, Jeffrey. “Proper Breath.” Edited by Fritz Kaenzig. *International Tuba Euphonium Association Journal* 14, no. 2 (Nov 1986): 17-8.

_____. “Where to Breathe.” *International Tuba Euphonium Association Journal* 26, no. 1 (Fall 1998): 77-8.

Kaenzig, Fritz. “Building a Successful Low Register.” *International Tuba Euphonium Association Journal* 13, no. 1 (Aug 1985): 23-4.

_____. “Improving Tone in the High Register.” *International Tuba Euphonium Association Journal* 13, no. 2 (Nov 1985): 20-1, 32.

_____. “The Brief Practice Session.” *International Tuba Euphonium Association Journal* 11, no. 4 (Spring 1984): 11-2.

Kostka, Stefan. *Materials and Techniques of Twentieth-Century Music*. 2nd edition. New Jersey: Prentice-Hall, Inc., 1999.

Little, Donald C. “A Young Tubist’s Guide to the Breath.” *International Tuba Euphonium Association Journal* 8, no. 3 (Winter 1981): 2-3.

Morris, R. Winston. *Guide to the Tuba Repertoire: The New Tuba Source Book.* 2nd edition. Indiana: Indiana University Press, 2006.

Pierce, Benjamin. *Professor’s Assistance Program, Class Materials for Teaching Low Brass*. The University of Arkansas, 2003.

Roberts, F. Chester. “A Singer Looks at Brass Playing.” *International Tuba Euphonium Association Journal* 16, no. 1 (Fall 1988): 45-8.

Sheridan, Patrick. 2004. Masterclass. Baylor University School of Music. Waco, TX. February 1.

Spencer, Peter, and Peter M. Temko. *A Practical Approach to the Study of Form in Music*. New Jersey: Prentice-Hall, Inc., 1988.

Straus, Joseph N. *Introduction to Post-Tonal Theory.* Third edition. US: Pearson Education, 2004.

The New York Philharmonic, “Alan Baer - Principal, Biography.” New York Philharmonic website. http://nyphil.org/about-us/artists/alan-baer (accessed October 6, 2014).

Tilbury, Jack. “Think Big!” *International Tuba Euphonium Association Journal* 39, no. 3 (Spring 2012): 66-7.

Upshall, Michael. *Hutchinson Pocket Dictionary of Classical Music*. Oxford: Helicon Publishing Ltd., 1994.

Vinson, Ed. “Tips for Tuba: The Young Tuba Player’s Use of Air.” *International Tuba Euphonium Association Journal* 41, no. 3 (Spring 2014): 62-3.

Woodward, James. “Biography.” Dr. James Charles Woodward website. http://www.jameswoodwardmusic.com/biography---upcoming-events.html (accessed October 6, 2014).

_____. *Concerto for Tuba and Piano.* Salem, CT: Cimarron Music Press, 2010.

_____. *Concerto 2 for Tuba and Piano.* Salem, CT: Cimarron Music Press 2013.

_____. Interview by author. Jacksonville, AL. September 27, 2014

_____. “Tuba Concerto.*” Coast to Coast.* Alan Baer, tuba; Brad Haag, piano. Baer Tracks Music, B000BKC9EE, 2005. CD.

_____. *Tuba Concerto No. 2.* Alan Baer, tuba; Michael Alexander, conductor; The Kennesaw State University Orchestra. YouTube. http://youtube.com/watch?v=k7k0Pjdmegs (accessed October 6, 2014).

_____. “Woodward Tuba Concerto (2000).*” American Music for Tuba: Something Old, Something New.* David Zerkel, tuba; John Culvahouse, conductor; The University of Georgia Wind Ensemble. Mark Custom Recording Service Inc., 5348, 2004. CD.

Zerkel, David. Liner notes to recording of “Woodward Tuba Concerto (2000).*” American Music for Tuba: Something Old, Something New.* David Zerkel, tuba; John Culvahouse, conductor; The University of Georgia Wind Ensemble. Mark Custom Recording Service Inc., 5348, 2004. CD.