

## ABSTRACT

Title of Dissertation:

THE ELECTROACOUSTIC TUBA: A  
STUDY OF SELECTED WORKS FOR TUBA  
WITH FIXED MEDIA AND LIVE  
PROCESSED ELECTRONIC  
ACCOMPANIMENTS

Craig Garrett Potter, Doctor of Musical Arts,  
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Dissertation directed by:

Professor Michael Votta, Wind and Percussion  
Division, School of Music

The purpose of this project is to explore repertoire for solo tuba combined with either fixed electronic media accompaniments (CD/tape/computer audio) or with live electronic processing. The music selections represent a variety of styles of solo works from the 1970s through the present and have been interspersed through three recitals to provide better musical flow in performance. The works performed and discussed in this dissertation are:

- Jess Ayers – *The Dancing King for Tuba and Synthesized Accompaniment on Tape*
- D. Edward Davis – *Let There Be Funk for tuba and two channel digital playback*
- Alice Gomez – *Shaman Returns for tuba, didgeridoo, jingle bells, and CD*
- Jonathan Harvey – *STILL for Tuba and Electronics*
- Benjamin McMillan – *Tomes of Hardened Steel for tuba and CD*
- Benjamin McMillan – *Tomes of the Wanderer for tuba and CD*
- Peter Meechan – *Floating Dreams for tuba and CD*

- Walter Ross – *Pitldown Fragments*
- Brian Sadler – *Kick-ass Sonata for Tuba and Orchestra (CD)*
- Andy Scott – *Going Down for Tuba and Sampled Tuba CD*
- Andy Scott and Lemn Sissay – *My Mountain Top for solo tuba with accompanying CD*
- Roland Szentpáli – “I. Very Good Morning” from *Pearls III for Tuba and Piano*
- Monte Weber – *Colossus for Tuba + Electronics*
- Mark Zanter – *Perpetuum Mobile for tuba and live processing.*

THE ELECTROACOUSTIC TUBA:  
A STUDY OF SELECTED WORKS FOR TUBA WITH FIXED MEDIA AND  
LIVE PROCESSED ELECTRONIC ACCOMPANIMENTS

by

Craig Garrett Potter

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Advisory Committee:

Dr. Michael Votta, Chair

Dr. Luz Martinez-Miranda, Dean's Representative

Professor David Fedderly

Professor Chris Gekker

Professor Chris Vadala

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## Dedication

To the memories of Karen Potter, Joan Lofgren, and Gustav Lofgren

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## Chapter 1: An Overview of Tuba Literature

From its origin on September 12, 1835, the tuba has primarily served the purpose of a background, bass voice supporting bands and orchestras. Despite the instrument being adopted by composers early on as a standard member of the orchestra, the first major solo by a well-known composer for the tuba was not written until 1954: *The Concerto for Bass Tuba and Orchestra* by Ralph Vaughan Williams. This was shortly followed by *the Sonata for Tuba and Piano* by Paul Hindemith in 1955. There were solos prior to these two masterworks of the tuba repertoire, but they were largely arrangements of simple tunes, orchestral melodies, and other novelty songs. The first published solo for tuba and piano was an arrangement of *Rocked in the Cradle of the Deep*, released in 1881.<sup>1</sup> In his autobiography, *Mr. Tuba*, Harvey Phillips writes:

It was upsetting to hear other instruments practicing great music by master composers while the tuba was stuck with “Beelzebub,” “Asleep in the Deep,” “Rocked in the Cradle of the Deep,” “Down in the Deep Cellar,” “Solo Pomposo,” etc.<sup>2</sup>

This is not to say that the tuba and its musicians were not capable of performing challenging works before 1954 – there are very technically challenging orchestral, wind band, and circus band parts written for the tuba prior to the Vaughan Williams *Concerto*. The tuba was also staple of traditional jazz, New Orleans brass bands, and

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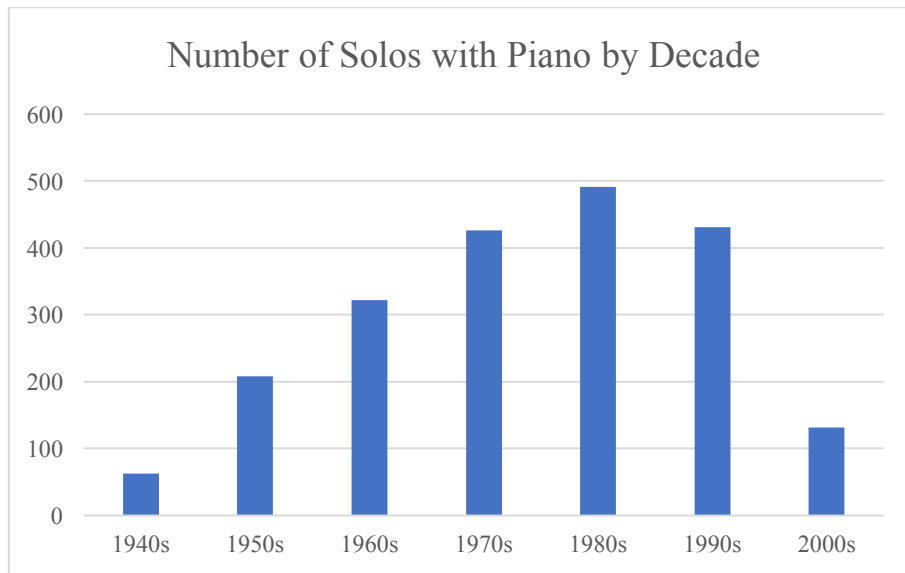
<sup>1</sup> Joseph Skillen and Edward R. Goldstein, “Music for Tuba and Keyboard,” in *Guide to the Tuba Repertoire: The New Tuba Source Book*, ed. R. Winston Morris and Daniel Perantoni (Bloomington, Indiana: Indiana University Press, 2006), 86.

<sup>2</sup> Harvey Phillips, *Mr. Tuba* (Bloomington, Indiana: Indiana University Press, 2012), 74



an early modern jazz, serving a prominent role in the Miles Davis album *Birth of the Cool*, recorded in 1949.<sup>3</sup>

Since the release of the Vaughan Williams *Concerto* and the Hindemith *Sonata* there has been a drastic increase in the number of music written for the tuba as soloist (Fig. 1).



**Figure 1: Solos for Tuba and Piano by decade from the *Guide to the Tuba Repertoire*<sup>4</sup>**

The 1960s gave way to the unaccompanied tuba solo with Walter Hartley's *Suite for Unaccompanied Tuba*, written in 1962, published in 1964. William Kraft's 1966 composition, *Encounters II*, broke new ground for the capabilities of a tuba player. The work demands a five octave range from the tuba player, as well as multi-phonics, extreme dynamics (both loud and soft), and technical skill. With the avant-garde

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<sup>3</sup> Clifford Bevan, *The Tuba Family*, (New York: Charles Scribner's Sons, 1978), 183-4.

<sup>4</sup> Joseph Skillen and Edward R. Goldstein, "Music for Tuba and Keyboard," in *Guide to the Tuba Repertoire: The New Tuba Source Book*.

threshold firmly crossed, the 1970s brought the next step in tuba literature evolution: the addition of electronics to the unaccompanied tuba.

Music for tuba and electronics can be divided into three categories: tuba and fixed media (CD/tape/computer audio file), tuba and prerecorded tuba, and tuba with live sound processing. The first works for tuba and tape arrived in 1971, both composed for Barton Cummings. The first being *Midnight Variations* by Walter Ross, the other *Malta* by Lejaren Hiller. *Malta* is extremely difficult and is written in the treble clef for much of the work. It does involve interesting, mostly acoustic background sounds such as bands and church bells. *Midnight Variations* on the other hand is more synthesizer generated in its accompaniment. Joseph Ott's *Music for Solo Tuba and Tape*, also written in 1971 was an early example of the soloist creating the backing tape. The soloist is responsible for prerecording eight separate tracks for the backing tape to be used in performance. By virtue of being recorded by Roger Bobo on his 1978 album, *Botuba*, *Cadence VI* by Henri Lazarof may be one of the better-known works for tuba and prerecorded tape. In collaboration with the Italian avant-garde tuba player Giancarlo Schiaffini, Luigi Nono wrote his *Post-Prae-Ludium No. 1 "per Donau" in 1987*.<sup>5</sup> The work calls for solo tuba with sound technicians. The electronics involve delay effects, a low pass filter, phasing effects, and reverb spread through four speakers that surround the audience. The sound technicians control the input and output levels, as well as the feedback of the delay effects. For the soloist, the work calls for extreme high register playing at very soft

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<sup>5</sup> Scott Edward Tignor, "A Performance Guide to Luigi Nono's *Post-Prae-Ludium No. 1 'Per Donau,'*" DMA diss., University of North Texas, 2009.

dynamics. The tuba player affects the sound by singing through the tuba, singing in the falsetto voice, using vibrato, and using multi-phonics. Much of the work is performed using half-valve technique.

Being the first of their kind, these works truly paved the way for future tuba and electronic works. With advances in digital music production, composers are no longer reliant on early synthesized sounds, musique concrète, or even sound technicians to control aspects of the electronics independent of the soloist. Many of the works performed as part of this dissertation feature “play-along” audio tracks – these tracks vary greatly from simple synthesizers, to computer sampled full orchestra music. With the program Max, composers can create interfaces for performers to create live electronic processing through the computer and without the need of separate sound staff. There is great potential for future works for solo tuba and electronics to break away from the traditional piano accompaniment to an unlimited palette of colors and textures that can be created within a tape, computer program, or effect.

## Chapter 2: Recital No. 1 – April 27, 2017

### *Shaman Returns* (2008) – Alice Gomez

Alice Gomez was commissioned to write *Shaman Returns* in a way that combined Native American and Aboriginal music with, in her words, funk. The piece is in three continuous, yet distinct sections. Drums and claves introduce the piece followed by a tuba fanfare that works its way down to a low G. The second section is the longest of the three and differentiates itself from the surrounding sections by being entirely in 6/8 meter. The accompaniment is relatively sparse throughout, adding marimba and synthesizer before the section ends. The flute and tuba trade melodies through the section, eventually playing together in octaves. The tuba serves three roles in the middle section: drum, bass line, and melodic voice. The third section begins with a digeridoo solo improvised by the soloist and is immediately followed by a recorded digeridoo solo. After the digeridoo solos, the tuba plays a G-minor pentatonic based melody that rhythmically matches the background drum groove. The piece ends with a broad pentatonic tuba melody.

### *My Mountain Top* (1998) – Andy Scott and Lemn Sissay

Originally written for the Apollo Saxophone Quartet, of which Andy Scott is a member, *My Mountain Top* was arranged by the composer for British tuba player, Les Neish and released on his album, *Salt of the Earth*. The work features text written and narrated by poet and playwright, Lemn Sissay. Andy Scott describes the work:

*My Mountain Top* starts with a crackle on the CD, representing lying under the gaze of the sun and feeling the heat on your skin. The rhythmically free

opening solo statements represent a mind that is active with thoughts but which gradually floats into a semi-conscious state. At this point the warm keyboard pads emerge and the stage is set for Lemn's magical words. The solo part weaves its way around the voice, gesturing and supporting, but never overpowering.<sup>6</sup>

After the free-time beginning, *My Mountain Top* is written in 3/4 meter, with the synth pads repeating the same three measure, three chord phrase throughout. This repetition creates a droning sense of time in which the tuba inserts itself around the narration. The poem describes various hardships: bad weather, disease, nightmares, tears, physical wounds. Despite each of the challenges, the poet states “I carried on for a reason.” As the piece fades out, he finishes the line: “I carried on for a reason/That I would reach here one day/One day, one day/My Mountain Top.”<sup>7</sup>

#### *Piltdown Fragments* (1975) – Walter Ross

*Piltdown Fragments* is the second work written for Barton Cummings by Walter Ross. In the early 1970s, Cummings wrote to composers seeking new solo works for the tuba. The connection to Walter Ross came out of his service in the United States Army, where he was stationed in Vietnam along with Fred Geissler, who was a student of Ross. In 1971, while Cummings was in the Army, Ross composed *Midnight Variations* for tuba and tape. *Midnight Variations* was one of the first, if not the first, pieces of music written for solo tuba and electronic accompaniment.<sup>8</sup> The work is shorter than the *Piltdown Fragments*, but both involve

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<sup>6</sup> Andy Scott, “My Mountain Top,” Liner notes for *Salt of the Earth* by Les Neish, Egon SFZ 150, 2009.

<sup>7</sup> Andy Scott and Lemn Sissay, *My Mountain Top* (Astute Music 2012).

<sup>8</sup> Barton Cummings, *The Contemporary Tuba*, (New London, Connecticut: Cimarron Music Press, 2004), 32.

similar synthesized sounds on the tape, extended techniques for the tuba, and scores with visual representations of the taped sounds. Cummings suggests “Walter Ross must win a medal for his artistically designed scores. They are visually pleasing and quite easy to decipher once a hearing of the tape is made.”<sup>9</sup>

Ross describes the work as “a fantasy in five sections based on short motives which reappear in ever changing relationships.”<sup>10</sup> The first section features a relatively busy tuba part with near constant eighth notes interrupted by a two sixteenth note, two eighth note motive throughout. An interesting B-flat to E relationship starts and ends the section and can be found throughout the piece. The accompaniment creates a seemingly underwater, as if on a submarine, backdrop for the tuba with pings, brief sawtooth synth sounds, low popping bubble noises, and theremin. The second section emphasizes imitation. It begins with a low, meandering bass synth that the tuba tries to replicate, first by performing pulsing half-quarter-half rhythm with a hairpin dynamic, and later by sliding between a B and G by using a half-valve technique. A whooshing sound follows the low bass and again is imitated in the tuba, this time using vocalizations performed through the tuba. The score indicates the syllables (SH, SSS, ZZZ) to be used as well as the intensity. The end of the section brings back the B-flat/E motive, this time as a soft sigh instead of aggressive eighth notes.

The third section brings back the aggressive eighth notes from the beginning, starting with the B-flat/E idea again, and is followed by an equally aggressive

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<sup>9</sup> Ibid.

<sup>10</sup> Walter Ross, “Piltdown Fragments,” Walter Ross-Composer, <http://walterross.com/compositions/brpiltdown.html>.

synthesizer. The combination of running tuba notes and synthesizer are interrupted by a loud distorted synthesizer along with a “walking” bass line. As in the second section, the tuba tries to imitate both synthesized ideas: using loud flutter-tongued glissandi for the distorted sounds, and simple, tenuto notes that act as a bassline with the synthesized bass notes. The fourth section features a lilting tuba part accompanied by a rambling bass synth, popping noises, and theremin. The section briefly brings back the sighing motive from the second section, this time the synthesizer imitates the tuba. As Ross said in his note, the final section is a culmination of the work. It involves the main motives of the first section, the extended techniques and sighing of the second section, flutter-tongued glissandi of the third, and some ascending passages of the fourth. Interestingly, the sighing motive is accompanied by both theremin and female voice.

*Perpetuum Mobile* (2014) – Mark Zanter

*Perpetuum Mobile* is a collaboration between Mark Zanter and his former colleague at Marshall University, Dr. George Palton. Originally planned as a solo for tuba and fixed media, Zanter added live processing of the tuba’s sound “enabling it to inhabit the same sound world as the recorded media.”<sup>11</sup> The fixed media and live processing are controlled using the software Max. Max provides a graphical user interface to control sound patches and effects in electronic music. In the case of *Perpetuum Mobile*, the soloist controls three aspects of the computer program: fixed media cues, a filter effect, and a delay effect.

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<sup>11</sup> Mark Zanter, *Perpetuum Mobile* (MJIC Music Publishing, 2014)

The piece is composed in four sections, the last section recalling the material from the opening. The first two sections feature ambient sounds beneath a cadenza-like solo for the tuba. The third section has a more rhythmic background with instructions for the soloist to “find the ‘groove.’” The tuba transitions from playing along with the rhythmic groove of the background to a lyrical, higher register passage. Similarly, the background adds the ambience of the opening to the rhythmic idea.

*Kick-Ass Sonata for Tuba and Orchestra (CD) (2009) – Brian Sadler*

Composed in 2009, Brian Sadler’s *Kick-Ass Sonata for Tuba and Orchestra* is the composer’s first published work for the instrument as a soloist. The work is in three sections, as one might expect for a sonata. The exposition has two short themes: a repeated, single note with upper neighbor theme and an ascending syncopation that is a variation of the end of the first theme. The “development” introduces music that is completely unrelated to the original themes. The recapitulation focuses on the first theme of the exposition, but with added ornamentation.

Since the piece was originally published in 2009, it has been re-released twice by the composer. A version with concert band accompaniment was written in 2014 and titled *Action Sonata for Tuba & Concert Band*. In 2016, as part of a commission by the Harrisburg Symphony Orchestra of Harrisburg, Pennsylvania, the *Kick-Ass Sonata-Action Sonata* became the first movement of a three-movement tuba concerto entitled *Journey for Tuba & Orchestra*. The second movement of the concerto,



“Ballad,” is slower with a fantasy-film soundtrack quality to it. The final movement, “Finale,” quotes the first theme of the first movement during a quasi-cadenza. Like the *Kick-Ass Sonata, Journey* is available for performance with digital accompaniment.

## Chapter 3: Recital No. 2 – July 8, 2017

### “Very Good Morning” from *Pearls III* (2010) – Roland Szentpáli

*Pearls III* is the result of a collaboration of the virtuoso tuba player, Roland Szentpáli, jazz pianist Áron Romhányi, and beat-boxer Revolution (Gábor Czabán). Together, they called themselves the RTB Crew – in 2010, they released their only album together titled *Meet the Beat*. The album won the 2014 International Tuba Euphonium Association’s Roger Bobo Award for Recording Excellence: Jazz/Rock/Fusion/Commercial Tuba or Euphonium.

The work was published as the third in a series of jazz inspired works called Pearls. *Pearls* (1999) and *Pearls II* (2007) are both written for euphonium and piano. *Pearls III* was written for tuba and piano with three optional background tuba parts. The three *Pearls* pieces are written in three movements; the outer movements are faster, and the second movement is a ballad. *Pearls III* breaks the mold of the previous two works by having a first movement not named after a vehicle; the first movement of *Pearls* is titled “Ducati Sps 916” after the mid-1990s Italian motorcycle. The first movement of *Pearls II* is called “Nissan 300 2x” after the Japanese sports car.

*Pearls III* differs from its predecessors in that it is also available with fixed media accompaniment. The audio accompaniment only uses the piano part, not the optional background tubas, nor the beatboxing from the RTB Crew album. The music of the first movement, “Very Good Morning,” is quick and cheerful and very representative of the movement’s title. The movement has two prevailing features: a very rhythmic and repetitive accompaniment and a tuba melody based on an E-flat

major pentatonic scale. The middle section of the work has the sound of an improvised solo while being completely composed. The tuba and piano trade roles later in the middle section – the tuba plays an ornamented bass line under the piano solo. The finale of the movement brings back the pentatonic melody and repetitive accompaniment but ends abruptly with an A minor scale in thirds.

### *Still* (1997) – Jonathan Harvey

*Still* is best described by the composer as having “a sustained background of reverberated chords and an intermittent foreground of unreverberated improvisation.”<sup>12</sup> *Still* consists of eight chords found in eight measures of music. The piece was originally written for the tuba to play into a microphone that is fed into two reverberator effects – the first set at a 60 second delay that in turn feeds into the second set at 8 seconds. When the tuba plays, the notes are sustained through the reverb effect and outputted to speakers in the performance space, thereby creating a bed of ambient sound. The reverberated sound is cut-off before moving onto the next chord; the second reverberator ensures that the sound does not just stop immediately, but rather fades sooner than it would otherwise. The composer allows the performer to freely improvise between the chordal notes, but notes that only the chordal notes should be reverberated.<sup>13</sup>

The work received its first commercial recording in 2014 by Beth McDonald, a Chicago based tuba player who specializes in electro-acoustic tuba playing.<sup>14</sup> For

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<sup>12</sup> Jonathan Harvey, *Still for Tuba and Electronics* (Faber Music Ltd., 1997).

<sup>13</sup> Ibid.

<sup>14</sup> Beth McDonald, “Still,” <https://bethtuba.com/still>

her recording, instead of using dedicated reverb effects, she created a Max patch to process the tuba's sound. In the author's performance of *Still*, a volume pedal was used between the tuba microphone and the computer interface to ensure clean transitions between reverberated-chordal notes and non-reverberated improvisation.

### *Going Down* (2003) – Andy Scott

James Gourlay is a Scottish tuba player and conductor, and former tuba instructor at the Royal Northern College of Music in Manchester, UK. While at the RNCM, he commissioned his colleague, Andy Scott, to compose a solo for tuba and CD. *Going Down* was premiered at the RNCM Tuba and Euphonium Festival in November 2003.

The accompaniment consists of sampled sound effects produced by a tuba, including breathing noises, key clicks, “tuba-generated percussive effects,” and slap tonguing.<sup>15</sup> The work begins contrary to the title – the tuba opens in a freely played four-phrase introduction that ascends higher with each consecutive phrase until the final phrase that is more subdued and descends. The middle section of the piece is divided into three ideas: angular jazz melody, quiet with tuba-produced effects, and a jazz-funk influenced.<sup>16</sup> The angular jazz section begins with key clicks in the background track giving way to the tuba playing an elongated bass line that becomes the basis for the accompanying harmonies. The tuba ends the section with the same ascending motive from the beginning of the work. The quiet section is not only softer

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<sup>15</sup> Andy Scott, *Going Down for Tuba and CD* (Astute Music, 2004)

<sup>16</sup> Ibid.

in terms of dynamics, but also by nature of the scarcity of musical material. There is a slap-tongued ostinato in the background with an upper-range syncopated melody in the tuba that occurs at the end of each phrase. The final portion of the middle section is the longest individual section of the entire piece; it is 90 measures long and the entire section is repeated. The tuba elaborates on the C, A-flat, B, bassline idea of the beginning of the middle section in combination with the ascending motive of the introduction. On the repeat, the accompaniment has a more involved percussive part as well as a low voice that plays with the solo tuba through the entire section. The final section of the piece is a cadenza that incorporates the ascending motive and large fanfare-like leaps of the introduction and the faster motive of the quiet section. The cadenza ends with the tuba softly playing the C, A-flat, B bassline, but singing the B through the horn. About the ending of the piece, Scott writes, “up to this point I generally avoided writing in the lowest octave of the tuba, now is the time to ‘go down.’”<sup>17</sup> The tuba slowly descends with a voice in the background saying, “Going Down.”

*Tomes of the Wanderer* (2014) – Benjamin McMillan

*Tomes of the Wanderer* is the second of three *Tomes* works by Benjamin McMillan. The first, *Tomes of Hardened Steel* was McMillan’s first foray into composing for solo with pre-recorded accompaniment.<sup>18</sup> A commission consortium has been formed for the third *Tomes* work with an anticipated release in July 2018.

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<sup>17</sup> Ibid.

<sup>18</sup> Benjamin McMillan, *Tomes of Hardened Steel* (Potenza Music Publishing, 2015).

*Tomes of the Wanderer* is a three-movement work with descriptive titles: I. Over the Mountains, II. The Old Forest, III. The Cursed Mire & Leviathan. While McMillian does not provide a definite story to the work, based on the title of the piece and its movements, one can easily imagine a fantasy film hero embarking on a journey.

The first movement is in three sections. The first section has a sweeping orchestra accompanying the tuba as it announces the main thematic material of the work. The second section is written in a brisk tempo with driving strings pushing the hero to start his quest. The section ends with the tuba playing an augmented version of the melody accompanied by an oboe. The movement ends slowly with a solo flute and horn duet over harmonies that create a sense of insecurity. The second movement, marked “With exotic flair,” begins with marimba and strings implying a tonic of A. The tuba slides around flirting with G major and minor, as well as E minor, before joining the accompaniment in A. As if the hero found an opening in the “Old Forest,” the movement’s opening material gives way to the main thematic material of the first movement in combination with the new music of the second movement. The movement ends mysteriously with the slithering tuba melody of the opening of the movement. The final movement, as the title suggests, has two large ideas. The opening section represents the Cursed Mire – the music is low and slow, with high string harmonics and woodblocks creating a scary atmosphere. The tuba enters on an E1, its lowest note of the whole work and labors upwards, marked in the music as “ominously – strict time not crucial.” The start of the “Leviathan” section is abruptly marked by the loud entrance of drums and bass trombone pedal notes. This final section of the work is an aggressive fight between the wandering hero and the

antagonistic Leviathan. The Leviathan is represented in both the tuba and the accompanying orchestra with forceful, pointed music. The hero is represented by the main theme in the tuba with heroic music in the accompaniment. The main theme persists through the end of the piece, indicating a victory for the hero.

## Chapter 4: Recital No. 3 – July 29, 2017

### *The Dancing King* (1988) – Jesse Ayers

The Dancing King was premiered at the 1990 International Tuba Euphonium Conference, held in Sapporo, Japan, by Jerry Young. In his note about the piece, Ayers states:

The title of this work refers to King David of ancient Israel, who, upon the recapture of the Ark of the Covenant from Israel's enemies, "danced before the Lord with all his might" (II Samuel 6:14). This music is a depiction of the elation and exhilaration described in this Old Testament scene as the warrior-poet leads his people in praise and thanksgiving.<sup>19</sup>

Written in a clearly defined ternary form, the work is very rhythmically driven, with nearly constant 16th notes in the synthesized accompaniment throughout. With rare exception, the piece changes meters every bar: The A sections generally alternate between (4+4+3)/16 and (4+3)/16 time, and the B section (3+3)/16 and (4+4)/16. The resulting lilt, along with the generally major quality harmonies create a joyous dance that is fitting of the composer's title and description of the work.

The opening A section is divided into five large phrases, each starting with a new key. The A1 phrase is in F major and combines long notes that are fed into by shorter 16th note figures. The thematic material of the A1 phrase has the most "melody" of the rest of the A section. The A2 phrase is written in A major with more 16th notes that hover around the E in the bass clef. A3 uses a 2/4 time signature and is written in E flat. This section is largely scalar, especially at the end when full C flat major scales are presented (with accidentals). A4 has no key signature but

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<sup>19</sup> Jess Ayers, *The Dancing King* (Tuba-Euphonium Press, 1988).



implies B flat and E flat major using a syncopated, Motown styled funk bass riff. The final phrase is back to F major but uses the rhythmic motives of the A2 phrase. The accompaniment for the whole first section uses higher pitched electric piano sounds playing 16th notes throughout the section. This is in combination with a longer, almost atmospheric high synthesizer. The A4 phrase adds a synthesized slap-bass sound that plays along with the tuba. The B section contrasts with the A section by having a low marimba sound play the ostinato. Harmonically, the music changes to an F-minor emphasis, contrasting with the major qualities of the A section. The tuba also plays elongated notes that stretch over multiple bars. The rhythm of this B section feels more secure, attributed to the more symmetrical nature of the two meters that are used in the section. In the return of the A section, Ayers uses the A1, A4, and A5 phrases almost exactly as they were written in the beginning. The Coda utilizes the rhythmic motive of the A2/A5 phrases in various octaves, an ascending eighth-note E-flat major scale, and a descending syncopated G-flat major scale. The piece ends with a quote from Gershwin's *Rhapsody in Blue*.

#### Colossus (2014) – Monte Weber

In the same vein as Barton Cummings decades prior, Aaron Hynds is a tuba player who has set out to commission new works for the tuba in the 21st century. *Colossus* by Monte Weber is one such commission.<sup>20</sup> The work is unique in that it is solely composed using extended techniques for the tuba with no actual playing in the traditional sense. The techniques involved are not ground breaking; many have been

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<sup>20</sup> Aaron Hynds, "Aaron Hynds – Tubist-Composer," <http://aaronhynds.weebly.com>.

written in pieces for the tuba for years prior, but that they constitute the only sound production and “notes,” makes this piece worthwhile.

*Colossus* is written in three clefs: Head, Right Hand, and Left Hand. The Head Clef involves sounds created by the embouchure, mouth, or vocalizations such as: inhaling/exhaling through or near the tuba, tongue rams, hard pallet clicks, singing, screeching, syllabic vocalizations, and flutter tonguing. The Right Hand Clef uses the valves of the instrument either percussively with key clicks, or by affecting the sound of the Head Clef by trilling or slowly and randomly half-valving. The Left Hand Clef creates sounds by striking the body of the instrument with a small mallet or rubbing the mallet down the body of the instrument. The lower part of the tuba, side, top bow and the bell are the four points of contact for the Left Hand.

Electronically, the tuba is amplified using both a regular microphone that is placed in the bell of the tuba, as well as a contact microphone to help pick up the resonance of the body of the instrument. At times throughout the piece, the sound of the tuba is to be distorted using a distortion pedal “on the verge of feeding back.”<sup>21</sup> A delay pedal is also to be used set for one short echo. In the case of the author’s performance, both microphones were fed into a mixing board that sent the sound to the effects pedals. The sound from the effects was returned to the mixing board before being sent out to the PA system in the recital hall. The delay pedal is only used in the second movement.

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<sup>21</sup> Monte Weber, *Colossus*.

*Floating Dreams* (2008) – Peter Meechan

*Floating Dreams* is a slow, contemplative, through-composed work with CD. Originally written for solo tenor-horn, Meechan found inspiration from a poem titled “Floating,” by David Anthony, a Kansas-based author and poet.<sup>22</sup> The tuba plays a very subdued melody that builds and wanes in intensity of dynamics, range, and rhythm throughout the piece. The accompanying CD features choral synth pad, bass guitar, and music box sounds.

*Tomes of Hardened Steel* (2015) – Benjamin McMillan

Like the *Tomes of the Wanderer*, *Tomes of Hardened Steel* has a film score backdrop in which the tuba plays the hero. McMillan writes, “Though the titles suggest a vague story, I prefer to leave the specifics up to the listener.”<sup>23</sup> The first movement, “Across the Plains,” is short and up-tempo, but with broad melodies in the orchestral accompaniment and tuba. The main theme of the movement is repeated in both subsequent movements. Movement two – “Fountain of Dusklight,” features a beautiful melody in the tuba played with equally lush strings accompanying. The third movement, “Juggernaut,” begins with driving drums and low strings. The movement is the most dramatic of the piece combining both soaring melodies with aggressive fanfares. The main theme of the work is featured in the background in both its original, “heroic” form, as well as an altered, minor “evil” version. The movement is significantly longer than the previous two, with random bits of melody

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<sup>22</sup> Peter Meechan, *Floating Dreams* (Potenza Music Publishing, 2012).

<sup>23</sup> Benjamin McMillan, *Tomes of Hardened Steel*.

sprinkled throughout. Curiously, the movement ends softly with the tuba resting in the last eight measures. McMillan's growth as a composer is apparent when comparing the two *Tomes* works – the latter, *Wanderer*, is better structured formally and thematically.

*Let There Be Funk* (2001) – D. Edward Davis

One of his earliest compositions, *Let There Be Funk*, D. Edward Davis describes the piece as “a turn-of-the-century synthesis of American music-for-the-hips from the past 30 years, including funk, hip-hop, salsa, R&B, and soul.”<sup>24</sup> Davis composed the work while he was a student at Northwestern University for Rex Martin, now Professor Emeritus of Tuba. The work contains the aforementioned styles of popular music at an almost non-stop pace with transitions between the styles often being abrupt. The backing track features prerecorded drums, tuba and euphonium, as well as synthesizer and synthesized sounds. The title shares its name with a 1977 song written by jazz pianist Patrice Rushen.

Formally, *Let There Be Funk* is very much like a rondo – ABABCBA CDEAFEF AFAA'. The principle theme features the tuba playing a swung 16th note funk bass line mostly with only a drumset for accompaniment. The B theme is brief and resembles a medium tempo rock song with electric guitars playing fast rhythmic chords while the tuba maintains a bassline. The C theme is a slow, soul-styled love song marked “smoove” in the music. Here, the tuba plays a melody accompanied by a Hammond style organ and drums. The love song is

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<sup>24</sup> D. Edward Davis, *Let There Be Funk*.

interrupted by both the rock theme and the funk theme before giving way to a drum solo. The drum solo is followed by a long Latin-styled section (D) that builds, gradually adding four backing track tubas to the accompaniment. The D section ends with another drum solo that transitions into the E theme – a slow jam featuring drums and synthesizer with the tuba as the bass line. With the end of the D section the work is effectively divided into two larger sections. The second half of the piece features no part of the first half except for the funky bass line A theme. The F theme is the quickest of the piece and is disco-like. The A theme returns at the end of the piece, but with the accompaniment playing the bass line freeing the tuba to play a melody along with clavinet, vocals, and euphonium.

## Chapter 5: Conclusions

There are significantly fewer works for fixed media or live processing with tuba than for tuba and piano, the number of is significantly less. As technology improves, composing and performing electronic works should become easier, hopefully leading to a larger body of these works. Commissioning new works for tuba and electronics would hasten this process and is a foreseeable outcome for this project.

A further development of the genre would be for works for solo tuba with electronics with ensemble accompaniment. David Lang's 1987 composition, *Are You Experienced?* is the best-known example, in fact it may be the only work of this type at the moment. It involves 13 musicians accompanying a narrator and an amplified, often distorted and echoed tuba.

The electronics could also involve both solo and ensemble. Since 2015, the Electrobrass conference has promoted the performance of and composition of works for solo or chamber brass playing with electronics. This conference, while young, has the potential to build and encourage the awareness for this genre of music.

Solo works for tuba and electronics may also provide some pedagogical benefits to the tuba student, both musically and technically. The most apparent benefit with much of the genre is that the soloist can play accompanied music without an accompanist. For students of limited economic means, paying for a pianist can be burdensome; fortunately, there are works with electronics that are substantive and challenging for the student.

For the professional performer, while the genre is limited in number of pieces, there are enough works to create a full, well-balanced program to perform in various venues with only an instrument, a computer, and speakers. College faculty members traveling to other schools or conferences can use this method to their advantage. The repertoire in this dissertation encompasses different difficulty levels and could be organized accordingly from easier to more difficult:

- Kick-Ass Sonata
- Shaman Returns
- Tones of Hardened Steel
- Tones of the Wanderer
- Floating Dreams
- My Mountain Top
- Still
- Piltdown Fragments
- Let There Be Funk
- The Dancing King
- Going Down
- Colossus
- Perpetuum Mobile
- Very Good Morning

As is the case with many unaccompanied solos, works for electronic accompaniment often follow modern or avant-garde compositional styles. Some of the works may serve well as a stepping stone into other, more challenging works considered standards of the repertoire. *Piltdown Fragments*, has a similar “sound” to *Encounters II*, but is easier to perform successfully. Both works similar extended techniques, but Ross did not write for as expansive a range as did Kraft. *Perpetuum Mobile*, while difficult in its own right, could serve as a prerequisite to the Krzysztof Penderecki’s unaccompanied work *Capriccio*. Students working on these pieces will

also become more technologically savvy due to the amount and varying types of equipment involved.

Music for tuba with electronics has been a slow growing branch of the tuba literature. Perhaps someday some of the pieces presented here—or a work not yet composed—will be held in the same regard as the Vaughan Williams *Concerto*, or the Hindemith *Sonata*; as standards in the repertoire.



## Appendix 1 – Program Information

Recital No. 1

# Craig Potter

## TUBA

APRIL 27, 2017. 8:00PM

ULRICH RECITAL HALL

### PROGRAM

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**ALICE GOMEZ**

*Shaman Returns* (2008)

**ANDY SCOTT**

**LEMN SISSAY**

*My Mountain Top* (1998)

---INTERMISSION---

**WALTER ROSS**

*Pittdown Fragments* (1975)

**MARK ZANTER**

*Perpetuum Mobile* (2014)

**BRIAN SADLER**

*Kick-Ass Sonata for Tuba and Orchestra (CD)* (2009)

Recital No. 2

# Craig Potter

## TUBA

JULY 8, 2017. 2:00PM

GILDENHORN RECITAL HALL

### PROGRAM

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**ROLAND SZENTPALI**

“Very Good Morning” from *Pearls III* (2010)

**JONATHAN HARVEY**

*Still* (1997)

---INTERMISSION---

**ANDY SCOTT**

*Going Down* (2003)

**BENJAMIN McMILLAN**

*Tomes of the Wanderer* (2014)

*I. Over the Mountains*

*II. The Old Forest*

*III. The Cursed Mire & Leviathan*

Recital No. 3

# Craig Potter

## TUBA

JULY 29, 2017. 2:00PM

GILDENHORN RECITAL HALL

### PROGRAM

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**JESSE AYERS**

*"The Dancing King" (1988)*

**MONTE WEBER**

*Colossus (2014)*

*I.*

*II.*

**PETER MEECHAN**

*Floating Dreams (2008)*

---INTERMISSION---

**BENJAMIN McMILLAN**

*Tomes of Hardened Steel (2015)*

*I. Across the Plains*

*II. Fountain of Dusklight*

*III. Juggernaut*

**D. EDWARD DAVIS**

*Let There Be Funk (2001)*

## Appendix 2 – Equipment

### Microphones

- Shure SM57 Dynamic Microphone – used in *Perpetuum Mobile*, *Still*, and *Colossus* to send tuba sound to the computer for processing
- Peterson TP-3 Clip-On Microphone – used to pick up the tuba resonance in *Colossus*
- Røde M5 Condenser Microphones (matched pair) – Recording microphones set up approximately 10 feet in the air just beyond the edge of the stage.

### Audio Interfaces

- PreSonus Audiobox USB – this interface connected the Shure microphone to the computer to allow for computer processing. The sound was sent from the interface to the house PA system
- Behringer Q802USB Mixer – this interface has more connectivity than the PreSonus – used for *Colossus*
- Zoom H6 Audio Recorder – used for recording the recitals. Audio captured by the Røde microphones set up in the hall was mixed with audio sent directly from the computer
- Early 2015 MacBook Pro Retina – fixed media audio was controlled using playlists in iTunes. *Still* and *Perpetuum Mobile* utilized Max patches to control processing and fixed media.

### Effects Pedals

- DigiTech Digidelay Digital Delay – used for *Colossus*
- Malekko Helium Mk. II Analog Octave Distortion – creates a very raw sounding distortion that is easy to feedback – used for *Colossus*
- Ernie Ball VP Jr. Volume Pedal – used to cut the tuba sound from being processed during *Still* to allow for unreverberated improvisation

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