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COLLEGE OF FINE ARTS

Dissertation

**THE STONE TEARS OF IXTACCIHUATL:  
INTO THE SERIAL TIMPANI MUSIC OF MEYER KUPFERMAN**

by

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Doctor of Musical Arts

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## DEDICATION

This dissertation is dedicated to the memory of Charles Dowd. As a mentor and teacher, he focused his life's work on elevating of the art of percussion and timpani playing. Without his efforts, the subject of this study would never have been created. Thank you Charles for your dedication to me over the years, and for your unending love of the music you performed.

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enough for that. To Charlotte, thank you for your love, your help, your guidance and your encouragement through this entire process.

**THE STONE TEARS OF IXTACCIHUATL:  
INTO THE SERIAL TIMPANI MUSIC OF MEYER KUPFERMAN**

(Order No. )

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**ABSTRACT**

With a prolific compositional output, composer Meyer Kupferman (1926-2003) wrote in almost every classical and contemporary genre. A self-taught composer, he shunned typical formal training and pursued his own path. He developed his own formal and serial methods, incorporating influences from his experience as a jazz and classical musician along with interests in contemporary compositional mediums. Kupferman's *The Stone Tears of Ixtaccihuatl* was composed in 1987 for solo timpani. This seminal work incorporates his *gestalt* form, elements of his *Infinities* tone row, the influence of both jazz and classical music and an underlying programmatic narrative.

This document begins with a detailed biography of the composer's life and works. There is an emphasis on the people, places and events that influenced Kupferman's compositional style. Chapter 2 offers a theoretical analysis of *The Stone Tears of Ixtaccihuatl*, outlining the formal structures and motivic development used as well as the incorporation of Kupferman's *gestalt* form and serial method. Chapter 3 offers a performance analysis with a phrase-level musical interpretation. Additionally, a discussion of timpani technique and preliminary study and practice provides an outline of

suggested preparation. Chapter 4 details the programmatic content of the piece, with reference to multiple versions of the Mexican traditional story that provides the genesis for the work. Chapter 5 gives a survey of Kupferman's other works involving timpani, focusing mainly on his chamber percussion works. Chapter 6 provides context for *The Stone Tears of Ixtaccihuatl* within the solo timpani repertoire with comparisons to other solo pieces. The appendices of this doctoral document contain a review of primary documents by Meyer Kupferman, a reproduction of the score, a solo timpani repertoire reference list and a biography of Charles Dowd, the timpanist for whom the piece was written and who gave its premier performance. The appendix aims to provide critical background information and additional context in which to place *The Stone Tears of Ixtaccihuatl*.

This document is intended to provide readers with a clear, thorough understanding of *The Stone Tears of Ixtaccihuatl* and contribute to a greater understanding of the music of Meyer Kupferman.

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## A SURVEY OF THE LIFE OF MEYER KUPFERMAN

Meyer Kupferman led a wide and varied career as a composer, artist, activist and musician. Born in New York on July 3, 1926, Kupferman began his musical training at a young age with the violin, but by age ten his interests landed squarely with the clarinet. He studied at the High School of Music and Art in New York City and for a brief period at Queens College.<sup>1</sup> Kupferman went on to teach for forty-two years at Sarah Lawrence College, where he perpetuated his composing career.

Of Kupferman's life, writer Allen Kozinn wrote the following in his obituary:

Meyer Kupferman, a prolific composer whose music embraced both jazz and 12-tone techniques, died on Wednesday near Rhinebeck, N.Y. He was 77 and lived in Rhinebeck.

The cause was heart failure, said William Anderson, a guitarist who has performed Mr. Kupferman's music and is a friend of the family.

Mr. Kupferman embraced virtually every form available to contemporary composers, writing 12 symphonies, nine ballets and seven operas, along with electronic pieces, works that combine taped sounds and live instruments and soundtrack music for films. He composed 10 concertos, dozens of picturesque orchestral works and more than 200 chamber and solo works.

He was omnivorous stylistically, too, a quality he traced back to childhood memories of his father's singing Yiddish and Romanian songs to him, which he would imitate on the clarinet, an instrument that he also used to imitate solos in the big band jazz he heard on the radio.

He embodied some of these influences -- as well as elements of the Serialism that fascinated him later -- in "The Garden of My Father's House," a vibrant 1972 work for violin and clarinet dedicated to his father's memory.

Those influences can be heard, in different proportions, in many of his other works.

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<sup>1</sup> Allan Kozinn, "Meyer Kupferman, Composer In Many Forms, Is Dead at 77," *New York Times*, December 3, 2003

Mr. Kupferman was born in New York on July 3, 1926. After a brief encounter with the violin, at age 5, he was drawn to the clarinet when he was 10. He studied at the High School of Music and Art and at Queens College, but although his formal studies embraced music theory and orchestral and chamber performance he regarded himself as a self-taught composer.

Practical considerations dictated the shape of his early career. Working as a jazz clarinetist in clubs on Coney Island, he began scoring arrangements for the bands he performed with, and for other musicians.

By the late 1940's, when he was in his early 20's, he began concentrating on concert music. He wrote the first of several piano concertos in 1948, also the year he completed his first opera, a one-act children's work, "In a Garden," based on Gertrude Stein's "First Reader."

To hear his music performed, he persuaded some of his colleagues to form an orchestra, called Composers Workshop. Among the members of the ensemble who eventually became well-known composers were Morton Feldman, Allan Blank and Seymour Shifrin.

When Mr. Kupferman became interested in 12-tone composition in the 1950's, he sought ways to retain the lyricism that had been an attraction of his earlier music. One solution was to develop a single tone row that through repetition in several works would become familiar. Another was to temper it with some of the influences that had always given his music its particular accent.

These solutions propel the "Cycle of Infinities," a set of more than 30 works, composed between 1961 and 1983. All 30 were based on the same tone row, but the works could hardly have been more different. Among them were full-length recitals for solo instruments, chamber pieces, a cantata and a three-act opera, "The Judgement" (1966).

The jazz of Mr. Kupferman's youth continued to interest him. Several work – including many of the "Infinities" – call for a jazz ensemble. His String Quartet No. 6 bore the title "Jazz Quartet," and when his "Jazz Symphony" was given its premiere by the Hudson Valley Philharmonic in 1988, he said it was a piece that he had been wanting to write for 40 years. Reviewing it in The New York Times, Bernard Holland wrote that Mr. Kupferman was on to something.

"Here jazz and the symphony style meet and argue, but they never really come to terms," Mr. Holland wrote. "The composer, in other words, seems to know which differences of rhythm, phrase and color are irreconcilable. He does not force them together."

In addition to composing, Mr. Kupferman taught composition and directed an improvisatory ensemble at Sarah Lawrence College from 1951 to 1993. He also published "Atonal Jazz" (Dorn) a two-volume study of chromatic techniques in contemporary jazz in 1992.

Mr. Kupferman is survived by his wife, Pei Fen; his daughter, Lisa Pitt, of Putnam, N.Y., three stepsons, Fung Chin and Sung Chin, of Westfield, N.J., and Yung Chin, of Chappaqua, N.Y., and five grandchildren.<sup>2</sup>

Kupferman's vast career as a composer began with early works that mimicked the French impressionistic school. In preparation for composer Virgil Thomson's visit to his high school, Kupferman composed *Wind Sextet* (1942) with some encouragement from his clarinet teacher.<sup>3</sup> His piece was singled out by Thomson, and later reviewed in his book, *The Musical Scene*.<sup>4</sup> One of Kupferman's most popular pieces from his early compositional career is *Ostinato Burlesco* (1955). The piece exists in a number of versions, both orchestral and piano,<sup>5</sup> and received critical reviews that put it in league with the likes of Bartok's *Allegro Barbaro*,<sup>6</sup> Stravinsky's *Infernal Dance* and Falla's *Ritual Fire Dance*.<sup>7</sup>

Kupferman enrolled at Queens College but saw little value in formal training and did not complete the degree. As a jazz clarinetist Kupferman spent most of his early career playing in New York City clubs and writing big band jazz arrangements. He also worked as a composer for the Martha Graham, Jose Limon and Pearl Lang dance companies.<sup>8</sup> Kupferman's early classical compositions were not influenced by the jazz

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<sup>2</sup> Allan Kozinn, "Meyer Kupferman, Composer In Many Forms, Is Dead at 77," *New York Times*, December 3, 2003.

<sup>3</sup> Meyer Kupferman, interview by Nancy Sureck, *Music Division Oral History Project, New York Public Library*, May 21, 2003.

<sup>4</sup> Virgil Thomson, *The Musical Scene* (New York: Alfred A. Knopf, 1945), 134.

<sup>5</sup> JoyEllen Snellgrove, "Meyer Kupferman Biography." *Meyer Kupferman, American Composer (1926-2003)*, accessed December 15, 2011, [http://www.meyerkupferman.com/pdfs/bio\\_long.pdf](http://www.meyerkupferman.com/pdfs/bio_long.pdf).

<sup>6</sup> Ibid.

<sup>7</sup> Robert Evett, review of *Devil Dance for Orchestra*, by Meyer Kupferman, *Notes*, Second Series, Vol. 13, No. 1 (December 1955): 147.

<sup>8</sup> Meyer Kupferman, "The Mirror-Tape 'Gestalt'" (1976) *Music Journal*, (April 1976): 14.

music he enjoyed performing in nightclubs. Late in life, Kupferman would admit that shunning his education had both its advantages and disadvantages, but that primarily it allowed him a freedom he would not have been able to develop otherwise.<sup>9</sup>

Kozinn's obituary of Kupferman highlighted the Composers Workshop formed with his colleagues. It consisted mainly of fellow students with whom he attended the High School of Music and Art. Their shared exploration of new music likely had an impact on the development of Kupferman's compositional style. Morton Feldman's interactions with John Cage, Earle Brown, Christian Wolff and David Tudor as well as a number of impressionist painters in New York must have impacted Kupferman's inclination to include the element of chance and free choice into his later works. Seymour Shifrin, a high school classmate of Kupferman's, became deeply involved with the Second Viennese School along with Milton Babbitt and others, which likely encouraged Kupferman in his development of his own serial method.

Kupferman's so-called classical works combined elements of jazz influence with his own version of serial twelve-tone technique. He attempted to address the problem of the lack of rhythmical character in serial music by allowing jazz rhythms to shape the direction of his twelve-tone process.<sup>10</sup> His *Sonata on Jazz Elements* (1958) was an early example of these combined forces. In it, Kupferman meshed serial technique with both jazz and classical stylings and set it in a classical sonata form. Critics acknowledged Kupferman as one of the few composers of the time who successfully combined classical

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<sup>9</sup> Meyer Kupferman, interview by Nancy Sureck, *Music Division Oral History Project, New York Public Library*, May 21, 2003.

<sup>10</sup> Neil Levin, "Meyer Kupferman, Biography." *Milken Archive of Jewish Music*, accessed November 12, 2011, <http://www.milkenarchive.org/people/view/composers/594/Meyer+Kupferman>.

and jazz elements,<sup>11</sup> and his ability to successfully and creatively demonstrate the two styles simultaneously would become a hallmark of his composing career.

Beginning in the 1960s, Kupferman expanded his compositional voice to include electronic mediums, pre-recorded sounds combined with live performers (tape pieces), as well as aleatoric procedures and elements of theater.<sup>12</sup> Some of Kupferman's most favored techniques were the use of sympathetic resonance, with which he experimented heavily with flutist Samuel Baron, and an aleatoric method Kupferman devised called "look-and-choose" that allowed the performer to make on-the-spot decisions about the ordering of phrases within a work.<sup>13</sup>

The culmination of Kupferman's compositional style emerged in the 1980s as a combination of his previous tendencies. This "mish-mash"<sup>14</sup> of styles, as Kupferman described it, was marked purely by the alternation and combination of opposing forces. Kupferman took heavy influence from his surroundings in New York City, and he describes this *gestalt* form as akin to walking down Broadway, taking in the sights, sounds and smells.

The word *gestalt* translates literally from German to mean "shape" or "form." According to Webster's Dictionary, *gestalt* is defined as "a structure, configuration, or pattern of physical, biological, or psychological phenomena so integrated as to constitute

<sup>11</sup> Eric Salzman, "Composer Given A One-Man Show; Meyer Kupferman's Works Heard at Carnegie Recital Hall—Jazz Sonata Played," *New York Times*, April 30, 1960.

<sup>12</sup> Ibid.

<sup>13</sup> Meyer Kupferman, interview by Nancy Sureck, *Music Division Oral History Project, New York Public Library*, May 21, 2003.

<sup>14</sup> Ibid.

a functional unit with properties not derivable by summation of its parts."<sup>15</sup> By extension, Gestalt Psychology is defined as "the study of perception and behavior from the standpoint of an individual's response to configurational wholes with stress on the uniformity of psychological and physiological events and rejection of analysis into discrete events of stimulus, percept, and response."<sup>16</sup>

While the term *gestalt* has a multitude of implications, for Kupferman it relates most closely to the *gestalt effect*. This term, found in Gestalt Psychology, describes the capability of human senses to perceive whole objects before discerning their components. Early gestalt theorists such as Wolfgang Köhler, Kurt Koffka and Max Wertheimer proposed that "perceptual groups have unique properties that cannot be reduced to or predicted from their individual elements and that properties of that parts are conditioned by the whole."<sup>17</sup> Kupferman's *gestalt form* is a musical interpretation of this idea – that the component parts, regardless of their individual affectations, can combine to form a complete whole that can be interpreted and understood as one idea. This approach influences his later works heavily, as he continued to incorporate classical, jazz, aleatoric and serial methods into one piece after another. A precursor to Kupferman's use of the *gestalt form* originated with Arnold Schoenberg. For Schoenberg, however, the connective tissue that formed his *Grundgestalt* was at the level of primary theme or

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<sup>15</sup> gestalt. 2012. In *Merriam-Webster.com*. Retrieved February 1, 2012, from <http://www.merriam-webster.com/dictionary/gestalt>.

<sup>16</sup> Gestalt psychology. 2012. In *Merriam-Webster.com*. Retrieved February 1, 2012, from <http://www.merriam-webster.com/dictionary/gestalt>.

<sup>17</sup> Silverstein, Steven M. and Peter J. Uhlhassk, "Gestalt Psychology: The Forgotten Paradigm in Abnormal Psychology," *The American Journal of Psychology*, Vol. 117, No. 2 (Summer, 2004): 262.

motif.<sup>18</sup> Schoenberg argued that music must contain a central idea or theme in order to yield satisfaction from the listener or interpreter. While for him this directly related to the various ways in which he employed a twelve-tone row throughout a piece, the idea extends back to the classical and romantic repertoire as well. For Schoenberg, the statement, development and eventual return of a central thematic idea gave a work organization. The difference between his and Kupferman's interpretation of this idea lies in the organizational principle. For Kupferman, the *gestalt* meant the stark and sometimes surprising combination of opposing and misaligned forces and ideas, while Schoenberg's premise relied on a single central theme.

The *gestalt* idea is Kupferman's legacy, and it may not have been possible had he not been self-trained. It is precisely because of his exploratory development as a composer that he was able to discover his own compositional methods. Had he taken the standard path of training, it is difficult to know whether or not his voice would have been as distinctive. Kupferman's approach to composition stands as a unique one within the musical world and was built on keen observation of the standard-bearers that came before him. The charm of Meyer Kupferman's musical contribution is rooted in his uninhibited candor, which added a new voice to the musical oeuvre and cements him as a composer that will be remembered and rediscovered for many generations.

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<sup>18</sup> *Grove Music Online*, s.v. "Grundgestalt," <http://www.oxfordmusiconline.com/> (accessed January 31, 2012).

## A THEORETICAL ANALYSIS OF THE STONE TEARS OF IXTACCIHUATL

### INTRODUCTION

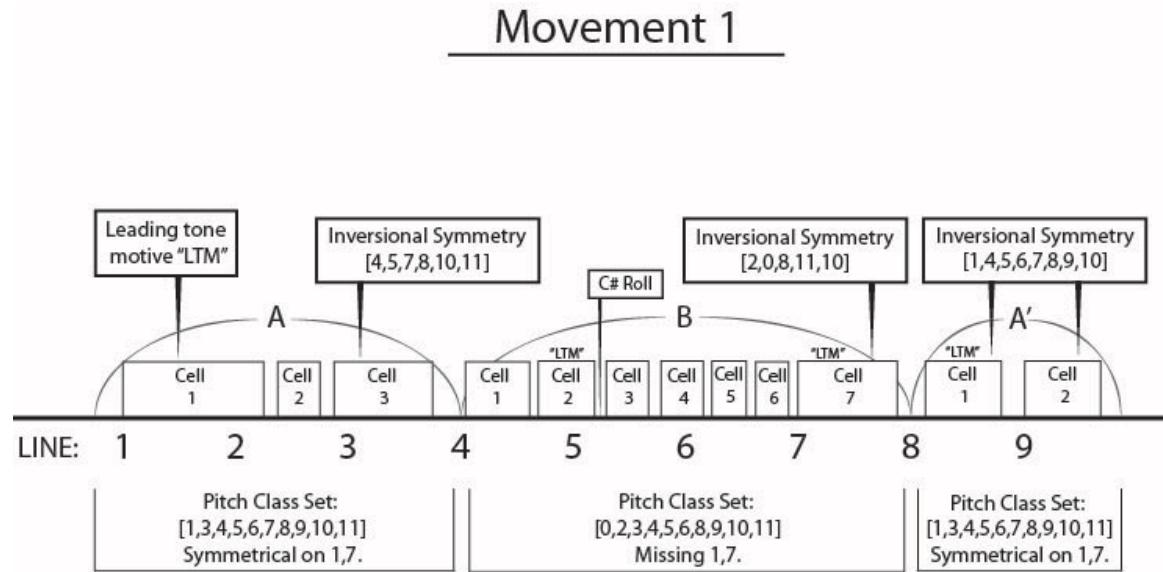
Meyer Kupferman's compositional language, though niche, holds an important place in the repertoire of contemporary music. By his own definition, his *gestalt* form adequately describes his aesthetic as one that incorporates a variety of styles and directions. As such, achieving a complete and lucid theoretical analysis of this piece in the terms set forth by most twentieth-century standards can be quite challenging. This analysis will attempt to bring to light both the large- and small-scale intricacies of *The Stone Tears of Ixtaccihuatl*, but at times will stray from the straight-forward formal analysis that would apply to much of the twentieth-century repertoire. In many instances, Kupferman's structures draw inspiration from classical forms, but he quickly veers from them in order to obscure their nature and emphasize his *gestalt* technique. Kupferman employs a variety of styles and compositional devices throughout the piece, each of which will be illuminated here. *Stone Tears*, as it will be referred to henceforth, uses a standard setup of four timpani, although as we will see later, can be performed more easily with the addition of a fifth drum. The initial tuning of the piece, A2, B  $\flat$  2, C $\sharp$ 3 and E3 from low to high, spans the range of the four drums, but stays within the standard tessitura of each drum. Kupferman makes no indication of mallet choice or the specific type of sound desired; he leaves that to the discretion of the performer. While he does not specify the sizes of the instruments, a standard set of timpani is sufficient for performing the piece.

## FORMAL STRUCTURE

*Stone Tears* is in a large-scale, three-movement form. The first movement is a slow, mysterious largo in pseudo-sonata allegro ABA' form. The second movement is in two parts: the first a lilting triple-feel dance, and the second a cacophony in which Kupferman deconstructs the formal nature of the first part. The third movement, by far the longest of the three, is in a five-part large-scale form plus a coda. In the third movement, each part contains its own formal elements and displays the culmination of Kupferman's *gestalt* technique.

## MOVEMENT 1

Example 2—1: Movement 1 Formal Structure



The first movement contains a series of cellular groupings of pitches to which Kupferman returns throughout the rest of the work. The opening movement has an arch-

like, palindromic form, but also displays elements of sonata allegro form. Because the movement is in "FREE" meter, a line-by-line description of each event, using a serial numbering system will follow. Additionally, the first movement features a contracting rhythmic scheme that accompanies the various pitch cells. Where appropriate, the examples of pitch cells will be accompanied by their corresponding durations. Grace notes will be indicated with parenthesis and given no definite duration, as they are intended to be performed as fast as possible.

The opening segment of the movement (Lines 1 through 3) contains three distinct cells. It is marked *Largo misterioso* with a tempo marking of  $\text{J} = 46$ . This segment is the introduction and exposition sections of the form, or the A section. Rises and falls by major and minor third are prevalent in both this segment and this movement. Aesthetically, Kupferman employs the use of struck glissandi<sup>19</sup> throughout the introduction and exposition sections. The opening cell consists of the following pitches:

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<sup>19</sup> Struck glissandi are performed by striking the timpani tuned to the primary pitch, then manipulating the pedal to move to the destination pitch. Slur indications specify whether or not the destination pitch should be struck. In the case of glissandi without slurs, the destination pitch is struck simultaneously as the pedal arrives at the desired pitch.

Example 2—2: Movement 1 Introduction/A Section Cell I<sup>20</sup>

Largo misterioso ( $d = 46.$ )

Pitch Class	T	7	T	6	4	8	(6)	T	9
Duration	1/3	12	1/3	11/3	1/3	8/3	n/a	1/3	8/3

The content of the introduction outlines one of the major recurring themes throughout the piece. The opening B  $\flat$  2, G $\sharp$  3 and A3 form a series of pitches that act as a "leading tone motive," which will appear not only in the rest of the first movement, but in the second and third movements as well.

The second cell within the introduction continues with the following pitches and corresponding note value durations:

## Example 2—3: Movement 1 Introduction/A Section Cell II

Pitch Class	1	5	4	9	3
Duration	8	8	16	14	14

<sup>20</sup> All Kupferman musical examples are copyright Soundspells Productions, 2012. Used by permission.

The second cell introduces the rolled<sup>21</sup> glissando technique.<sup>22</sup> Kupferman employs both the struck and rolled glissandi frequently throughout the rest of *Stone Tears*. The second cell also begins with an inverted leading tone motive, which appears later on in both Movement 2 and 3.

Continuing, the third and final cell of the introduction is comprised of the following pitches, accompanied by its corresponding note value durations:<sup>23</sup>

Example 2—4: Movement 1 Introduction/A Section Cell III

Pitch Class	T	7	5	(4)	8	E	T	E	(4)	T	E	T	E	T	E	T
Duration		4	6	n/a	7	8	7	6	n/a	4	3.5	3	2	1.75	1.5	1

The feature of rhythmic augmentation and diminution is found throughout the movement, and Kupferman uses it to give the movement an ‘elastic,’ freer feel. As the

<sup>21</sup> In contrast to notation for other instruments, in percussion and timpani music the "tr~" indicates tremolo, not trill. In addition, the words "tremolo" and "roll" are interchangeable in this case as opposed to other instruments where the term "rolled" usually indicates arpeggiated chords.

<sup>22</sup> Rolled glissandi are performed by beginning the roll on the initial pitch, manipulating the pedal to move to the destination pitch, and articulating the arrival pitch while keeping the roll connected.

<sup>23</sup> The durational values of each pitch cell are shown here in sixteenth notes.

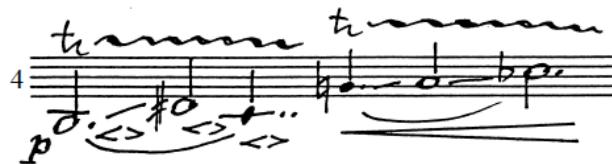
pitches are successively played, the durational value of each is shortened incrementally.

The first segment features a range from Eb2 to B  $\flat$  3.

The B Section of the first movement begins at the beginning of Line 4 and ends at the end of Line 7. This segment can be considered the development section, in which Kupferman expands the range of pitches down to the lowest pitch of the piece, D2. In addition, the development moves aesthetically from the struck glissandi of the first segment to primarily rolled glissandi. This gives each section a distinct sound and feel and facilitates achieving some of the greater durations and dynamics found within the development.

The first cell of the B Section (development) is found on Line 4 and contains the following pitches and corresponding note value durations:

#### Example 2—5: Movement 1 Development/B Section Cell I



Pitch Class	2	6	4	E	0	3
Duration	12	8	7	6	8	12

This cell is marked by two groupings of three pitches, each performed as glissandi rolls and each grouping of pitches with distinct dynamic markings.

The second cell of the B Section is found halfway through Line 4 and contains the following pitches and corresponding note value durations:

## Example 2—6: Movement 1 Development/B Section Cell II

The musical notation consists of two staves. Staff 4 begins with a dynamic marking 'mf' and a wavy line above the staff. It contains several eighth-note patterns with dynamics 'bp.' and 'hp.'. A crescendo marking 'cresc.' is placed between measures, followed by a dynamic 'poco'. Staff 5 begins with a wavy line above the staff and a dynamic 'poco' below it.

Pitch Class	(2)	6	9	T	8	9	T	8	9
Duration	n/a	6	8	6	4	6	2	1.5	14

The leading tone motive outlined in the introduction makes its first appearance here in repetition.

The C♯2 roll on Line 5 marks the middle of the bigger picture development. It is the culmination of the first half of the development dynamically and precipitates the long rise to the end of the development.

Following the C♯, which occurs near the beginning of Line 5, the next pitch cell begins halfway through Line 5 and contains the following pitches and corresponding note value durations:

Example 2—7: Movement 1 Development/B Section Cell III



Pitch Class	4	5	9	0	9	0	E
Duration	3.5	3	2	1.75	1.5	1	6

This cell is the only one in the entire movement with a static dynamic marking.

All other pitch cells either crescendo or diminuendo. Notable here is the absence of glissandi indications. By comparison, the second cell of the introduction (example 2—3) indicates glissandi between pitches that have a tenuto articulation.

The fourth cell within the development begins at the end of Line 5 and contains the following pitches and corresponding note value durations:

Example 2—8: Movement 1 Development/B Section Cell IV

Musical notation for Example 2—8. It shows two measures of eighth-note patterns with grace notes and dynamic markings ***mp*** and ***f***. Measure 5 starts with a grace note followed by eighth notes. Measure 6 starts with a grace note followed by eighth notes.

Pitch Class	3	6	E	0	3	6
Duration	7	6	4	3	2	1.5

This cell contains three groupings of two pitches, each with a rising motive. The intervallic rises in order are m3, m2, m3. Each grouping of pitches is performed as a glissandi roll and the entire cell crescendos from *ppp* to *mf*.

Following the fourth cell of the development is another interlude that serves as an aesthetic landmark within the movement. It is found halfway through Line 6, and contains the following pitches and corresponding note value durations:

Example 2—9: Movement 1 Development/B Section Cell V



Pitch Class	(0)	6	6	6	6
Duration	n/a	7	4	4	12

During this interlude, Kupferman cements the free rhythmic feel of the movement by using a true acceleration and deceleration on the arrival of the final pitch of the cell. He indicates only that the figure is to last the duration of a dotted half note (12 sixteenth notes) but leaves the number of notes and their specific duration to the discretion of the performer. This figure, and its palindromic rhythmic characteristics, are a microcosm of the movement and its form as a whole. The midway point of the acceleration is where the movement begins to transition back to the A section. The accelerated figure occurs at

what is almost exactly the *golden section*<sup>24</sup> in the first movement, showing yet another level of organization within the form.

The sixth pitch cell within the development begins at the end of Line 6 and goes through the middle of Line 7. The sixth pitch cell contains the following pitches and corresponding note value durations:

Example 2—10: Movement 1 Development/B Section Cell VI



Pitch Class	(2)	6	9	T	8	9	T	8	9
Duration	n/a	6	8	6	4	6	2	1.5	14

This cell is an exact replica of the second pitch cell of the development (example 2—6). Dynamically, it is treated slightly differently. It begins at *p*, and ends at *ff* after a *molto crescendo* marking. This is also the second iteration of the leading tone motive.

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<sup>24</sup> The golden section has been employed by composers since the Baroque Period to delineate the climax of a work. It occurs at roughly two-thirds of the way from start to finish with a decimal value of approximately 0.618. When the durational values of notes and rests are added in the first movement, the accelerated figure in Example 2—9 occurs at this point in the movement.

The last cell of the development, the seventh, is found on Line 7 and contains the following pitches and corresponding note value durations:

Example 2—11: Movement 1 Development/B Section Cell VII



Pitch Class	(2)	0	(2)	8	(2)	E	(2)	T	(2)	E	(2)	T	(2)	E	(2)	T
Duration	n/a	7	n/a	6	n/a	6	n/a	3.5	n/a	3	n/a	2	n/a	1.5	n/a	1

This cell also contains much of the same pitch and rhythmic material of the third pitch cell from the exposition found in example 2—4. Negating the grace notes, the pitches and their durations are almost exactly the same as the second half of the final cell from the exposition. Here, however, instead of a rolled glissandi effect the notes are performed as struck glissandi with a crescendo from *ff* to *sfffz* at the end of the phrase. This articulation and aesthetic change makes this cell a clearer ending phrase to the segment. It also gives the performer the opportunity to play much louder and with more articulation. The second segment has a range of D2 to B  $\flat$  3.

Throughout the first movement Kupferman employs the use of *numeration* as a generator of rhythmic elements. The measured diminishing of sixteenth note values from one note to the next (as seen in the various phrase-level cells so far) is evidence of this technique. Kupferman uses this device throughout the rest of the work and in his other

compositions as well. The first movement contains the most precise display of this rhythmic acceleration, which is most pronounced during the development section. The instances in which the notes have successively shorter durations are rhythmically more rapid than later in the piece.

The final segment of the first movement contains two pitch cells. Each have striking resemblance to the opening segment. This musical recall to the beginning of the piece gives the movement a feel of the sonata allegro or rounded binary (ABA') form.

The first cell of the recapitulation is found at the beginning of Line 8 and contains the following pitches and corresponding note value durations:

Example 2—12: Movement 1 Recapitulation/A' Section Cell I



Pitch Class	T	7	T	6	4	8	(6)	T	9
Duration	1/3	12	1/3	11/3	1/3	8/3	n/a	1/3	8/3

In terms of pitch and rhythmic duration, this cell is a direct repeat of the opening material found in example 2—2. It contains the same four groupings of two pitches and uses the same struck glissandi technique. But it differs in its dynamic scheme. Whereas in the introduction the end of the cell grew to a *p* dynamic, here the cell grows to a more final *mf*. As at the beginning of the piece, the pitch content outlines the leading tone motive.

The last pitch cell of the first movement is found on Line 9, and contains only three pitches. The three pitches and their corresponding note value durations are shown below.

Example 2—13: Movement 1 Recapitulation/A' Section Cell II



Pitch Class	1	5	4
Duration	8	8	24

This collection of pitches directly matches part of an earlier cell. The second pitch cell from the introduction (example 2—3) begins with the same three pitches. Of interest is the way Kupferman treats this pitch grouping aesthetically in both instances. In the introduction and exposition, the first three pitches of the second cell are performed as struck tenuto notes, and the final two pitches of the cell are performed as rolled glissandi. Here, in the recapitulation (or coda), the same collection of three pitches are performed as rolled glissandi. They are similar in terms of dynamic scheme in both instances. Again, the change in aesthetic quality here is likely due to the sound concept Kupferman aimed to achieve. Performing the final three notes of the movement as rolled glissandi instead of the tenuto strikes used earlier allows for greater sustain and duration of pitch. The final pitch is also elongated by an additional 8 sixteenth notes, as compared with the earlier pitch cell.

### TABLE OF MOVEMENT 1 PITCH CELLS

Aligning all of the pitch cells side by side gives a clearer picture of the form and scope of the first movement:

#### Introduction – Exposition

Cell #1:

Pitch Class	T	7	T	6	4	8	(6)	T	9
Duration	1/3	12	1/3	11/3	1/3	8/3	n/a	1/3	8/3

Cell #2:

Pitch Class	1	5	4	9	3
Duration	8	8	16	14	14

Cell #3:

Pitch Class	T	7	5	(4)	8	E	T	E	(4)	T	E	T	E	T	E	T
Duration		4	6	n/a	7	8	7	6	n/a	4	3.5	3	2	1.75	1.5	1

#### Development

Cell #1:

Pitch Class	2	6	4	E	0	3
Duration	12	8	7	6	8	12

Cell #2:

Pitch Class	(2)	6	9	T	8	9	T	8	9
Duration	n/a	6	8	6	4	6	2	1.5	14

Cell #3:

Pitch Class	4	5	9	0	9	0	E
Duration	3.5	3	2	1.75	1.5	1	6

Cell #4:

Pitch Class	3	6	E	0	3	6
Duration	7	6	4	3	2	1.5

Cell #5:

Pitch Class	(0)	6	6	6	6
Duration	n/a	7	4	4	12

Cell #6:

Pitch Class	(2)	6	9	T	8	9	T	8	9
Duration	n/a	6	8	6	4	6	2	1.5	14

Cell #7:

Pitch Class	(2)	0	(2)	8	(2)	E	(2)	T	(2)	E	(2)	T	(2)	E	(2)	T
Duration	n/a	7	n/a	6	n/a	6	n/a	3.5	n/a	3	n/a	2	n/a	1.5	n/a	1

### Recapitulation

Cell #1:

Pitch Class	T	7	T	6	4	8	(6)	T	9
Duration	1/3	12	1/3	11/3	1/3	8/3	n/a	1/3	8/3

Cell #2:

Pitch Class	1	5	4
Duration	8	8	24

### MOVEMENT 1 PITCH MATERIAL

The use of struck and rolled glissandi as an aesthetic effect throughout the first movement creates some collections of pitch material that motivate the musical material throughout the rest of the work. Looking at the first movement one section at a time, the destination pitches of the glissandi begin to outline the important structural elements of the movement and the rest of the piece.

The leading tone motive plays an important role in both the second and third movements and can be found within each part of the first movement as well. Throughout the first movement these three pitches are presented first in the order of 8 – 10 – 9 in the A sections, and 10 – 8 – 9 in the B sections. The important thing about the pitch relationships is the arrival each time on 9. In terms of interval relationships, the destination pitch of 9 (A) is always approached by upper or lower neighbor half step. Much of the motivic material later in the piece—especially during the second movement—uses these same intervallic relationships. Even when the intervallic content is altered (to perhaps a whole step or minor third/augmented second), arrival pitches are often preceded by an upper and lower neighbor of some kind. This relationship is employed several times throughout the piece.

Looking past the motivic and intervallic relationships it becomes apparent that Kupferman designed the pitch class sets of the three sections of the movement with subtle

yet important relationships. Observing the complete pitch class sets used in each section and within each phrase shows that Kupferman employed specific pitch class sets that complement each other as the movement progresses.

The three cells of the A section comprise the pitch class set [1,3,4,5,6,7,8,9,10,11]. Notably missing from this pitch class set are the pitches 0 and 2. This pitch class set is symmetrical on the axis that runs through the numbers 1 and 7, given their tritone distance. The significance of the missing pitches is made clearer during the development section.

In the B section Kupferman includes the missing pitches from the A section pitch class set. Here the complete pitch class set is [0,2,3,4,5,6,8,9,10,11]. Notably missing are the pitches 1 and 7, which serve as the axis for both of the outer sections of the movement. In addition, the C#2 roll that marks the middle of the development dynamically also serves as a reminder of that connection to the outer sections. It is the only instance within the development of the use of this pitch class, while the other pitch classes are all repeated at least once during this section. The single instance of this pitch class within the development is the only roll not subjected to glissando treatment. Kupferman clearly intended it as a signal of the connector to the outside sections of the movement.

The recapitulation uses the same pitch class set as the A section, restoring the pitch class set once again to the same axis as before. The programmatic element of the piece, described in greater detail later, will bear the fruit of this deeper level of pitch relationship from one segment to the next.

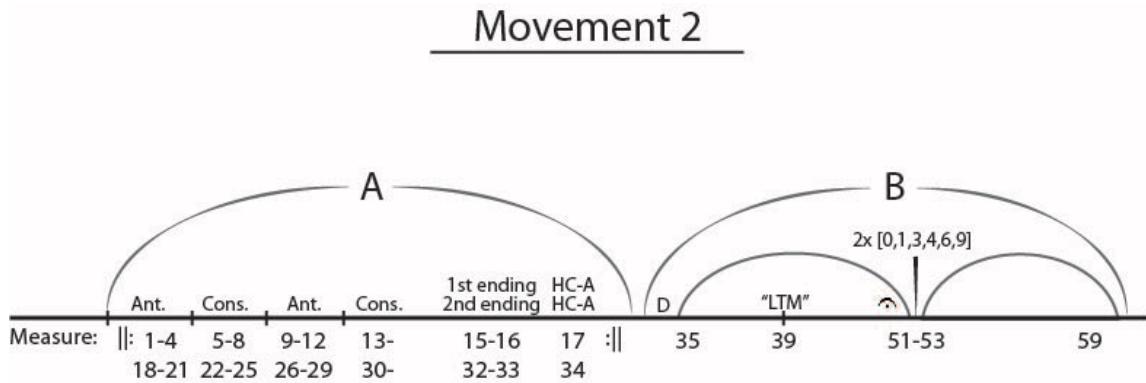
In addition to the pitch class set relationships between A, B and A' sections, the final phrases of each section use collections of pitches with inversionally symmetric properties. In this way Kupferman connects each section from one to the next with an inversional segue while maintaining a connection between the broader pitch collections used within each section.

#### MOVEMENT 1 CONCLUSION

When viewed side by side it becomes clear that the first movement follows a palindromic form through the use of pitch cells and groupings. The progression of the pitch cells is hidden in the classical introductory sonata-allegro form, yet Kupferman's choice of phrase construction and aesthetic masks the strictness of its structure and embodies his *gestalt* technique. The placement of the climactic motivic and rhythmic figure at the *golden section* emphasizes Kupferman's layered organizational approach. This, in addition to the free rhythmic scheme and use of augmentative and diminutive rhythm, gives the effect of a mysterious, improvisational introduction to this highly programmatic work.

## MOVEMENT 2

Example 2—14: Movement 2 Formal Structure



The large-scale form of the second movement is an AAB bar form. The A section is a lyrical dance in cut time that relies on a duality between triple and duple rhythmic feels. The A' is a direct repeat of the original A section, except for an altered second ending that leads directly into the B section. The A section is sixteen measures of cut time with one final measure of 3/2 meter in both the first and second endings. The B section has a length of 25 measures, the first sixteen of which are in cut time, with the remainder in 3/2 meter. The form and even musical nature of this movement fits with the standard definition of the bar form, as elements of the A section are found within the B section.<sup>25</sup>

The A section has a constant, strong tonal center of D minor. The only pitches used throughout the A section are D, C, E, F, G and A. The recurring low Ds throughout

<sup>25</sup> *Grove Music Online*, s.v. "Bar Form," <http://www.oxfordmusiconline.com/> (accessed September 16, 2011).

the A section form a pedal point upon which the moving lines are staged and the constant repeating A in the soprano voice serves in both the dominant and tonic capacities. The phrase structure falls into antecedent-consequent four-measure groupings, and the A section itself has a two-part structure delineated by the orchestration of the moving lines. In the first eight measures of the A section the moving line is in the ‘alto’ voice, which then moves to the soprano and alto in the next 8 measures. Rhythmically the first eight measures are marked by a triple feel based in quarter note triplets. Kupferman moves in and out of this triplet feel by using duple grouping and longer durations such as half note triplets, half notes, and whole note triplet durations.

Measures 1 through 8 and 9 through 16 have a matching dynamic scheme. The opening dynamic marking is *p* and despite short crescendo and diminuendo markings along the way, the phrase builds to a *mf* marking at Measure 7 before falling back to *pp* on the half cadence created by the simultaneous roll on E and A in Measure 7 and 8. Measure 9 again begins at *p* and a *cresc. poco a poco* marking follows until an arrival at Measure 13 at *f*. Halfway through the second half of the A section, Measure 12 features an arrival on D before moving back to another half cadence in Measures 13 and 14 while undergoing a durational expansion.

The first ending in Measures 15 and 16 regains the triple feel, beginning at a *p* dynamic and crescendoing to *mf* at the end of Measure 16. Measure 17, the final measure of the first ending, is an added measure to the symmetrical form and is even marked by a double bar line. The rhythm of Measure 17 is completely different from the rest of the A section, as it contains a quintuplet followed by a sixteenth note going into a double-dotted

quarter note, the final note of the A section. This additional measure serves a double purpose: to accelerate the harmonic motion to the end of the section, and to provide rhythmic interest that further solidifies the eventual return to the beginning. Measure 17 begins with the low D tonic and progresses to another half cadence by ending on an E and A struck simultaneously.

## Example 2—15: Movement 2 A Section

Andante gentile ( $d = 54.$ )

*Pespr.*

**2**

*p*

*cresc.*

*poco*

*a*

*poco*

*f*

*p*

*p*

*cresc.*

*mf*

**4**

**2.**

*p*

*cresc.*

*mf*

**32**

**33**

**34**

*mf*

Following the repeat of Measures 1 through 14, the second ending gives a similar direction to the end of the phrase. It begins at a *p* dynamic and crescendos to *mf* at the end of Measure 34. Whereas the first ending moved upward in range toward the final note on E3 and A3, the second ending moves downward in range toward the final note on E2 and A2. The additional measure at the end of the second ending (Measure 34) also contains a similar rhythmic feature as Measure 17, with a quintuplet followed by a

sixteenth note and double-dotted quarter note. Measure 34, like Measure 17, is marked by a double barline.

An aesthetic difference exists between the first and second ending, in that the ‘extra’ measures in 3/2 meter have different rhythmic schemes. In Measure 17 the quintuplet is found on the downbeat and the measure ends with a half note rest with a fermata. In Measure 34, the quintuplet is not found on the downbeat, but is preceded by an eighth note and a dotted quarter note. The final double-dotted quarter note fills up the end of the measure, leaving no time for a pause as is found in Measure 14. This expedites the formal arrangement of the A and B section and allows the music to continue right into the B section.

The B section falls into two segments, the first being longer than the second. The first segment of the B section goes from Measure 35 to 50 and is in cut time. In the first segment Kupferman explores new material while still harkening to the rhythmic and pitch material in the A section. The second segment of the B section goes from Measure 51 to 59 and is in 3/2 meter. In the second segment Kupferman explores almost completely new material, this time lacking any tonal center or rhythmic stability. In this segment he deconstructs the rhythmic, harmonic, and dynamic clarity of the A section. Again, eight measure phrases are apparent in the first segment of the B section as they were in the A section.

## Example 2—16: Movement 2 B Section

The musical score for Movement 2 B Section spans nine staves of music, numbered 35 through 59. The music is primarily in 2/4 time, with some changes indicated. Measure 35 starts with a dynamic *f*, followed by measure 36 with a dynamic *pp*. Measure 39 features a dynamic *ff*. Measures 43 and 47 both begin with *ff*. Measure 51 has a dynamic *p*. Measure 54 includes dynamics *fp*, *f*, *fp*, and *ff*. Measure 57 is marked *pp*. Measure 58 is marked *mezzo*. Measure 59 ends with a dynamic *ff* and a performance instruction "attacca". Articulations include slurs, grace notes, and accents. Measure 53 contains a wavy line above the staff, and measure 59 contains a bracketed instruction "[? seconds only]". Measure 43 has a dynamic *ff*.

The B section opens by landing squarely on D minor. The first measure contains only the pitches found in a D minor triad and proceeds to move through a D minor scale

in the alto voice before landing on a D and A open fifth at the end of Measure 36. This is the last time in this movement that we hear a clear arrival point on D minor.

In Measures 35 to 42, the first eight-measure phrase, Kupferman introduces sixteenth notes while still interjecting in Measures 37 and 38 with a quarter-note triplet and half-note triplet reminiscent of the A section. Measures 39 to 42 feature a complete departure from the earlier rhythmic ideas and introduce completely different pitch material. Between Measures 37 and 42, the pitches B♭, B, Ab, Eb, C♯, F♯ and D♯ are introduced. These pitches form the complementary hexachord to the pitches used in the A section. In Measures 39 and 40 more sixteenth notes are used, as well as glissandi rolls totaling a double-dotted whole note in duration. This is the longest roll until this point in the movement, with a duration twice that of earlier rolls. The soprano moving line in Measure 39 beginning halfway through count 3 is an instance of the leading tone motive found in the first movement.<sup>26</sup> Measures 41 and 42 introduce a quarter note-based quintuplet rhythm that is the most incongruent to this point from the regular rhythmic feel of the A section.

The next eight measures also contain an alternation between new rhythmic and pitch material with similarities to the A section. The B♭ 3 roll on the downbeat of Measure 43 marks the halfway point of the first part of the B section. Measures 43 and 44 center on Eb major, but in context, this arrival is not apparent. Measures 45 and 46 return to the rhythmic character of the A section with half note triplets marked by the repeated As in the soprano voice. Kupferman repeats the As in the soprano voice for the

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<sup>26</sup> This is the first instance of this kind of motivic borrowing between movements, and Kupferman uses this technique to great extent, especially in the third movement.

next four measures, while putting the moving lines in the alto and tenor ranges. The figure in Measures 49 and 50 has the same rhythmic character as the cadential points in the A section, including the repeated As in the soprano. Instead of working within D minor, however, here Kupferman uses chromaticism to move down the range to close the first segment of the B section. The end of Measure 50 has a sense of finality due to the retardando, the strident double stops leading into an accented roll on the last note of the measure and a fermata over the last note as the roll lessens in volume.

The second segment of the B section, composed in 3/2 meter, veers in the opposite direction aesthetically from the A section and first segment of the B section. As opposed to the equally divisible phrases of the A section and first segment of the B section, the second segment is 9 measures long with no clearly delineated sections or phrases. Most of the notes from Measure 51 to 59 are performed as rolls indicated either by a tremolo marking or three slashes attached to the stems of the notes. Kupferman returns in the final measures of the movement to similar material from the first movement: extended glissandi rolls, varied rhythmic activity, constantly changing dynamic extremes and atonality.

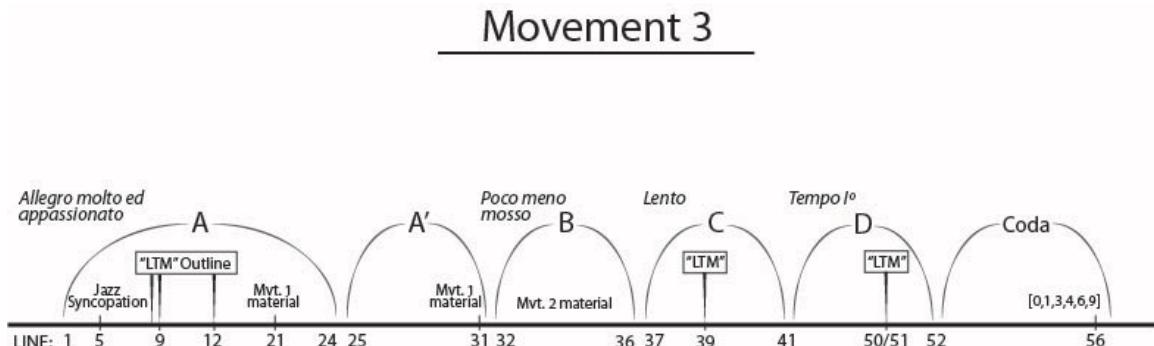
## MOVEMENT 2 CONCLUSION

Given the lyrical, song-like quality of this movement, Kupferman likely intended it as a canzone-like song in bar form. As the early instrumental canzone were

transcriptions of chansons,<sup>27</sup> perhaps Kupferman intended to capture their lyrical nature with the droning, A minor-centered A section, and the more expressive, improvisational sounding B section. The aesthetic contrast between the first and second movements—namely the difference in rhythmic structure and meter—set the backdrop for the third movement not only to provide further contrast, but also to incorporate a variety of moods and directions in Kupferman's *gestalt* form.

### MOVEMENT 3

Example 2—17: Movement 3 Formal Structure



The third movement is the longest of the three, at fifty-six lines long. It occupies seven pages of the score, whereas the first two movements together comprise only three pages total. It has five distinct sections plus a coda, and stylistically contrasts the first two movements while simultaneously including elements of the first and second movements' musical aesthetic. The third movement embodies Kupferman's *gestalt* form, fusing together different musical styles into one seamless piece. In addition to the

<sup>27</sup> *Grove Music Online*, s.v. "Canzona," <http://www.oxfordmusiconline.com/> (accessed September 16, 2011).

classically-influenced forms used in Movements 1 and 2, Kupferman chose to employ ritornello in Movement 3. The constant alternation between ostinato-like, driving sixteenth-note passages with rhythmically free, improvisational passages signal Kupferman's desire to incorporate jazz elements into his classical works. Yet, it also displays his atonal neo-romantic quality<sup>28</sup> by casting the movement within a framework of a classical form, as he did with the first and second movements. The improvisational sections are exploratory in nature both rhythmically and in terms of their pitch material, and give the distinct impression that the timpanist is improvising, despite the careful construction by Kupferman. The return of the sixteenth-note phrases in different keys establishes it as a ritornello, while the aria-like episodic phrases cement this movement as a play on the classic form.

The primary motive of the third movement is a driving, sixteenth note based *moto perpetuo*. The opening of the movement is marked *Allegro molto ed appassionato* with a tempo marking of  $\text{♩} = 112$ . The entire third movement has no time signature or barlines. Kupferman leaves the metric interpretation to the performer. A line-by-line description is provided to explain the motivic development and repetition.

### MOVEMENT 3: A SECTION

The A section of the third movement, which encompasses the first twenty-four lines of music, alternates between the driving sixteenth note, *moto perpetuo* ritornello phrases and a series of interrupting episodes. In total there are nine instances of the

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<sup>28</sup> Bates, Peter. *Meyer Kupferman, Orchestral Music*. (Accessed January 25, 2012). <http://www.classical.net/music/recs/reviews/s/ssp00119a.php>.

sixteenth-note motive and nine episodes. In order to provide greater clarity, the instances of sixteenth-note ostinato motives will be referred to by the letter O followed by the sequence number of each instance. The episodic phrases will be referred to by the letter E followed by the sequence number of each instance. Each time the sixteenth note motive returns, it is altered slightly and the episodes vary greatly in their stylistic and rhythmic material.

The opening sixteenth-note motive (O1) is twenty-five counts long and has an antecedent-consequent phrase relationship. The pitch material is constant throughout, with two perfect fifths sounding simultaneously (D2 – A2, C3 – G3). The antecedent phrase is fourteen counts long and appears as follows:

Example 2—18: Movement 3 A Section – O1A

The musical score consists of two staves. Staff 1 starts with a dynamic marking of ***pp*** and a tempo marking of **(♩ = 112)**. It contains a series of sixteenth-note patterns. Staff 2 begins with a dynamic marking of ***cresc.*** and continues the sixteenth-note patterns. Both staves use a bass clef and a common time signature.

The repetitive nature of the sixteenth-note figure gives the motive an ostinato-like quality and thus is instantly recognizable each time it returns throughout the rest of the movement, either in part or in whole.

The consequent phrase is eleven counts long and is nearly identical to the antecedent phrase in Example 2—15. Only the end of the phrase has been truncated.

Example 2—19: Movement 3 A Section – O1B



The only differences between the two phrases are the truncation of the final three groupings of sixteenth notes at the end of the consequent phrase and the increased dynamic marking from *pianissimo* to *piano*. Throughout the rest of the third movement, Kupferman employs similar passages to this opening phrase again and again. The frequent return of this ostinato-like feel gives the entire movement a relentless, driving character that Kupferman exploits to relay the programmatic nature of the piece.

The first episode (E1) occurs at the beginning of Line 4 and lasts for twenty-four counts, nearly the same length as O1. E1 also has an antecedent-consequent phrase relationship. The antecedent phrase lasts a total of twelve counts, and the consequent phrase lasts a total of twelve counts.

The antecedent phrase of E1 is marked by another motivic rhythm used throughout the third movement. The eighth-note sixteenth-note repetition clues the listener that the phrase has shifted and marks the beginning of the majority of the

intervening episodes throughout the movement. This is the first instance of derivation from the opening pitch material, with the move to A  $\flat$  in the second half of the antecedent phrase.

Example 2—20: Movement 3 A Section – E1A



The consequent phrase of E1 is a complete change stylistically from the pitch and rhythmic material of O1 and E1A. E1B is the same length as E1A at twelve counts long. Kupferman introduces three new pitches, including B2, F $\sharp$ 3 and G $\sharp$ 2. The introduction of a new perfect fifth relationship (B2 – F $\sharp$ 3) is an important one, as the rest of the movement relies heavily on rising perfect fifths to build tension. The G $\sharp$ 2 halfway through the phrase serves as a leading tone back to A to begin the next phrase, O2. Rhythmically, it veers outside of the feel of the previously established phrases with three quarter notes, a dotted half-note roll, a *forte-piano* roll, eighth notes, a triplet, and a syncopated sixteenth-note figure to close.

Example 2—21: Movement 3 A Section – E1B



Aesthetically, the inclusion of rolls and dramatic crescendi makes this phrase stand out as well. The final two counts of the phrase feature a rhythm that Kupferman established as his signature throughout his career. This syncopated, off-beat sixteenth note figure draws on Kupferman's background as a jazz musician and he employed it in countless instances within his classical, jazz, chamber and solo pieces.<sup>29</sup> This is the only instance of this rhythmic signature in the entirety of *Stone Tears*.

Throughout the opening two phrases of the third movement (O1 and E1), Kupferman builds tension in three ways. First, through a constant dynamic growth from *pianissimo* at the beginning to *forte* at the end of E1A. Second, through rhythmic numeration employed from the beginning to the end of E1. Whereas O1 features mostly groupings of four sixteenth notes, the phrase then progresses into groupings of three sixteenth notes at the beginning of E1A. The rolls in E1B, followed by the eighth-note triplet sixteenth-note progression all give forward motion that builds the tension through the end of the phrase. This underlying feel ties back to the first movement of the piece, which relied heavily on greater and greater diminishing groupings of sixteenth notes. Third, the concentration of new pitch material during the second half of the E1 phrase creates an effective build to the musical climax.

O2 begins at the end of Line 5 and lasts for a total of twenty-two counts. Again, this phrase has an antecedent-consequent relationship. However, the phrase has been

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<sup>29</sup> Tracy Freeze, *Moonsticks for marimba solo by Meyer Kupferman: a theoretical and performance analysis, with a survey of Kupferman's percussion chamber music* (unpublished doctoral thesis, University of Oregon, 2004), 61.

altered from the opening O1 with new pitch material, a slightly altered dynamic build and a further truncated rhythmic scheme at the end of the consequent phrase.

Example 2—22: Movement 3 A Section – O2

The musical score shows two staves of music. The top staff starts with a dynamic marking *sf*, followed by *pp*. The bottom staff starts with a dynamic marking *cresc.* Measure 6 begins with a dynamic marking *p*. Measure 7 begins with a dynamic marking *ff*.

The rise to G♯3 in the soprano voice disrupts the previously grounded set of perfect fifths. This is another way in which Kupferman builds tension throughout the movement. He uses chromaticism to move between pitch groupings, creating a constant sense of tension and release. The return to *pianissimo* at the beginning of O2 also allows for another build in tension throughout this phrase.

E2 begins near the start of Line 8 and lasts a total of twenty counts. It is again marked by similar rhythmic material from E1 and has a two-phrase structure. The first

phrase (E2A) is nine counts long, and again Kupferman alters the pitch material from the previous phrase.

Example 2—23: Movement 3 A Section – E2A

The chromatic rise of the bass voice from D2 to D#2, to E2 and then to F2 is another display of the chromatic quality inherent in *Stone Tears*. At the end of this figure, the alto voice also moves upwards chromatically from C3 to C#3, then to D3. At the end of the phrase, the soprano voice follows a similar pattern, moving from G#3 to A3 to B♭ 3. This figure in the soprano serves as a “sound memory” of the rolled glissandi in the first movement. It also functions as the consequent to the O2 phrase, providing resolution from the G#3 in the soprano voice. The move up to the highest part of the range reminds the listener of the events from earlier in the piece. The rhythmic features of this phrase keep the tension building, as before in E1, by moving from the groupings of three sixteenth notes in the first nine counts, into triplets and sixteenth note motion in the last four counts.

E2B veers even further from the driving sixteenth notes of the O1 and O2 phrases by introducing free rhythmic figures. It also displays a similar level of chromaticism as the E2A phrase.

Example 2—24: Movement 3 A Section – E2B



Here, the bass voice moves in the opposite direction as it did in E2A. The bass progress from F3 back down to D $\natural$ 3. In the last two counts of the phrase the soprano voice moves back down from B3 to G $\sharp$ 3. Rhythmically, the introduction of the quintuplet, free accelerando and triplet at the end of the phrase severely disrupts the forward motion of the sixteenth notes in the ostinato phrases, giving the feel of improvisation. Again, as in the E1 phrase, the dynamics grow throughout E2 to a climax at the end of the phrase.

From here to the end of the A section, the alternation of ostinati and episodes takes a decidedly different turn. Kupferman uses only fragments of the original O1 phrase in each successive ostinato and the episodes are shorter as well. Dynamically, the music is much louder and more aggressive, which owes itself to the programmatic nature of the third movement.

O3 lasts only three counts and starts at the beginning of Line 10.

## Example 2—25: Movement 3 A Section – O3



This ostinato serves to keep the motivic development moving forward and as another chromatic step upwards from the previous O2. The rise in the alto voice from C $\natural$ 3 in O2 to C $\sharp$ 3 in O3 releases the tension created earlier. The D2-A2 perfect fifth relationship underneath the C $\natural$ 3-G $\sharp$ 3 augmented fifth is now resolved to two perfect fifths, as it was at the beginning of the movement. In accordance with the truncated length of this phrase, the dynamic begins at *mf* in order to achieve a build to *f* by the beginning of E3.

E3 has similar features to the previous episodes but contains a new rhythmic and dynamic figure. It lasts a total of ten counts.

## Example 2—26: Movement 3 A Section – E3

Kupferman reiterates the eighth-note to sixteenth-note repetitive figure to signal the separation from the ostinato, but then elongates it during the repeated measures with the dotted eighth-note. This is also the first and only time Kupferman uses a diminuendo followed by *subito ff* in the A section. The G $\sharp$ 3-A $\sharp$ 3-D $\sharp$ 3 triplet followed by D $\natural$ 3-A $\natural$ 3 eighth notes at the end of the phrase provide some resolution from the minor seconds and minor thirds during the repeated measure at the end of Line 10. Again, Kuperman uses perfect intervals here to create a sense of resolution, and moves into them chromatically.

O4 again uses only fragments of the original ostinato phrase, but dynamically reverts to the original phrasing from earlier in the movement and begins at *p*.

Example 2—27: Movement 3 A Section – O4



With the upward chromatic rise to D $\sharp$ 3 in the alto voice, this ostinato passage creates another layer of tension when compared with O3. Despite the perfect fifth between the bass and tenor voices and the perfect fourth between the alto and soprano voices, the tritone relationship between the tenor and alto voices emphasizes the tension Kupferman aims for in this phrase.

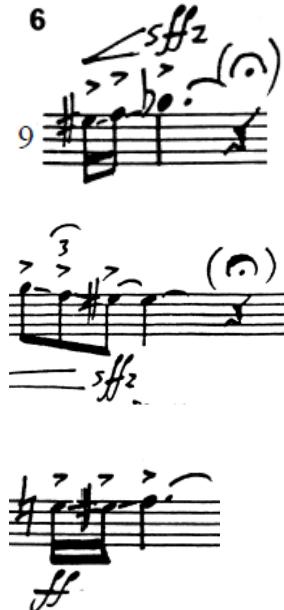
E4 again begins with the same rhythmic figure as the first three episodes but this time provides a momentary resolution to the tension set up in O4.

## Example 2—28: Movement 3 A Section – E4



In the middle of the repetitive rhythmic figure at the beginning of E4, Kupferman briefly resolves the A2 – D#3 tritone to a perfect fifth, only to retract it back for the half-note roll in the middle of the phrase. The arrival on the sixteenth note to dotted quarter note figure in the last three beats of the phrase harkens back to the end of E2A, and also again to the rolled glissandi of the first movement. It is the same figure at a loud dynamic, only this time transposed down chromatically by one half step. When the first three arrival points of the third movement are compared they resemble, in order, the leading-tone motive already established in the first and second movements.

Example 2—29: Movement 3 A Section Arrival Points



The arrival pitches in each of these instances are derived directly from the leading-tone motive and here are in the order B  $\flat$  2, G $\sharp$ 2, A2.

At this point in the A section, Kupferman keeps the energy moving forward by omitting the second half of the episode as before and moving into the next ostinato phrase. O5 lasts only three counts in total, and again, its truncated length allows for the motion of the phrases to keep moving forward.

Example 2—30: Movement 3 A Section – O5



The resolution from the previous tritone relationship to a perfect fifth between the tenor and alto voices is obstructed by the chromatic move up to B  $\flat$  in the soprano voice. These two chromatic shifts tie together the end of E4 with the beginning of the O5 phrase. O5 is the last phrase of the A section in which Kupferman “resets” the dynamic scheme and builds through the following episode. The remaining phrases are performed at a constant *forte* or *fortissimo* dynamic, with occasional small crescendi for embellishment.

E5 is the first episode that begins to bridge the gap between the strict motivic nature of the ostinato phrases and the improvisational feel of the episodes. The opening motive of E5 is again the same eighth-note sixteenth-note figure as in all the previous episodes, but it is immediately followed by four counts of faster rhythmic material.

#### Example 2—31: Movement 3 A Section – E5

With the perfect fifth (A2, E3), the D2 pedal and the upper neighbor shift to F $\sharp$ 3, the first three counts of E5 bears striking resemblance to the sound and feel of the beginning of the second movement. While the sixteenth notes and sextuplet passage that follow might be construed as the beginning of the next ostinato phrase, here Kupferman begins the process of melding the two ideas together. The faster moving lines are new material not found previously in any of the other ostinato phrases, and as we will see in

the upcoming phrases, the distinction between the ostinatos and episodes begins to blur somewhat.

O6 is the shortest of all of the distinct ostinato phrases, but is connected directly to the end of the E5 phrase. As such, it has the feel of continued forward motion and does not appear to be truncated, even though it lasts only two counts.

Example 2—32: Movement 3 A Section – O6



Here, we also have the first instance of a chromatic shift in the tenor voice, from A2 to B  $\flat$  2. The B  $\flat$  serves as an upper neighbor tone to the former perfect fifth relationship of D2 – A2. This group of pitches also moves the tritone relationship to the middle voices, whereas before it was between the alto and soprano in O5 and E5. This allows the tension to continue during the proceeding E6 phrase.

As with O6, E6 is the shortest of the episodic phrases. It lasts only four counts and repeats the same passage as found at the beginning of the rest of the episodes.

Example 2—33: Movement 3 A Section – E6

14

The progression of tension and release in each of the last three episodes can now be seen. This rhythmic figure appears at the beginning of E4, E5 and E6, and the harmonic scheme is tritone, perfect fifth and tritone, respectively, all over a D2 pedal. Kupferman creates tension with the constant upward rise through chromatic shifts in the tenor and alto voices.

O7 begins with a short triplet upbeat, which serves as another blurring of the lines between the ostinato and episode phrases. For the remainder of the A section, the feel of the music moves away from the more delineated phrases to an improvisational feel incorporating elements of the first two movements.

Example 2—34: Movement 3 A Section – O7

Here, Kupferman reiterates each of the fragments and motives from the initial ostinato phrase: the rising and falling sixteenths, followed by the groupings of six and three notes creating a hemiola feel, followed by the rising and falling line. He perhaps extends this ostinato to emphasize the tonal and harmonic structure of the phrase. Harmonically, he presents two perfect intervals preceded by the G#3 leading tone in the triplet pick-up figure. Over the D pedal, the B  $\flat$  in the tenor serves as a suspension of

sorts while the E3 – A3 perfect fourth in the alto and soprano voices establish the dominant tonal center. The direction of this phrase, leading into the end of the A section, sets up the proceeding chromatic rise to create another set of perfect fifths.

The E7 phrase is almost identical to the E6 phrase, with the exception of the roll that extends the tritone harmony a bit further.

Example 2—35: Movement 3 A Section – E7



Again we have the same rhythmic figure that marks the beginning of each episode. The roll at the end of the phrase preserves the tension created by the tritone harmony, which will be resolved in the following phrase.

O8 is the first phrase in which Kupferman severely blurs the lines between the ostinato and episode phrases. As we saw in E5, the continuous sixteenth notes give the feel of the repetitive *moto perpetuo*. But in this case, Kupferman includes some material from the previous ostinato phrases while interjecting new ideas as well.

## Example 2—36: Movement 3 A Section – O8

The musical score shows two staves of music. Staff 1 (top) starts at measure 16 and ends at measure 17. Staff 2 (bottom) starts at measure 17. Both staves use a common time signature. Measure 16 has sixteenth-note patterns in the upper voices and eighth-note patterns in the lower voices. Measure 17 continues the pattern, with a fermata over the last note of the first measure.

Here Kupferman inverts the previously established roles of the four voices.

Before, the coupling of the bass with tenor, and alto with soprano yielded perfect, diminished, or augmented fourths and fifths, here the tenor and alto form the perfect fifth relationship while the bass and soprano do the same (in octave displacement). This phrase can still be considered an ostinato phrase because the first figure matches the rising and falling motion of the earlier ostinato phrases. In addition, the first four counts of Line 17 exhibit an inversion of the earlier groupings of six notes to create a hemiola feel. Despite being five note groupings here, we still get the same feel of the repeated sequential pattern. Lastly, the final two counts of Line 17 plus one sixteenth note mimics the rising and falling sixteenth-note figure from before.

E8 is again nearly identical to E7 in terms of length and form, with a chromatic shift in the alto voice.

## Example 2—37: Movement 3 A Section – E8



Here, as in O8, the tenor and alto voices form a perfect fifth interval. The D pedal serves as a constant reminder of the tonal center. The roll at the beginning of Line 18 has been extended by one quarter note, almost as if to exclaim victory of the perfect fifth over the tritone tonality of the previous phrase.

The O9 phrase, the final ostinato phrase of the A section, strays from the shape and form of the previous ostinato phrases. The string of extended sixteenth notes preserves the function of the phrase but its musical material assumes a decidedly different character than that of the phrases before it.

## Example 2—38: Movement 3 A Section – O9

While Kupferman maintains the driving nature of the phrase with repetitive figures, the patterns within the O9 phrase do not correspond to any earlier material. As the ostinato and episode phrases trade back and forth through the A section, they begin to share traits, and by the last two phrases, the improvisational aesthetic of the episodes has been injected into the relentless sixteenth-note motives. Kupferman still holds onto some of the repetitive qualities, as in the first four counts of Line 19 and the hemiola-like quality of the following four counts as well. However; the nature and direction of O9 when compared with O1 shows the evolving progression that has occurred.

The E9 phrase divides into two segments, the first being shorter than the second. The first segment displays some qualities of the earlier episodes, but Kupferman also uses material reminiscent of movements one and two, embodying his *gestalt* form.

#### Example 2—39: Movement 3 A Section – E9A

The immediate difference between this episode and previous episodes is the way it begins. The *sff* roll that begins as a syncopation on the up beat signals a definite change in aesthetic, especially when heard in context coming out of the accelerated motion of the sextuplets in the previous phrase. Immediately following the roll, the next

ten counts mimic some of the gestures seen in earlier episodes, while also reminding us of the rhythmically accelerating motives from the first movement. The D2 grace note and the following four counts are immediately played in diminution with quarter notes moving to eighth notes and quarter-note triplets moving to eighth-note triplets as the F3 resolves to E3 to form a perfect fourth with the soprano. The fourth and fifth counts of Line 21 have an almost inverse palindromic nature to them as the E3 moves back up to F3, this time resolving upwards to form a perfect fifth in the middle voices. The next figure is another example of motivic borrowing from the second movement, as the alto voice flirts with both upper and lower neighbor tones before settling on the perfect fourth dominant relationship of E3 – A3. The leading tone motive appears at the end of this phrase, transposed down a perfect fourth from its original incarnation and is placed in the alto voice.

The second half of the E9 phrase strays even further from the established aesthetic of the A section, borrowing much of its motivic identity from movements one and two.

## Example 2—40: Movement 3 A Section – E9B

The musical score for Example 2—40 shows three staves of music. Staff 1 (top) starts with a dynamic *ff*, followed by a series of eighth-note patterns. Staff 2 (middle) begins with a sustained note followed by eighth-note patterns. Staff 3 (bottom) features a bass line with sustained notes and eighth-note patterns. Measure numbers 22, 23, and 24 are indicated above the staves. Various dynamics like *ff*, *f*, and *ff*, and performance instructions like "sempre" and "slow shir" are written throughout the score.

The opening of E9B resolves the dominant statement at the end of E9A with the *fortissimo* arrival on D2 in the bass voice. During the first eight counts of this phrase Kupferman extends the sequence of perfect intervals, interrupting them with upper or lower neighbor tones. The first perfect fifth, between F3 and B $\flat$  2, is obscured by the E3 placed between them. Another perfect fifth between B $\flat$  2 and Eb2 is obscured by the B $\natural$  and C3 forms a perfect fifth with the G3 roll that begins halfway through the quarter note triplet. The material that follows until the end of Line 24 alternates between ideas from the B section of movement two and motives from the first movement. The first nine counts of music at the beginning of Line 23 especially bear resemblance to the first movement and the final glissando tremolo is reminiscent of the end of the second movement.

### MOVEMENT 3: A' SECTION

The A' section of the third movement is an abbreviated version of the A section, containing much of the same material in the ostinato phrases but with shortened or truncated episodic phrases. It begins with a direct restatement of the antecedent phrase of the opening ostinato. Kupferman progresses through the same material as found in the first four ostinato and episode phrases, with only slight differences in musical material. Each phrase, both ostinati and episodes, has been truncated to give only a reminder of the progression that occurred before.

## Example 2—41: Movement 3 A' Section

8

25 *pp* cresc.

26 *p*

27 >*pp*

28 cresc.

29 *p*

30 *f*

31 *ff* >*p* *fp fp fp* *ppp*

Only in the roll near the beginning of Line 30 does any substantially differing material appear. Aside from that glissandi roll, the musical material is all derived from the first four phrases of the A section. The glissandi roll passage at the end of Line 31 is

derived from the material of the first movement. Here, Kupferman uses chromaticism again, widening the interval of the glissandi one half step at a time, then narrowing it again. The phrase ending on the low E2 roll acts as a transitional half cadence, setting up the following phrase which is based on the A section of the second movement.

### MOVEMENT 3: B SECTION

The B section is marked *Poco meno mosso* and is derived directly from the opening material of the second movement.

## Example 2—42: Movement 3 B Section

Poco meno mosso

32 | f | P, espri.

33 | p | cresc. s — poco

34 | p — cresc! s — poco

35 | f | p — pp

36 | f — (p)f — f — ff —

Kupferman interjects the repeated As into the formerly quarter-note triplet figures, which not only gives more rhythmic motion, but also provides a different pedal tone for the phrase. In this context, we hear the moving lines over the A dominant pedal, giving the sense that the entire phrase is leading somewhere. In this restatement of the second movement material, Kupferman intermixes the ideas from the A and B section together. Lines 32 and 33 are closely related to the A section, while Line 34 and the first half of 35 are a combination of the melodic and harmonic ideas from the A section with

the rhythmic ideas from the B section. The final three figures of Line 36 bear resemblance to the final measure of the second movement, only this time in augmentation. This rhythmic augmentation and diminution is a feature of Kupferman's compositional style that appears frequently throughout his percussion and timpani writing. The mixing of ideas within the B section further cements this piece as one in which Kupferman used his *gestalt* form. The use of borrowed themes from previous parts of the piece serves both to uphold his ideal of the *gestalt*, while also serving the programmatic nature of what *Stone Tears* represents.

### MOVEMENT 3: C SECTION

The fourth segment within the third movement again borrows material from earlier in the piece, further fusing together musical ideas from before. With a *Lento* marking, the C section is the slowest and most delicate of the third movement. It is a striking contrast to the rest of the movement in its dynamics, rhythmic variation, and overall aesthetic intent.

## Example 2—43: Movement 3 C Section

**Lento**

37 *p, con rubato molto* cresc.

38 poco f

39 pp sub. mp PPP sempre!

40 (p) pp ppp

41 ff

Kupferman again uses chromatic and stepwise motion in each voice to progress harmonically through the phrase. The soprano voice, beginning on G3, moves to F#3, glissandos to B b 3, then moves downward through A3, G#3, Gb3, then back up to A3, and B b 3 before moving into a new idea. The alto voice, appearing first on F3 near the beginning of Line 38, moves downward to E3, up to F#3, then progresses downward by half step and whole step motion at the beginning of Line 39 into the tenor voice. The tenor voice, beginning on B2, moves downward through A2, G#2, Gb2, then back

upward through A2, B  $\flat$  2 and B  $\natural$  2 near the end of Line 38. The tenor voice picks up again after the *Luftpause* near the beginning of Line 39 with more downward motion. The upward and downward motion in each voice, usually by chromatic half steps, gives the entire phrase a gliding feel that obscures any tonal center. The tones used in each voice, however, still center on the upper and lower neighbor tones of perfect fifths stacked above the D2 pedal tone as seen earlier in the piece. The triplet passages between the end of Line 38 and beginning of Line 39 are another statement of the final idea from the B section and the end of the second movement as well. Kupferman has used diminution in a different way, employing triplet rhythm. The pitch relationship between the repeated B  $\flat$  3 in the soprano and the moving line in the alto and tenor has been inverted as well. The figure immediately following the *Luftpause* on Line 39 is a statement of the leading tone motive, this time stated in the soprano and bass voices together. The soprano maintains the B  $\flat$  3 while the quarter-note triplet figure in the bass culminates on a G $\sharp$ 2, followed by a resolution to A3 in the soprano after the half-note rest. Kupferman places this motive between the soprano and bass in the first quarter note triplet of Line 37 as well.

The figure during the second half of Line 39 features two tritone relationships stacked on top of one another, serving as a reminder of the tonal relationships from the A section. The augmented fourths do not resolve here, however, and Line 40 continues with more material reminiscent of Line 4 of the first movement. The chromatic motion between G2 and F $\sharp$ 2 during the triplet figure at the end of Line 40 bears resemblance to the repetitiveness of the E3 phrase in the A section, and the accelerating figure at the

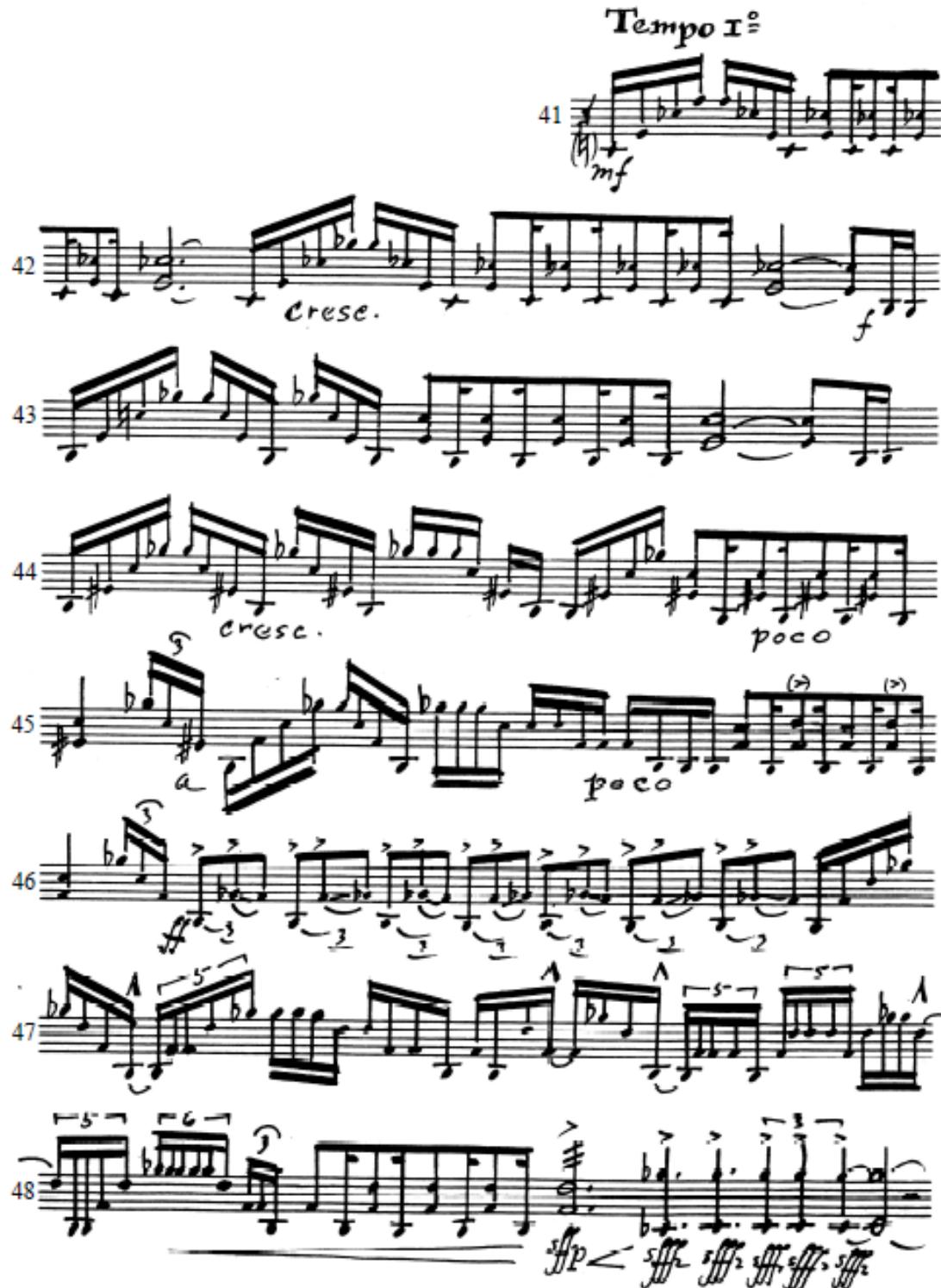
beginning of Line 41 serves a dual purpose. It reinforces the free nature of the meter of the C section and third movement as it did during the first movement and provides increased rhythmic motion as it moves toward the end of the C section.

### MOVEMENT 3: D SECTION

The D section of the third movement serves as a bridge to the coda and provides a final statement of the thematic material of the movement and piece as a whole. The pacing of the D section is similar to the O9 and E9 phrases from the A section due to the truncated nature of the motivic ideas and the more rapidly changing pitch material. Kupferman signals a change of intent in two ways, however, and continues to embellish the forward motion of the sixteenth-note *moto perpetuo* with ideas from other parts of the piece.

## Example 2—44: Movement 3 D Section

**Tempo I =**

41 

The musical score consists of four staves. The top staff is for the piano, marked with a dynamic of  $f$ . The bottom three staves are for the voices: Bass, Tenor, and Soprano. The Alto voice is present in the first two measures but absent in the last two. Measure 49 begins with a forte dynamic in the piano. Measures 50-52 show the vocal parts moving chromatically upwards. Measure 50 includes a dynamic instruction 'ff sempre'. Measure 52 ends with a fermata over the soprano's note.

Both the opening dynamic and pitch material signal the difference from the opening of the third movement. Here, the bass, tenor and soprano voices have moved upward a whole step, and the alto voice has moved upward a minor third. This is in order to create the augmented fourth relationship with the soprano, adding an element of tension to the beginning of this phrase whereas the A and A' sections both begin with consonant perfect fifth relationships. The truncated phrases continue as each of the voices progresses upward chromatically throughout the phrase. The episodic phrase at the end of Line 45 again incorporates the motion and pitch material of the second movement and recurring themes.

The triplet figure in the middle of Line 46 plays an important role in this phrase. It is an arrival point, marked at *fortissimo*, and the repeated chromatic motion between

B  $\flat$  2 and A2 is again reminiscent of the similarly repeating material from the E3 phrase. Rhythmically, the triplets are in direct contrast with the passages before and after, and the use of the sliding glissandi between B  $\flat$  2 and A2 further cements the repetitive suspension-resolution motive found throughout the rest of the piece. The passage from the beginning of Line 50 to the end of Line 51 resembles similar material from the second movement. Kupferman again uses fragments of the thematic material from the opening of the second movement, juxtaposed with newer, improvisational-sounding music. The motive on Line 51 beginning with the B  $\flat$  2 in the soprano is another restatement of the leading-tone motive, here descending to G2 then progressing upward chromatically back to A2. The motive appears during the quarter-note triplets near the beginning of Line 50 as well. Immediately following the soprano motive, the similar 2 – 5 – 4 motive appears in the middle voice. The sixteenth-note dotted eighth-note figures in the last six counts of music are derived again from the final statement of the second movement.

### MOVEMENT 3: CODA

The coda begins with dotted-eighth sixteenth rhythmic figures found in many of Kupferman's other compositions, and one used widely by Kupferman in his other works, especially during ostinato figures.<sup>30</sup>

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<sup>30</sup> Tracy Freeze, *Moonsticks for marimba solo by Meyer Kupferman: a theoretical and performance analysis, with a survey of Kupferman's percussion chamber music* (unpublished doctoral thesis, University of Oregon, 2004), 59.

## Example 2—45: Movement 3 Coda

The musical score shows four staves of music for a single instrument. Measure 52 starts with a dynamic **f** and a sixteenth-note pattern. Measure 53 continues the pattern with a sixteenth-note accent. Measures 54 and 55 show a transition with a diminuendo (dim 3rd x only) and a crescendo (cresc. begins on 3rd x and reaches **fff** on the 5th x). Measure 56 concludes with a dynamic **p** and a **m. f.** (mezzo-forte) dynamic.

**[3x]**

**f**

**[3x]**

**[4x]**

**[dim 3rd x only]**

**p** [Start cresc. on 3rd x to **ff**; make big dim on last 3 beats of 4th x]

**[5x]**

**p** [Cresc. begins on 3rd x and reaches **fff** on the 5th x] **fff**

**(fff)** **p sub.**

**m. f.**

Kupferman's sense of rhythmic pacing from the beginning to end of the coda both keeps the energy building until the very end and incorporates a couple of important motivic devices from earlier in the piece. The addition of an eighth-note accent to the repeating pattern at the beginning of Line 53, and again during the repeated figure eight counts later, gives direction to the repetitive ostinato while preserving its rhythmic intent. The diminuendo to *pianissimo* during the third repeat provides a clear link into the sixteenth-note figures near the beginning of Line 54. From there until the end of Line 55, the repetitive rhythmic figures coupled with the dynamic pacing in both the sixteenth and

sexuplet passages keeps the energy building until the arrival on the motivic idea at the end of Line 55.

The last two counts of Line 55 and the first count of Line 56 serve a double purpose thematically. The rhythmic idea is the final restatement of the similar motives from the end of the second movement and earlier in the third movement. Intervallically, Kupferman uses a perfect fourth, minor third, and finally a perfect fifth, all of which are intervals of great importance throughout the work. The treatment of these intervals with the struck glissando technique is another aesthetic identity of *Stone Tears* that Kupferman exploits one final time. The accelerating notes on B2 and the glissandi rolls that follow again carry the thematic weight of earlier motives through to the very end of the piece. The interval relationships during the final glissandi roll restate the importance of the intervallic material from the entire piece. The minor third leads to a perfect fourth, which is then obscured by the augmented fourth. These are all intervals found throughout each movement of *Stone Tears*.

The final arrival on the augmented fourth F2 – B2 is an interesting use of tension at the conclusion of the piece. With so much of the piece using tension and release ideas centered around the tritone resolving to perfect consonances, Kupferman's choice to end the piece without resolution plays into the programmatic nature of the music and the legend associated with it. The coda certainly represents the volcanic eruption Kupferman intended.

### MVT 3 CONCLUSION

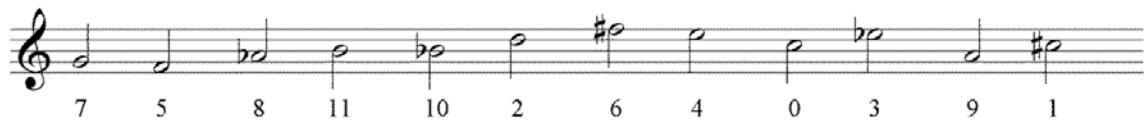
Through the alternation of ostinato phrases and episodes throughout the A section of the movement, Kupferman creates a duality of opposing forces in a couple of ways. First, between phrases, the use of register makes the difference in intent between each phrase distinct. In the ostinato phrases Kupferman uses all four drums, and for much of the A section they span the full range of the instruments. The episodes all begin with an omission of the soprano voice in their antecedent phrase (when included) with a move to the soprano voice in the consequent phrase. This duality provides a recall to the very beginning of the piece where the opening phrase has the same characteristics. Second, within phrases, the interaction of the bass to tenor relationships, and the alto to soprano relationships, stays consistent for much of the A section. Kupferman poses the two relationships against each other by creating alternations of perfect intervals and augmented or diminished fourths and fifths. The duality is further exacerbated by the wildly varying rhythmic figures when moving back and forth from ostinato to episode and vice versa. After constant chromatic shifts from phrase to phrase, only in the O8 and E8 phrases are the opposing forces combined. All of these factors create a call-and-response throughout the A section that effectively paints the programmatic and musical picture. The strict, metronomic feel of the ostinato phrases against the improvisational sounding episodic phrases speaks to the Kupferman's intent on a number of levels: the programmatic nature of the piece, his *gestalt* form, motivic development and his desire to retain the romantic element within his music.

Throughout the third movement, Kupferman uses upper and lower neighbor relationships in each voice to emphasize the resolution on the A3-E3 perfect fourth at the end of Line 23. This neighbor motion reiterates the outline of the leading tone motive that originated in the first movement. The D2 pedal throughout the third movement is subjected to upper and lower neighbor motion as well between sections, until being finally emphasized through prolonged repetition in the Coda.

#### ANALYSIS OF PITCH MATERIAL

Though *Stone Tears* does not proceed from beginning to end as a serial piece, Kupferman's serial techniques are present at times throughout the work and the influence of his *Infinities* Tone Row can be found at various points throughout. The *Infinities* Tone row, as described in Chapter 1, was the basis for over thirty of Kupferman's pieces. It consists of the following pitches:

Example 2—46: *Infinities* Tone Row



The pitch content of the first hexachord is as follows:

Pitch Class Set - [7, 5, 8, 11, 10, 2]  
 Normal Form - [5, 7, 8, 10, 11, 2]  
 Prime Form - [0, 1, 3, 4, 6, 9]

The pitch content of the second hexachord is as follows:

Pitch Class Set - [6, 4, 0, 3, 9, 1]

Normal Form - [0, 1, 3, 4, 6, 9]

Prime Form - [0, 1, 3, 4, 6, 9]

The *Infinities* row displays some characteristics of hexachordal combinatoriality.

More specifically, the prime form [0,1,3,4,6,9] is combinatorial by inversion only,

making it semi-combinatorial.<sup>31</sup> The prime forms of the four successive trichords that

make up the entire twelve tone row are [0, 1, 3], [0, 1, 4], [0, 2, 6] and [0, 2, 7].

In *Stone Tears* Kupferman uses the pitch class material from the two hexachords as well as the trichords as a basis for the pitch content of the piece. In movement 1 the [0, 1, 4] trichord appears frequently, with the [0, 1, 3] and [0, 2, 6] tri chords appearing in select spots. Appendix B shows the appearance of the various trichords throughout *Stone Tears*, as well as the appearance of the hexachords. When analyzing for the trichord and hexachord appearances, repeated pitches within a grouping of notes were discounted since the prime form shows where the pitch cells appear.

The *gestalt* form employed by Kupferman in *Stone Tears* obscures a straightforward serial analysis. Therefore, combinations of notes and sequences of pitches must be analyzed to discern whether or not they display the qualities of the *Infinities* row hexachords or trichords. While much of the first movement material can be directly related to the *Infinities* row trichords, the second and third movements change direction dramatically. In the three instances where the hexachord appears, the pitches are not in an order found within the *Infinities* tone row pitch matrix. However, observing

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<sup>31</sup> Milton Babbitt, *Words About Music: The Madison Lectures* (Madison, The University of Wisconsin Press, 1987), 195.

the prime form of the collections of pitches yields the same as that of both hexachords from the row. Kupferman clearly employed subtle influence from his serial techniques within *Stone Tears*.

The trichords are present throughout *Stone Tears* as well. Again, as the normal forms of the trichords and their transformations do not appear literally, the prime forms can be used to determine where Kupferman has used related pitch material. The first movement is made up largely of the first two trichords, which are [0, 1, 3] and [0, 1, 4]. The [0, 1, 4] trichord appears frequently and almost all of the pitch material in the movement seems to be derived from this collection of pitches. There are also appearances of the [0, 2, 6] trichord in the "pick-up notes" within the first phrase as well as in the B' section. The [0, 1, 4] trichord carries the most importance through this movement.

The second movement features the most use of the [0, 1, 3] trichord, as it forms the basis of much of the initial "tonal" sounding A section. In order to determine the appearance of this influence, the moving melodic notes were considered and the pedal A throughout the section was discounted. The resulting pitches that make up the majority of the first eight measures form the [0, 1, 3] trichord. The B section of the second movement shows more use of the [0, 1, 4] trichord intermixed with other material and motives from earlier in the piece. Kupferman's *gestalt* form begins to show itself here, so finding the iterations of the trichords becomes more challenging. However, it does appear throughout, and using the moving pitches as a basis for the analysis yields the [0, 1, 4] trichord in a number of instances. Near the end of the second movement two appearances of the hexachords can be found. In Measures 51 to 53 two sets of six pitches

appear, this time with no repeating pitches interspersed. While neither sets of pitches can be found within the *Infinities* row matrix, they both have the same prime form as the *Infinities* hexachords. Here, Kupferman likely wanted to influence the piece with his trademark sound but due to the constraints of the instrument, may have been unable to present the row in one of its forms. Another hypothesis is that he simply wanted to disguise the row at a deeper level within this piece. Either way, the hexachords are presented here with two of them side by side. Kupferman clearly intended this sequence of pitches to relate to his signature row.

The third movement is largely influenced by Kupferman's *gestalt* technique, which means it is motivically generated. However, influence of the *Infinities* trichords and hexachords still exist within it. The first two ostinato segments are both derived from the latter two trichords. Since the development of the ostinato pitch collections includes an A consistently for the first six iterations, the A can be considered a pedal tone. The other three pitches can then be analyzed for pitch content. The first two Ostinato segments are based upon the [0, 2, 7] and [0, 2, 6] trichords respectively. The pitches again do not conform to the *Infinities* row matrix. However, the prime forms do follow with the pitch content of those chords. Two other spots show direct relationship to the *Infinities* row in the third movement. The first is in Line 36 at the end of the C Section. In the last three collections of pitches, the beginning notes of the glissandi and the arrival notes of the glissandi both form the [0, 2, 7] trichord when grouped together. The final instance of the *Infinities* row influence is at the very end of the piece. During the coda the collection of pitches has a [0, 2, 7] prime form. Following a motivic device at the end

of Line 55 and beginning of Line 56, the last six pitches of the piece form the [0, 1, 3, 4, 6, 9] hexachord.

While an in depth investigation of *Stone Tears* does not yield a serial analysis in a straightforward way, the appearance of related pitch material in prime form cannot be purely coincidence. The influence of Kupferman's tone row here cannot be overlooked, as implementation of this technique within the solo timpani repertoire has not been equaled. With *Stone Tears* Kupferman created a solo timpani work that combines a vast variety of compositional techniques and devices while still effectively presenting a running narrative story throughout. For this, his piece should be regarded as one of the finest within the solo timpani repertoire.

## A PERFORMANCE ANALYSIS OF *THE STONE TEARS OF IXTACCIHUATL*

*The Stone Tears of Ixtaccihuatl* was premiered on April 25th, 1988 at the University of Oregon by timpanist Charles Dowd. Dowd commissioned Kupferman to write the piece in 1987 and championed Kupferman's percussion and chamber works for over thirty years as Professor of Percussion. Charles Dowd was an integral part of the Kupferman percussion and timpani legacy and his embrace of Kupferman's unique style led to the formation of his monumental work for solo timpani.

### PRELIMINARY STUDY AND PRACTICE

Performing a work such as Kupferman's *Stone Tears* necessitates not only advanced facility as a timpanist but the ability to combine technical prowess with nuanced musical decision-making. The success or failure of an attempt to perform this work lies in the ability of the timpanist to control and manipulate aspects of the piece such as form, structure, melody, harmonic motion, motivic development, thematic development, intonation, dynamic, articulation and rhythm. None of these characteristics have to do specifically with the timpani, but Kupferman exploits each of them to great extent throughout the work. Controlling each of these elements with deliberate and focused energies will result in a more holistic performance of the work. A performance of the work that achieves just rhythmic and tonal accuracy will have only scratched the surface of the piece's potential.

Learning this work is indeed a lengthy and complex process. The use of a piano is highly recommended when learning the piece, so that the timpanist can learn the pitch material more carefully. Trying to “learn the notes” at the timpani will lengthen the process even more and may result in inaccurate performances. Because of the nature of timpani in general, it is recommended that the same set of instruments be used throughout the learning process. The muscle memory gained when using a consistent set of timpani will help expedite the process of choreographing the hands as well as the feet.

Practicing for a timpani work such as this begins on two levels: pitch and rhythm. In a complex work where the activity of the feet matches the activity of the hands, the timpanist must train both parts of his or her body to become familiar with the correct choreography. Oftentimes throughout a performance of *Stone Tears*, the timpanist must re-tune one or two drums simultaneously while playing something that is rhythmically or dynamically active. In many instances the hands are required to play on different drums than the feet are tuning. This kind of coordination takes careful, slow practice. This level of coordination is exacerbated by the addition of extremes tempi, dynamics and range.

In addition to the physical demands of the piece, Kupferman frequently exploits a characteristic of the timpani known as sympathetic resonance. Two timpani tuned at the perfect fourth, fifth or octave will produce overtones, and will cause the drums to “ring more.”<sup>32</sup> This additional resonance is a tonal feature of the instruments similar to when

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<sup>32</sup> Due to the sonic properties of the instruments, precisely tuned perfect fourths or fifths emphasize the fundamental pitch and its associated fifth. Regardless of their positioning, each drum's overtones emphasize the other's fundamental.

instruments are played into the undamped strings of a piano. Kupferman first used this technique in his work for solo flute, written for Samuel Baron.<sup>33</sup> The resonance is a unique sound and can only be achieved with precise intonation. In *Stone Tears* Kupferman constantly asks the timpanist to re-tune the timpani, frequently perfect fourths, fifths and octaves. Due to the nature of the tensioning of the timpani heads, the timpanist must know the particular instruments used extremely well in order to arrive at exactly the desired pitch. Perfect intervals that are just a few cents narrow or wide will not achieve the desired effect.

## TECHNIQUE

A well-rounded background consisting of solo timpani repertoire, as well as the chamber, orchestral and wind ensemble repertoire will prepare the timpanist for performing *Stone Tears*. While Kupferman excludes some of the special techniques that can be found in the works of other contemporary timpani composers, he places extreme demands in terms of dynamics and note length, especially at softer dynamics. Exacting the correct sound from the timpani at such extreme dynamics requires a specific *touch*<sup>34</sup> on each sized drum, and achieving the correct touch is a result of a close study and performance of the aforementioned repertoire.

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<sup>33</sup> Meyer Kupferman, interview by Nancy Sureck, *Music Division Oral History Project, New York Public Library*, May 21, 2003.

<sup>34</sup> The term *touch* as it relates to the timpani and percussion family of instruments can best be described as the combination of stroke velocity, grip position (the amount of flesh or fingers in contact with the stick as it strikes the head), grip pressure and the follow through once the stroke is complete. Combining different aspects of these elements will give the timpanist deeper control over the sound produced. Stroke velocity and follow-through relate to the initial articulation and duration, respectively, while grip position and grip pressure affect the timbre and tone production. A wide range of sound qualities, articulations, and timbres can be achieved from the timpani through the manipulation of these elements of technique.

The specific techniques required in *Stone Tears* include pedal glissandi, rolls, rolling during glissandi, ornaments, double stops, rolling on two drums simultaneously and striking one drum followed quickly by pedaling to arrive at another pitch and acceleration or deceleration of rhythms. Endurance, dexterity and speed are all important in the successful performance of this work. It stands at approximately fourteen to fifteen minutes in length. Even during slower sections of the piece, Kupferman often writes for constant rolls, or in the case of the third movement, an unyielding sixteenth note ostinato. Playing alternating strokes in this fashion for this length of time requires a good deal of physical ‘chops’. While the music itself is not always technically demanding, the timpanist must possess the necessary facility to maintain playing continuously at a rapid pace for a sustained period of time. Oftentimes the most delicate sounds require more muscular ability and control than louder or faster passages.

The different musical characteristics of the piece can be achieved with a thorough knowledge of a few different styles of timpani playing. The three generally practiced styles of timpani playing are the French style, German style, and American style. The three styles evolved from the needs and demands of composers and conductors throughout history in different geographic regions at different eras. A full exploration of the nuances of each technique and its resulting sound palette is beyond the scope of this study. However, the general characteristics of each style can be delineated somewhat clearly. The French style is marked by a light, yet clear and precise sound that can be described as very clean; it can be used to achieve brighter sounds that focus on the upper end of the overtone spectrum. The German style is marked by darker, heavier, fuller

sounds and can be advantageous when a weightier sound is needed or when longer articulations are desired. The American style is somewhat of a combination of the French and German styles and is marked by a warm, rounded sound while still being rhythmically clear. The three styles should all be explored by the timpanist desiring to perform *The Stone Tears of Ixtaccihuatl*, as well as other pieces that necessitate a wide variety of sounds.

Notably absent from this piece is the inclusion of the extended techniques employed by Kupferman's predecessors and contemporaries.<sup>35</sup> Beyond extended techniques, Kupferman does not even indicate muffling or any kind of stick choice. Given Kupferman's extreme attention to detail throughout his chamber percussion music, he clearly made a deliberate choice with *Stone Tears* to keep the focus on the pitch material and the musical ideas within. Being that the piece is programmatic in nature, Kupferman could have easily employed some unusual sounds to represent events and characters. However, he treats the timpani like another composer might treat the violin or clarinet, as a viable solo instrument capable of vivid musical expression. By composing the piece as a romantic, expressive work, Kupferman gives freedom to the musician to explore its varied moods and musical styles. This aesthetic requires the timpanist to use a wide variety of articulations so that he or she may achieve a variety of sounds.

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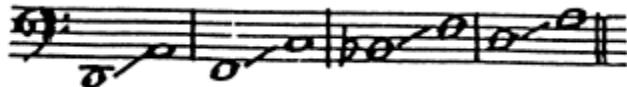
<sup>35</sup> Due to Kupferman's close relationship with a community of New York percussionists and timpanists, he certainly knew of the pieces written by Elliott Carter and William Kraft. Although the extended techniques in Carter's *Eight Pieces for Four Timpani* (one player) (1966) were added by Carter after working with Jan Williams, by 1987, when *Stone Tears* was composed, Kupferman would have had been exposed to the types of extended techniques being employed at the time. These techniques include playing in different zones on the heads (center, edge, etc.), playing on the bowls of the drums, quarter tone intonation, the use of a 'closed' snare drum roll (as opposed to the normal open, alternating stroke timpani roll), and the use of abnormal objects to play or mute the drums (i.e. the use of specific miniature scores as muffling, felt and leather gloves in Kraft's *Concerto for Timpani and Orchestra* (1983), or the use of cloth covered rattan sticks as in Carter's *Eight Pieces*).

Developing a wide variety of strokes and sounds using the same pair of sticks requires study and preparation with a knowledgeable master teacher.

## EQUIPMENT

As in his other works for percussion ensemble and chamber group, Kupferman employs a somewhat extended range for the timpani. Assuming that he intended the standard timpani sizes; 23", 26", 29", 32", the ranges of the drums are reasonable. The ranges he indicates for each timpani are as follows:

Example 3—1: Stone Tears Timpani Ranges



Despite this indication, in practice the piece requires a wider range on all but the largest drum, especially in the high end of the tessitura. A suggestion for the timpanist would be to use a slightly smaller set of timpani. For instance, a set with the sizes of 23", 25", 28", 31" would suit this piece well, as the smaller drum can better accommodate higher pitches. However, the disadvantage lies in the low tessitura and sustain of each drum, which is of primary importance in the first movement. For this reason, a 32" drum in the bass voice will suffice as well. An additional 32" drum can be placed to the right of the player, next to the 23" timpano. This additional drum, tuned to a D2 throughout,

can ease some of the most challenging passages and is primarily useful during the Coda at the end of the third movement.

*Stone Tears* can be achieved on many styles of timpani pedal, and each has its advantages and disadvantages. A balanced-action pedal will make the foot choreography a bit simpler without a locking ratchet that must be activated and deactivated as with a Dresden or Berlin pedal. The disadvantages to using the balanced-action timpani are the range of each drum and the foot pedal positions in relation to the performer. With a Dresden or Berlin style pedal, the pedals on the outside drums are typically found to the 'inside' of the set up, whereas with a set of balanced-action timpani, the pedals are typically positioned farther away from the player. Thus, when the piece calls for the timpanist to tune both the outside drums simultaneously, a set of timpani with Dresden or Berlin style pedals can be more comfortable and natural than a set with balanced-action pedals. Additionally, because the balanced-action pedals stay in position without a locking mechanism, they can also be somewhat "sticky" during tuning changes. While a Dresden or Berlin pedal system offers the ability to achieve finer intonation, the balanced-action system is a more practical choice for performing this piece due to the extremely fast position changes during many of the tuning passages.

MOVEMENT 1 INTRODUCTION AND EXPOSITION: MUSICAL AND  
TECHNICAL CONSIDERATIONS

Example 3—2: Movement 1 Introduction and Exposition

A-Bb-C#-E      *Largo misterioso* ( $\text{d} = 46.$ )

The opening movement of *Stone Tears* is marked *Largo misterioso* with a tempo marking of  $\text{d} = 46$ . The dynamics range from *pppp* to *fortissimo* and most of the movement requires the timpanist to play rolls on each drum. Therefore, a medium-soft ball stick is recommended in order to play rolls smoothly but still achieve a loud, punchy sound when needed. Using a slightly softer stick for the A and A' sections will more clearly delineate the form of the movement. The opening three lines of music contain both struck and rolled glissandi across nearly the full range of the instruments. The player should be careful to gauge the dynamics on each drum in order to achieve a balanced dynamic sound while moving from one part of the range to another. In these first three lines, we see the most extremely soft playing in the entire piece.

In order to achieve the softer dynamics of this passage, the player must be careful not to “underplay” the instruments, or to get too light a sound. At the softer dynamics, the player must always play “to the bottom of the bowl” in order to get a clear sound. In this particular instance, the player could conceivably make the decision to attempt a lighter, more transparent sound given the *misterioso* indication. However, the dark, slow nature of the opening, occupying the bottom end of the register, speaks to a fuller, darker tone. In order to make the pitch changes clear during the glissandi rolls, especially during half step motion, the arrival of each pitch should be marked with a slight accent that gives a clear indication of the rhythm and the arrival at the intended pitch.

Re-tuning the drums should be done during rests whenever possible, however since each drum in this passage must be pedal tuned while playing, the player must choose when to move his or her feet from one drum to the next and also how and when to move one foot while the other foot might be tuning. This requires careful selection of timing and must be practiced just as much as the playing. Tuning while playing is common throughout the rest of the piece, and the most difficult aspect of performing this kind of timpani piece can be re-tuning one drum accurately while simultaneously playing and tuning another drum at the same time. Achieving reliable muscle memory is crucial for executing these passages, which requires structured practice.

The middle section of the first movement becomes more musically active than the opening and requires a wider variety of techniques and styles to achieve the most musically engaging performance.

MOVEMENT 1 DEVELOPMENT: MUSICAL AND TECHNICAL  
CONSIDERATIONS

Example 3—3: Movement 1 Development

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For the Development section, switching to a slightly harder pair of mallets can distinguish the form, and provide better clarity in the higher part of the range. Varying the speed of the glissandi rolls in this passage will allow for both a smooth sounding roll in each part of the range, as well as a greater level of musical expression. In general, the higher in the register the rolls are played, the faster the speed of the roll should be. In addition, the roll should be sped up as the dynamic grows, for example when moving

from the end of Line 4 to the beginning of Line 5. The crescendo to *forte* at that high part of the timpani range requires a very quick roll speed in order to sound smooth and connected. The speed of the rolls can also be changed to great effect on a single drum as well, for instance at the beginning of Line 4, the C#3 roll near the beginning of Line 5, the first two figures at the beginning of Line 6 and the *molto crescendo* at the beginning of Line 7. Slightly increasing and decreasing the roll speed through dynamic changes can give the direction of the phrase more character than a static roll speed.

Additionally, changing the position of the sticks on the heads, the grip pressure and the position of the hands are all factors that can alter the resulting sound. For the last figure of the passage on Line 7, a combination of the styles described above can yield an effective result. Striving for a heavy, dark sound on the D2 grace notes and a bright sound on the accents gives a nice variety to the end of the phrase. The heavy stroke on the low grace notes will result in a full sound while the quicker stroke on the moving line played by the right hand will better accommodate the written articulations.

MOVEMENT 1 RECAPITULATION AND CODA: MUSICAL AND TECHNICAL  
CONSIDERATIONS

Example 3—4: Movement 1 Recapitulation and Coda

The musical score consists of two staves. The top staff begins at measure 8 with a dynamic marking of ***ppp***. It features a series of eighth-note rolls: the first roll consists of three notes, the second of four notes, and the third of three notes. These rolls are separated by short rests. Following the rolls, the dynamic changes to ***mp***, and then to ***mf***. The bottom staff begins at measure 9 with a dynamic marking of ***pp***. It also features rolls: the first roll consists of three notes, and the second roll consists of four notes. A bracket under these rolls is labeled ***pp [5 seconds only]***. The piece concludes with the instruction ***attacca***.

The final passage of the first movement should be approached in the same fashion as the opening, as it is a direct recapitulation of the first segment of music except for the adjustments in dynamics. The roll through the final three notes should be dark and brooding. Keeping the sound as dark and full as possible while at an extremely soft dynamic will preserve the *Largo misterioso* nature of the movement. Keeping the roll speed static through the final three pitches will result in a stoic, deliberate finish to the first movement. The tuning of this passage should follow the same scheme as the opening passage of the first movement.

## MOVEMENT 2 A SECTION: MUSICAL AND TECHNICAL CONSIDERATIONS

### Example 3—5: Movement 2 A Section

The second movement departs in character from the first movement, and as such, a different pair of sticks should be used. In this case, the player has a number of demands placed on him or her and must be able to achieve a variety of moods and styles with the

same pair of sticks. While less extreme in terms of dynamic execution than the first movement, the second movement is more stylistically varied from start to finish. A medium to medium-hard pair of sticks will allow the player to achieve clarity through the rhythmically active passages while still making the connected roll passages possible to perform. However, the timbre of the mallet must always allow the timpanist to maintain the gentle nature of the movement.

The A section of Movement Two is marked *Andante gentile* and in addition Kupferman includes an *espressivo* marking at the beginning. The mood of the A section is lilting, dance-like and structurally concrete in its tonal pillars of perfect intervals. It should be the goal of the timpanist to achieve an extremely resonant, connected, yet rhythmically perfect performance of this part of the piece.

The player must be careful when pedaling between notes to observe when a glissando effect is desired or when the change in pitch should be immediate with no falling or rising motion in between. This is a key aesthetic difference in this segment of the piece that must be carefully observed and performed. The gliding, blurring effect of the glissando versus the stark nature of the direct pedal change results in very distinctly different moods and aesthetic qualities. In addition, the timpanist must be extremely careful to achieve exact intonation as the alto voice returns repeatedly to E3. The perfect relationship with the A3 in the soprano each time, as well as the eventual return to the D2 – A2 perfect fifth in the lower voices depends on correct intonation. An effective performance of this segment will also feature arrivals at the sliding pitches just as the next strike occurs rhythmically, as found in Measure 13, for instance. The sliding nature

of the glissandi gives the piece a lyrical, consonant feel, and exploiting the full length of each glissando will result in a very seamless performance.

#### MOVEMENT 2 B SECTION: MUSICAL AND TECHNICAL CONSIDERATIONS

Example 3—6: Movement 2 B Section, Segment One

The B section of Movement Two departs from the structurally consistent A section and explores a wider variety of pitch material and dynamic contrasts. As such, the player should attempt to employ a wider variety of sounds and strokes using the same pair of mallets as before. Beginning at Measure 35, the first segment of the B section contains a wide variety of articulations and dynamics.

The *tenuto* markings over the double stops in Measures 36 – 37, and in Measures 41 – 42 leading to accented figures between Measures 43 and 50 indicate a continual growth in emphasis on the rhythmic material between roll passages. For the half-note triplets as well as the quarter-note quintuplets, a big, heavy stroke can be used to darken the sound and achieve a longer, fuller sound. This can even be applied to the stroke during the diminuendo in Measures 36 – 37 and should only serve to change the color of the sound, not necessarily to get more volume.

The use of the tremolo marking in Measure 43, as opposed to the slashes on the stems of the notes previously, can be somewhat confusing. Most likely, Kupferman intended the roll to be played normally in this measure, as a tremolo would require quick manipulation of the pedal between B♭ and B♯. Since B♭ is already quite high for the range of a standard 23" timpano, this is probably just the result of interchangeable notation in regards to percussion, of which countless examples can be found throughout the orchestral and chamber repertoire over the last 250 years.<sup>36</sup>

This passage contains a number of motives from earlier parts of the piece that should be given special attention. The immediate instinct might be to simply play each of these figures louder. However, using a different tone color can be equally, if not more effective in bringing those motives to the fore. In a general sense, the chromatic figures

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<sup>36</sup> Only in recent years has percussion notation become somewhat standardized. The use of the tremolo in snare drum music, particularly French snare drum music, became widespread during the nineteenth and twentieth centuries. This indication led to similar usage among composers in their timpani parts, to the point where both tremolo and the slash notation have become commonplace and are practically interchangeable. While modern notation programs have begun to provide composers with more standardized tools with which to compose, oftentimes with percussion music the composer's choice of notational system reflects his or her desired sound or intent, and therefore a wide variety of notations can be easily found.

that flirt with upper and lower neighbor tones of A2 in the tenor voice, E3 in the alto and A3 in the soprano carry the most thematic weight. Examples include alto motion in Measures 35 and 36, the motion in the tenor voice in Measures 36 and 37, the eighth notes in the soprano in the second half of Measure 39, the ascent then descent of the bass into the tenor voice in Measures 45 through 48, and the downward descent of the alto voice in Measures 49 and 50. Another way to look at this voicing scheme is that in general the moving line should be brought to the fore, while the repetitive material plays a secondary role. In this case, the moving lines that feature chromatic ascents and descents fit into the thematic idea of the movement and the piece as a whole.

Example 3—7: Movement 2 B Section, Segment Two

The second segment of the B section includes remnants of ideas found earlier in the piece. The long, extended roll passages necessitate an increased ability to voice lines within phrases.

This passage requires a couple of different styles of glissandi to be effective. The rolls on the first two lines of music between Measures 51 and 56 should be performed as smooth, even glissandi that last the full length of the written pitch. This results in a clearer rhythmic scheme and preserves the *andante gentile* marking from the beginning of the movement. As the energy builds from Measure 56 to the end of the movement, the style of the glissandi should shift to a quicker, more deliberate one. In Measures 57 and 58, the speed of the glissandi should match the dynamic shifts. The crescendo-decrescendo markings should be executed quickly, with a slight delay at the beginning of each crescendo to allow for a more effective dynamic pacing. The glissando accompanying each dynamic shift should have the same feel with most of the glissando occurring close to the destination pitch. This kind of pacing in both the dynamics and glissandi will emphasize the erratic nature of the end of the movement and lead into the final measure with the appropriate amount of energy.

The last measure of the movement should be executed with quick, high strokes that give a big, bright sound. The intent should be to get a punchy, quick sound that emphasizes the front part of each note, and not the sustain of each pitch. The last measure is thematically important to the rest of the piece and will recur in movement three with similar passages. Using a big, powerful sound for the last measure will ensure that listeners remember it when similar figures come back later on.

### MOVEMENT 3

The third movement is marked *Allegro molto ed appassionato* with a metronome marking of  $\text{♩} = 112$ . The musical material throughout the movement features constancy of *moto perpetuo* running sixteenth notes, with interjecting agitated rhythmic figures and a wide dynamic and stylistic range. It is the most aggressive-sounding movement of the piece, with the most percussive feel at its core. However, in keeping with Kupferman's *gestalt* form, he also constantly incorporates opposing ideas from the first and second Movements. This alternation of styles is difficult for the timpanist, as creating both smooth, connected rolls as well as articulate, rhythmically clear sounds can prove extremely challenging with the same pair of mallets. Switching mallets for each section of the movement is an effective way to change the mood according to the musical material. A hard mallet with a pointed sound is appropriate for the faster sections, while a larger, heavier stick works well for the *poco meno mosso* and *Lento* sections. In the case of a hard mallet, it must be a mallet with which the player can still execute connected rolls in the low register of the instruments while still being able to play with a good amount of punch. Alternatively, the advanced player might consider using a double-sided pair of sticks with soft felt on one side of the mallet head and hard spun felt on the other. Additionally, utilizing a playing area slightly closer to the center of the head can increase the ability to play with better articulation, while rolling closer to the hoop of the drum will yield a smoother-sounding roll. Using a pair of double-sided mallets can be extremely effective; however, switching between the soft and hard felts

quickly and efficiently is yet another layer of choreography and practice for the player to consider.

The tuning scheme for most of the third movement should be apparent with little guess work. The four voices at the beginning of the movement fall easily within the ranges of each of the four drums and the tuning should not be generally difficult to assign. On which drums to place certain pitches during the more obscure passages later in the movement can be at the discretion of the player, as the placement of the feet and the timing of moving from one drum to the next will have a significant impact on the player's comfort level with the movement.

#### MOVEMENT 3 A SECTION: MUSICAL AND TECHNICAL CONSIDERATIONS

During the A section of the third movement, the player must create different characteristics within each alternating ostinato sixteenth note and episodic phrase.

## Example 3—8: Movement 3 A Section

D-A-C-G      Allegro molto ed appassionato

5

The musical score consists of eight staves of string music. Staff 1 starts with a dynamic of ***p***, followed by a crescendo. Staff 2 shows a dynamic change to ***p***. Staff 3 features a dynamic of ***cresc.***. Staff 4 includes dynamics of ***mp*** and ***ff***. Staff 5 contains dynamics of ***f***, ***fp***, ***fp***, ***sfz***, ***>***, and ***pp***. Staff 6 shows a dynamic of ***cresc.***. Staff 7 includes a dynamic of ***p***. Staff 8 concludes with a dynamic of ***f***.

6 *sffz* (c) (d) *sffz*

9 *p*

10 *f* [dim to *pp* on repeats] *[3x]*

11 *p* *cresc.* *poco*

12 *a poco* *ff* *mp* *cresc.*

13 *f sempre*

14

15

16 *fp* *f*

17

18

19

ff sempre

20

*ff p* *molto ff* *ff sempre*

21

*ff p* *ff* *ff*

22

*ff sempre* [29"]

23

*ff*

24

*ff p* < *ff* *ff* *ff* *ff* *ff* *ff* *ff*

26"

slow għid

(c)

One area of concern the player should be aware of during the ostinato sixteenth-note phrases is the balance between each of the drums. Due to the quickness of rhythm and the wideness of range, the natural tendency will be for the 23" soprano and 32" bass timpani to speak more clearly and a bit louder than the middle two drums. The player should be careful to voice the four drums equally throughout these phrases in order to achieve an equal crescendo.

The alternation between running sixteenth note ostinato phrases and the episodic contrasting phrases in the A section can be emphasized with a different approach in the technique of each passage. The dynamics of the running sixteenth note phrases should be approached with an evenness in which the pacing of the *crescendi* lasts the full duration of the phrase. Whereas a more romantic interpretation of the dynamic phrasing might be to delay the beginning of the crescendo, pushing it toward the end of each phrase, an even pacing in this instance will allow for a better distinction from the more diverse episodic phrases. The articulation and dynamic emphasis within the episode phrases should be given a little more weight, and should be performed with a little more flare than in the more strict, straightforward ostinato phrases.

Musically, pacing the *crescendi* throughout the passage takes patience and control. The first five ostinato and episode phrases use long, slow builds in dynamic that must be controlled to be effective. The player should be careful to avoid playing too loud too soon, and should “save it” for the episode phrases which are more explosive and rhythmically angular (in comparison to the ostinato phrases). Stylistically, the ostinato phrases should be performed with a stricter, more even sound from one count to the next,

and from drum to drum. The episodic phrases should be performed with more vigor, more punch and more dynamic expression. Using a different technique and sound between the alternating phrases and a different sound concept for each phrase will result in a more interesting musical dialogue and will emphasize the importance of the call-and-response ideas.

From Line 20 to the end of the passage, a variable speed roll can add subtle differences to the direction of the dynamics and phrasing, which results in a more interesting performance as the musical material becomes more obscure. Using a variety of roll speeds during the rolled glissandi at the beginning of Line 23 and during the quickly changing dynamics on Line 24 will give more energy and interest and will be more dynamic and expressive.

There are a number of different articulations throughout this passage and attaining a difference in the sound of each one can be achieved by a combination of technical adjustments in the grip, grip pressure, stroke speed and height of stroke. Despite the use of repeated articulations through the progression of ostinato and episode phrases, the musical context should also be considered when performing this passage. For instance, the marcato accent near the end of Line 5 should not be played the same as the marcato accents on the double stops near the end of Line 21. The entire A section leads from the beginning to the end of Line 24 in terms of energy of the phrases and intensity of musical material. The dynamics and articulations should be in accordance with the big picture form of the movement. Keeping this in mind and knowing the larger design of the movement will allow the player to achieve a more cogent musical performance.

## MOVEMENT 3 A' SECTION: TECHNICAL AND MUSICAL CONSIDERATIONS

The A' section of the third movement bears similarities to the A section, yet the phrases occur in faster sequence than before.

Example 3—9: Movement 3 A' Section

A musical score for a single melodic line across six staves. Measure 25 starts with a dynamic of *p* and ends with a crescendo. Measure 26 begins with a dynamic of *p*. Measure 27 starts with a dynamic of *> pp*. Measure 28 begins with a crescendo and ends with a dynamic of *p*. Measure 29 starts with a dynamic of *> pp*. Measure 30 begins with a dynamic of *f*. Measure 31 concludes with a dynamic of *ppp*.

8

25 *p* cresc.

26 *p*

27 *> pp*

28 cresc. *p*

29 *> pp*

30 *f*

31 *t* *ff* *>p* *fp* *fp* *fp* *fp* *ppp*

The A' section of the third movement is an abbreviated version of the A section. The ostinato phrases progress in the same fashion, with the pitch material changing in the same order and sequence as in the A section. Since the material musically follows much of the same direction as the A section, it should be performed with the same stylistic objective.

The last figure of Line 31 is borrowed motivically from passages in the first and second movement and should be given special attention. During the glissandi rolls, each destination pitch should be marked with a slightly-accented staccato stroke during the roll to make both the pitch and rhythm clearer. This can be achieved by playing with a slightly quicker stroke at only the arrival point of each pitch. Care should be taken not to disrupt the smooth, connected nature of the roll while applying this technique. The *forte-piano* accents at the end should be given even more weight to differentiate them from the arrival on earlier pitches.

#### MOVEMENT 3 B SECTION: TECHNICAL AND MUSICAL CONSIDERATIONS

The B section of the third movement draws inspiration from the pitch and rhythmic ideas in the A section of the second movement. Therefore, a similar approach to phrasing and timbre should be applied to this segment to achieve a similar sound throughout.

## Example 3—10: Movement 3 B Section

*Poco meno mosso*

9

The same dark, heavy sound should be used during this passage to recreate the aesthetic feel of the second movement A section. Even though this is not a direct restatement of the material from the second movement, its resemblance is very close and creating the same mood as found earlier in the piece will further accentuate Kupferman's goal of fusing together stylistically opposing musical ideas. The struck glissandi, as

before, should be given full duration to give the impression that the phrase is more extended than it is in reality. The key to this phrase musically is to suspend time, to interrupt the relentless, driving character of the A and A' sections with something completely different. Despite being marked *poco meno mosso*, the B section should feel less metered, less structured, and more connected and smooth than the first two sections of music.

The last three figures of the B section should be played with special importance. As this rhythmic idea occurs 4 times throughout the piece at important transitional points, accents should be given a bit of a heavier weight, and the arrival pitches after the glissandi should be sustained as long as possible.

#### MOVEMENT 3 C SECTION: TECHNICAL AND MUSICAL CONSIDERATIONS

The C section departs even further from the structured nature of the A and A' sections. The tempo marking is *Lento* and the rhythmic character of the phrase is the most varied in nature up to this point in the third movement. This phrase contains many of the techniques and timbres found in other sections of the piece so far, yet here they have been combined into one seamless phrase.

## Example 3—11: Movement 3 C section

The musical score consists of five staves of music for drums. The first four staves (measures 37-40) are in common time, while the last staff (measure 41) is in 12/8 time. The key signature changes frequently, with sharps and flats appearing in various measures. Measure 37 starts with a dynamic of *p*, followed by *con rubato molto*. The dynamic then increases to *cresc.* Measure 38 shows a gradual increase in dynamic with *poco a poco*, reaching *f* at the end. Measure 39 features dynamics *pp sub.*, *mp*, and *ppp sempre!*. Measure 40 includes a dynamic marking *(p)*. Measures 41 through 10 show a dynamic of *molto ff*.

In order to signal the change to the *Lento* tempo and feel, the player should strive for a full, dark sound. The player should be careful when using this approach that the dynamic balance stays even across the entire range of the drums. Without careful attention to detail, the larger drums can sound louder with less articulation while the smaller drums will sound softer with more articulation. Subtle adjustments to the stroke

and grip should be used to balance out these differences and achieve an even sound on each note.

The *con rubato molto* indication at the beginning of the phrase should be employed during the eighth-note triplet on Line 37, and during the eighth notes with tenuto markings at the end of Line 37 and first half of Line 38. Using *rubato*, especially during the chromatic motion through the eighth notes, will accentuate the growth of the phrase leading to the triplets at the end of Line 38.

The triplet figures at the end of Line 37 and beginning of Line 38 mimic the accented eighth note figures that conclude the second movement, as well as the B section of the third movement. They should be played *rubato*, with the same weight and accent used in the earlier instances. Switching immediately to a brighter sound for this figure will separate it from the rest of the heavier, darker C section material.

The arrival at each new pitch during the glissandi rolls should again be marked by very slight accents in order to clarify rhythm and the intervallic relationships. The accelerating figure at the end of Line 39 must be played very carefully in order to avoid a crescendo as the rhythm speeds up and the notes progress to the lower parts of the range. The lower drums will naturally speak louder due to the increased sustain and size of the bowls. The speed of the acceleration should lead directly into the speed of the roll on Eb3 at the beginning of Line 40. This will give a seamless effect so that the accelerating figure acts only as a rhythmic effect between the rolls in the middle of Line 39 and Line 40, and not as an entirely different idea.

The acceleration at the end of the C section should be played with a great deal of crescendo and both the acceleration of notes and crescendo should be saved until the last part of the phrase, instead of played evenly over the course of the figure. This will give a dramatic climax to the end of the C section.

#### MOVEMENT 3 D SECTION: TECHNICAL AND MUSICAL CONSIDERATIONS

Due to the length of the D section, breaking it into three component parts yields a more sensible performance analysis. The first part uses even further truncated motives from the A and A' sections.

## Example 3—12: Movement 3 D Section Part I

**Tempo I**

41

42      *crese.*

43

44      *cresc.*

45      *poco*

46

In the context of the large scale form of the movement, this part of the D section is the final statement of the alternating ostinato and episode phrases found in the A and A' sections. The truncated nature of the phrases is designed to give immediacy to the rhythmic motion, so playing with a punchier sound during this phrase will add to that effect nicely. Playing about one inch closer to the center of the timpani heads will give a

slightly more distinct, articulate sound without switching to a harder mallet. Keep in mind the contextual nature of the dynamics and articulations as the end of the piece gets closer. The musical climax has not arrived yet, and in order to keep the pacing of the music appropriate from the beginning to the end of the third movement, the arrival at the end of each large-scale section should become bigger and bigger. Keeping this dynamic scheme in mind will help to avoid generating too much energy and volume too soon.

The second part of the D section begins to bring back ideas from earlier in the piece, keeping with Kupferman's *gestalt* form.

Example 3—13: Movement 3 D Section Part II

The musical score consists of four staves of music. Staff 1 (top) starts with measure 46, featuring eighth-note patterns with slurs and dynamic markings like  $\text{f}$  and  $\text{ff}$ . Staff 2 (second from top) starts with measure 47, showing sixteenth-note patterns with slurs and dynamic markings like  $\text{b}$ ,  $\text{f}$ , and  $\text{ff}$ . Staff 3 (third from top) starts with measure 48, continuing the sixteenth-note patterns with slurs and dynamic markings like  $\text{ffp}$  and  $\text{fff}$ . Staff 4 (bottom) starts with measure 49, showing eighth-note patterns with slurs and dynamic markings like  $\text{p}$  and  $\text{ff}$ . The score uses a common time signature throughout.

The triplet figure on Line 46 is an extrapolation of the repetitive half step-motion motives from the A and C sections, which is subjected to rhythmic augmentation, a compositional quality found in many of Kupferman's works. This passage intermixes the motivic ideas of the second and third movements, and the character used to perform each segment should serve as an aural reminder of each particular mood. The marcato accents that appear on Line 47 should be especially emphasized in the same way as the end of the sextuplet phrase on Line 20. The same level of syncopation should be felt following each of the accents here. The episodic passage on Line 48 should be played with a brighter sound, using a faster, shorter stroke. The goal should be to give the impression that the music is accelerating here, despite its metrically-strict nature. The double stops at the end of Line 48 should be played with the biggest sound possible. The music on Line 49 should be played with a slight accelerando to the end of the phrase, even though it is not marked in the music. The hemiola feel of the first four counts of music, which is in groupings of five notes, leads directly into the sextuplets. The first two counts of sextuplets keep the move the motion forward and creating a little more excitement to the end of the phrase is warranted.

The third part of the D section again resembles the aesthetic of the B section of the second movement.

## Example 3—14: Movement 3 D Section Part III

The musical score shows two staves of music. Staff 1 begins with a dynamic marking ***ff sempre***. The notation consists of sixteenth-note patterns with grace notes and slurs. Staff 2 continues the pattern with similar sixteenth-note figures.

Despite the *sempre* indication at the beginning of Line 50, the music should continue to grow to the end of the phrase. The dynamic should be more like a punchy *forte* or even *mezzo forte* in order to make room for a very full dynamic by the end of the phrase. The key to the beginning of the phrase is the character of the sound, which should be as full as possible. Until the rolls begin at the end of Line 50, the timpanist should attempt to get the sound of each drum to ring as long into the next note as possible.

When the rolls begin at the end of Line 50, a slower roll speed should be used to keep the fullness of the sound sustained. Thinking about “digging in” while playing the roll will give the darker character that is desired. The accents midway through Line 51 should be played with the same dark, full tone that precedes the roll passage. The sixteenth, dotted-eighth figure beginning at the end of Line 51 should be played the same

way as the other three instances of this idea found previously. A high, quick stroke with a fast follow through will give a bright sound with an articulated, separated attack.

#### MOVEMENT 3 CODA: TECHNICAL AND MUSICAL CONSIDERATIONS

The Coda of the third movement is one of the most repetitive passages of the entire work. It brings together the direction of the entire third movement, and despite being distinctly separated from the rest of the movement, preserves the mood and tone of the music while introducing new ideas.

## Example 3—15: Movement 3 Coda

[3x]

52

f

[3x]

53

[4x]

[dim 3rd x only]

pp [start cresc. on 3rd x to ff; make big dim on last 3 beats of 4th x]

[5x]

54

p [cresc. begins on 3rd x and reaches fff on the 5th x]

fff

55

(fff) P sub.

p mto

56

The repetitive low Ds at the beginning of the Coda should be played extremely evenly, and monotone. The machine-like nature of the repetitive rhythms should only be interrupted by the accent pattern, which should also be played as uniformly as possible. The first four lines of the Coda lead to the fourth instance of the sixteenth, dotted-eighth figure that begins at the end of Line 55, and all of the music leading to that point should be paced by the timpanist to achieve an eruptive arrival. For this passage, the additional 32" timpani can be used for all of the repeated low Ds and can be placed next to the 23"

drum. Using the additional large timpani will aid in making the movement around the drums much easier, especially during the eight count repeated passage on Line 54 and the sextuplet passage that follows on Line 55.

Pacing of the dynamics must be practiced carefully during the Coda due to the length of the repeated figures. In general, the player should be careful not to crescendo too early or too quickly. The temptation to crescendo too soon is exacerbated by the increase in motion as the sixteenth notes transitions into sextuplets.

In order to emphasize the importance of the motive at the end of Line 55 and beginning of Line 56, the tempo can be slowed slightly to allow the glissandi to speak more clearly. The natural tendency of the player will be to play the destination pitches at the end of each glissando softer than the one at the beginning. Regardless of the accents, both notes should be played with a good deal of importance in each glissando.

For the accelerating figure on Line 56, the player should tune a B on both the 26" and 29" drums. This is an instance where the player must have a great deal of familiarity with the particular set of timpani. Since there is no time before the start of the figure to check the tuning of the Bs on both drums, using a combination of the gauges and familiarity with the position of the pedals is the only way to ensure the two pitches will match exactly. Since the acceleration leads directly into a roll between the two drums, it should be considered an effect and the number of strokes need not be taken literally.

As before during the glissandi roll passages, articulating the arrival of the destination pitches throughout the glissandi will give a clearer picture of the pitch relationships during the rolls. At the arrival on the C3 – F3 perfect fourth, lingering

momentarily provides the necessary suspense before the ending on the final F2 – B2 tritone relationship.

## CONCLUSION

*The Stone Tears of Ixtaccihuatl* requires an advanced concept of the different sounds, timbres and textures available to the timpanist. The challenges lie not only in the technical aspect as it relates to stamina and speed; the vast majority of works for solo timpani feature a display of speed and accuracy. The key to a successful performance of this work lies in the expressive qualities and the range of tone the timpanist is able to accomplish. Performing this work should be part of the culmination of a study of the solo, chamber, wind ensemble and orchestral repertoire for the timpani. This work necessitates a musician with an intimate sensibility of nuance and character, and asks the performer to tell a story through the music.

## A PROGRAMMATIC ANALYSIS OF THE STONE TEARS OF IXTACCIHUATL

Meyer Kupferman's composition for solo timpani should be viewed as a seminal work due to its physical demands and its wide variety of musical aesthetics and moods. Its importance also lies in its programmatic nature, an uncommon feature of works for solo timpani. *Stone Tears* is based on an Aztec legend that describes the creation of three Mexican volcanoes, using allegory to articulate their importance in the Aztec culture. The legend of the three volcanoes close to Mexico City originated when the Aztec Empire dominated the valley of Mexico. The native story passed down through oral tradition gives an account of how the mountains came to exist. Kupferman's choice of the Mexican native legend of Popocatépetl and Ixtaccihuatl is interesting not only because of its connection to natural phenomenon, but also due to the timelessness of its cultural and human elements. The story the piece conveys therefore functions on two levels: one is the raw, natural, elemental workings of an active volcano; the other is the love story that accompanies the legend of how the mountains came to be.

The word “Ixtaccihuatl” means “White Woman” in Nahuatl.<sup>37</sup> It comes from the word *iztac* which means “white”, and *ciahuatl* which translates to “woman”. An alternative spelling derives more closely from the Nahuatl words, resulting in Iztaccihuatl. The word “Popocatepetl” is derived from the Nahuatl word *popoa* which means “smoke”, and the noun *tepetyl*, which means “hill”. Popocatepetl literally translates as “hill that smokes”.

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<sup>37</sup> Chela Orozco, "The Legend of Popocatepetl & Iztaccihuatl." *Inside-Mexico*, accessed October 10, 2011, <http://www.inside-mexico.com/legends/volcanes.htm>.

The chief had a daughter named **Iztaccihuatl**: the most beautiful of all the princesses, who had professed her love for young **Popocatepetl**, one of her father's people and the most handsome warrior.

Both professed deep love for each other, so before leaving for war, **Popocatepetl** asked the chief for the hand of **Princess Iztaccihuatl**.

The father gladly agreed and promised to welcome him back with a big celebration to give him his daughter's hand if he returned victorious from battle.

The brave warrior accepted, prepared everything and departed keeping in his heart the promise that the princess would be waiting for him to consummate their love.

Soon afterward, a love rival of **Popocatepetl**, jealous of the love they professed to each other, told Princess **Iztaccihuatl** that her beloved had died in combat.

Crushed by such tragedy and overwhelmed by sadness the princess died, without even imagining it could be a lie.

**Popocatepetl** returned victorious to his people, hoping to find his beloved princess. Upon arrival, he received the terrible news of the death of **Iztaccihuatl**.

Devastated by the news, he wandered about the streets for several days and nights, until he decided he had to do something to honor her love and to assure that the princess would not ever be forgotten.

He ordered a great tomb built under the sun, piling up ten hills to form a huge mountain.

He carried the dead princess in his arms, took her to the summit and laid her on the great mountain. The young warrior lovingly kissed her cold lips, took a smoking torch and knelt in front of his beloved to watch over her eternal sleep.

From then on, they continue together, facing each other. Eventually the snow covered their bodies, forming two majestic volcanoes that would remain joined till [sic] the end of time.

The legend goes on to say that when the warrior **Popocatepetl** remembers his beloved, his heart – that preserves the fire of eternal passion – shakes and his torch smokes.

That's why, even today; the **Popocatepetl** volcano continues spewing fumaroles.

As for the coward, **Tlaxacala**, who lied to **Iztaccihuatl**, overcome with repentance for the tragedy that ensued, he went off to die very near his land. He also became a mountain, **Pico de Orizaba**, another of the region's volcanoes and now, from afar, watches the eternal dream of the two lovers, never again to be separated.<sup>38</sup>

Another account of the creation of the three mountains relates more closely to the geographical events that may have taken place throughout history. In this version of the story, Nevado de Toluca (an alternate third character) desires Popocatepetl's wife (Ixtaccihuatl). As a result, they started hurling pieces of ice back and forth at each other. Eventually, Popocatepetl became immensely angry, threw a huge piece of ice at Nevado de Toluca, and cut off his head.<sup>39</sup> This version of the story attempts to explain why the Nevado de Toluca volcano has a flattened peak, but also accounts for the actual volcanic eruptions that have occurred over time.

Kupferman's program note states the following about the programmatic direction of the piece:

Near Popocatépetl there is a defunct, flattened and eroded volcanic mountain, covered with snow. Iztaccihuatl, or "Recumbant Woman" (17,455 feet). Legend has it that Pocatépetl [sic] was in love with Iztaccihuatl. He went off to a long-lasting war and when he came back, he found that his beloved had died of sorrow. He laid her out on top of a mountain to which he gave her name, covered her with a shroud of white

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<sup>38</sup> Ibid.

<sup>39</sup> Tuggy, David, "The Three Volcanoes." *David Tuggy Mösiehuali texts*, accessed February 1, 2012, <http://www.sil.org/~tuggyd/Tetel/F003i-TresVolcanoes-nhg.htm>.

snow, and watched over her with a lighted torch. Eventually he died, but the torch (the smoke holes) is still burning.<sup>40</sup>

The uniqueness of *Stone Tears*, in its programmatic capacity, lies in the dual-layered effect Kupferman employs during the different movements of the piece, and the segments within those. The first two movements depict the story set forth in the Mexican legend directly. The third movement is a representation of both the outline of the story as well as a musical description of the intense geological events that take place during a volcanic eruption.

The first movement's free nature embodies the spirit of the love between Ixtaccihuatl and Popocatepetl. The lack of a clear phrase length or metric center to this movement depicts the fluidity of a burgeoning love, and the more aggressive passages are exemplary of a passionate, exciting relationship. As described in the pitch analysis from Chapter 1, the connections between the A, B and A' sections exist at a deeper level than the rhythms and dynamics. The pitch class sets used could have been Kupferman's way of representing the two protagonists in their burgeoning love for each other. In essence, neither section of the piece contains the complete pitch class set with all twelve tones. Only when they are seen together do they complete the set. The two 'missing' pitches from the development section form the axis of the outside sections, and this connection speaks heavily to the relationship between the two characters of the story.

The second movement, in bar form, begins with the lyrical dance that symbolizes the courtship between the two lovers. The predictable phrase structure and rhythmic scheme stands out amidst the freedom of the first movement and the chaos of the second

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<sup>40</sup> Kupferman, Meyer. *The Stone Tears of Ixtaccihuatl*. Soundspells Publications, 1987.

half of movement two. Here, the dialog between the soprano moving line in the antecedent phrase and the alto moving line in the consequent phrase is like a back-and-forth conversation, or dance, between the two. In the B section of the second movement, Popocatepetl goes to war, Ixtaccihuatl is deceived by Tlaxacala and her lament ensues. Of note is Kupferman's use of the *Infinities* hexachords at this pivotal moment near the end of the second movement. The end of the second movement depicts Popocatepetl's devastation at her death, and the heartbreak of loss.

The beginning of the third movement represents the building of the mountain-tomb in honor of Ixtaccihuatl. The continual return of the ostinato-like sixteenth-note motive depicts the layering of the mountain, while the interjecting ideas from the first movement act as memories of the love between the protagonists. It is as if Popocatepetl is recounting the events of his love with Ixtaccihuatl and the events that transpired since his travels in battle. The third movement is the clearest example of the dual-layered programmatic narrative. The geological event of the volcano erupting and smoking is woven with the tragedy, heartbreak, anger, loss and tribute of the love story. The coda is a more literal depiction of the volcanic eruption, with the repetitive, building phrasing and explosive ending.

## DISCUSSION OF KUPFERMAN'S OTHER TIMPANI WRITINGS

A cogent analysis and understanding of *Stone Tears* necessitates an understanding of Meyer Kupferman's other pieces that involve timpani. Of his varied works, there are three chamber pieces for percussion ensemble that use timpani in a significant way. They are *Prometheus* (1975), *Sound Phantoms #5* (1980) and *Percussion Symphony ["...On Tibet and Tiannanman Square..."]* (1997). Kupferman's writing style for timpani is also exemplified in his orchestral works *Wings of the Highest Tower* (1987) and *Jazz Symphony* (1988). Each of these compositions contains consistent elements of Kupferman's compositional style within the arena of writing for percussion. In each of these works, Kupferman also employs the influence of his *Infinities* tone row in ways similar to its implementation within *Stone Tears*. Given the nearly twenty-five-year time span in which these works were composed, it becomes clear that Kupferman's inclusion of serial elements in his timpani writing was not a singular event; rather, it was an oft-used aspect of his style that became a hallmark of his compositions with timpani.

Aside from the specific writing for timpani, Kupferman's percussion compositions feature a number of compositional devices that are consistently used from one work to then next. He frequently uses canon, mass sonority<sup>41</sup>, rhythmic diminution and augmentation, syncopation, swing rhythms and palindromic phrases.<sup>42</sup> Examples of canonic writing can be found in each of Kupferman's percussion ensemble works, which

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<sup>41</sup> From conversations with Professor Charles Dowd, January 2010.

<sup>42</sup> Tracy Freeze, *Moonsticks for marimba solo by Meyer Kupferman: a theoretical and performance analysis, with a survey of Kupferman's percussion chamber music* (unpublished doctoral thesis, University of Oregon, 2004), 57-61.

is often used in combination with rhythmic diminution and augmentation. Rhythmic diminution and augmentation refers to the apparent acceleration or deceleration that occurs as a result of successively faster or slower rhythms.

Example 5—1: Canon, Rhythmic Diminution and Augmentation

*Prometheus:*



Mass sonority refers to a stereophonic effect created within Kupferman's percussion compositions. Instead of writing a rhythmic line in a single voice, Kupferman will split the phrase up between all of the players in the score. The result is a travelling rhythm that moves from player to player, yielding not only a timbral affect, but also a visual and stereophonic effect. Kupferman often combined this effect with accelerating or decelerating rhythmic motion.

## Example 5—2: Mass Sonority

*Sound Phantoms #5:*

-4-

The score consists of eight staves, labeled I through VIII, representing different percussion instruments. Staff I starts with a dynamic of **Very H. Cymb.**. Subsequent staves include dynamics such as **H. Cymb.**, **M. H. Cymb.**, **L. Cymb.**, and **V.L. Cymb.**. The score includes various rhythmic patterns, including eighth-note and sixteenth-note figures. In the right-hand section of the score, there are several slurs and grace notes. The final measure shows a dynamic of **ff** followed by a sustained note with a dynamic of **(bt ring)**.

*Percussion Symphony:*

The syncopated rhythmic figure referred to in Chapter 2 (example 2—21) that occurs near the beginning of the third movement of *Stone Tears* is a signature figure seen in a vast number of Meyer Kupferman's compositions. This syncopated figure likely found its way into his compositions by way of his jazz background. Though it can be found only once in *Stone Tears*, it occurs frequently throughout the four pieces mentioned here.

## Example 5—3: Syncopation

*Prometheus:*

14.

**I** (at Ring)

*Sound Phantoms #5:*

Poco più mosso (♩=82)

205-

*Wings of the Highest Tower:*



*Percussion Symphony:*

A musical score page for six percussion instruments, numbered 1 through 6. Staff 1 uses a treble clef, staff 2 a bass clef, staff 3 a bass clef, staff 4 a treble clef, staff 5 a bass clef, and staff 6 a treble clef. The score includes dynamic markings like *f*, *p*, and *pp*, and performance instructions like 'Vibes Motor drum' and '33'. The score concludes with a repeat sign and a double bar line.

The prevalence of swing rhythms throughout his works shows again the influence of Kupferman's jazz background and his desire to incorporate jazz elements into his

classical music. As it is found in the Coda at the end of *Stone Tears*, the dotted-eighth sixteenth-note rhythm can be found in most of Kupferman's works. It plays a central role throughout *Sound Phantoms #5* as well as the two orchestral works mentioned above.

Example 5—4: Swing Rhythms

*Sound Phantoms #5*:

The image shows two staves of musical notation from the score of *Sound Phantoms #5*. The top staff begins with a tempo marking of 260 BPM. It consists of five measures of music, each featuring a repeating eighth-note pattern. The bottom staff begins with a tempo marking of 261 BPM. It also consists of five measures, with the first measure being a complex rhythmic pattern involving sixteenth notes and rests. Both staves include various dynamic markings and performance instructions.

Palindromic phrases are those that feature a midway point at which the second half of the phrase is a mirror image of the first half. These phrases appear frequently throughout Kupferman's percussion works, but are usually only found in a single voice, while other material is played simultaneously in other instruments.

Example 5—5: Palindromic Phrases

*Prometheus:*



Aside from the mainly rhythmic compositional devices used throughout Kupferman's writing, his timpani parts draw much of the same influence from the *Infinities* tone row that can be found in *Stone Tears*. In each of the pieces mentioned above, there are phrases in the timpani parts based on the pitch class set [0,1,3,4,6,9] discussed in Chapter 2. This connection between pieces shows that Kupferman not only conceived of his timpani parts in terms of tone or timbre, but also in terms of pitch class content. In each case, as in *Stone Tears*, the timpani parts are not based solely on this pitch material, but in select spots, Kupferman chooses to impart his signature sound.

Example 5—6: Presence of *Infinities* Tone Row Pitch Class Sets*Prometheus:*

X

29.

## Sound Phantoms #5:

-20-

**Andante ( $\text{d}=76$ )**

## Wings of the Highest Tower:

28.

**N** **Poco meno ( $\text{d}=92$ )**

*Percussion Symphony:*

Here, the influence of the *Infinities* hexachords can be clearly identified. Since the statements of this pitch class are not direct statements from any transposition or inversion of the original hexachords, they serve as a more subtle layer of influence from Kupferman's signature row, much the same way it is used in *Stone Tears*. The use of this type of serial influence in timpani writing, especially across multiple decades, is unprecedented and deserves recognition within the timpani repertoire.

The aesthetic qualities of Kupferman's writing bear similarities throughout his pieces. Both *Prometheus* and the *Percussion Symphony* feature the timpani prominently with a cadenza. Both cadenzas contain elements similar to material found in *Stone Tears*, including intervals that move by chromatic shift, rolled glissandi, the use of hemiola, extreme dynamics, syncopated rhythms and much of the same rhythmic variety found throughout *Stone Tears*.

## Example 5—7: Aesthetic Similarities Between Meyer Kupferman's Timpani Parts

*Prometheus:*

30.

Timpani

*poco* — *poco* — *cresc.* *ff*

*Percussion Symphony:*

The short-long rhythmic motive used to complete the timpani cadenza in *Prometheus* bears resemblance to the recurring rhythmic motive from the second and third movements of *Stone Tears*. This rhythmic motive appears in the timpani parts of the other pieces mentioned as well, though generally in less structurally important implementations. Much of the running sixteenth-note material that makes up the cadenza from *Percussion Symphony* is reminiscent of the third movement ritornello figures from *Stone Tears*. The use of hemiola on the third line and the accelerating rhythmic motive between Measures 198 and 200 also bear similarities to the language of *Stone Tears*.

Over the course of almost twenty-five years, Kupferman established his style of timpani composition as a unique one. The elements used between pieces show that he created his own voice and employed his signature sound and pitch material in many of his pieces. As we will see in the next chapter, his compositional voice was distinguished from his contemporaries as well as those that have come since, and Kupferman's works stand up with the best of the timpani repertoire.

## COMPARISON WITH OTHER SOLO TIMPANI WORKS

Placing *Stone Tears* within a context of other works for solo timpani provides not only a foundation from which the timpanist can make informed performance decisions, but also gives an indication of how Kupferman's writing was innovative for its time and still carries immense weight in the repertoire twenty-five years after it was written. Each of the four pieces discussed here are (or will be) seminal works for solo timpani. They are performed often, and all have technical challenges that were unique and new for the time in which they were written. The first two pieces demonstrate a historical backdrop to Kupferman's composition, while the latter two are evidence of where the solo timpani repertoire has come since.

### *EIGHT PIECES FOR FOUR TIMPANI (one player)* by ELLIOTT CARTER

Elliott Carter's *Eight Pieces for Four Timpani (one player)*, written initially in 1950, then revised in 1966 with Jan Williams, are the stalwarts of the modern timpani repertoire. While today they have become somewhat standardized, Carter made a number of important additions to the modern timpani repertoire. The most substantial contribution Carter's pieces made was the introduction of metric modulation.<sup>43</sup> While earlier composers had used similar rhythmic devices to relate one section of music to another, Carter expanded on the idea and implemented this technique at a much more

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<sup>43</sup> To this day, metric modulation is a trademark of Carter's composition style. The timpani pieces were initially compositional etudes that allowed Carter to work through some of his rhythmic ideas. The Eight Pieces were a direct precursor to the First String Quartet (1951) in which Carter expanded upon this concept.

intricate level. The use of unrelated rhythmic values to set up new tempos and groupings of notes had not been used previously in the solo timpani repertoire.

The initial versions of Carter's timpani pieces included only six of the eventual eight pieces. The original movements were *Saëta*, *Moto Perpetuo*, *Recitative*, *Improvisation*, *Canaries* and *March*. When originally written, the pieces requested no extended techniques. In 1966, the final two movements, *Adagio* and *Canto* were added to complete the set. At that time, percussionist and timpanist Jan Williams worked with Carter to edit the original six pieces and added a number of playing effects, including using different areas of the head (center, normal playing area, near the rim), using the butt ends of the sticks at times in *Saëta* and *March*, the use of "dead strokes" to muffle the sound while striking the drum, using cloth-covered rattan sticks for the *Moto Perpetuo* movement, different degrees of accentuation, the creation of harmonics by pressing one or two fingers on the head while striking near the rim, sympathetic resonance (which is intended to sound in one drum while striking another) and the use of snare drum sticks as well as the closed snare drum roll. These effects were created by Jan Williams—professor emeritus at SUNY Buffalo and celebrated composer and percussionist—and added to Carter's pieces in 1966 under Carter's supervision. The two movements added to the collection in 1966 introduced the glissandi technique. While the use of pedal glissandi had been employed well before the 1950s by Richard Strauss in his tone poems and numerous works by Bela Bartok, Carter's was the first use of the technique in a work for solo timpani. The musical structures of the pieces along with Williams' additions

made them very much ahead of their time in the solo timpani repertoire, and established them for years as the peak of the possibilities for timpani as a solo instrument.

In addition to the numerous additions made by Jan Williams, there is a programmatic element present within three of the movements. *Saëta* can mean "arrow" or "dart" in Spanish, and the use of accelerating motives throughout the piece invokes the pulling of the bow before launching an arrow. According to Carter, the *Saëta* is "an Andalusian song of improvisatory character sung during an outdoor religious procession, usually at Easter; said to be the descendant of a rain ceremony during which an arrow (*saëta*) was shot into the clouds to release the rain."<sup>44</sup> *Canaries*, according to Carter, draws inspiration from "a dance of the XVI and XVII centuries, ancestor of the gigue, supposedly imported from the "wild men" of the Canary Islands; in 6/8 meter with dotted rhythms."<sup>45</sup> The final piece of the collection, *March*, is arguably the most often-played piece for solo timpani. The movement progresses as a conversation between the soft felt mallet used in one hand and the wooden, butt-end stick used in the other. About this final movement, Carter says "two march rhythms of different speeds are superimposed, one played with the butts, the other with the heads of the drum sticks. These produce musical ideas expanded in the middle section."<sup>46</sup>

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<sup>44</sup> Carter, Elliott. *Eight Pieces for Four Timpani (One Player)*, Morris Lang, Timpani, Columbia Records, LP, 1976.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

*VARIATIONS FOR SOLO KETTLEDRUMS* by JAN WILLIAMS

The *Variations for Solo Kettledrums*, written in 1964, came about while Carter's *Eight Pieces* were gaining exposure during the late 1950s and 1960s. It is the first solo timpani work written with twelve-tone influence. Because this concept was quite new at the time, Jan Williams decided to create a theme and variations as a means for employing different aspects of the tone row used, instead of pedaling. Thus, the piece progresses from the Theme through five variations, each one using a tetrachord from within the entire row. The tunings of the Theme and each variation are static, but the properties of the row—transposition, inversion, retrograde and retrograde inversion—are employed throughout the piece.

Because neither the theme nor any of the variations contain any pedal tuning changes, the tone row is only completed when the entire piece has been performed. Hence, a full iteration of the row occurs at no point throughout the piece. Below are the three tetrachords in their original form and the transformations used throughout the piece.

Example 6—1: *Variations for Solo Kettledrums* Tone Row and Tetrachords<sup>47</sup>

Complete Row:

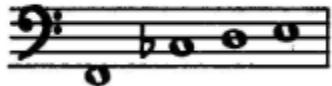
**The pitches used for this piece are drawn from the following series of 12 notes:**

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<sup>47</sup> *Variations for Solo Kettledrums* musical examples Copyright Colla Voce Music, Inc. Used by permission.

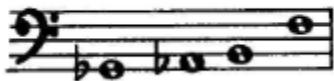
Theme (Tetrachord 1 and its retrograde):

**Tuning:**



Variation 1 (Inversion of Tetrachord 1 and its retrograde):

**Tuning:**



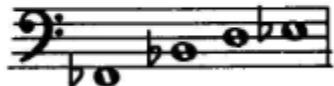
Variation 2 (Tetrachord 2 and its retrograde):

**Tuning:**



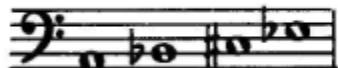
Variation 3 (Inversion of Tetrachord 2 and its retrograde):

**Tuning:**



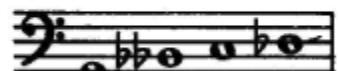
Variation 4 (Tetrachord 3 and its retrograde):

**Tuning:**



Variation 5 (Inversion of Tetrachord 3 and its retrograde):

**Tuning:**



This method of implementation of a twelve-tone row was certainly unique when Jan Williams used it in 1964. It is one of the first (and still one of the few) examples of a twelve-tone row used as a generator for a solo timpani piece. In addition to the serial influence, Williams was also influenced by Elliott Carter's use of metric modulation and uses it similarly throughout the initial Theme movement, though Carter's modulations were more complex and more frequent. Williams also indicated throughout the piece the type of sticks to be used, and even specified the use of brushes, rattan ends of xylophone mallets and the use of four-mallet technique in Variation No. II.

#### *RITUALS* by BRUCE HAMILTON

*Rituals*, composed in 1998 for timpanist Tim Adams, is made up of five distinct movements. Each movement exhibits a different aesthetic quality and makes use of varied timpani techniques. While none of the techniques employed by Hamilton were innovative for the time, they are used to great effect to enhance the musical feel of each movement.

The first movement of *Rituals* features a slow, droning D2 pedal tone that comprises the first two lines of music. The lack of barlines gives this movement a sense of freedom even though the tempo indication of  $\text{♩} = 80\text{-}90$  is made even more specific with the addition of "steady, resonating." As new pitches are introduced, the tonal center of D is reiterated constantly through the use of frequent perfect fifths and octaves. The entire movement stays modally in D until the last three lines, where G $\sharp$ 3 is introduced, obscuring the perfect fifths used to great effect earlier on. The entire movement

progresses as a funeral dirge, growing from nothing in a long, extended crescendo until it eventually dies away at the end. Pedal tuning changes are used throughout the movement on the three smallest drums, while the largest remains tuned to a D2.

The second movement of *Rituals* is the only one with a static tuning scheme. Here, Hamilton uses a great deal of rhythmic variety and syncopation coupled with sudden changes of dynamic throughout. In this movement he also indicates different playing areas of the head (center, normal) as well as a number of muffling indications. The rhythmic variety is of central thematic importance to this movement, and even includes an accelerating figure similar to the one found in the first movement of *Stone Tears*. Hamilton uses both muffling and different playing areas to allow certain pitches to sustain while others are cancelled out. Because striking the center of the head yields less resonance, this playing method allows for other pitches to sustain with greater duration when played in succession. In the last segment of the piece, continually accented Fs are made more apparent by the muffling of other pitches.

The third movement combines the rhythmic variety, playing areas, muffling and sudden dynamic changes of the second movement with constant direct and glissandi tuning changes. The constancy of pedal tuning changes in this movement becomes extremely demanding, as the choreography required of the players feet are at times equally as challenging as the playing done with the hands. At one point, Hamilton indicates a pedal glissandi to be played by striking the head with the player's hand, a technique not often seen in solo timpani repertoire.

The underlying funk feel established in the opening measures of the movement distinguishes it musically from the rest of the piece, and from much of the rest of the repertoire as well. Notably, the pedal glissandi used here are all metered, as either sixteenth notes or triplet, in order to preserve the rhythmic feel of the movement.

The fourth movement is marked "Ritual Dance," and though the tempo is written at only 84 beats per minute, it contains some of the most challenging material in the entire piece. Here, Hamilton changes the aesthetic direction of the piece by immediately introducing the rolled pedal glissandi technique. This sound is distinguished from the pedal glissandi of the third movement by the use of rolls. The constant use of soft dynamics makes the execution of these techniques even more challenging to the player. At only one point in the movement does the dynamic grow to *forte*, spending most of the time at *mezzo piano* or softer. The fourth movement also has no barlines, and though it is specifically written in regards to rhythmic content, it has a very free, elastic feel. The constant use of pedal tuning makes this movement one of the most challenging parts of the solo timpani repertoire.

The fifth and final movement combines the techniques used in the first four movements, and progresses in a *moto perpetuo*, driving compound meter. The length of the fifth movement alone makes it a substantial challenge to perform, but the demands in terms of pedal tuning add to its difficulty. While the elements of pedal glissandi and varied playing areas are present, at 90 beats per minute to the dotted quarter note, the speed of the movement presents a great deal of difficulty to the player. The use of continuous, fast rhythm is one that appears frequently among composers of works for

solo timpani. Hamilton's contribution to the collection of pieces with this compositional device elevates the genre in both musical and technical complexity.

In many ways, Bruce Hamilton's piece for solo timpani is one of the most challenging yet written, and while it contains a number of extended techniques, it also exemplifies an intelligent use of form, structure, compositional devices and advanced idiomatic writing for the instrument.

#### *TIMPANI FORCES* by MENDEL LEE

*Timpani Forces*, composed in 2011 and yet to be published, was premiered by U.S. Marine Band "The President's Own" percussionist David Constantine, who also commissioned the work. It is dedicated to Charles Dowd, who gave the premiere performance of *Stone Tears*, and for whom Meyer Kupferman composed the piece. It is written in four movements, each with a distinct musical character. The required ranges of the instruments are extended beyond the normal range of a set of four timpani, necessitating a C2 to a C#4. For this reason, the 26" (or 25") drum used in a standard set up should be omitted. Instead a set up of 20", 23", 29" (or 28") and 32" (or 31") should be used in order to attain the highest pitches.

The first movement, *Rising, Falling*, makes use of a constant echo with the simultaneous use of hard and soft mallets. The initial theme, a series of perfect fifths built on Eb2, is played in overlapping fashion, indicated by stems up and stems down noteheads. The echo effect created by the overlapping mallet gives a unique and distinct impression, one not attainable by many solo instruments.

Example 6—2: *Timpani Forces* Echo Effect<sup>48</sup>

(dedicated to Charles Dowd)  
Duration: ca. 15 min.

**Timpani Forces**

Slowly  $\text{♩} = 60$       1. Rising, Falling      Mendel Lee

Eb Bb F C      (let all notes ring unless otherwise indicated)

The use of pedal tuning throughout this movement occurs over a long period of time through the gradual descent of perfect fifths. Over the course of the movement, the pedal tone descends from Eb2 chromatically down to the final, lowest pitch of C2 at the end of the movement.

The second movement, entitled *Explosion* is a *moto perpetuo* in 4/4 meter. It features a constant, tremolo-like alternation of pitches on the middle two timpani, while opposing melody lines are played on the outside two drums. Here, the difficulty becomes great when pedal tuning is required simultaneously on both outside drums. The movement begins on a D pedal, and after progressing through a number of key centers, returns to its original key. The hemiola figures used throughout combined with

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<sup>48</sup> *Timpani Forces* musical excerpts are copyright Mendel Lee, 2011. Used by permission.

simultaneous pedal tuning on the outermost drums make this a very physically and musically challenging movement to perform.

The third movement, entitled *Pendulum*, employs an innovative technique not found elsewhere in the repertoire. The primary motivic device used through the movement is based on tremolo created by the sustain and resonance of the timpani. As seen in Example 6—3, the initial pitch of each bar is struck, but the remaining pitches and rhythms are performed by manipulating the pedal. This device begins simply, but becomes increasingly more complex as the movement progresses.

### Example 6—3: *Pendulum* Pedal Tremolo

**Heavily ♩ = 74**

### 3. Pendulum

F B E G

3 3  
gliss ————— gliss ————— gliss —————

4 3 3 [5] f  
gliss ————— ————— —————  
f  
gliss —————

7  
gliss ————— gliss ————— ————— f  
gliss —————

10  
— 3 3 ————— gliss ————— ————— gliss ————— | 8 —————

By the middle of the movement, this technique is employed in both feet to create cross-rhythms that move in and out of resonance not only tonally, but rhythmically as well.

**Example 6—4: *Pendulum* Pedal Cross-rhythms**

In the B section of *Pendulum*, an additional layer of pedaling is used, and incorporated with the playing of the hands in order to create rhythmic motion. Here, the rhythmic figures are created by alternation of playing with the hands and moving the pedals. Once the initial layer is established, the addition of hemiola figures becomes extremely challenging.

Example 6—5: *Pendulum* B Section Layering

The musical score consists of three staves of timpani music. The top staff starts at measure 51 with dynamic *mf*, followed by a *gliss* instruction. Measure 52 follows with dynamic *mp* and another *gliss*. Measure 53 is labeled "L.H. sim". Measures 54 and 55 show a transition with dynamics *ff* and *mf*, each with a *gliss* instruction. Measures 56 and 57 continue with *ff* and *mf* dynamics, each with a *gliss* instruction. Measure 58 begins with *ff*, followed by *mf* with a *gliss*, then *ff* again with a *gliss*, and finally *f* with a *gliss*. The score concludes with *mf* and *mp* dynamics, each with a *gliss*.

In *Pendulum*, Mendel Lee has added a unique element to solo timpani performance. Exploiting the possibilities of the instrument this way has not been explored previously, and is unique to the solo timpani genre as it would be easily covered up by the sound of another instrument. The use of arrival pitches, sounding by the result of sustain and attained through pedaling is a unique sound that has been employed by composers before, but not in the rhythmically characteristic way used here.

The fourth movement, *Momentum*, is a compound meter dance marked "Driving, Energetic." It uses three primary rhythmic devices: the opposition of compound 6/8 meter and duple 3/4 meter, the layering of triplets against eighth notes and the cross rhythm created by simultaneous occurrence of eighth notes and dotted eighth notes, resulting in a simultaneous duple and compound meter. The pitch material creates an alternating tension and release scheme through chromatic alteration of perfect fifths.

This alternation of perfect fifth to tritone relationships continually gives a satisfactory return to the resonating intervals. As the first half of the movement descends slowly through chromatic movement, the second half ascends, increasing the demands on the player with constant tuning changes in addition to a gradual accelerando that continues to the last phrase. This movement is an example of one of most difficult and well-crafted pieces of the solo timpani repertoire.

The first three works discussed above occupy a substantial place in the solo timpani repertoire and it is very possible the fourth will join them with time. The earlier examples challenge the player primarily through musical difficulties such as rhythm, dynamics and articulation. Over time, the physical challenges as they relate to pedal tuning and speed add another layer to the demands placed on the player. When viewed in the context of these works, especially those that came after it, *Stone Tears* emerges as a piece very much ahead of its time. The complexity of physicality throughout the piece combine with the length and breadth of the work make to it immensely difficult. With the exception of some of the innovative playing methods used in *Timpani Forces*, nearly all of the pedaling and tuning techniques used in these four works appear in *Stone Tears*. Combined with the elements of twelve-tone influence and the programmatic narrative, *Stone Tears* still stands on its own nearly twenty-five years after its completion.

## APPENDIX A: A REVIEW OF SELECTED WRITINGS BY MEYER KUPFERMAN

The following collection of writings consists of primary documents found in the personal files of Meyer Kupferman after his death. The collection currently resides in Cambridge, Massachusetts with the executor of the Kupferman Estate, composer Carson Cooman. Each article, lecture outline or personal note gives an insight into Kupferman's compositional style and his views about the state of classical music and its performance. The views Kupferman expresses form his personal style, and an investigation into his compositional tendencies warrants a discussion of his writings here. Many of the articles were found written by hand or typewriter and were likely preparations for lectures given by Kupferman at Sarah Lawrence College. Most of these primary documents contain no date of composition, but attempts to determine approximate time periods were made where possible. A summary of each writing along with discussion of its relation to his overall style or percussion and timpani writing will give context to his words.

### ARE PERFORMERS NECESSARY? A CHRONICLE OF "CYCLE OF INFINITIES" (DATE UNKNOWN)

"As a matter of fact one may find today's composer painting on film strips, feeding I.B.M. computers, operating electronic synthesizers, or manipulating tape recorders. Even the bizarre ritual of a concert hall audience applauding a lonely Ampex, dramatically lit in amber and purple hues, is fast becoming a tradition."<sup>49</sup>

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<sup>49</sup> Kupferman, Meyer. *Are Performers Necessary? A Chronicle of "Cycle of Infinities."*, unpublished essay.

This article was written presumably as electronic equipment was becoming more widespread, but before the real advent of electronic computer music. The term “feeding” in relation to “I.B.M. computers” denotes either 6” floppy discs, or perhaps earlier technology. Referring to the operation of electronic synthesizers and tape recorders also indicates a time frame of the 1970s. Ampex refers to a company devoted to producing early tape recorders, 8-track recorders from 1950 to 1966, as well as 16- and 24-track recorders from the mid-1960s to the early 1980s. Kupferman was likely referencing one of these multitrack recorders produced during the 1970s. The multitrack recorders were large machines that would have taken up an amount of space roughly equal to an upright piano.<sup>50</sup>

“However, this does not imply that the resources of the live performer have been exhausted. He simply has more competition. If he fears that the composer may take advantage of the situation and make more taxing demands on the performer’s energies – then unfortunately, I have little consolation to offer him for I am one of these composers.”<sup>51</sup>

Again, Kupferman exposes the relationship between electronic and acoustic music of his time. Today, the boundaries have been blurred between the two worlds. Music with tape or electro-acoustic sound has been accepted as being on par with the artistry created in live performance. The argument today has shifted from simply whether or not a live performer creates a sound, to whether that sound is viable and artistically motivated.

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<sup>50</sup> Wikipedia, s.v. "Ampex," last modified January 1, 2012, <http://en.wikipedia.org/wiki/Ampex>.

<sup>51</sup> Kupferman, Meyer. *Are Performers Necessary? A Chronicle of "Cycle of Infinities."*, unpublished essay.

Kupferman admits his intention in relation to virtuosity within his music. He practically welcomes the advance of technology in music. At the core, he is arguing in favor of the live performer, making the point that simply because electronic mediums of music are coming on the scene, it does not mean that the live performer has reached his or her end. This attitude prevails in his timpani writing in multitudes of ways. Technically, musically, programmatically (and even the instruments themselves) he pushes the boundaries of what the performer is able to accomplish, and in doing so advances the limitations of the live performer. Whether or not this was in reaction or in protest of electronic music is hard to determine.

*Cycle of Infinities* was conceived in 1961 starting with a work for solo flute (*Infinities One*) that would last for an entire concert (approx. 2 hours). The twelve-tone row used in this composition (the *Infinities* row) would then be used as the basis for works for solo viola and for a jazz trio.

In order to assuage the listener (to an extent) and keep them intrigued, Kupferman used sympathetic vibrations of two pianos on the second half of the concert. Loudspeakers were used to amplify the echoes. In addition, *chance* factors governed the final movement of the piece; fragments of the piece were linked together in any order by the performer, but were done only during the live performance, not beforehand.

“Very likely any chance (sic) system is right up the alley of electronic computers. But surely there is something to be said for the live performer who is in a position to add some unpredictable, on-the-spot excitement to the proceedings.”<sup>52</sup>

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<sup>52</sup> Ibid.

Again, Kupferman argues for the validity of the live performer over the computer. He deliberately includes an element within the piece that would (at the time of emerging computer performance) be relegated to the world of non-human performance.

For *Infinities Two*, Kupferman worked with the violist Theodore Israel, who had great facility in the high register of the instrument. Kupferman goes on to say that “the sound had a striking intensity that no composer could resist and no oscillator could manufacture.”

Kupferman deliberately declares the triumph of man over machine. He is referring to the timbre and unique nature of the particular instrument Mr. Israel played, and displays a resolve that (at the time) no computer could manage to reproduce.

In *Infinities Three*, Kupferman makes the point that he relied heavily on the unique talents of individual performers: an alto saxophonist who, aside from possessing virtuoso technique, could improvise within a twelve-tone framework; a unique tone and timbre from the plucked bass; a drummer who incorporated exotic world instruments into his improvisational process.

Kupferman argues that the live performer and his or her talents are not antiquated by the advent of technology. He makes the point that the onset of this new medium of music performance and experimentation further cements the need and importance of the live musician. He argues that the subtle nature of human abilities cannot be outdone by the electro-acoustic medium, and that in his own words, “they are, in fact, indispensable to my music.”

The compositional elements crucial to Kupferman's music and described by him personally include the following:

- Virtuosity
- Twelve-tone framework (using the Infinites row)
- Sympathetic vibration from pianos
- Chance factors (fragments of music that are arranged into a specific order by chance)
- Improvisation

#### CREATIVITY – A COMPOSER'S VIEW ON MUSIC AND THE CLARINET

Kupferman describes the contents of his Tenth Symphony as follows:

- Dissonant, powerful orchestral chords
- Ponticello tremolo in basses and cellos
- Brassy, fluttering twelve tone chorale in trombones
- Ostinato in high woodwinds
- Chattering trumpets
- Unison glissandi in horns in their “most powerful range”
- Pianissimo chord cluster of harmonics in violins
- Dark contra-bassoon notes

Kupferman describes these attributes as representing a battle to the death.

Throughout his description of these elements, he uses phrases like “sneaky”, “plunge into the fray”, “launch an attack”, “time seems to stop”, “ethereal”. In order to enact this programmatic scene, Kupferman employs instrumental effects. By his description, even idiomatic sounds are subjected to extreme edges of dynamic or range. This affect is apparent throughout his timpani writing as well. During the moments that do not employ extended techniques, demands are still placed on the performer in the way of execution of extremes.

Kupferman wrote actively at the score, choosing not to employ a piano while composing as many composers do.

“As for myself, I find the simple act of writing very beautiful: the feeling of fresh manuscript paper, pens, ink, rulers, electric erasers, pencils, pencil sharpeners, scotch tape, masking tape, glue, cardboard, paper clips, staplers... in fact, anything to do with the writing of music, turns me on. I love beautiful manuscript. Music handwriting is so evocative that I treat every score-page like a painting. When I write I feel like a god because every tiny mark I make contains a real command and a real sound. Often I improvise on paper, discovering new sonorities by varying the handwriting strokes or the density of the ink, many times a blot of ink will spill on the score... before I correct it I always try to find if the mishap contains a message, like a better note! I imagine a galaxy of sound in silence and engineer its evolution through a still deeper silence... writing.”<sup>53</sup>

Kupferman also gained inspiration from continuing to play the clarinet. He played new music composed by his friends as well as the classical repertoire. Hearing a

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<sup>53</sup> Kupferman, Meyer. "Creativity - A Composer's View on Music and the Clarinet," *The Clarinet* 12, no. 3: 20.

nuance of orchestration during symphonic or chamber performance would trigger an idea that led to a composition.

"From time to time I have enjoyed another type of direct experimentation: the live clarinet pitted against the tape machine – either with pre-taped clarinet lines or synthesized electronic accompaniments. Indeed there are wonderful possibilities in this area alone for any composer or clarinetist. Now, after completing a big clarinet concerto which was premiered last March, I am planning a new work called *Superclarinet* for clarinet and tape (a sequel to *Superflute* which I composed for Sam Baron about a decade ago). The tape will consist of pre-recorded tracks of E-flat clarinet, A clarinet, bassoon, bass clarinet, doublebass clarinet and some electronic games made possible by the synthesizer. The live clarinetist may be one of us players wearing a Superman shirt, blowing a plain old Buffet B-flat clarinet and suspended high above the audience surrounded by floating balloons, each containing a loudspeaker"<sup>54</sup>

Kupferman enjoyed a context in which the live performer could interact with a tape composition. Presumably, he preferred the type with pre-recorded sound.

Kupferman emphasizes that music should not be taken at face value, and that in its performance the musician should use their knowledge of the sound-culture of the present day to inform their performance, especially of contemporary music. The interpretive character of the classical literature will often fall short of what is needed to make contemporary music shine.

In the case of his timpani writing, the performer should make use of the programmatic compass of each piece in order to make an intelligent and luring performance. The story of each piece becomes of paramount importance to a captivating performance and is essential in order to avoid a purely accurate, but sterile interpretation.

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<sup>54</sup> Ibid, 22.

Kupferman felt that tone separates different genres of music. From classical to jazz to contemporary music, the tone created by the musicians is what gives the music its distinct sound.

Improvisation meant a great deal to Kupferman. He said, “I firmly believe that every creative act begins as an improvisation.” He saw a connection between musical improvisation and the new symbols created by himself and his contemporaries. As new symbols of notation were created to suit new ideas, new areas of composition were discovered and pursued.

#### CREDO (DATE UNKNOWN)

Because his compositional style is made up of contradicting techniques (similar to his *gestalt*), his compositions have an irrational aesthetic.

“Clearly, this leaves no space for academically structured approaches, no matter how complex their surfaces appear.”<sup>55</sup>

Kupferman likens the combination of sounds and techniques he employs to the hustle and bustle of New York City. The constant mixture of different sounds and ideas creates a measure of havoc that is structured, yet chaotic.

Kupferman reluctantly defines the main focus of his music as “chromatic lyricism”, or more simply, “the melody of harmony”. The constantly changing and

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<sup>55</sup> Kupferman, Meyer. *Credo*, unpublished essay.

shifting focus of the music creates its direction. He felt strongly that each new piece would require the composer to reinvent himself.

The incorporation of jazz and jazz elements is evident in Kupferman's music from an early stage. Incorporating this aesthetic into chamber and symphonic works required Kupferman to create a new element within composition, as he had scant models to follow in their composition. In these pieces he began mixing tonality and atonality.

Despite settings of existing stories and texts, as well as a plethora of programmatic music, Kupferman felt more comfortable writing his own texts because doing so offered greater creative flexibility.

#### INFINITIES (DATE UNKNOWN)

The term Infinities is used to imply a work of continuous form and continuous evolution. The Cycle of Infinities is a series of entire concerts and concert events (as many of the pieces within the Infinities series comprise the length of an entire concert). Kupferman distinguishes this from the standard format of a concert, which consists of separate works combined to fill a program. Kupferman provides the following as explanation of the kernel behind Infinities:

"Take all available resources – form, style, voices, instruments, timbre, rhythm, techniques, etc. – with which composers can experiment indefinitely, - then – unify all of these elements by anchoring them to a single tone-row. This row I call my Infinities Row."<sup>56</sup>

Infinities Row: G, F, A-flat, C-flat, B-flat, D, F-sharp, E, C, E-flat, A, C-sharp

It is quite a bold assertion to make that his tone row could encompass, through pitch collection, the standard elements of composition as a whole. However, Kupferman felt that this single row provided him the compositional foundation to create a continuously evolving series of compositions, which he called the Cycle of Infinities.

#### MEMORY AND MUSIC (JULY, 1977)

Inasmuch as it relates to musical form, Kupferman makes the assertion that memory serves best to categorize music in pieces, rather than a whole. An entire piece of music cannot be heard all in the same instant, so memory comes into play as we hear a piece of music, cataloging and categorizing the abstract combinations of sounds so that a beginning, middle and end can be constructed. However, this construction takes place only once the piece has ended. As opposed to a novel, which deals usually with events relatable to human experience, or piece of visual art, musical form can only be perceived once it is fully realized.

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<sup>56</sup> Kupferman, Meyer. *Infinities*, unpublished essay.

Kupferman identifies retention of melody as the easiest job memory can perform. The strongest aspects of this retention are associations made with visceral reactions to a given melody, or an element within it. Additionally, these associations allow the listener to identify a number of intellectual attributes within a given melody or tune. For instance, resemblances between the given melody and other popular tunes, the characteristic sound or style of a particular composer, a time period (this aspect figures heavily into the neo-classical style), as well as direct association with a particular character or theme within a programmatic story.

Kupferman identifies distinct intervals and ‘sharp’ rhythms as having the most effective and potent associative power within a composition. The constant return and slight alteration of motivic elements allow the listener to comprehend the larger form more effectively, as the smaller elements of the music are easily identified. Kupferman employs this idea and method throughout *The Stone Tears of Ixtaccihuatl*, as well as in the timpani writing of his other chamber and large-scale pieces. This idea, perhaps, is what ties the elements of the music and its form together so effectively. Given the difficulties that often arise itself when playing the timpani as a solo instrument, Kupferman's ability to drive the piece motivically is what allows it to work both functionally, formally, musically, and expressively.

Kupferman goes on to say that recapitulation provides a unique environment for the memory, especially in the sonata form, as it follows the exposition and development. Due to the intervening musical material, the recapitulation in this instance allows the listener to hear more objectively and also to better perceive slight changes or

embellishments of the original statement. It is the disposition of the listener towards tonal memory that determines how much of the structure he or she will perceive upon an initial hearing. Kupferman asserts that various cadential figures are the most easily recognized, as harmonic motion tends to stabilize in these areas.

In regards to his timpani composition, *Stone Tears of Ixtaccihuatl*, Kupferman makes use of this feature through both melodic and rhythmic repetition. While he does not always repeat the exact figures to awaken the listener's melodic memory, he often recreates the same figure in variation or transposition. Kupferman clearly had these ideas in mind, and used them actively in his timpani composition.

To Kupferman, the use of distinctive, recognizable sounds carried a great deal of weight when trying to "convince" the listener of the musical point being made (or attempting to be made). The human brain's capability to associate ideas with specific sounds is so strong that the smallest of sounds can trigger instantaneous reaction and connection within the listener's mind. It is this author's belief that Kupferman made use of this associative concept throughout *Stone Tears*. Working within the instrumental limitation of the solo timpani, Kupferman exploits the aspects of the instrument and its capabilities to express the programmatic intent. The story of Ixtaccihuatl, being a Native Mexican legend, carries with it deep imagery and varied emotions: love, war, jealousy, sadness and honor. The narrative of the story also depicts the birth of two volcanoes. Very powerful inspiration for a powerful instrument, indeed. Kupferman used distinct moods, sounds, rhythms, tempos, harmonies, and forms to invoke imagery of each element of the story within the listener's mind.

## METHOD OR MUSIC (DATE UNKNOWN)

Kupferman learned as a child to intone complex Hebrew prayer-book passages very quickly without understanding any of the Hebrew text itself.

"I am convinced of a conception which I can summarize in one sentence: As the rituals of any craft grow increasingly complex they become, without fail, ends in themselves." (emphasis his)<sup>57</sup>

Kupferman notes here, and later relates to science, the notion that the more complex a pursuit, the more the physical ritual becomes the pursuit itself. Though he did not understand the Hebrew language or how to read it, he could still replicate the prayer songs accurately. Kupferman saw the compositional revolution of post-World War II European art music as a realization of this conception. He cites Oliver Messiaen, Milton Babbitt, Pierre Boulez, John Cage, Karlheinz Stockhausen and Edgar Varese as the leaders of this revolution.

With the advent of twelve-tone, electronics and "chance" music, the public was less and less interested in experimental music. Orchestras stopped performing new works because the complexity of the pieces required an impractical number of rehearsals. As a result, composers delved further into exploration of new techniques, and according to Kupferman, "method had already begun to establish itself as something far more important to the new music than the new music itself." Kupferman argues that technology and organized sound releases the composer from any sentimental attachment

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<sup>57</sup> Kupferman, Meyer. *Method or Music*, unpublished essay.

to musical tradition. Furthermore, the specialization required of new-music composers – that of electronics, serial music, twelve-tone, or "chance" music – isolates him or her further from the aesthetics of western tradition. To cross boundaries and be an "all-around" composer, as Kupferman calls it, is anathema to the new scientific approach to composition. Kupferman himself wrote in many genres and also embodied many styles. His attitude towards the conventional path of music composition matches his view of the classically trained composer. With classical training comes career advantages, but also, in Kupferman's view, constrained musical creativity.<sup>58</sup>

"Is it not understandable, therefore, that an overzealous involvement with one particular dogma or one exclusive set of 'rituals of the craft' has always been characteristic of the novice? Why not? When it is certain to provide him with at least some temporary protection? But there are other reasons. As a student (and he could assume this role for as long as he liked) he would be sequestered from society by his teacher, and by focusing his creative energies into one stylistic channel he could identify himself with a small array of young artists moving in precisely the same direction. And [sic] even more important reason is that a thorough command of every specialized or technical aspect of his adopted style is the surest way of preparing himself for a lifelong battle with society. Today, however, the maze of contemporary techniques when seen in full spectrum, almost defies comparison with all other periods of history. The danger of the artist becoming inundated by a wave of scientific methodology is too probable to be viewed with historical complacence. Our "negative observer" might phrase it this way: "Can the new techniques remain in the service of the composer, that is, to the extent that they still are, or will the composer's role deteriorate into intellectual sycophancy, rendering him a dead-end pensioner of techniques, games, and machines?" My response is simple: The artist's probity still remains his strongest defense. His talent, though significant, has the limitation of being a factor not always to be trusted. Only his self-identity with insights most crucial to his personality, and an illuminating consciousness of the

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<sup>58</sup> Meyer Kupferman, interview by Nancy Sureck, *Music Division Oral History Project, New York Public Library*, May 21, 2003.

era influencing his perceptions, can guide him through the exploding technology all about him.”<sup>59</sup>

Kupferman asserts that the technology and methods afforded to composers of new music have alienated them from the audience, and says furthermore that the abandonment of form, melody, and the old instruments has shown to be a denial of music itself. Kupferman advocates for a crossover between the new stylistic methods, both out of a desire to avoid conformity to a particular style as well as a need to express individuality. The *gestalt* form best describes these attributes of Kupferman’s compositional style: one in which he bucks the trend of status quo for his own unique approach, incorporating a variety of techniques and styles while maintaining a strong connection with his audience through a focus on the performers and the genuineness of the music.

#### NEW MUSIC AND OLD AUDIENCES (DATE UNKNOWN)

In reference to the musical renaissance after World War II, Kupferman cites two groups of composers that spearheaded the development of new artistic ideas and techniques, dividing them into two groups: those with “extraordinary perception,” such as Oliver Messiaen, Milton Babbitt and Pierre Boulez; and those “with a totally unconstrained imagination,” including John Cage, Karlheinz Stockhausen and Edgar Varese. He states that these composers provided leadership to the compositional

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<sup>59</sup> Kupferman, Meyer. *Method or Music*, unpublished essay.

community of the 1950s, and that breakthroughs in musical techniques were an inevitable outcome of the charged intellectual atmosphere.

The unfortunate outcome of this widespread innovation, according to Kupferman, was the self-imposed aesthetic sequestering by many composers that forced them into a cycle of what he calls “extreme methodology.” “Important” new works no longer appeared to public audiences, which was self-perpetuating, as most new music was not well received by the public to begin with. Only the *avant-garde* received any coverage by the press. As a result, Kupferman notes that composers tried to find refuge in a continual exploration of new and different techniques, which only further distanced their music from the ears of the general public. Before the end of the 1950s, Kupferman asserts, the method of new music had become more important than the actual music itself.

The end result of this process of compositional self-alienation from popular musical culture is the composer’s lack of interest in writing new pieces. The technological innovations of the time prompted the scientific, as opposed to artistic, creation of new sound. Kupferman dubs this “organized sound,” and explains that its effect on composers was the evolution of their role as creators. Instead of music being derived from a romantic sense of self-identity and artistry, the new music was created out of a sense of pioneering spirit, much the same way explorers throughout history have strived for further and further discovery of new land. The new role of the composer-scientist removes the composer’s emotional attachment to the music from the process. As Kupferman states, “Science provides him with an irresistible temptation and gives him a distinctive role as the sole progenitor of a truly contemporary art. This scientific

posture quite painlessly releases him from all sentimental attachments to musical tradition.”

Kupferman further laments the need of young composers of the 1960s to choose a narrow path as a specialist in one area of composition, be it electronics, twelve-tone, serial mathematics, computer-statistics or “chance.” Composing in different mediums and genres was frowned upon, and mixing media or writing in traditional forms like symphony, opera, or “Gebrauch-Musik” flew in the face of the new method of scientific creation. Total devotion to the new method required the composer to shed his or her need for personal expression.

Kupferman goes on to say that the student-teacher model of compositional development also aids in the stifling of creativity and self expression. Teachers steer their students toward one aesthetic model or another, and for Kupferman this was simply too limiting to bear. By focusing on one particular model of composition, the student can certainly align him or herself with other composers on the same path, but in the end his or her command of every minute aspect of the chosen style “is the surest way of preparing himself for a lifelong battle with society.” Kupferman’s primary concern was the use of new techniques and how they translate to the composer’s process. “Can the new techniques remain in the service of the composer, that is, to the extent that they still are, or will the composer’s role deteriorate into intellectual sycophancy, rendering him a dead-end pensioner of techniques, games and machines?” To this question, Kupferman responds that only the composer’s honesty to his or her own identity and a consciousness

of compositional influences can save him or her from becoming a slave to technological advancement.

### THE MIRROR TAPE GESTALT (1976)

Fascinated by observing a soprano singing against a recording of her own voice, Kupferman began writing what he termed “mirror-tape” pieces for varied instrumentations. The first was for live soprano and tape. He wrote the pieces with the aim of creating a “double image” in sound, where the performer carried on a musical dialogue with him or herself. The piece for soprano, entitled *A Night in Hell*, utilized a recording of the soprano’s voice which was then subjected to electronically amplified echoes from the strings of two pianos. Kupferman’s aim was to create a “psycho-acoustical mirror effect” when the audience heard two voices but saw only one singer. The combination of the two reflecting voices, the poetry of the lyrics, the lighting and the singer’s acting abilities led Kupferman to coin the term “mirror-tape Gestalt”.

Kupferman later reworked *A Night in Hell* into another mirror-tape piece for cello and tape. The difficulties presented by this type of work were great. The lack of a beat, click track, or conductor combined with long sustained lines were difficult to track. The tape changed the usual interactions of chamber music due to its temporally rigid nature. In later works, Kupferman adjusted for this difficulty by building “loose fitting cadential devices” into the form of the piece, making it easier to account for various subtleties of human performance. Throughout the 1960s and 1970s, Kupferman composed at least

three more works using the mirror-tape concept, including *The Judgement*, an opera for singers and chorus alone, *Superflute* for flute solo with tape, and *The Celestial City* for piano with tape.

Kupferman is careful to emphasize that despite the advancements in technology that allow for new kinds of music making, the live performers themselves are still the most central and important aspect of the work. He sees the tape performance not as existing within itself to serve technology, but as a means of expression through which the performers can give greater meaning to their craft. For him, the tape is another instrument instead of a simply a technological piece of equipment.

#### THE ‘NOW’ OF ORCHESTRATION (MAY, 2003)

Kupferman’s process of orchestration relied on his need for constant renewal. He states that the choice of instruments for any given episode in his music “had to have a challenge of “absolute freshness”!” His process involved orchestrating only after the entire score had been composed in a two- or three-staff version. All markings in the score aside from the pitches (such as articulations, dynamics, expression markings and metronome markings) were entered at the very end of the process. Kupferman says that the “real trick for me was uncovering the “imagined colors” that were going through my head when I first prepared the piano score – or playing through the music bit by bit on the piano...”

He says that the choice of instrumentation was spontaneous and extremely flexible for him. The real focus was on the pitch material and the in-the-moment act of playing on the piano would trigger different timbres in his mind. As Kupferman wrote extensively and prolifically without regard at times for what the finalized work might become<sup>60</sup>, he states "it all went into a strange 'crucible of creative thought – the penultimate gesture just before all final choices were executed.'"

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<sup>60</sup> From conversations with Professor Charles Dowd at the University of Oregon, February 2011.

APPENDIX B: *THE STONE TEARS OF IXTACCIHUATL* SCORE

**Meyer Kupferman**

**THE STONE TEARS  
OF IXTACCIHUATL**

(1987)

for timpani solo



Virtuoso Editions.....87014

**Sounds Pells  
Productions**

duration: about 14 min.

for Charles Dowd

## **THE STONE TEARS OF IXTACCIHUATL**

for timpani solo   
**Meyer Kupferman**

Glissandi Initial Note  
 Pitch Classes: [0,2,6]

Largo misterioso ( $d = 46$ ) [0,1,4] (1987)



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3

7 d3 m2 [0,2,6] M3 m3 m2 m2 m2 m2 m2 [0,1,4] ff [0,1,3]

(P4) (M2) (a4) (a4) (a2) (a2) (M3) (M3) (M3) (M3) (a2) sfffff

*molto*

8 [0,1,4] m3 d4 M3 m3 m2 [0,1,4] ppp pppp mp mf

(m2) (d4)

9 d4 m2 [0,1,4] pp [0,1,4] ppp [5 seconds only] attacca

Andante gentile ( $\text{d} = 54.$ )

2

*p, espr.*

[0,1,3]

4 5 6 7 8 mf pp >

9 10 11 12 crese. poco poco

13 (2) 14 f ff pp p 15 16 17 mf

4 2.

32  $\text{p}$  33 34 cresc.  
35 36 37 [0,1,4] 38 pp  
39 [0,1,4] 40 41 42 43 ff 44 45 46 47 [0,1,4] 48 [0,1,3,4,6,9] 49 50 rit. [0,1,3,4,6,9]  
51 52 53 pp 54 fp 55 f 56 fp 57 58 (1) (2) 59 ff [? seconds only] attacca

Allegro molto ed appassionato

5

3 1 
 Allegro molto ed appassionato  
 3 1

6 *sffz* (a) (d) (e)

9 *p* *sffz* [0,1,4]

10 *mf* *f* *[dim to pp on repeats]* *[13x]*

11 *p* *cresc.* *poco*

12 *poco* *ff* *mp* *cresc.* [0,2,6]

13 *f* *sempre*

14

15

16 *f* *p*

17

18

*f* *fp* *f* *sfp* *ff* *sfp* *ff* *sfp* *ff* *sfp*

19

*ff* *sempre*

20

*3* *2* *sfp* *molto* *ff* *sempre*

21

*sfp* *ff* *>* *p* *<*

22

*ff* *sempre*

23

*[0,1,3]* *sfp* *ff*

24

*trill* *trill* *slow* *gliss* *(r)*

*sfp* *>* *< ff* *sfp* *< ff* *< ff* *< ff* *< ff* *< ff*

8

25 

26 

27 

28 

29 

30 

31 

32 

33

34 *b* *cresc.* *s* *poco* *s* *poco*

35 *f* *p* *>pp*

36 *f* Initial Pitches: [0,2,6] *f* Destination Pitches: [0,2,7]

**Lento**

*p, con rubato molto* *cresc.*

38 *poco* *a* *poco* *f*

39 *pp sub.* *ppp* *mp* *ppp sempre!*

40 *(p)* *pp* *f* *>ppp*

10

*Tempo I<sup>o</sup>*

41 *molto ff (mf)*

42 *cresc.* *f*

43

44 *cresc.* *poco*

45 *poco* *(>)*

46 *ff* *5*

47 *b* *5* *1*

48 *ffp* *5* *6* *3* *2*

11

49 *p* (ff)

50 *ff sempre*

51

52 [3x]

53 [3x]

54 [4x] [0,2,7]  
[dim 3rd x only] *pp* [start cresc. on 3rd x to ff; make big dim on last 3 beats of 4th x]  
[5x]

55 *p* [cresc. begins on 3rd x and reaches fff on the 5th x] fff

56 (fff) *P sub.* [0,1,3,4,6,9] molto

## THE STONE TEARS OF IXTACCIHUATL\*\* (1987)

for Timpani Solo

\*\* World Premiere

Meyer Kupferman

This new solo timpani piece was written for Charles Dowd, shortly after Mr. Kupferman attended the Eugene world premiere performance of his "A Crucible for the Moon" November 24, 1987.

The third highest peak in Mexico is Iztaccihuatl, the second highest peak in Mexico is Popocatépetl.

Near Popocatépetl there is a defunct, flattened and eroded volcanic mountain, covered with snow. Iztaccihuatl, or "Recumbent Woman" (17,455 feet). Legend has it that Pocatépetl was in love with Iztaccihuatl. He went off to a long-lasting war and when he came back, he found that his beloved had died of sorrow. He laid her out on top of a mountain to which he gave her name, covered her with a shroud of white snow, and watched over her with a lighted torch. Eventually he died, but the torch (the smoke holes) is still burning.

## APPENDIX C: TIMPANI SCORE STUDY

### INTRODUCTION

In order to make an intelligible analysis of both the musical and performance aspects of any work, its context within the repertoire must be considered along the way. The following list details a partial selection of the repertoire for solo timpani. These are the pieces that have withstood the test of time, or in the case of newer works, show immense promise to do so into the future. Consultation of and reference to these works makes it possible to place an analysis of Kupferman's *The Stone Tears of Ixtaccihuatl* within a context of its historical predecessors and the works that have followed since.

### LIST OF SELECTED SOLO TIMPANI REPERTOIRE

Three Inventions for Solo Timpani (1984).....	George Barati
Sonata for Timpani (1969) .....	John Beck
Four Pieces for Timpani (1961).....	John Bergamo
Raga #1 (1968) .....	William Cahn
Six Concert Pieces for Solo Timpani(2001).....	William Cahn
Eight Pieces for Four Timpani (one player) (1950/66) .....	Elliott Carter
Partita for Solo Timpani (1973).....	Carlos Chavez
Sonata No. 1 for Timpani and Piano (1986).....	Anthony Cirone
Prelude for Solo Timpani (1984).....	Christopher Deane
The Solo Timpanist (1963).....	Vic Firth
Seven Solo Dances for the Advanced Timpanist (1975).....	George Frock
Ballad for the Dance (1956) .....	Saul Goodman
Rituals (1998) .....	Bruce Hamilton

Récit for Four Pedal Drums (One Player) (2007).....	Heinz Holliger
Rhythm Gradation (1993).....	Toshi Ichiyanagi
Concerto No. 1 for Timpani and Orchestra (1983) .....	William Kraft
Concerto No. 2 for Timpani and Orchestra (2005) .....	William Kraft
Images (1973) .....	William Kraft
Variations for King George (1980) .....	William Kraft
Timpani Forces (2011) .....	Mendel Lee
Canticle (1967) .....	Stanley Leonard
Rhapsody No. 2 for Solo Timpani (2006) .....	Alex Orfaly
Variations for Solo Kettledrums (1968) .....	Jan Williams

#### APPENDIX D: ABOUT THE PERFORMER

Charles Dowd (1948-2010) was a Philip H. Knight professor of music and a faculty performing artist at the UO School of Music from 1974-2010. He played timpani, large multiple percussion works, solo marimba, all the orchestral percussion instruments, vibraphone, drum-set, and the Brazilian and Afro/Cuban instruments. He was a conductor and music director of avant-garde percussion works.

Born in New York, Dowd was a scholarship graduate student of famed New York Philharmonic timpanist Saul Goodman at The Juilliard School, where Dowd pursued residency work for the Doctor of Musical Arts degree in percussion performance. Dowd held a master's degree from Stanford University and a bachelor's degree from the San Jose State School of Music, under the tutelage of Anthony J. Cirone of the San Francisco Symphony.

Dowd performed in Stuttgart, Paris, in Canada, and in most of the fifty United States. In New York, he worked at RCA "Studio A," National Studios, Carnegie Hall, Avery Fisher Hall, Alice Tully Hall, Paul Hall, and several off-Broadway venues, playing contemporary classical music and jazz.

He appeared as a soloist, performing the *Percussion Concerto* by Joseph Schwantner, *Concerto for Timpani and Orchestra* by William Kraft, *Concerto for Percussion* by Darius Milhaud, *27'10.554" for a Percussionist* by John Cage, *Moonsticks for Solo Marimba* by Meyer Kupferman, and many other works. Tim Page of The New York Times called Dowd's playing "virtuosic," and maestro Dennis Russell Davies wrote that Dowd is "one of the finest timpanists and percussionists in the USA."

His publications include at least nine books that include warm-ups, technique builders, etudes and exercises to develop well-rounded percussionists in a wide range of styles and for a wide cross section of percussion instruments, published through Columbia Pictures Publications, Columbia Pictures Media Group, and Alfred Publishing Company. His numerous practical, insightful, and important pedagogical writings have appeared in the Percussive Arts Society's Percussive Notes, the Oregon Music Educator, and Jazzscene, to name just a few.

His outstanding teaching reputation led him to fulfill guest teaching and performing residencies at colleges and universities from Alaska, British Columbia, California, Idaho, Montana, Nevada, Texas, and Washington in the west to Illinois, Massachusetts, Michigan, Pennsylvania, and Tennessee to the east. Dowd has recorded on Warner Bros., MusicMasters, Hänssler Classics, Black Saint-Soul Note (Milan), Soundspells (New York), PAUSA, cdm-USA, KM Los Angeles, and projects for RCA and Sony.

Dowd was principal solo timpanist with the orchestra of The Cabrillo Festival of Contemporary Music in Santa Cruz, which won 18 consecutive ASCAP Awards for adventuresome programming, under the batons of Dennis Russell Davies and Marin Alsop. Dowd was principal timpanist for the Grammy-winning Hänssler recording of *Credo* by Krzysztof Penderecki, conducted by Helmuth Rilling with the Oregon Bach Festival. As a performer/conductor, Dowd was nominated for the Laurel Leaf Award of the American Composers Alliance in New York for performing works of American

composers. He has twice conducted The Oregon Percussion Ensemble in premieres at Percussive Arts Society International Conventions in Los Angeles and San Jose.

Dowd recorded on Warner Bros., MusicMasters, Hänssler Classics, Black Saint-Soul Note (Milan), Soundspells (New York), PAUSA, cdm-USA, KM Los Angeles, and projects for RCA and Sony.

Dowd served as principal timpanist in five orchestras: the Eugene Symphony, Oregon Bach Festival, Oregon Festival of American Music Symphonia, Cascade Festival of Music, and Oregon Coast Music Festival.

Dowd was the author of six books on percussion performance and pedagogy: *The Well-Tempered Timpanist*, *Velocity Warmups for Jazz Vibraphone and Marimba*, *Master Technique Builders for Snare Drum* (co-authored with Anthony Cirone), *The Jazz, Rock & Latin Source-book: 100 Grooves for Drums and Bass* (book with CD), *A Thesaurus for the Jazz-Rock Drummer*, and *A Funky Primer for the Rock Drummer*. Dowd is editor of *Linear Drumming: A Creative Approach* (by Michael Snyder), and drum soloist, composer, and author of the VHS Warner Bros. video *Jazz, Rock & Latin Sourcebook*.<sup>61</sup>

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<sup>61</sup> "Charles Dowd, Professor Emeritus." University of Oregon School of Music and Dance, accessed March 1, 2012. [music.uoregon.edu/people/faculty/dowd.htm](http://music.uoregon.edu/people/faculty/dowd.htm).

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