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Time Travel: Musical Metrics in Elliott Carter's Eight Pieces for Four Timpani

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Time Travel:

Musical Metrics in Elliott Carter's *Eight Pieces for Four Timpani*

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Musical Arts

by

Matthew Dean Altmire

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ABSTRACT OF THE DISSERTATION

Time Travel:

Musical Metrics in Elliott Carter's *Eight Pieces for Four Timpani*

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Matthew Dean Altmire

Doctor of Musical Arts

University of California, Los Angeles, 2013

Professor Frank Heuser, Chair

Elliot Carter's *Eight Pieces for Four Timpani* are landmarks in the canon of solo timpani literature. They remain innovative in their use of extended techniques, multiple timbres, and musical manipulation of time. Some resources that analyze the *Eight Pieces* include practical information such as how to count a particular metric modulation, or suggest a certain sticking pattern for a challenging passage. Other studies chart the complexity of Carter's pulse groupings, or the tempo ratios behind the metric modulations. This dissertation will strike a balance between the practical and the theoretical, highlighting the relevance to the performer of numerous variables within the musical score. Through the use of accents, time signatures, note groupings, and drum patterns, Carter reveals *implied pulses*, *in-tempo accelerations*, *transitional meters* and other time-related elements throughout the *Eight Pieces*. These elements will be examined, and the terms *straight shifting* (SS), *altered shifting* (AS), and *layered shifting* (LS) will be applied to Carter's process of metric modulation in an effort to simply the

thought process for the performer, while also exploring the musical phrasing related to these transitions. Because the *Eight Pieces* expanded the language and technique of the timpanist, they are also examined musically from various other perspectives, including that of the multiple percussionist, drum set player, music theorist, and problem solver. Finally, concepts introduced in the dissertation will be applied to an analysis of *Saëta* and *March,* including an examination of how Carter's musical metrics contribute to an overall sense of form and musical effect.

The dissertation of Matthew Dean Altmire is approved.

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Glossary

Altered shifting (AS) – a metric modulation in which one note value (or set of note values) becomes another note value (or set of note values)

Implied pulse – a pulse that conveys a different feel than the pulse indicated in the meter (in the context of this paper, an implied pulse will only refer to 3 or more notes)

In-tempo acceleration – the sensation of getting faster within one tempo, achieved through an increase in the number of notes per pulse, or a decrease in the space between notes or accents within a meter

Layered shifting (LS) – a metric modulation in which an implied pulse from a polyphonic part becomes the main pulse of the next meter

Non-metered acceleration – an acceleration that is not related to pulse

Straight shifting (SS) – a metric modulation in which one note value (or set of note values) equals the same note value (or set of note values) in the next meter

Transitional meter – a meter that aids in transitioning the performer smoothly from the main pulse of one meter to the main pulse of another meter

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MM in Percussion Performance (2000)
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Time Travel:

Musical Metrics in Elliott Carter's *Eight Pieces for Four Timpani*

"The *Eight Pieces*, you see, were written to develop notions of metric modulation as a sort of experiment."[1]

-Elliott Carter

What an amazing experiment indeed! Elliot Carter's *Eight Pieces for Four Timpani* stand out as superstars in the canon of solo timpani literature. Though written over 50 years ago in the mid-twentieth century, they remain innovative in their use of extended techniques, multiple timbres, and metric modulation. A testament to their popularity is their frequent performance on auditions, juries, and recitals all over the world. The purpose of this paper is to explore the performance practice of the *Eight Pieces*, including commentary on various approaches to the instrument, the manipulation of musical time, and an overview of *Saëta* and *March* from the set of eight.

Some resources that analyze the *Eight Pieces* include practical information, while other sources provide more theoretical analyses of Carter's compositional techniques. This paper will attempt to find a middle ground, using some of the information that already exists as a launching point for further examination into Carter's compositional techniques and related performance practice issues.

[1] Patrick Wilson, "Elliott Carter: Eight Piece for Four Timpani," *Percussive Notes* (October 1984): 65.

One of the unique characteristics of these pieces is the manner in which Carter uses timbre, instead of pitch, as a primary compositional element. The majority of the pieces require the four timpani to be set to a fixed pitch (not requiring pedaling). However, Carter expands the timbral possibilities by requiring the performer to play on different beating spots (such as the edge and the center of the drum), and use different strokes (such as a dead stroke versus a normal stroke). He also at times asks the performer to use both the felt and wood ends of the timpani mallets, or to use one's hand to muffle the drum or produce harmonics. In addition to these effects, Carter often layers ideas together, making the performer responsible for communicating many ideas at the same time. Because the Carter pieces expand the language and technique of the timpanist, a chapter discussing the different approaches a performer might assume to study and perform the *Eight Pieces* is included. Additionally, because these pieces are so different than other timpani music of the time, the possible influence of several aspects of twentieth-century music will be addressed. These influences include the popularity of the emerging drum set, multiple percussion music, percussion ensemble music, and experimental music.

One major focus of the paper will deal with how Carter manipulates musical time in the *Eight Pieces*, beyond the experimental notions of metric modulation. These compositional devices include the creative use of time signatures, transitional meters, implied pulses, accents, groupings, patterns, and accelerandi. In another section, I intend to address Carter's inspired use of metric modulation. Carter often elevates the process of metric modulations with independent elements and musical phrasing to convey these transitions in a variety of ways. For example, Carter will foreshadow a meter change by

embedding an implied pulse, through the use of both rhythm and dynamics, layered over the written meter. As well, Carter often manipulates his *themes* through a series of metric modulations, only to return to those themes at the original tempo, intensifying the overall musical form. Since Carter uses metric modulation in five of the eight pieces, I will examine three different types of metric modulations – straight shifting, altered shifting, and layered shifting. I will explore how these examples of metric modulation should be musically perceived or phrased by the performer, as well as examine the musical phrasing around these modulations.

Concepts regarding musical time and performance roles developed in the paper will then be used to provide an analysis of *Saëta* and *March*. These two compositions are arguably the most frequently performed pieces of the eight, and have provided a window into Carter's music for many a percussionist.

Chapter 1 – Roles of the Performer

Perhaps the greatest challenge that must be understood when preparing one of the pieces from Carter's *Eight Pieces for Four Timpani* is that it often requires the performer to assume multiple roles and approaches. Understanding these roles may help a performer to fully realize the potential of the music. I contend that the *Eight Pieces* stylistically are more like *multiple percussion* pieces than solo timpani pieces, and they can feel very unnatural to the timpanist with a conventional approach to the instrument. In a particularly relevant statement, percussionist Geary Larrick noted that "most timpanists are thoroughly schooled as members of an orchestra where the timpani play a tonal-harmonic role; thus the rhythmic-timbrel approach of Carter is somewhat foreign to a timpanist trained in the traditional manner."[2] Traditionally, by the mid-twentieth century there was not a vast array of historic repertoire for percussion instruments. World renowned percussionist Steven Schick highlights this point well is his book, *The Percussionist's Art*:

> *I clearly remember the halls of the University of Iowa, where I was an undergraduate percussion student. I would listen for a while to the violinists, pianists, or clarinetists playing their strains of Debussy or Janacek or Ellington and sigh wistfully about the absence of a venerable tradition in contemporary percussion music before I returned to my practice room to see whether or not I could bow a brake drum or play a cowbell under water.*[3]

However, the one percussion instrument that did have a venerable tradition before the mid-twentieth century was timpani. This is evident in its extensive use in symphonic

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[2] Geary H. Larrick, "Eight Pieces For Four Timpani By Elliot Carter," *Percussionist* XII/1 (Fall 1974): 15.

[3] Steven Schick, *The Percussionist's Art: Same Bed, Different Dreams* (New York: University of Rochester Press, 2006), 8.

music since the time of Haydn and Beethoven. Because of this tradition, it may be understandable that Carter's unconventional timpani music received mixed reaction when it first appeared. Recalling a lesson with famous New York Philharmonic timpanist Saul Goodman, Morris Lang remembers him receiving the manuscript for *Six Pieces for Kettledrums* by Elliott Carter (the original title given to the first six pieces). After looking at the manuscript, Goodman said to Lang: "These guys don't know how to write for timpani – you want it?"[4]

Overall, *Eight Pieces* requires an adventurous spirit on the part of the performer. Conventionally approached, timpani require countless hours of practice simply to produce a consistent and desirable sound. With these pieces though, that is only part of the soundscape. A performer must invest additional time learning how to play the timpani in unconventional ways. It is essential in order to achieve a musical performance of the *Eight Pieces*. The following are some of the roles and approaches that a performer of these imaginative and visionary pieces should explore.

TIMPANIST

First and foremost, these are conceived as timpani pieces, and require that a performer understand the basics of playing timpani. This includes an understanding of many techniques such as where to strike the head to produce the most desirable sound (which may be different depending on the size of the drum), the differences between a legato stroke and a staccato stroke (at all dynamic levels), the numerous types of mallets

[4] Morris Lang, Charles Dowd and Anthony Cirone, *Percussion Master Class on Works by Carter, Milhaud, and Stravinsky*, (Maryland: Meredith Music, 2010), 2.

available, muting the drums with the hands or other muting devices, as well as ear training for proper tuning. In addition, a timpanist must master roll techniques and proper roll speed. This varies depending on different sized drums, and on drums of various tensions. A good example of conservative timpani writing is at the very beginning of *Saëta*, the first movement of the *Eight Pieces*, in which the notation indicates a single stroke roll (Fig. 1-1). In measure 1, the timpanist must produce a fluid continuous sound for this roll on the drum that is both non-metered and accelerating.

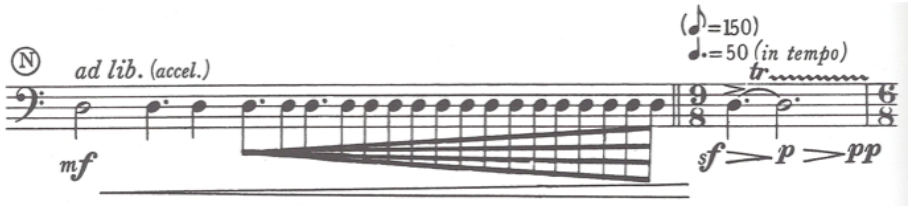

Fig. 1-1 (*Saëta* – Measures 1 & 2)

The timpanist must also decide how far apart the beaters should strike the head and how fast one's hands should alternate by the end of the first measure – all very important decisions that will affect the conventional sound on the instrument.

In measure three, the upper part (indicated by stems up) is a *melody* between the notes D and A, a perfect fourth (Fig. 1-2). A timpanist would approach this upper voice

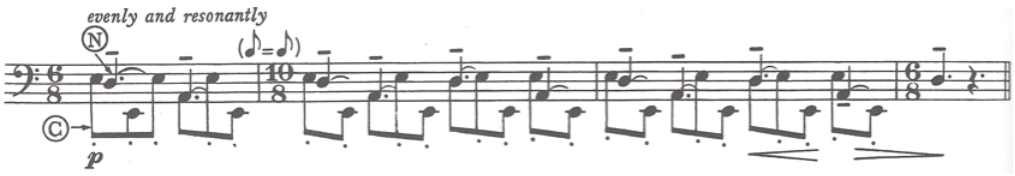

Fig. 1-2 (*Saëta* – Measures 3-6 – melody in stems up notes on A and D)

in a traditional way, similar in nuance and phrasing to how a timpanist might approach the tonic-dominant relationship in a classical symphony, that is, with the A leading to the D through dynamic inflection or agogic accents. Cleverly, Carter combines the conventional approach of the upper voice in this section, with an unconventional approach in the lower voice – that is, the use of different timbres (similar to a multiple percussion part).

Another example in which Carter combines the tonic-dominant approach with a different approach occurs at the beginning of *Recitative* (Fig. 1-3). The first measure

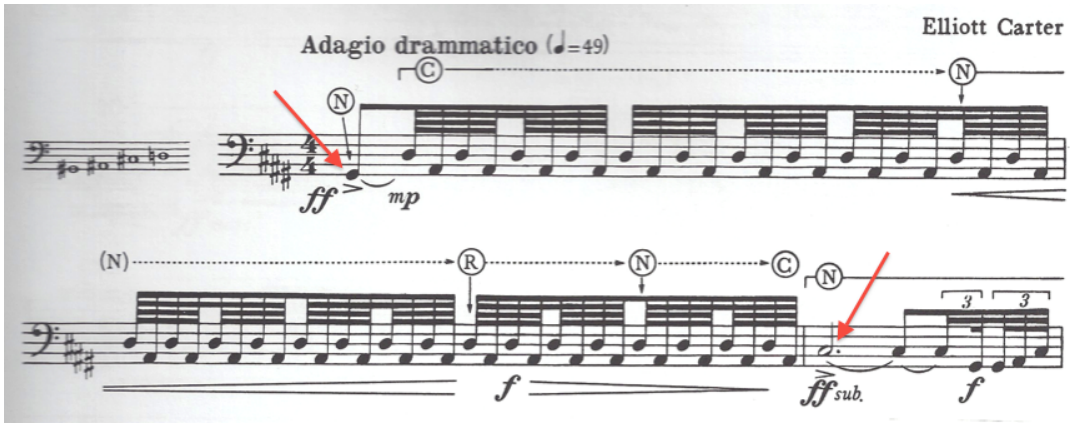

Fig. 1-3 (*Recitative* – Measures 1 & 2 – V-I between G# and C#)

begins with a fortissimo G#, followed by a timbral effect using sixty-fourth notes on different striking areas of the drum head, and then resolving on the C# on the downbeat of measure 2. Carter's use of the different striking areas for the sixty-fourth notes adds intrigue, anticipation, and tension before the resolution on C#.

MULTIPLE PERCUSSIONIST

A timpanist is forced by Carter to approach the instrument in unconventional ways. A representative example found in several of the movements (in Fig. 1-2 and Fig. 1-3 indicated by the circled letter C) is Carter's notation for striking the drum in the center of the head. Confronted with this designation, a timpanist must learn how to evoke the desired sound from the drum. In the center of the head, just like in the normal beating spot, a legato stroke produces a slightly different timbre than a staccato stroke. As well, playing in the center of the head produces a harmonic one octave lower than the fundamental note. However, simply *reaching* the center of the drums might be problematic for the performer, so in addition to learning how to manipulate this new sound, a timpanist may also have to modify their setup (perhaps moving the drums closer) to reach the center of the heads during performance. Dealing with new timbres and modifying setups are issues that a multiple percussionist confronts regularly.

To evoke different timbres throughout the *Eight Pieces*, Carter demands that the performer play in three different beating areas on the heads – normal, center, and edge. This requires the player to develop the refined skills to effectively hit the drum in twelve different locations with accuracy and consistency. The timbral possibilities are multiplied exponentially by the use of different implements. A multiple percussionist understands these challenges and knows that it will be part of the learning and music making process. Hence, the learning curve may be appreciably improved by approaching these pieces more like multiple percussion pieces.

In addition, multiple percussionists often perform pieces that are composed using non-traditional notational systems. Although Carter employs traditional notation

throughout much of the *Eight Pieces*, one must learn the different markings for normal, edge, and center (as seen in Fig. 1-4), as well as determining appropriate sticking patterns during certain passages.

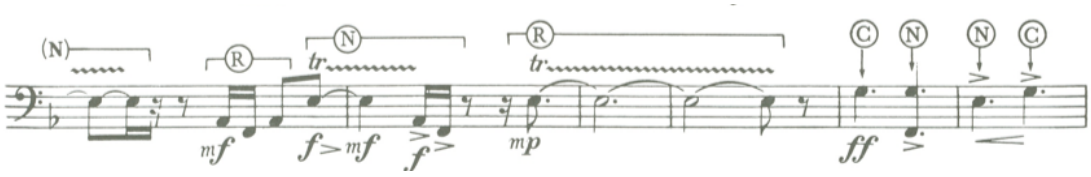

Fig. 1-4 (*Improvisation* – Measures 82-87 – N, C, and R indicate different beating spots)

Another notational element that is unique to Carter's *Eight Pieces* is the designation of rhythmic muffling (Fig. 1-5). This technique forces the performer to muffle accurately and quickly, a process which can be quite challenging in some musical instances.

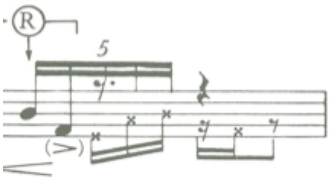

Fig. 1-5 (*Recitative* – Measure 6 – *x* notehead indicates rhythmic muffling)

DRUM SET PLAYER

Perhaps the most engaging and interesting musical elements created by Carter are the various *grooves* that result from compositionally manipulating time and meter. However, unlike some of Carter's other works, such as the string quartets, the timpani

pieces require that all of the pulse groupings and polyrhythms be achieved in performance by a single player. A highly developed sense of coordination is key for the performer, similar to how a drum set player might need to play an *accompaniment* pattern with the right hand on a cymbal, while playing a *melodic* pattern with the left hand on a rim or drum. Drum set players practice for hours to achieve independence between the hands – an independence that Carter expects in the performer as illustrated in figure 1-2. In this figure, the main theme in *Saëta*, the performer must play the melody in one beating spot and the accompaniment in another beating spot, all while alternating hands in both parts. In addition, a player could play legato for the melody and staccato for the accompaniment, again while alternating hands. Add one more layer of musical interpretation and agogic accents in the upper part (the tonic-dominant approach), and one can see how many musical challenges are present for the player. Independence and coordination are hallmarks of drum set playing.

Another similarity to drum set playing is the responsibility for making the music *groove*. The term *groove* has been described as "an unspecifiable but ordered sense of something that is sustained in a distinctive, regular, and attractive way, working to draw the listener in."[5] A simple search of the word "groove" on the steveweissmusic.com website (the largest percussion retailer in the world) yields over 150 results, mostly related to playing the drum set and specifically "groove." It is obviously an important enough concept to be worthy of study, and therefore could be applied to different styles of music in meaningful and appropriate ways. This is especially important in music that

[5] Steven Feld, "Aesthetics as Iconicity of Style, or 'Lift-up-over Sounding': Getting into the Kaluli Groove," *Yearbook for Traditional Music* Vol. 20 (1988), 74.

has pulse groupings and meter changes such as Carter's. In the *Eight Pieces*, a good example of this occurs toward the beginning of *March* (Fig. 1-6). In this figure, there are

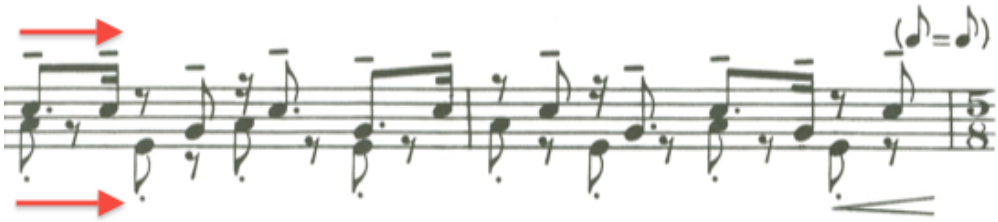

Fig. 1-6 (*March* – Measures 9 & 10 – example of independent pulses in each hand)

two distinct pulses in play. There is the pulse heard in the left hand that follows the meter (stems down), and there is the *implied pulse* in the right hand of the dotted eighth-notes (stems up). By line 5, that dotted eighth-note pulse becomes the dominant quarter-note pulse upon which the new meter (attained through *metric modulation*) is based (Fig. 1-7). It is important that the performer understand and communicate these separate and

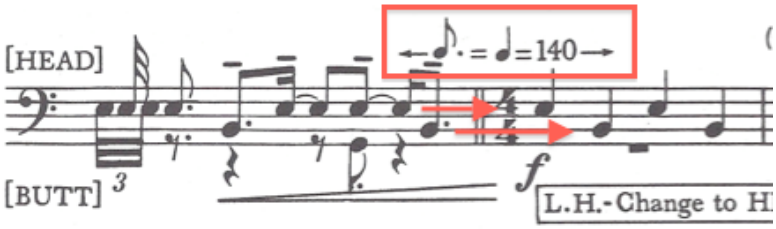

Fig. 1-7 (*March* – Measures 14 & 15 – *Implied pulse* in measure 14 becomes the metered pulse in measure 15)

distinct grooves in ways that meaningfully represent the metric interest of the piece. By approaching this section like a drum set player, one can make these various pulse groupings more musically effective – that is, make them groove.

MUSIC THEORIST

Carter's *Eight Pieces* provide ample opportunity for musical analysis from various perspectives. Two surface elements of music are texture and form. David Whitman offers us an interesting analysis of Carter's *March* in which he uses Jan LaRue's method of style analysis, using texture terms such as monophonic and polyphonic to describe specific sections of *March*. For example, he describes measures 1-15 (which includes the above part in figure 1-6) as homophonic.[6] I find this type of description useful in developing a mental and physical approach to phrasing and articulation. Hence, it can be effectively applied to other movements of the *Eight Pieces*. For example, during the opening *monophonic* parts in *Canaries*, both hands are equally important to the one-layer melody (Fig. 1-8). During *homophonic* parts in the *Eight*

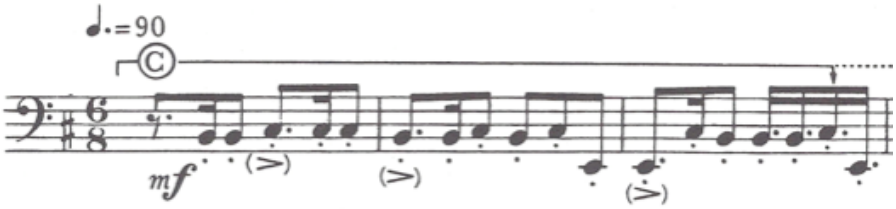

Fig. 1-8 (*Canaries* – Measures 1-3 – monophic texture)

Pieces, the performer can make choices regarding numerous factors including the type of stroke and dynamic levels for the *melody* versus the *accompaniment* (Fig. 1-9). Furthermore, there are *polyphonic* parts in which you have two pulse groupings, one that

[6] Whitman, David Robert, "An Examination Of Selected Works For Percussion" (Masters report, Kansas State University, 2008).

is related to the meter and one that is not related to the meter. Both of these pulses are important musically and should be played with equal musical emphasis (Fig. 1-10).

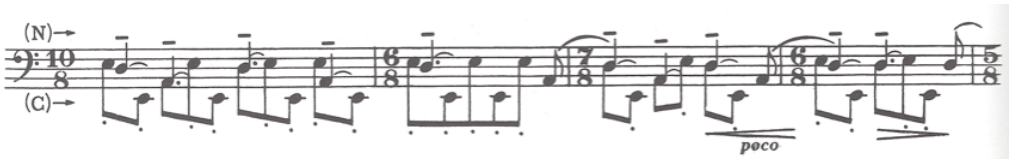

Fig. 1-9 (*Saëta* – Measures 10-13 – homophonic, stems up = melody notes, stems down = accompaniment notes)

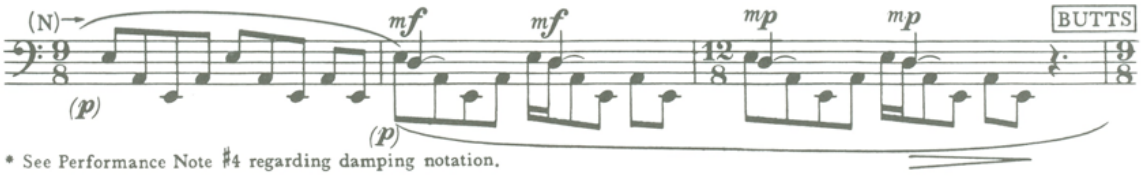

Fig. 1-10 (*Saëta* – Measures 60-62 – polyphonic passage, notes with stems up represent an implied pulse)

As an element of form, Carter makes use of various timbral and metric motives. In both *Saëta* and *March*, Carter introduces a recognizable motive at the very beginning, transitions through a series of metric modulations and other motives, and returns to these themes toward the end of the pieces at the same tempo. This is reminiscent of classical sonata-allegro form in which we hear a theme, a development section with modulations, and then a recapitulation – only Carter does it with meter. Understanding the larger form and how these themes return in their original tempos helps guide the performer so that similarity is achieved between related themes.

Another challenge for the performer is the ability to decipher the meaning of all the metric modulations. Beyond recognizing and interpreting basic pulses related to the changing meters, the performer must also interpret pulse groupings that may or may not relate to Carter's written meters. In an analysis that focuses on various "timespan" elements in Carter's music, such as "pulse streams" and "subpulses," Yayoi Uno affirms that "while his music retains a time signature throughout, the notated meter does not necessarily define a perceivable pulse."[7] In addition, the performer should be aware that Carter sometimes quickly metrically modulates back to previously introduced motives at certain tempos. A good example is in *Canaries*, where in the space of just the first twenty five measures Carter puts a monophonic motive (from the first measure) through a series of metric modulations (to much faster tempos) and then returns to the motive (from the first measure) at the same tempo (Fig. 1-11). The ability to recognize these recurring motives is important for performing proper tempos. A motive may feel slightly different if it is a little faster or a little slower than when it was originally introduced (similar to how a pitched melody may feel slightly different if it modulates to a different key signature than the originally stated).

[7] Yayoi Uno, "The Tempo-Span GIS as a Measure of Continuity in Elliott Carter's 'Eight Pieces for Four Timpani,'" *Integral* Vol. 10 (1996), 53-57.

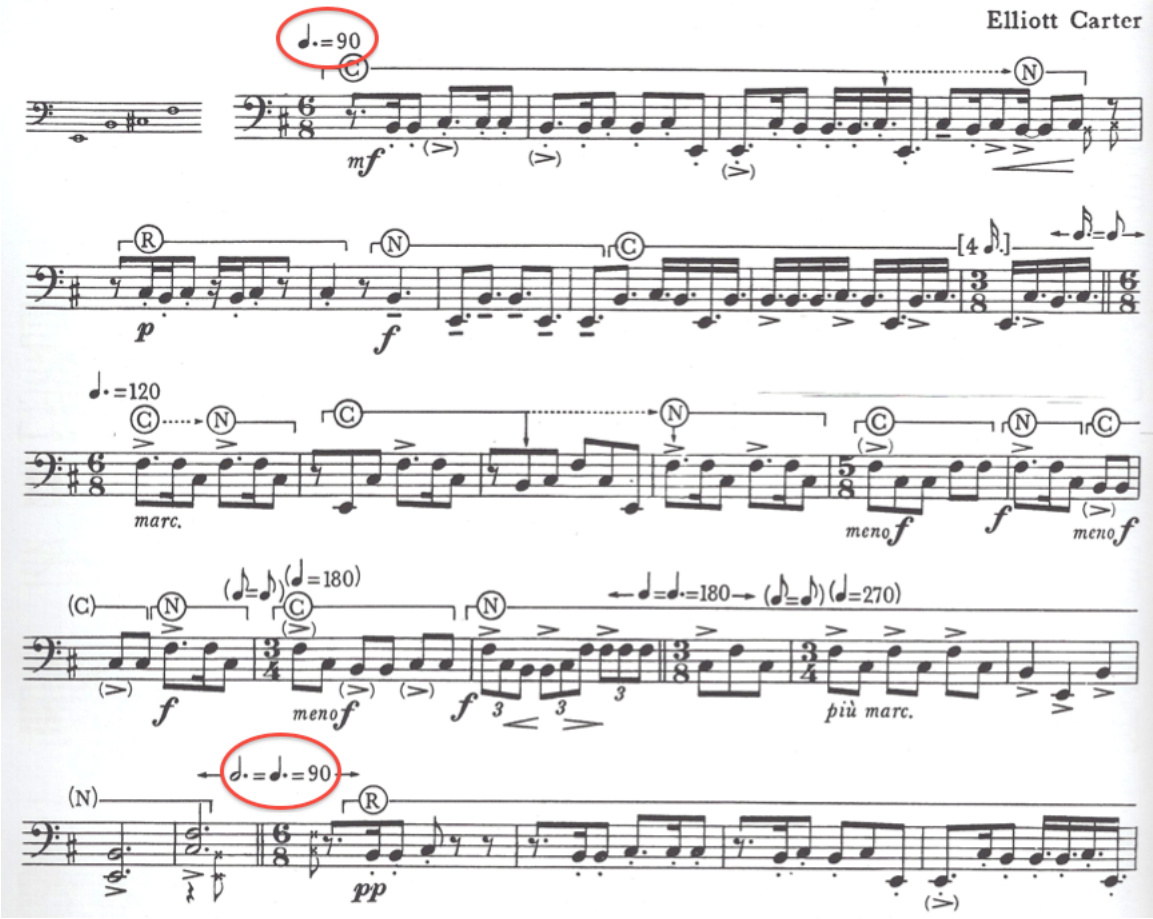

Fig. 1-11 (*Canaries* – Measures 1-28 – dotted quarter-note = 90 from beginning returns in line 5)

PROBLEM SOLVER

While it may help the performer of Carter's *Eight Pieces* to study it from the different perspectives as described above, there are still some other issues that must be confronted. Whenever a non-percussionist composer writes a solo piece for percussion, some elements of the music may not flow naturally on the instrument. Hence, the timpanist must confront the process of deciding which hands play on which drums, particularly during sections of music which are not idiomatic for the instrument. As a general practice, many timpanists alternate hands whenever possible, but when there are quick and awkward shifts from one drum to another, as is often the case in the *Eight*

Pieces, sometimes the only option is to play a double stroke (two consecutive notes on the same hand). A good example of this is in *Recitative* (Fig. 1-12). In the first group of

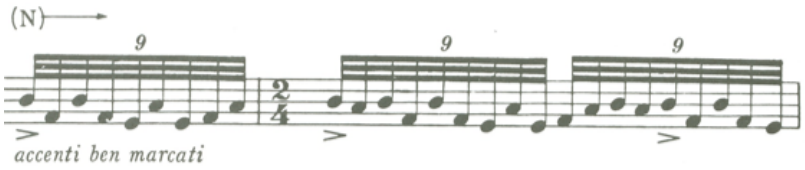

Fig. 1-12 (*Recitative* – Measures 22 & 23 – an example that poses sticking issues for the performer)

nine notes, Morris Lang (to whom Elliott Carter dedicated this piece) suggests using a double stroke with the left hand only when moving from A to G in the sequence, and alternating the hands the rest of the time.[8] Though that works, there are also other sticking combinations one might choose to play that particular part, such as doubling different notes. As long as the part sounds fluid, there can be many sticking options that work. Since there are no sticking indications in the score, that particular issue may vary from one performer to another, but must be dealt with in order to perform that particular section of music.

Additionally, the performer has to play an odd grouping of notes that changes slightly from one repetition to another. In the *Eight Pieces*, Carter may compose a group of notes that are fast and feel slightly unnatural (such as in Fig. 1-12), but when repeating them Carter will change certain variables, such as where the accents are placed in the pattern, the dynamic level, the area of the drum that is struck, or even the meter. This can

[8] Lang, Dowd and Cirone, *Percussion Master Class*, 15.

all be extremely challenging for the performer, who is expected to synthesize all of these variables into a meaningful performance.

Finally, numerous performance issues are left to the performer. In the above example we examined stickings. However, there are also choices in regard to muting techniques (*March*), mallet selection, and types of rolls (the *buzz roll* versus a single stroke roll at the end of *March*).

Overall, approaching the *Eight Pieces* from the perspectives of timpanist, multiple percussionist, drum set player, music theorist, and problem solver may help the performer musically interpret many of the variables that Carter offers in the *Eight Pieces*. The *Eight Pieces* are appealing from many different perspectives, and can certainly speak to many different interests within a performer – even the experimental musician, composer, and more.

Chapter 2 – Twentieth-Century Percussion Influences

Given the increasing importance of percussion in the twentieth century, it should not be surprising that the performer must assume multiple roles when playing the *Eight Pieces*. Prior to the twentieth century, percussion (in orchestral music) was largely delegated to emphasizing musical impact points, punctuating the ends of phrases, and reinforcing the harmony (in the case of timpani). However, by the time Elliott Carter composed the first two of the *Eight Pieces*, *Recitative* and *Improvisation* in 1949, there was already a major evolution underway in both music and art. These changes would provide the perfect backdrop for Elliott Carter's work. For an effective performance of the *Eight Pieces*, the performer must have an understanding of this backdrop and the expanding role of percussion in the era in which they were composed.

ORCHESTRAL PERCUSSION / MULTIPLE PERCUSSION

"Percussion music is revolution," stated John Cage in 1939, toward the end of a decade that saw a major shift in how composers, performers, and listeners perceived musical sounds.[9] With the Machine Age well underway during the first part of the twentieth century, people were inundated with more everyday sounds than ever before, including automobiles, assembly lines, and construction. Nicole Gagne writes about how composers during this time wanted to celebrate this unleashing of sonic possibilities by writing music using unusual percussion instruments that "reflected the technology and industry surrounding them." She points specifically to the unusual *noise concert* given

[9] Schick, *The Percussionist's Art*, 1.

by Luigi Russolo in 1914, or the "whimsical punctuations of a typewriter and gunshots" in Erik Satie's *Parade* (1917).[10]

Additionally, Stravinsky boldly pushed the role of percussion sounds forward with *L'Histoire du Soldat* in 1918. Some consider the emerging drum set during this time to be an obvious influence on *L'Histoire*, with one player being assigned to play many instruments (drums of different sizes, bass drum, tambourine and more) a task that is normally assigned to a whole section.[11] Others, however, consider *L'Histoire* to be "the first significant composition in multiple percussion," which would presumably influence the many innovative composers of *multiple percussion* music that immediately followed.[12] Similarly, Elliott Carter's *Eight Pieces* was very likely influenced by both multiple percussion and drum set music.

DRUM SET

Two drum set virtuosi that were very popular during the first part of the twentieth century were Chick Webb and Gene Krupa. Webb, who fronted his own band that featured performers such as Ella Fitzgerald, was one of the most notable drummers of the 1930s. A very dynamic drummer, he has been described as having "redefined rhythmic

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[10] Gagne, Nicole V., "The Beaten Path: A History Of American Percussion Music," *New Music Box* (1 April 2004): 1, accessed February 27, 2013, http://www.newmusicbox.org/articles/The-Beaten-Path-A-History-Of-American-Percussion-Music

[11] John Beck, *Encyclopedia of Percussion 2nd Edition* (London: Routledge, June 25th 2007), 257.

[12] Gary Cook, *Teaching Percussion, Second Edition* (New York: Schirmer, 1997), 83.

ideas, using rudimental drumming to create swinging jazz."[13] Krupa gained notoriety in the 1930s with his drum solo on Benny Goodman's *Sing, Sing, Sing*, later fronted his own bands from the late 1930s to the early 1950s.[14] Having lived through those times, Elliott Carter could have been exposed to these musicians or other great jazz drummers of the time, and it may have influenced his compositions. As Morris Lang puts it when referencing a particularly interesting measure (Fig. 2-1) in *Improvisation*, "you can't tell me Carter never heard a great jazz drummer around the drum set – get it to swing!"[15]

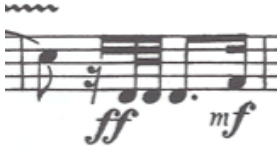

Fig. 2-1 (*Improvisation* – Measure 65 – drum set style figure)

PERCUSSION ENSEMBLE

Edgar Varese wrote the landmark percussion ensemble piece *Ionisation* in 1931. It was one of the first scores written solely for percussion (something that no European or American composer had done prior), and included an array of unique percussion instruments that influenced a "flood of pieces" afterward that "has yet to recede."[16] The

[13] Danny Gottlieb, *The Evolution of Jazz Drumming* (New York: Hudson Music: 2010), 37.

[14] Gagne, "The Beaten Path," 3.

[15] Lang, Dowd and Cirone, *Percussion Master Class*, 18.

[16] Gagne, "The Beaten Path," 4.

unique sounds in *Ionisation* included siren and lion's roar, while other sounds were produced using instruments such as Chinese cymbal, guiro, castanets, and maracas. In addition, the *melody* or main *theme* of the piece is initially stated by the snare drum. The idea of having timbral melodies, rather than pitched one, is a seminal concept that drives much of Carter's *Eight Pieces*. Daniel Adams, for example, concluded in his analysis of *Moto Perpetuo* (in *Eight Pieces*) that "an interconnected network of analytical criteria applied to Moto Perpetuo revealed unusual, yet significant relationships between timbre, articulation, and the varied successions of four invariant pitches."[17]

However, Varese's *Ionisation* had a much more significant impact on twentieth century music than its all-percussion orchestration and timbral themes. The premier of *Ionisation* (1933) in New York included composer Henry Cowell as a performer. A year later, Cowell finished his own notable and enduring percussion ensemble piece *Ostinato Pianissimo* (1934). This now classic composition also validated the legitimacy of using unusual sounds and instruments by including a delicate, yet surprisingly melodic part, for *8 rice bowls*.

EXPERIMENTAL MUSIC

A year after composing *Ostinato Pianissimo*, Henry Cowell met and taught an up-and-coming 23-year old percussion student named John Cage. Cage had been closely observing changes in the world of percussion, and by 1937 declared that "any sound is acceptable to the composer of percussion music; he explores the academically forbidden

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[17] Adams, Daniel, "Surface Area Contrast As A Compositional Element in Elliott Carter's Moto Perpetuo" (Paper, Texas Southern University) [date unknown].

'non-musical' field of sound insofar as is manually possible."[18] In the *Eight Pieces*, Carter explored heavily the (perhaps previously thought) non-musical sounds of the timpani by requiring the performer to strike the instrument in numerous unconventional ways.

Three years later Cage would compose the classic *Living Room Music* (1940) in which any sound is acceptable, leaving the choice of what instruments to use up to the performer (with only general suggestions in the score, such as books and other common items). Leaving choices regarding instruments and sounds to the performer became a hallmark of much experimental music during the mid-twentieth century. Less emphasis was placed on the written score, and more liberty was given to the performer to create the music, and more importance put on the audience perception and experience as the century progressed. Cage also helped change the way that music was being presented on paper by not necessarily representing sounds "by means of the specialized symbols we call musical notation."[19] A good example is John Cage's score for *4'33"*, which simply contains a set of instructions that the player is to follow. Similarly, Carter's *Eight Pieces* contained very specific instructions on striking/playing area, but leaves choices for the performer such as mallet type, mutes, or the articulation of certain passages. Additionally, Carter uses different symbols in his score to represent rhythmic muting, and different beating spots.

[18] Gagne, "The Beaten Path," 4.

[19] Michael Nyman, *Experimental Music, Cage and Beyond* (United Kingdom: Cambridge University Press, 1994), 3-4.

However, much as the Machine Age may have influenced earlier composers, it may have been the influence of artists in other fields, such as the visual arts, that led composers like John Cage and Elliott Carter to experiment in their own compositions. In 1942, ten years before *4'33"* and only seven years before the first two of Carter's *Eight Pieces*, Pablo Picasso created a very compelling work of art when he put two found objects together, a bicycle seat and handlebars, and called it *Bull's Head*. Regarding this work of art, some have noted that "there is no attempt to play down the real-world identity of the constituent parts" and that the artwork's "simplicity draw attention to them."[20] To me, the parallel with Cage is how the simplicity of *4'33"* (all silence) draws attention to the musical importance of silence (as well as the resulting ambient sounds). The parallel with Carter on the other hand, may be how he takes a very conventional instrument like timpani, and forces both performers and listeners to conceive it in an almost completely non-conventional manner. The parallel for both Cage and Carter is the initial public response. Some shunned Picasso's piece as not being art, and many listeners did not regard Cage's and Carter's pieces as serious music when they were first performed. Others however, continue to see the considerable influence and genius in their work.

[20] Eric Gibson, "A Magical Metamorphosis of the Ordinary," *Wall Street Journal* (16 April 2011): 1, accessed February 21, 2013, http://online.wsj.com/article/SB10001424052748703551304576261042931202326.html

WORLD MUSIC

While drum set, multiple percussion, and experimental music were evolving in the twentieth century and influencing countless composers like Carter in the process, world music was also influencing Western composers during this time period. Reasons for the growing influence included the ease of travel for composers, ready access to new cultures in different parts of the world, and the increasing availability of recordings of all types in the twentieth century. Carter is known to have studied both East Indian and African music. This may explain the continuity of Carter's musical passages (similar to East Indian music) that blur the meter of the measure (Fig. 2-2). In figure 2-2, Carter slightly alters the accents and drum pattern during the continuous sixty-fourth note

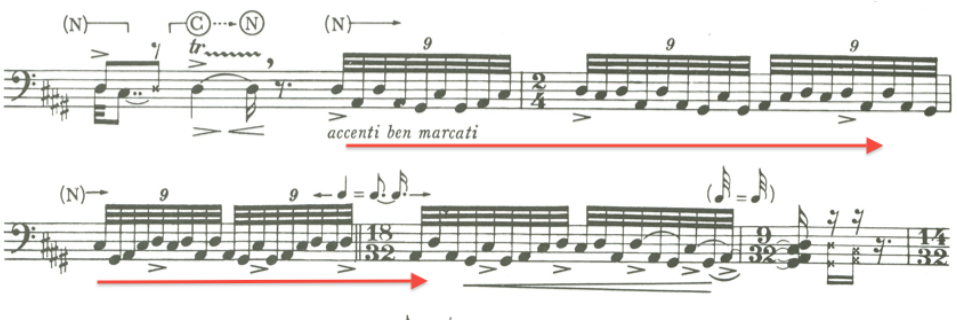

Fig. 2-2 (*Recitative* – Measures 22-25 – continuous musical line using groups of nine notes, with the use of accents blurring metric transitions)

passage, blurring the perception of the division between measures, creating one continuous line over the course of three measures.

The African music influence may be why Carter chooses to experiment with pulse and meter shifting (as the use of different pulse groupings and meters is a natural part of African drumming). Percussion historian James Blades explains how African drummers

learn meters aurally, playing rhythms they hear from the time they are born. In Africa, rhythms are used to *communicate*, forming various *drum languages* specific to each region or tribe. The mixing of different pulses is not uncommon, and E.M. Hornbostel notes that "the combination of binary and ternary time is characteristic of African metre in general."[21] Based on traditional African rhythms, the following example (Fig. 2-3) displays a passage made famous by African drummer Soungalo Coulibaly. On a djembe, the regular noteheads below the line represent a low *bass tone*, the regular noteheads on the line represent a medium range *tone*, and the *x* noteheads represent a higher pitched *slap*. The top line has a strong 12/8 feel. However, in the second line, the listener could perceive three measures of 4/4 or two measures of 12/8.

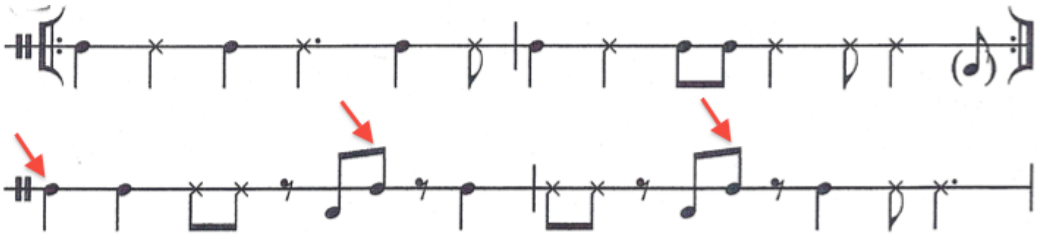

Fig. 2-3 (Traditional African rhythms with the *feel* of two different meters in the second line / arrows indicate the 4/4 division)

In the *Eight Pieces*, there are numerous examples of an implied pulse over a written meter. The following example (Fig. 2-4) displays a measure in 9/8 with an implied duple pulse through the use of accents.

[21] James Blades, *Percussion Instruments and their History* (Connecticut: The Bold Strummer Ltd., 1992), 67.

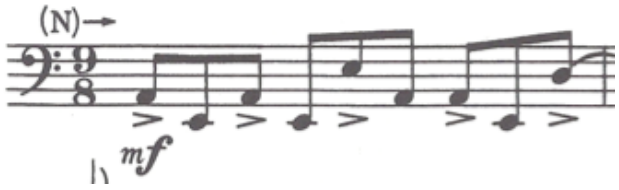

Fig. 2-4 (*Saëta* – Measure 39 – implied duple pulse in accents over metered pulse)

Twentieth century music likely had numerous influences on Carter and his *Eight Pieces*. The new trends in multiple percussion, drum set, percussion ensemble music, experimental music, and world music were just a few of those things. The artistic experiments of John Cage, Pablo Picasso, Edgar Varese, Igor Stravinsky, and other major artists of the early twentieth century left a lasting impression on many composers. The pieces that followed in the twentieth century, including Elliott Carter's *Eight Pieces*, advanced the idea that any *sounds* are musical, even if attained by unconventional means, and could be viewed as art.

Chapter 3 – *Eight Pieces for Four Timpani*

There were likely many influences on Carter when writing the *Eight Pieces* – multiple percussion, experimental music, and more – but how did Carter approach the writing of these pieces? Perhaps the best explanation is from the composer himself:

> "The *Eight Pieces*, you see, were written to develop notions of metric modulation as a sort of experiment. Because I then wrote my big *First Quartet* which uses all the little metric modulations that you find here in the *Eight Pieces* on a simplified basis. So, this was a kind of sketch for a string quartet – if you can believe it!"[22]
>
> -Elliott Carter

The experiment seems to have been a great success, because according to steveweissmusic.com, Carter's *Eight Pieces* continue to be the most popular work for solo timpani in 2013. The site further exclaims that these "are the most famous works ever written for this historic instrument" and that they contain "techniques and styles that were unheard on timpani before their creation."[23] These accolades are even more impressive, considering the large number of timpani solos that have been written by many gifted timpanists such as William Kraft, Mitchell Peters, Vic Firth, and many other notable composers.

Perhaps being a non-percussionist gave Carter a certain amount of liberty (during a time of much experimentation) to write what he wanted without being constrained by certain expectations of properness. Speaking at a percussion conference on the topic of creating more quality literature for the percussion family of instruments, famous marimba

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[22] Patrick Wilson, "Elliott Carter: Eight Piece for Four Timpani," *Percussive Notes* (October 1984): 65.

[23] Elliott Carter's *Eight Pieces for Four Timpani* full description, Steve Weiss Music, http://www.steveweissmusic.com/product/carter-eight-pieces-for-four-timpani/timpani-solo#full-description, accessed April 21, 2013.

soloist Vida Chenowith suggested the answer was simply to seek out good composers, regardless of primary instrument. She then went on to explain how she would travel across the world to meet and work with a well-respected composer so that she may commission the next great marimba concerto.

Today there are many non-percussionist composers writing for percussion, perhaps because of the easier access to performers and instruments, and the multitude of sonic possibilities. Composers may write for the nodes on the marimba (a bit unnatural for the marimbist), or write unnervingly fast pitch changes for timpani. At major film studios in Los Angeles it is not uncommon for a percussionist to use a complete circle of eight timpani, with a couple of other drums on the outside (a solution for dealing with multiple pitch changes; instead of pedaling the notes, just have more drums!). Experimental writing can also yield negative results, especially if it strains the technique of a performer. However, if it is accessible, then it can elevate the level of intrigue, artistry, and musicianship to new levels of accomplishment and musicality. This appears to be the case with the *Eight Pieces*, as they have engaged percussionists on various musical levels ever since they were composed.

While written to experiment with metric modulation, the *Eight Pieces* offer a variety of other musical challenges. However, when first written, they contained little in the way of performance notes. Morris Lang remembers seeing a copy of the original manuscript that "did not have any pedal changes…explanations about mallets, beating spot, harmonics, muffling, or even exact note values of ringing notes."[24] Over time,

[24] "Elliott Carter's 'Six Pieces for Kettledrums (4)," Rhythm Discovery Center, accessed April 24 2013, http://rhythmdiscoverycenter.org/onlinecollection/elliott-carters-six-pieces-for-kettledrums-4/?doing_wp_cron=1370229779.6434481143951416015625

Carter would add more performance notes as he began to receive feedback from timpanists. Looking at an excerpt from an early version of *Saëta* may give us musical insight into Carter's thinking regarding musical phrasing before a metric modulation (Fig. 3-1). By following Carter's suggestions, the emphasized A during the 9/8 will

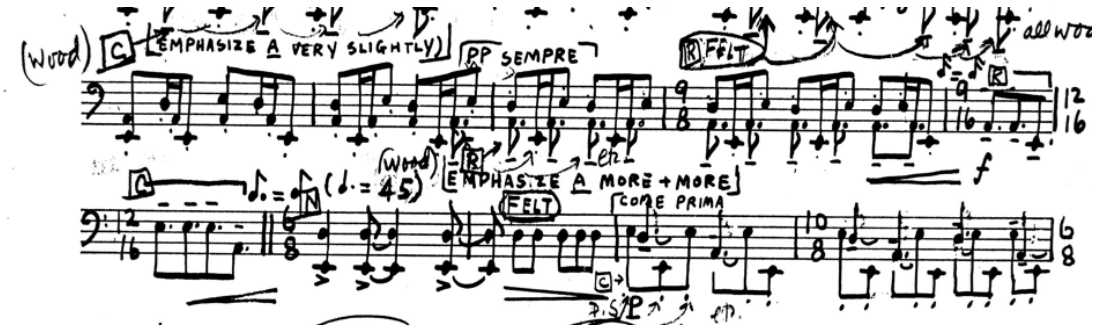


Fig. 3-1 (*Saëta* – Measures 68-77 – early manuscript with notes regarding an upcoming metric modulation)

foreshadow and set up the main pulse that follows in the 9/16 and 12/16 measures. Curiously, these notes do not appear in the revised publication at this point in the music. That Carter wants the performer to prepare the modulation to make it a smoother transition suggests to me that Carter wants the metric elements to be the emphasis. Carter also uses separate dynamic and phrase markings to highlight the articulation of implied pulses throughout the *Eight Pieces*. A good example of this is in *March* (Fig. 3-2). In this early manuscript, Carter uses legato markings and separate dynamic markings for the implied pulses in the upper voice (stems up), and staccato markings for the lower voice (stems down). This figure, like figure 3-1, gives us insight into Carter's thinking about creating differences in phrasing between two sets of simultaneous pulses – making music out of the metric elements.

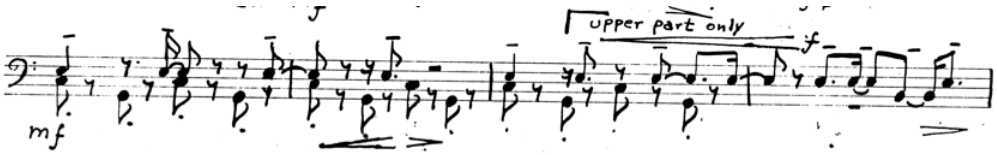


Fig. 3-2 (*March* – Measures 4-7 – early manuscript showing separate dynamics and legato markings for upper part)

After the initial reaction from his early manuscripts, Carter met with timpanists to work out the revisions, adding performance notes regarding mallet selection, muting, and the many other elements that make the *Eight Pieces* unique and challenging, yet accessible and rewarding. A reflection of the evolution in music that was ongoing during this time period, the *Eight Pieces* offer the performer many unique opportunities for artistic expression.

Chapter 4 – Musical Metrics

There are a variety of ways that musical *time* can be notated by a composer, performed by a player, and perceived by a listener. One particular rhythm or sequence can often be perceived many different ways. For the performer, awareness of potential differences in perception can influence musical phrasing and articulation decisions.

Researching the phenomenon of musical perception, Jeanne Bamberger conducted a study with college students and children. This research asked children to pictorially represent counts for a rhythm they heard. The participants produced different representations for the same rhythm. They were then asked to describe to adults exactly why their results were correct and acceptable, and all offered cogent arguments related to musical time and space.[25]

Carter's *Eight Pieces* offer a plethora of perceptive and interpretive opportunities related to time and space based on musical information in the score. This nomenclature includes time signatures, implied pulses, accents, beaming, accelerandos, and metric modulations. By decoding Carter's compositional techniques related to time, the performer will inject vivacity into these musical elements.

TIME SIGNATURE / METER / PULSE

The first musical indication on the first staff of a score is the time signature or meter. This important piece of information provides insight into what the composer

[25] Jeanne Bamberger, *The Mind behind The Musical Ear*. (Cambridge: Harvard University Press, 1991), 31-33.

usually intends to be the dominant feel of the music to be. For example, a time signature of 3/4 indicates that the quarter note is the dominant pulse in each bar of three beats. A performer would be inclined to feel the quarter note pulse as dominant. Composers often write certain time signatures because they feel the music that way, and want the performer to feel it the same way so that they communicate the meter to the listener. A candid example appears in Leonard Bernstein's *America* from *West Side Story*. In this excerpt from the percussion part (Fig 4-1) the meter indicates the alternating feel of each measure. The beaming of the notes then bolsters the feel of the meter.

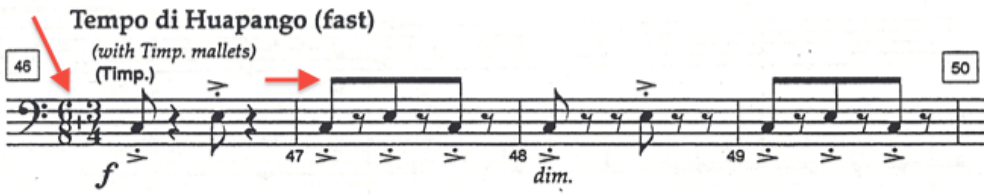


Fig. 4-1 (*America* from *West Side Story* – Measures 46-49 – meter and beaming convey the feel intended by the composer)

In Elliott Carter's music, a simple example of the composer conveying the feel of the meter can be found at the beginning of *March* (Fig. 4-2). In this example, the performer would be expected to initially feel and convey a quarter-note pulse. The 4/4 meter is emphasized by the steady notes played by the left hand on each quarter-note pulse (stems down with staccato indications).

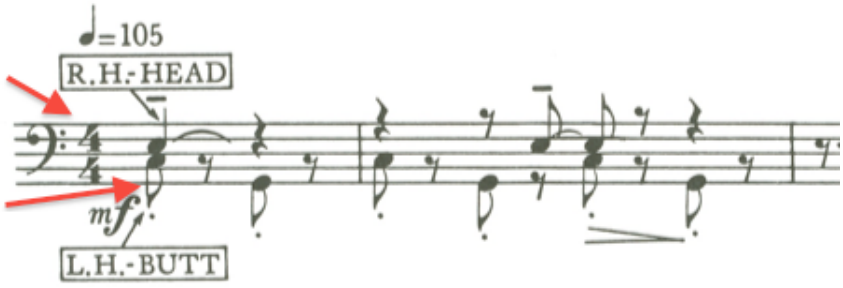


Fig. 4-2 (*March* – Measures 1 & 2 – meter and stems down notes convey the feel intended by the composer)

TRANSITIONAL METERS

A *transitional meter* is a meter that aids the performer in transitioning smoothly from the main pulse of one meter to the main pulse of another meter. Considering the visual information and notation in the *Eight Pieces*, Carter occasionally renders the meter secondary to the pulse. For example, in *Recitative* (bar 26), a measure written in 14/32 time is followed by a 2/4 measure (Fig. 4-3). Besides the uncommon use of a 14/32 time signature, it feels unnatural to use the thirty-second note as the division of the main pulse,

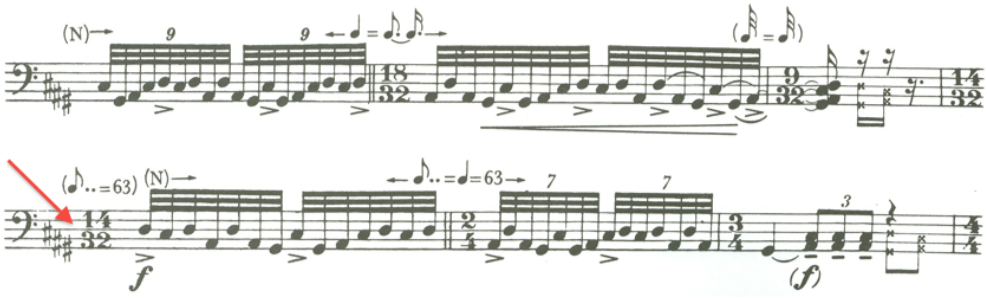


Fig. 4-3 (*Recitative* – Measures 23-28 – use of a *transitional meter*)

when there are equally spaced accents and seven-note groupings that clearly divide the measure into two halves. The next measure, in 2/4, gives validity to emphasizing the seven-note group or the quarter-note pulse, more than the thirty-second note pulse in the

previous measures. I would call the 14/32 in this case a *transitional meter*, as it seems intended to transition from the flurry of thirty-second notes in the previous measures towards the feel of the 2/4, and ultimately the 3/4, measure that follows. If that is correct, then the performer may play the accents slightly louder than normal in the 14/32 measure, and play the unaccented thirty-second notes softer, thus presaging the feel of the 2/4 measure more clearly. Recognizing transitional meters helps the performer articulate and communicate clearly the musical content to the listener.

IMPLIED PULSES

An *implied pulse* is a pulse that conveys a different feel than the pulse indicated in the meter. Throughout the *Eight Pieces* implied pulses are revealed through the use of accents, legato markings, and the even spacing of notes. Sometimes an implied pulse gives the music a polyphonic feel, as simultaneous pulses tend to compete with each other for the listener's attention. A good example in *Saëta* shows an eighth-note pulse in the 9/8 time signature, after which Carter layers equally spaced long notes (on D with stems up) with different dynamic markings, suggesting a different meter (Fig. 4-4).

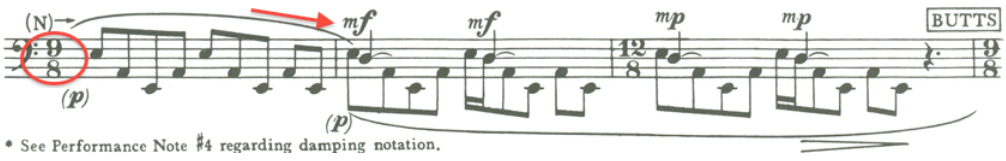


Fig. 4-4 (*Saëta* – Measures 60-62 – *implied pulse* on D with *mf* and *mp* dynamic markings)

A more subtle example is a monophonic line in *Recitative*. In this example, Carter places evenly spaced accents, every five pitches, within an unusual pattern in 4/4 time (Fig. 4-5).

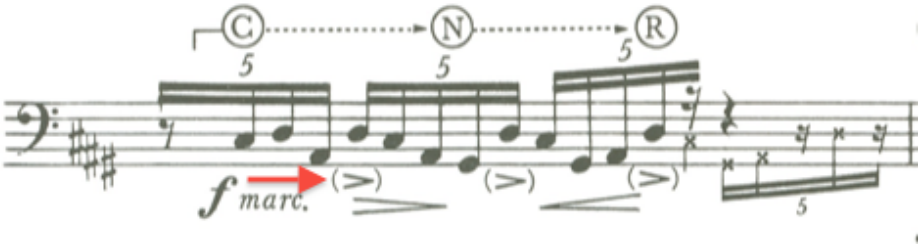


Fig. 4-5 (*Recitiative* – Measure 16 – *implied pulse* suggested by parenthetical accents)

When Carter introduces an implied pulse, he is often effectuating a previous motive, or foreshadowing a meter, as is common with metric modulations. At other times, Carter's implied pulses fill neither requirement, and appear somewhat randomly placed. Consequently, an awareness of implied pulses should influence a performer's approach to articulation, perhaps affecting one to assert an implied pulse and confound the notated pulse.

ACCENTS / BEAMING / MELODIC PATTERNS

Other techniques that Carter employs include the beaming of notes, grouping of accents, and use of melodic patterns that make the meter intentionally vague. Nowhere is this more obvious than in the excerpt from *Recitative* (Fig. 4-6). Beginning on count 4 in bar 22, the meter is strengthened by the thirty-second notes beamed in groups of 9.

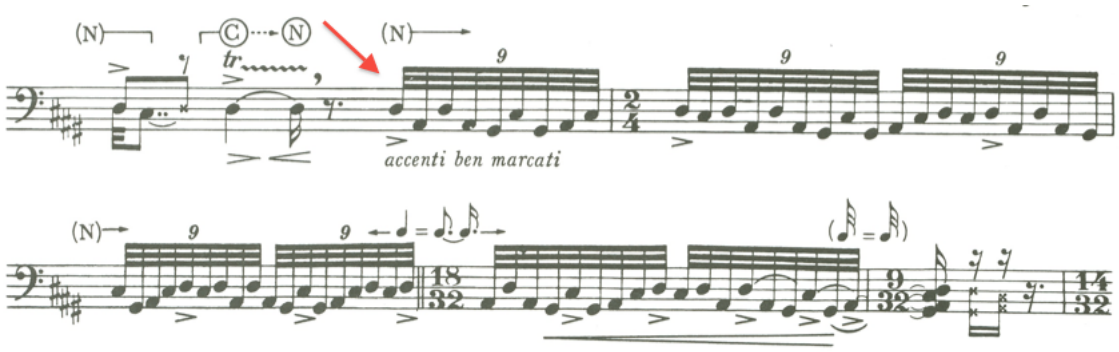


Fig. 4-6 (*Recitative* – Measures 22-25 – use of accents, beaming, and melodic pattern to blur the meter)

However, starting in the 2/4 measure, the actual melodic cell becomes an 11-note pattern that repeats four times. To add yet another level of complexity, Carter adds accents that change from one repetition of the 11-note pattern to the next. Of the 3 elements in this passage – accents, beaming, and melodic pattern – only beaming reinforces the meter. However, one is more likely to actually hear the accents and melodic pattern than the overriding meter. When played, one hears a flurry of seemingly unorganized thirty-second notes that are tied to no apparent meter or pulse. By measure 27 (Fig. 4-7), Carter aligns two of the three elements – accents and beaming – with the meter. The only

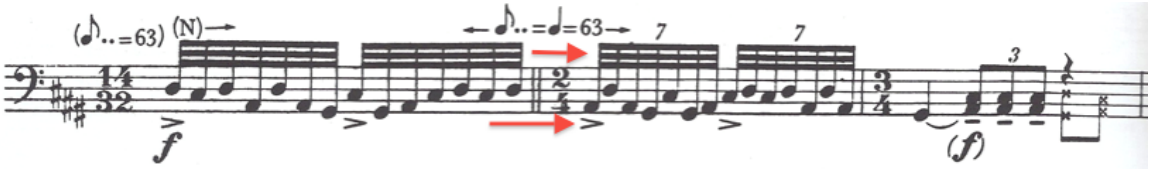


Fig. 4-7 (*Recitative* – Measures 26-28 – accents and beaming reinforce the 2/4 meter in bar 27)

element that confounds the metrics is the melodic pattern.

Awareness of these independent elements will help a performer with phrasing decisions. In the above excerpt (Fig. 4-6) it appears that Carter has intentionally placed

the accents in places that make the pulse vague. Then immediately following (Fig. 4-7), Carter places the accents to emphasize the quarter note pulse of the time signature. Carter appears to frequently vary the use of accents, beamings, and melodic patterns as a means for cycling through musical time.

IN-TEMPO ACCELERATION / NON-METERED ACCELERATION

There are several ways for a composer to create the effect of acceleration. Writing an *accel* within a passage, increasing the amount of notes per pulse, and decreasing the space between notes or accents are a few of the techniques that Carter utilizes. At the beginning of *Saëta* (Fig. 4-8), there are directions to <u>*ad. lib*</u> and <u>*accel.*</u> There is no time

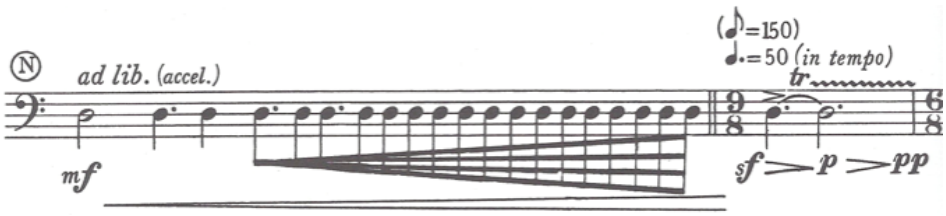


Fig. 4-8 (*Saëta* – Measures 1 & 2 – *non-metered acceleration* in measure 1)

signature and the actual notation visually accelerates. Therefore, the performer must determine the tempo of the first few notes of this *non-metered acceleration*, as well as the rate and pace of notes that follow. It is interesting that Carter allows this level of interpretative freedom, considering how many performance indications are given throughout the *Eight Pieces*. As a result, performances of this opening gesture will vary greatly depending upon the performer's unique interpretation.

Much more common to Carter's technique of speeding up in the *Eight Pieces* are the different ways that he has of *metering* accelerations. One of his methods is simply increasing the number of notes in a beamed grouping of notes in consecutive parts. A good example of this is in *Improvisation* (Fig. 4-9). Starting at the 2/2, there are groupings (or beamings) of 5 notes per half-note pulse. Carter increases the subdivision to 6 notes, and then 7 notes. Even though the accents reinforce the half–note pulse, the

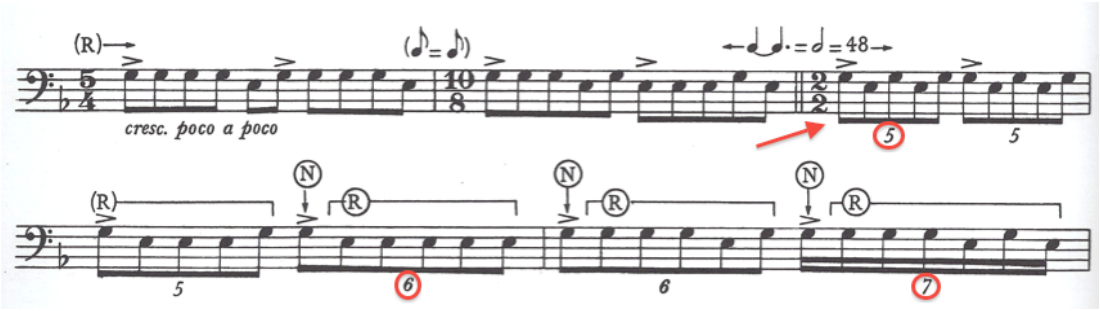


Fig. 4-9 (*Improvisation* – Measures 40-44 – example of an *in-tempo acceleration* starting at bar 42)

gradual increase in the notes per pulse gives the impression that one is speeding up. Because the tempo remains static, I call this compositional device an *in-tempo acceleration*.

Another particularly clever example of an in-tempo acceleration occurs in *March* (Fig. 4-10). In this example, he creates the effect of speeding up in one voice, while maintaining a steady pulse in the other voice. One perceives the musical effect of 5 notes against 3 (quarter-notes), and then 6 notes against 3 (quarter-notes). A performer needs to convey both effect of steadiness and acceleration.

Fig. 4-10 (*March* – Measures 30-31 – in-tempo acceleration in stems-down notes against a steady pulse in the stems-up notes)

Another method used by Carter to create an in-tempo acceleration is to *reduce the space* between accented notes. A perfect example of this technique is in *March* (Fig. 4-11). From bar 58 through bar 62 there is a steady stream of sixteenth-notes. However, by reducing accents from every four note group, to every three, to every two, Carter creates the effect of speeding up, without accelerating the tempo.

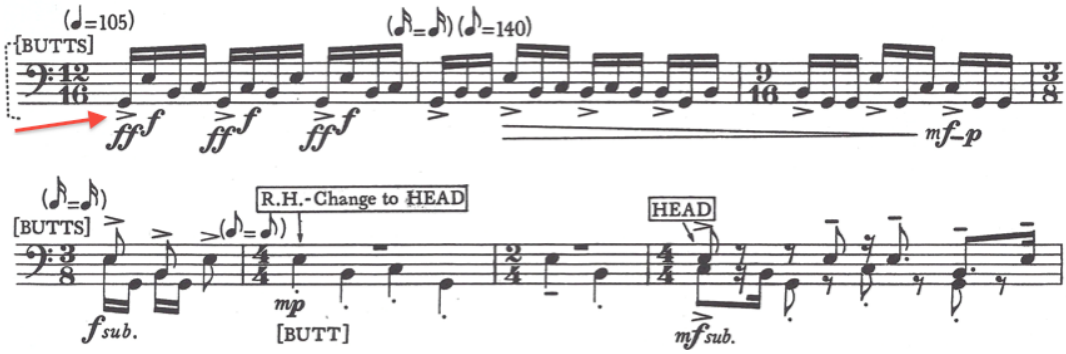


Fig. 4-11 (*March* – Measures 58-64 – reduction of space between accents to create an *in-tempo acceleration*)

In the following excerpt from *Canaries* (Fig. 4-12) Carter combines two techniques for achieving an in-tempo acceleration into one musical line. He employs an increase in the number of notes per pulse before a metric modulation, and a lessening of the space between accents after a metric modulation, to create the effect of drastically

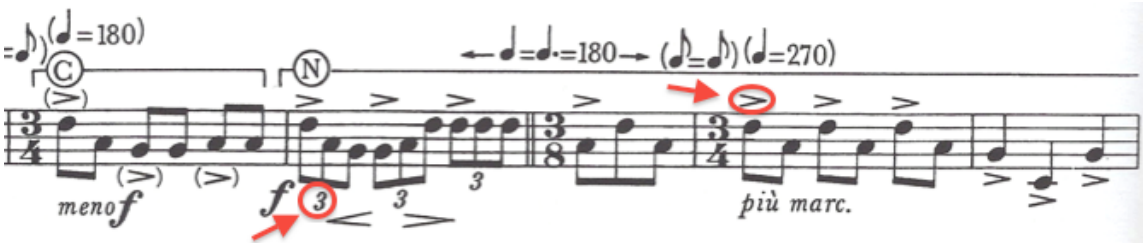


Fig. 4-12 (*Canaries* –Measures 18-22 – increase in notes per pulse from measure 18 to 19 / reduction of space between accents from measure 20 to 21, creating an *in-tempo acceleration*)

speeding up. From measure 18 to 19 (before the metric modulation), Carter increases the number of notes per pulse from two to three. Then, from measure 20 to 21, Carter lessens the space between the accents from every three notes to every two notes.

Carter is a master of time manipulation. Through creative uses of transitional meters, implied pulses, accents, note groupings, and in-tempo accelerandi, Carter transports us through musical time in numerous fashions throughout the *Eight Pieces*. These assorted musical metrics are made more remarkable by the fact that Carter confessed to using the *Eight Pieces* as an experiment to prepare for the composition of his first string quartet – an experiment with the time-related musical element for which Carter is most famous: metric modulation.

Chapter 5 – Time Travel

METRIC & TEMPO MODULATION

> "Metric modulation is a technique for shifting from one tempo to another. As it was first developed, it was similar to harmonic modulation in that something had to be common to both tempos – a metric unit that proceeded at the same speed in both tempos." -Arthur Weisberg[26]

This appears to be a straightforward idea. Assuming there is a related note value from one meter to the next, one can transition to a different tempo by simply changing the basic unit of pulse or meter. A good example of this can be seen below (Fig. 5-1). When transitioning from the pulse of a quarter-note in 3/4, to the pulse of a dotted quarter-note in 6/8, one calculates the speed by determining the smallest common value – in this case, the eighth-note. If the quarter-note = 90 in 3/4, a simple mathematical calculation reveals that the eighth-note = 180, or twice as fast. If we divide 180 by 3 (since there are three

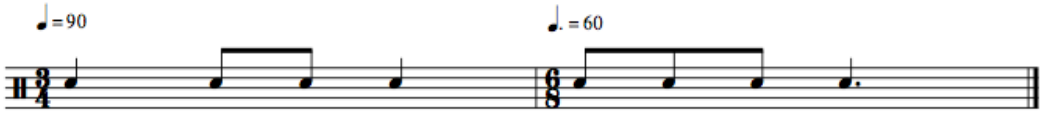


Fig. 5-1 (Example of metric modulation from a tempo of 90 to a tempo of 60)

eighth-notes in a dotted quarter-note) then we get the tempo of the dotted quarter-note pulse in 6/8 – a tempo of 60. In figure 5-1, the 6/8 may *feel* slower, even though the pacing of the eighth-notes stays constant, due to a change in the pulse reference from quarter-note to dotted quarter-note.

[26] Arthur Weisberg, *Performing Twentieth Century Music: A Handbook for Conductors and Instrumentalists* (New Haven: Yale University Press, 1993), 51.

The process of metric modulation became very complex in the mid-twentieth century with the expanded use of the metronome, and the work of composers like Elliott Carter. In an example from *Improvisation* (Fig. 5-2), Carter cycles through transitions that take the music from quarter-note = 168 (bar 16), to half-note = 60 (bar 27).

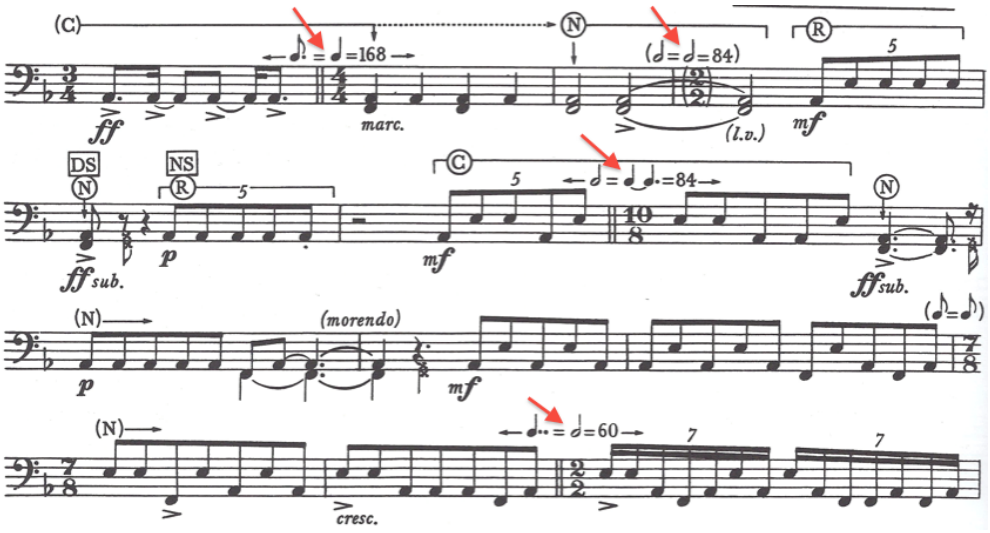


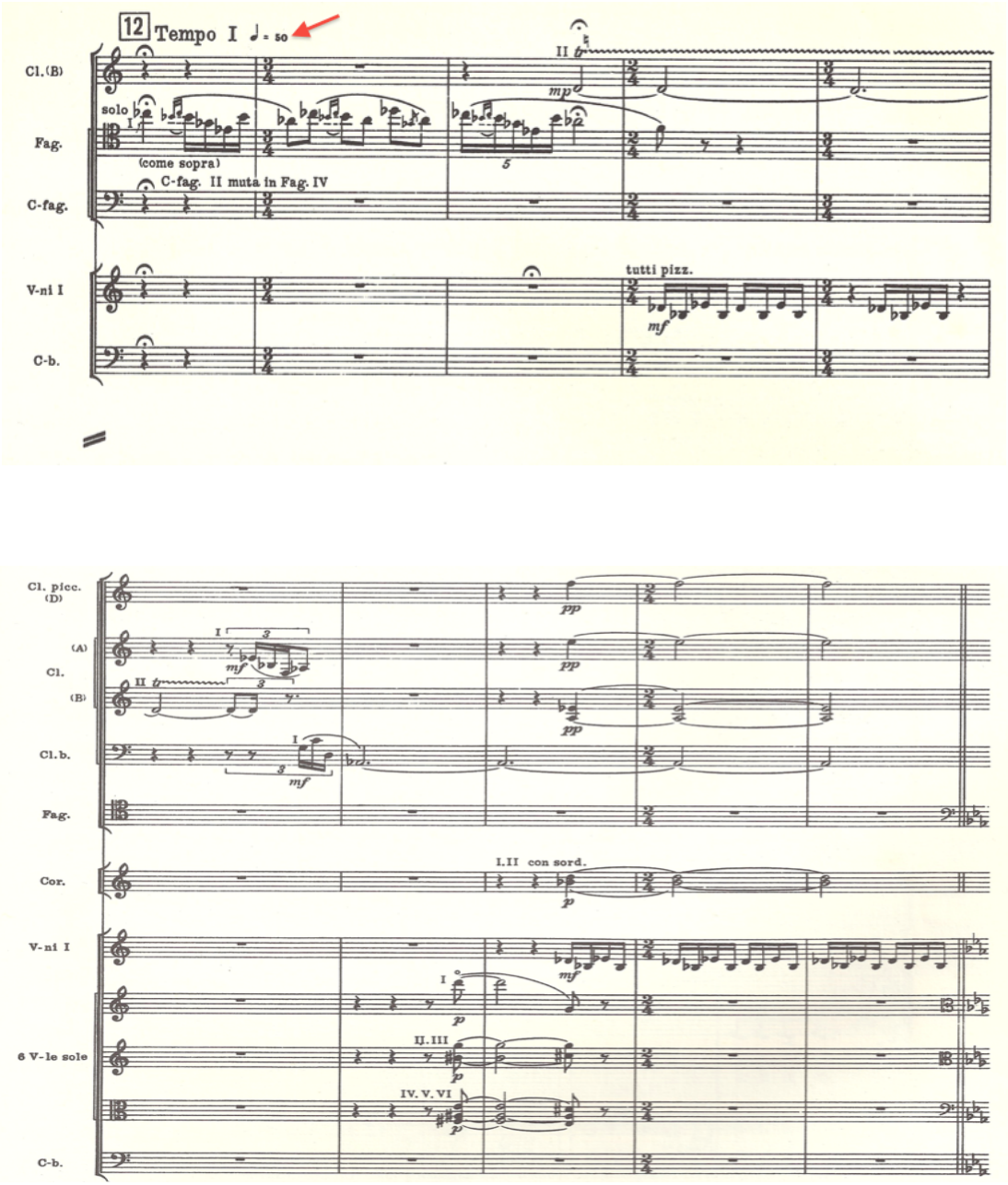
Fig. 5-2 (*Improvisation* – Measures 15-27 – several metric modulations)

Complex tempo shifting is possible because of the commonalities between the measures. There are many examples of tempo or meter shifting before the work of Elliott Carter. By considering these examples, we may gain insight into Carter's motivation for experimenting with metric modulation.

METRIC MODULATION BEFORE ELLIOTT CARTER

In Western music, early twentieth-century examples of metric modulation appear in the music of composers such as Igor Stravinsky and Charles Ives. In this famous transition in *The Rite Of Spring* (1913), Stravinsky modulates the tempo from quarter-

note = 50 to half-note = 50 (Fig. 5-3). This straightforward tempo modulation gives the music at that very point a momentum that can be felt by both performers and listeners.



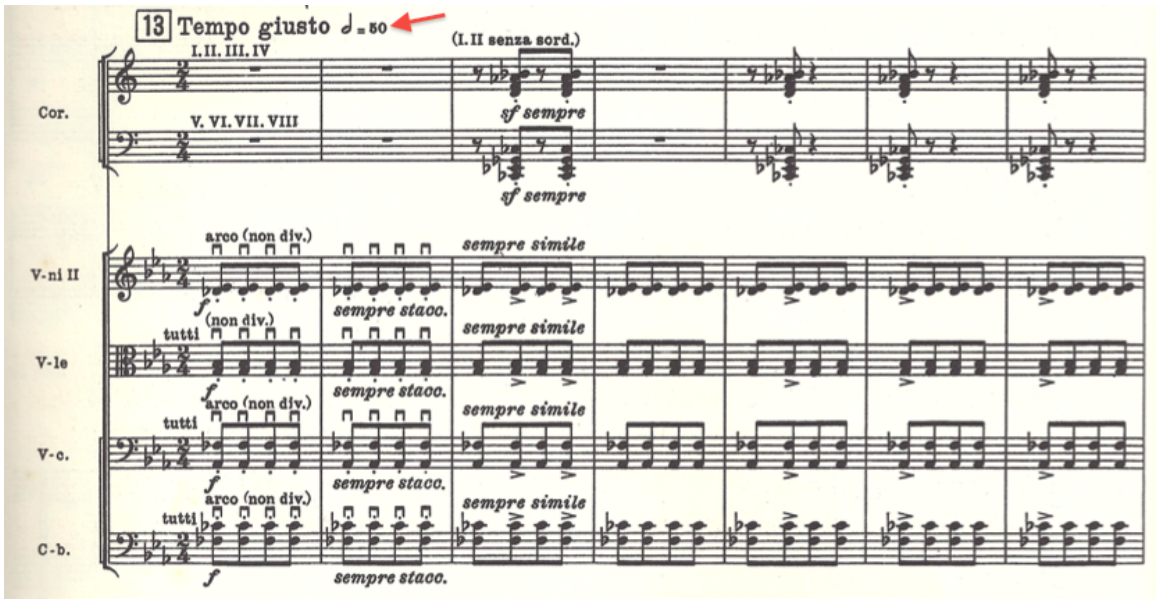


Fig. 5-3 (*Rite of Spring* by Stravinsky – transition from rehearsal number 12 to 13 / tempo modulates from quarter-note = 50 to half-note = 50)

The above example from Stravinsky is a pioneering example of metric modulation in which the speed of a specific note value before the transition (in this case, sixteenth-notes) becomes the speed of a different note value after the transition (eighth-notes) – a technique that Carter uses throughout the *Eight Pieces.*

The technique of metric modulation can be more complex than transitioning from one section to another and exchanging the speed of certain note values, as can be seen in the music of Charles Ives. In Part 2 of *Three Places In New England* (1935), simultaneous meters are created when Ives places instruments in the middle of the score into a completely different meter (Fig. 5-4). Against two measures of 4/4 time, Ives displaces the downbeat of selected instruments with two counts of rest (indicated by the 2/4 measure). He follows that with two measures, each equal to a dotted half-note, but metrically modulated to give each measure the feel of a whole note (indicated by the

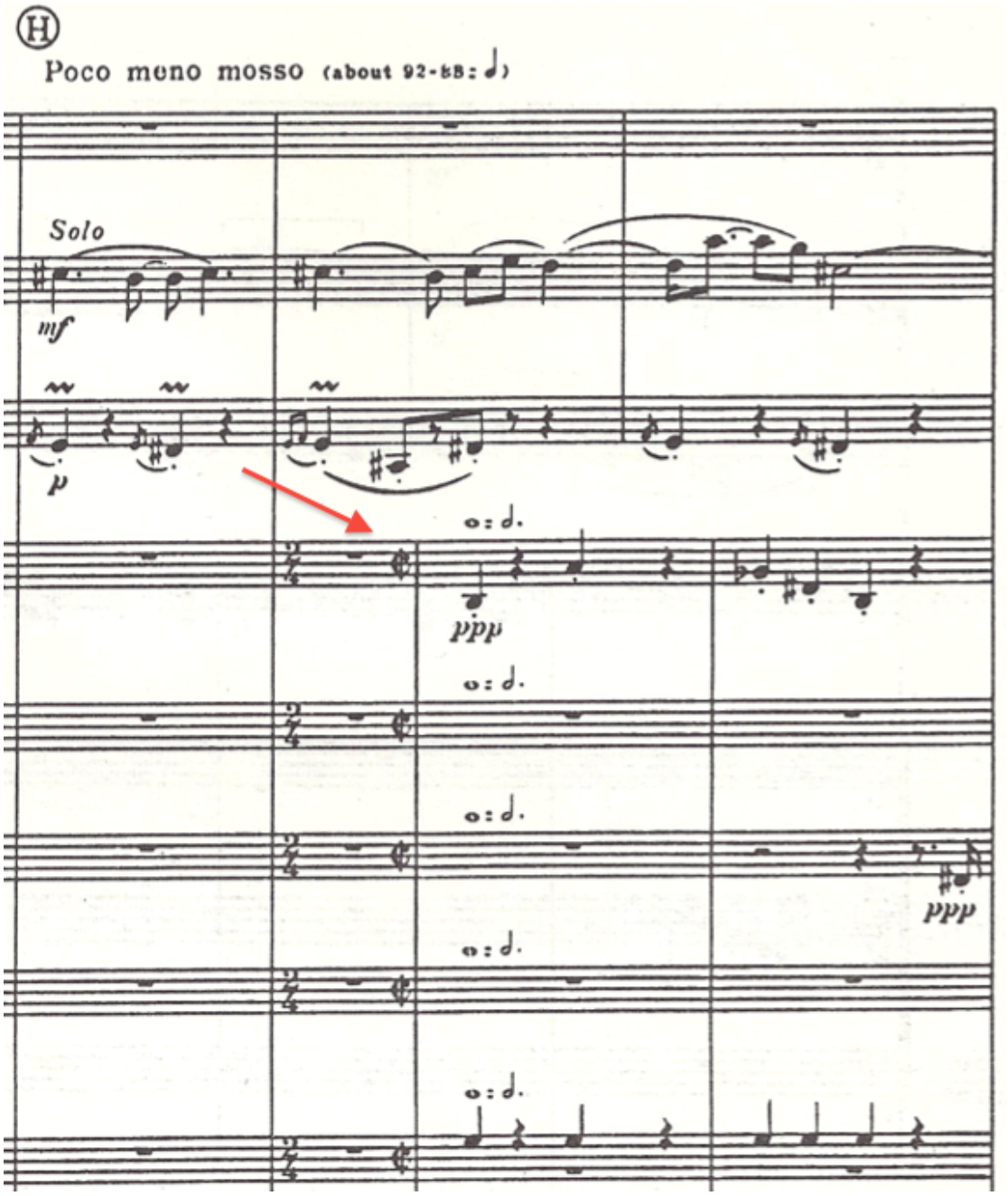


Fig. 5-4 (*Three Places In New England*, example of complex metric modulation)

whole-note = dotted half-note indication, and by the *cut time* symbol). At that point, there is an effect of two different pieces of music with two different tempos being heard at the same time. It is dazzling that the *randomness* in musical effect that Ives achieves

comes through the careful *control* of several elements within the score. While Carter did not write simultaneous meters within the *Eight Pieces*, Carter did (similar to Ives) exert a considerable amount of control (through the use of indications in the score and performance instructions) over musical effects that may be perceived as *random*.

Composers like Stravinsky and Ives created rhythmic effects of which Carter had been well aware, having had musical relationships with both of these composers. David Schiff writes that "Ives and the ultramodernists made a lasting impression on Carter, particularly in his thinking about rhythm...and…bequeathed Carter a rich legacy of ideas and musical concepts."[27]

CARTER'S USE OF METRIC MODULATION

Carter uses techniques of metric modulation in five of the *Eight Pieces*. These pieces are *Saëta*, *Recitative*, *Improvisation*, *Canaries*, and *March*. The process is usually accompanied by changes in pulse and tempo. However, Carter elevates this musical process by accompanying metric modulations with melodic and timbral phrasing to convey these transitions in a variety of ways. For example, Carter sometimes foreshadows a meter change by developing an implied pulse, through the use of both rhythm and dynamics, in the current meter. Carter also uses metric modulation as an element of form by introducing a theme, metrically modulating it (similar to a harmonic development section), then returning to the theme (a recapitulation) in the original tempo. In the five pieces that employ metric modulation, there are three main methods of metric

[27] David Schiff, *The Music of Elliot Carter 2nd Edition* (New York: Cornell University Press, 1998), 9.

shifts from one meter or tempo to another. These modulations can be broken down into what I call *straight shifting*, *altered shifting*, and *layered shifting*.

STRAIGHT SHIFTING (SS)

In this type of a metric modulation, one simply adds or subtracts beats from one meter to the next. This is similar to what Morris Lang has labeled *Type 1* metric modulation in his analysis of Carter's pieces, in which Carter uses more or less notes to achieve a tempo change (Lang's *Type 2* involves combining a group of notes that evolve into the next meter). [28] However, in an effort to clarify the thought process for the performer, I define *straight shifting* (SS) as a process whereby a *common note value* in both meters *stays the same* (eighth-note = eighth-note) and the part before the modulation is *monophonic*.

Measures 99-101 from *Improvisation* (Fig. 5-5) are a simple example of SS. In transitioning from 6/8 to 4/4, Carter keeps the quarter-note the same, simply adding one more quarter-note to the measure to get the 4/4 time signature. However, because the

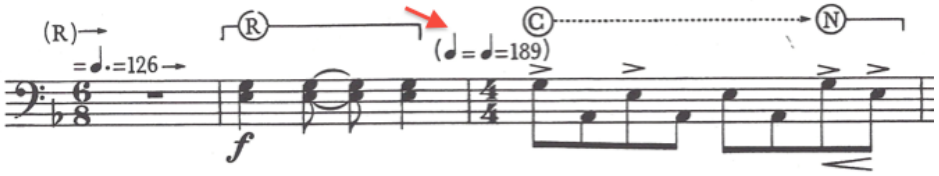


Fig. 5-5 (*Improvisation* – Measures 99-101 – example of *straight shifting*)

[28] Lang, Dowd and Cirone, *Percussion Master Class*, 29-30.

pulse reference changes from dotted quarter-note to quarter-note, the tempo changes from 126 to 189. Visually, the performer sees that a *note value = the same note value* with an accompanying tempo change – aurally, the listener perceives the music as faster, even though the note values remain constant. Carter sets up the new feel with the three quarter-notes in bar 100, a cross-rhythm that sets up the metric modulation.

Another example of SS, in *Saëta*, transitions from 9/8 (bar 40) to 2/2 (bar 41) by subtracting one eighth-note from the 9/8 time signature (Fig. 5-6). In measure 40, the

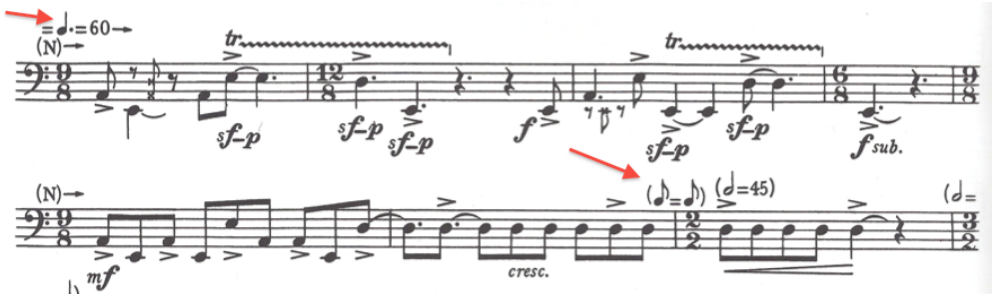


Fig. 5-6 (*Saëta* – Measures 35-41– example of *straight shifting*)

tempo reference is dotted quarter-note = 60. At measure 41, the eighth-note remains consistent, but the tempo reference changes to half-note = 45. Again, while the note values stay the same, the tempo changes.

Besides emphasizing the pulse of each meter in the above figure, a performer must also emphasize the *implied pulse* in measure 39 that is indicated by the evenly spaced accents, further obscuring the metric pulse – indeed part of the genius of these pieces. All of these elements (the main pulses and implied pulses) add an element of instability to Carter's music, akin to the dichotomies of dissonance and consonance, or tension and resolution.

ALTERED SHIFTING (AS)

In the second identified type of metric modulation, the pulse of *one note value (or set of note values) is replaced by a different note value (or set of note values)*. In this scenario, as in SS, the part before the modulation must be *monophonic* in texture. I call this type of transition *altered shifting* (AS), because a note value is altered (to a new note value) from one meter to the next. A straightforward example of AS occurs in measures 71 to 72 of *Improvisation* (Fig. 5-7). Here Carter changes the half-note pulse of the previous section to the dotted half- note in the next section. What makes this example

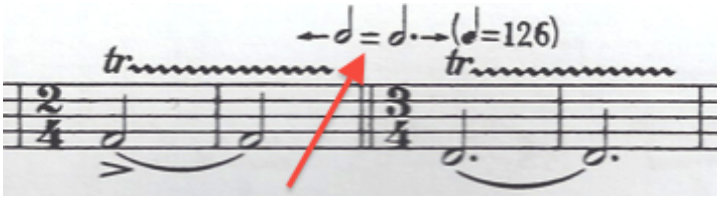


Fig. 5-7 (*Improvisation* – Measures 70-73 – example of *altered shifting*)

interesting is that the quarter-note is referenced in parenthesis. This quarter-note pulse is not revealed until several bars later because of the long sustained rolls. The performer must mentally subdivide the *quarter-note* before and after this modulation *during* the rolls, so that the modulation is accurate.

In another example of AS (Fig. 5-8) from the first sixteen measures of *Canaries*, Carter changes the dotted sixteenth-note from measure 10, to the eighth-note of the measure 11. Interestingly, the actual pulse reference, the dotted quarter-note, stays the same, and so it is the change in note value that creates the new tempo in measure 11 (the change from 90 to 120). In typical Carter fashion, he foreshadows this change in tempo

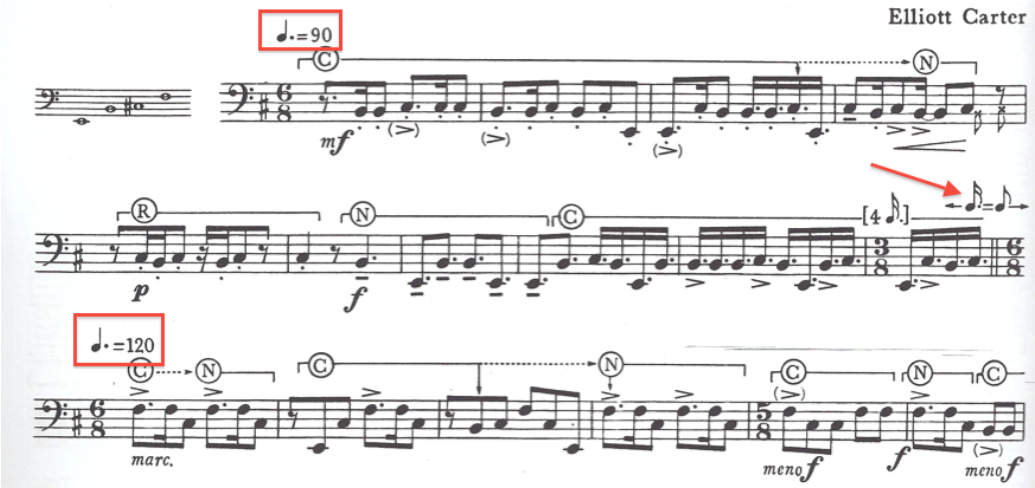


Fig. 5-8 (*Canaries* – Measures 1-16 – example of AS, dotted sixteenth becomes eighth-note from measure 10 to 11)

with accents in bars 9 and 10. These accents occur on every third dotted sixteenth-note, which becomes the pulse reference for the new tempo. Therefore, a performer should articulate these accents to presage the upcoming change in tempo. By measure 25 Carter metrically modulates a few more times, getting back to dotted quarter-note = 90 from the beginning – taking the listener full circle from a slower tempo to an extremely fast tempo and back to the slower tempo – a creative series of modulations and momentum shifts of which Jan Williams (the timpanist who helped Elliott Carter with the 1966 updates of the *Eight Pieces*) describes as "nothing short of brilliant."[29]

In a clever example of combining SS and AS into one musical line in *Canaries*, Carter makes a transition from dotted quarter-note = 90 (bar 43) to dotted quarter-note = 120 (bar 44), and then to quarter note = 120 (bar 47), all while maintaining evenly paced accents throughout the phrase (Fig. 5-9). The gradual crescendo that starts in measure 42

[29] Jan Williams, "Elliott Carter's 'Eight Pieces for Timpani'—The 1966 Revisions," *Percussive Notes*, December 2000, 14.

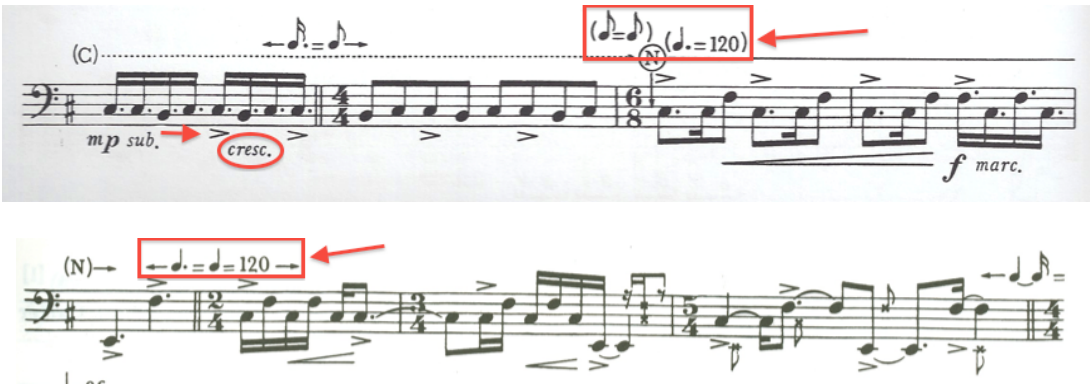


Fig. 5-9 (*Canaries* – Measures 42-49 – combination of SS and AS in one musical phrase)

reinforces the idea of the evenly paced accents. A performer should build these accents evenly across the entire phrase, through the SS and beyond. Thus, Carter's use of musical devices such as accents, dynamics, and timbral changes (indicated by the circled C and N in the example) that accompany the metric modulations gives this excerpt a musical complexity that must be considered in performance.

LAYERED SHIFTING (LS)

SS and AS involve parts that are monophonic in texture. However, the third type of metric modulation identified involves polyphonic textures, and I will refer to it as *layered shifting* (LS). These transitions contain polyrhythms, or multiple layers of simultaneous rhythms, in which *one of the simultaneous rhythms foreshadows the next meter*, and then becomes the basic pulse of the next meter.

A good example of LS starts in measure 20 of *Saëta* (Fig. 5-10). Starting in the 5/8, Carter evenly spaces the A and D and requires the performer to grow these notes dynamically over the rest of the line. By measure 26, it becomes the basic pulse for

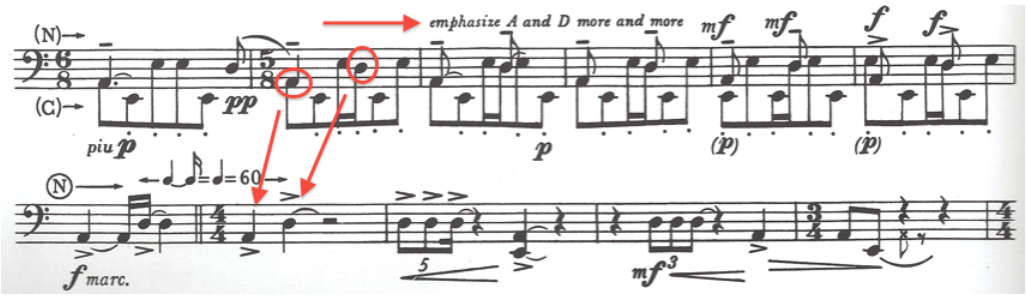


Fig. 5-10 (*Saëta* – Measures 19-29 – example of *layered shifting* starting in measure 20)

the 4/4 section. In this instance, Carter gradually builds the feel of the new section into the previous section. The performer must start thinking about the A and D notes as the new pulse by the second measure of the 5/8. This helps forecast the new feel out of the previous feel so the transition is smooth and unnoticeable – meaning that the listener may simply perceive a disappearance of the eighth-note feel of the previous section, instead of an actual change in the pulse.

Possibly the most complex example of LS in all of the *Eight Pieces* (and indeed one of the most challenging sections to perform) appears in the middle of *Canaries* (Fig. 5-11). Starting at the dotted quarter-note = 64 (bar 60) and ending at the quarter-note = 162 (bar 78), Carter puts the right hand of the performer through a series of metric modulations while essentially keeping the left hand steady. Adding to the challenge is the gradual movement of the left hand from the center to of the drum to the normal playing area (in addition to the crescendo) from measures 68 to 70, requiring coordination and independence on the part of the performer in order to achieve. This

section is so challenging that Morris Lang actually offers in his performance guide some additional exercises that help the performer develop independence between the hands.[30]

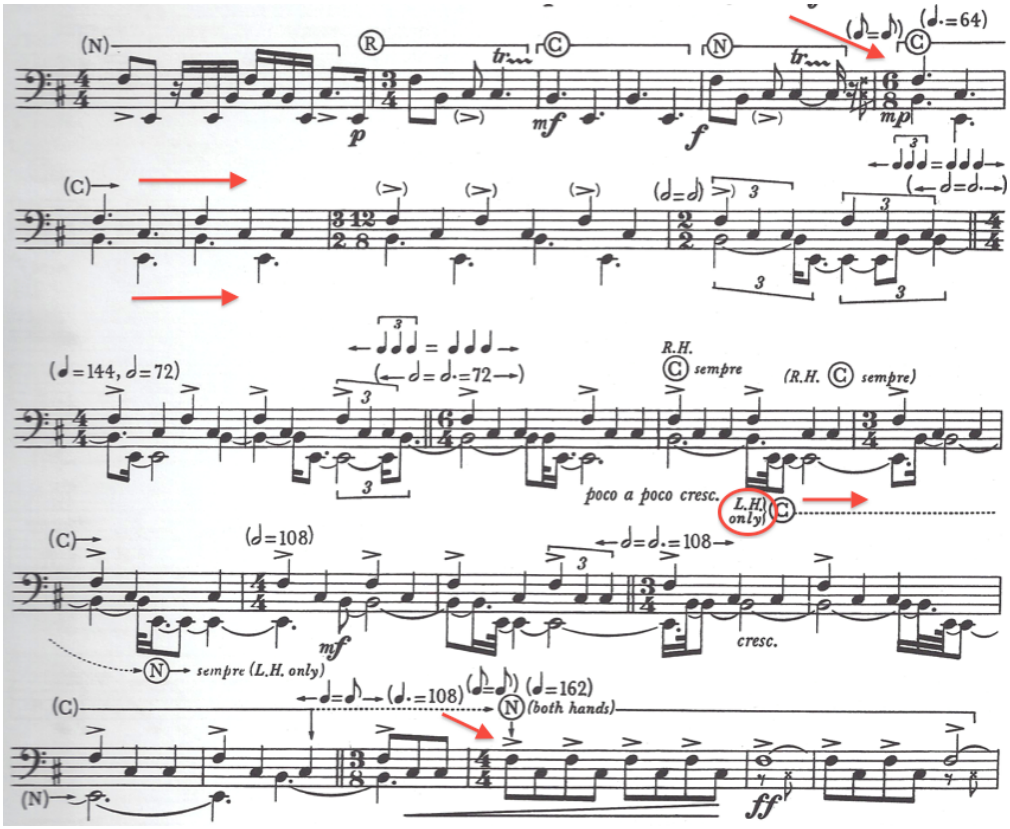


Fig. 5-11 (*Canaries* – Measures 55-80 – complex example of LS)

In the process of experimenting with metric modulation Carter expanded the complexities of musical time travel. He employed different styles of shifting between tempos, and often accompanied these transitions with several other musical devices. Regardless of the type of shifting employed, Carter often used accents, dynamics, timbre

[30] Morris Lang, Charles Dowd and Anthony Cirone, *Percussion Master Class on Works by Carter, Milhaud, and Stravinsky* (Maryland: Meredith Music Publications, 2010), 23.

changes, and other elements to make these moments more engaging – even at times combining different types of shifting within a single musical phrase. The performer of the *Eight Pieces* should be cognizant of all these musical elements and how they interact.

Chapter 6 *Saëta* and *March*

Saëta and *March* are the first and last pieces of the *Eight Pieces*, respectively. They are complex and employ many techniques and concepts discussed thus far, yet they are also very accessible to both the performer and the listener. On a small scale, they are an intriguing and entertaining gateway into the complexities of the *Eight Pieces*, and on a global scale contemporary music in general. There are several reasons why these pieces are so palatable for performers and audiences, including form, tonality, and aesthetics. This section will comment briefly on these elements, and present an overview of *Saëta* and *March* with reference to the ideas presented in previous chapters and an emphasis on the time-related musical elements that Carter employs.

FORM

Both movements employ a type of form that is reminiscent of Classical sonata-allegro form (Fig. 6-1). Both movements introduce a recognizable theme at a specific tempo, have a development section with variations, and eventually modulate metrically back to the opening thematic material toward the end. Because even the casual listener will very likely perceive the musical form of these pieces, the performer should strive to make the transitions through the metric modulations (and other time related elements) accurate to achieve a return to the themes at the initial tempos.

SAËTA – General Form

Section	Measures	Main Idea
A	1-25	Opening Thematic Material
B	26-75	Development
A-1	76-90	Recapitulation (Return of Opening Thematic Material)
Coda	91-96	Ending Material

MARCH – General Form

Section	Measures	Main Idea
A	1-14	Opening Thematic Material
B	15-61	Development
A-1	62-76	Recapitulation (Return of Opening Thematic Material)
Coda	77-79	Ending Material

Fig. 6-1 (Saëta & March – chart shows similarities between the two pieces in general form)

TONALITY

While the *Eight Pieces* were an experiment with metric modulation, most of the pitches remain fixed. However, Carter was also trying new methods of harmonic organization with the *Eight Pieces*, including experimenting with four-note tetrachords that he would use in other compositions.[31] With *Saëta* and *March*, each piece centers around the pitch interval of a perfect fourth. This interval is natural for both the timpanist and the listener due to its common historical use by composers. The Classical and Romantic Eras in Western music are filled with examples of timpani parts that employ the pitch interval of a perfect fourth – an interval that reinforces a tonic-dominant relationship. These examples include most of the timpani parts in symphonies composed by Haydn, Mozart, and Beethoven.[32] As well, many of the Romantic composers such as Schubert, Mendelssohn, Schumann, Brahms, Dvorak, and Tchaikovsky utilized the

[31] Schiff, *The Music of Elliot Carter,* 132.

[32] Morris Goldenberg, Classical Symphonies for Timpani (New York, N.Y.: Chappell & Co., Inc., 1963).

interval of a perfect fourth in many of their timpani parts.[33] One great specific example is Shostakovich's Symphony No. 5 – one cannot ignore the perfect fourth that is pounded out on timpani at the end of this piece! Because of this strong historical use, performers of *Saëta* and *March* should approach musical phrasing in certain sections of these pieces similar to how one might approach the tonic-dominant timpani parts often used in symphonic music.

In *Saëta*, the interval of a fourth (A and D) provides an interplay that is easily recognizable in the theme, and that also identifies an implied pulse during layered shifting throughout the piece. In *March* the perfect fourths between the pitches C and G, and also between B and E, give the piece two separate palettes that Carter uses to steer the listener toward certain themes. Carter exaggerates this difference between the two sets of voices (both at a pitch interval of a perfect fourth) from the very beginning with the use of the wood end of the timpani mallet in the left hand, and the normal end of the timpani mallet in the right hand.

AESETHETICS

There have been very creative descriptions of both *Saëta* and *March*. Lang notes that the title of Saëta is a reference "to an Andalusion religious procession" and refers to the A and D theme as the "Church Bell Motif" and the accompaniment part as the 'Walking Motif."[34] At the ceremony, a song is usually sung that comes from "a rain

[33] Morris Goldenberg. Romantic Symphonies for Timpani (Milwaukee: Hal Leonard Corporation/Isabella Goldenberg, 1964).
[34] Lang, Dowd and Cirone, *Percussion Master Class*, 7.

ceremony during which an arrow (saëta) was shot into the clouds to release the rain."[35] Just before the recapitulation section of *Saëta*, Carter creatively requires the performer to play softly with the wood end of the mallets – a section which sounds like light raindrops falling on the timpani heads.

Perhaps the best description of March is from David Schiff who writes:

> "The shape of the piece suggests a hypothetical scenario which only those who have played in an American marching band could understand. Two drummers approach each other playing at different speeds. They meet and 'challenge' each other, imitating each other's figures and outdoing one another in virtuosity. Having established their equal credentials they then march away at different speeds."[36]

SAËTA

One of the musical elements that provides a framework for *Saëta* is a gesture that Lang describes as a "typical Flamenco guitar figure."[37] The first of these occurs in measure one, and involves a non-metered acceleration into a roll which establishes first tempo (Fig. 6-2). This gesture does not require any extended techniques, but the

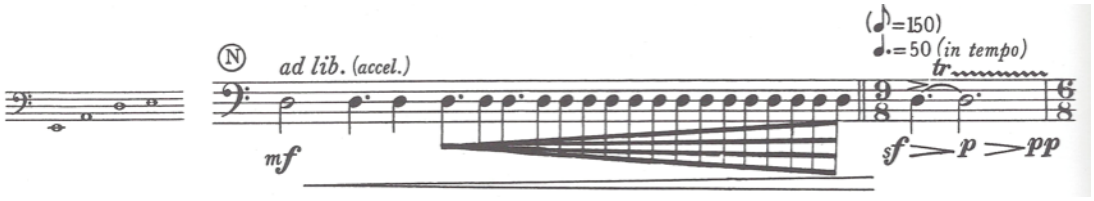


Fig. 6-2 (*Saëta* – Measures 1 & 2 – non-metered acceleration in measure 1)

[35] Schiff, *The Music of Elliot Carter,* 132.

[36] Schiff, *The Music of Elliot Carter*, 135.

[37] Lang, Dowd and Cirone, *Percussion Master Class*, p.7.

performer has liberty in regards to the length of the first gesture. A timpanist should approach this accelerando with attention to establishing a beautiful tone quality, and then mentally subdividing the tempo while rolling in the second measure. A similar gesture appears in measures 7 and 8 (Fig. 6-3). Special attention should be paid to the difference between measure 2 (in Fig. 6-2) and 8 (in Fig. 6-3) which contains an in-tempo but non-metered roll that decelerates in the framework of a metered tempo, instead of remaining steady as in measure two. At the end of the piece, another similar musical moment

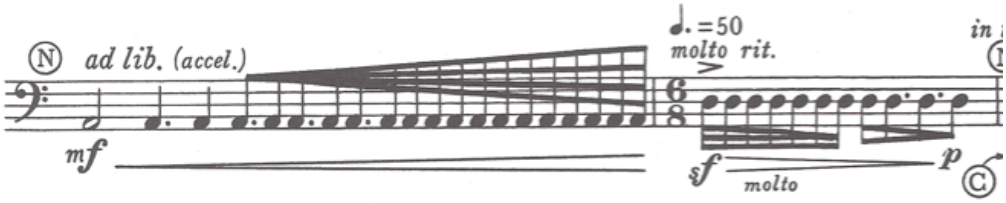


Fig. 6-3 (*Saëta* – Measures 7 & 8 –non-metered acceleration into a *non-metered deceleration* that is in tempo)

appears (Fig. 6-4). Notice that Carter did not notate the accelerando with dotted notes as he does previously. Perhaps he intends for this accelerando to develop faster than the previous iterations.

Fig. 6-4 (*Saëta* – Measure 93 – non-metered acceleration)

The main theme is stated in Line 2 of *Saëta* (Fig. 6-5), which is polyphonic in

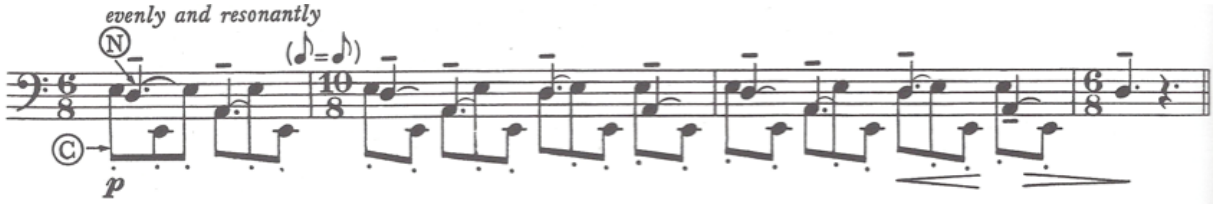


Fig. 6-5 (*Saëta* – Measures 3-6 – main theme)

nature. The melody (on A and D), designated with the legato markings and upward note stems, can be approached similar in gesture to a tonic-dominant timpani part. The staccato notes, on the other hand, are an accompaniment and should be more static in nature. One should strive for an independence in character between the melody and accompaniment when this motive occurs throughout the piece. In theory, the inflection is easily attainable if one were to play the legato notes with one hand and the staccato notes with the other. However, the challenge in achieving independence in this section is that the performer has to alternate hands between drums and between staccato and legato notes. Additionally, the legato notes are struck in the normal playing area, while the staccato notes are struck in the center of the drumhead. Finally, there are dynamics indicated (Fig. 6-4, third measure). Playing a crescendo and decrescendo adds another layer of independence (in both technical execution and musical thought process) to an already challenging part. The first page of *Saëta* demonstrates the many challenges to the performer. The performer must assume numerous responsibilities, including the roles of multiple percussionist (different beating spots), drum set player (independence), and timpanist (tone quality, rolls, tonic-dominant phrasing).

Carter manipulates the main theme throughout much of the first page. Then he introduces a metric modulation by means of layered shifting (Fig. 6-6). In this excerpt,

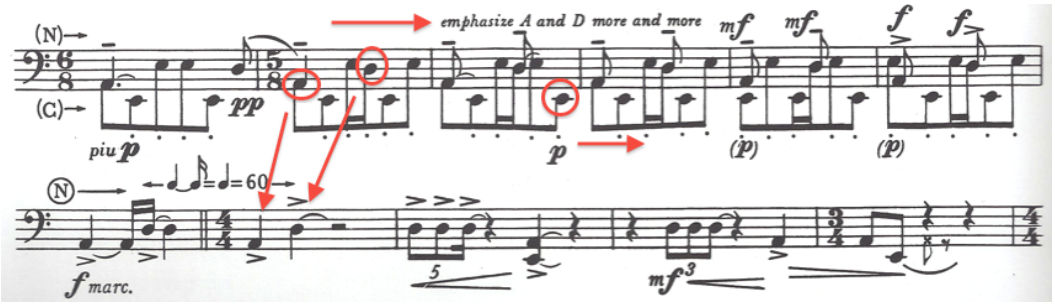


Fig. 6-6 (*Saëta* – Measures 19-29 – first layered shift)

the A and D start out as an implied pulse at bar 20, but gradually build into the pulse that will anchor the next meter at bar 26, while the accompaniment part remains subjugated. As well, there is an interesting secondary implied pulse that occurs in the accompaniment part (on the low E), beginning on beat 5 of measure 21, that outlines a duple pulse within the meter. A performer should be aware of this secondary implied pulse, but articulate the melody notes (A and D) as indicated to properly foreshadow the upcoming metric modulation in measure 26.

After the layered shift in figure 6-6, Carter enters the development section of the piece in measure 26. Almost immediately, the performer is required to assume the role of music theorist and problem solver. This is due to the challenging interplay between the *5-note grouping* (in which the performer is required to play on the first, third, and fifth beats, respectively – an uncommon musical gesture that may take extra practice time to achieve consistency) and the *triplet* (Fig. 6-7). Generally speaking, the two gestures sound similar, with the space between the quintuplet notes slightly larger than the triplet.

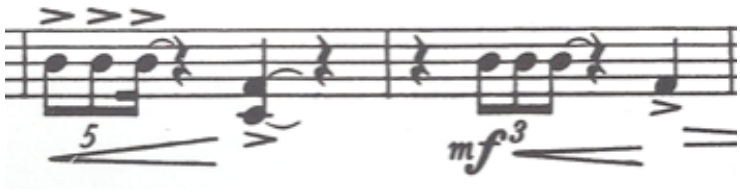


Fig. 6-7 (*Saëta* – Measures 27 & 28 – interplay of 5-note grouping and triplet)

However, in order to figure out the specific differences between note placements, the music theorist would calculate the specific rhythm using the common denominator of 3 and 5: 15. When looking at a line up of 15 notes, we get a clear picture of how the beats from each grouping line up (Fig. 6-8). The accents in the example represent the notes

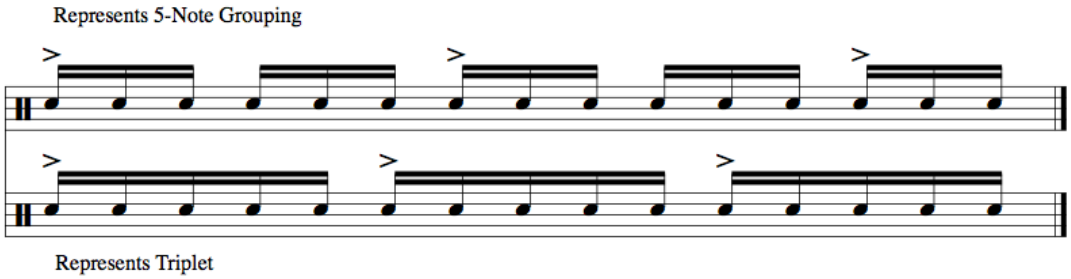


Fig. 6-8 (accents represent note placement of 5-note grouping and triplet)

to be played in each grouping. Thus, the figure shows us that the third and fifth notes of the 5-note grouping sound later than the second and third notes of the triplet. The problem solver is tasked with making the three notes in the 5-note grouping feel natural, as five note groupings are not as common in timpani music as other rhythms such as triplets. Part of the beauty of the *Eight Pieces* is that they force us as performers and listeners to hear and understand the differences between these closely related rhythms.

Perhaps Carter is using the three notes in the quintuplet and the triplet to make us hear two different tempos of an implied pulse (with the triplet slightly faster). On the other hand, similar to other great artists during this time, maybe he just wants to alter our perception – not unlike Salvador Dali's bent clocks – achieved by placing this awkward quintuplet figure next to a common triplet.

Throughout the development section, there are various elements related to musical time that Carter requires of the performer. Starting in measure 29 (and used throughout much of the next section), Carter employs rhythmic muffling (indicated by an *x* notehead, requiring the performer to physically mute the sound of the drum with the hand). In measure 39, there is an implied pulse (represented by the five evenly spaced duple accents), followed by the first metric modulation in this section, which is a straight shift (eighth-note = eighth-note) to a new tempo of half-note = 45 (Fig. 6-9). However,

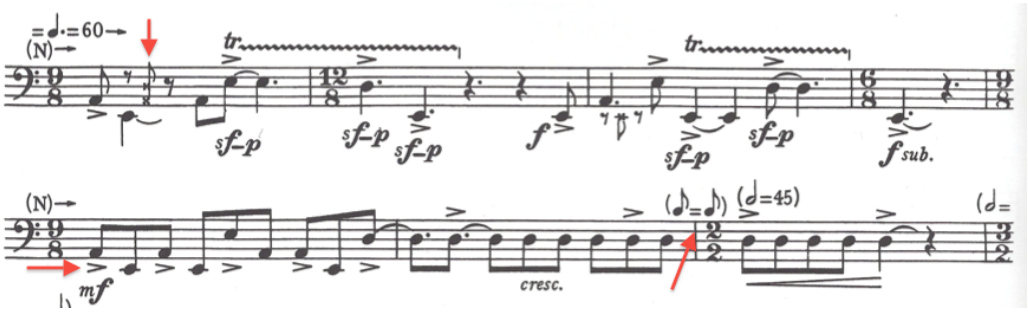


Fig. 6-9 (*Saëta* – Measures 35-41 – rhythmic muffling indicated by x noteheads / implied pulse in duple accents in measure 39 / straight shift from measure 40-41)

a slower implied pulse occurs beforehand, with the evenly spaced accents (between low E, then D, then low E again) in measures 37 and 38 of figure 6-9. Because of Carter's clever way of manipulating musical time before and after a metric modulation, it is important for the performer to articulate the implied pulses in this section as if one were

conveying new time signatures. This will add tension and musical anticipation to the metric modulation that follows (at measure 41) in which the new half-note pulse is established.

Later in the development section of *Saëta*, there are some curious compositional elements related to pulse. Starting in measure 53, there are six consecutive measures that contain an evenly spaced A (Fig. 6-10). Since all of these As are marked *piano* (and the tempo is rapid), they do not sound like an implied pulse when performed. Nonetheless, the construction is something that the performer should be aware of, since these notes are all spaced a quarter-note apart (giving the listener an anchoring pitch on every quarter note), during a section in which the dotted quarter-note is the written pulse. The same figure Carter punctuates with sporadic forte and fortissimo accents within the rhythm.

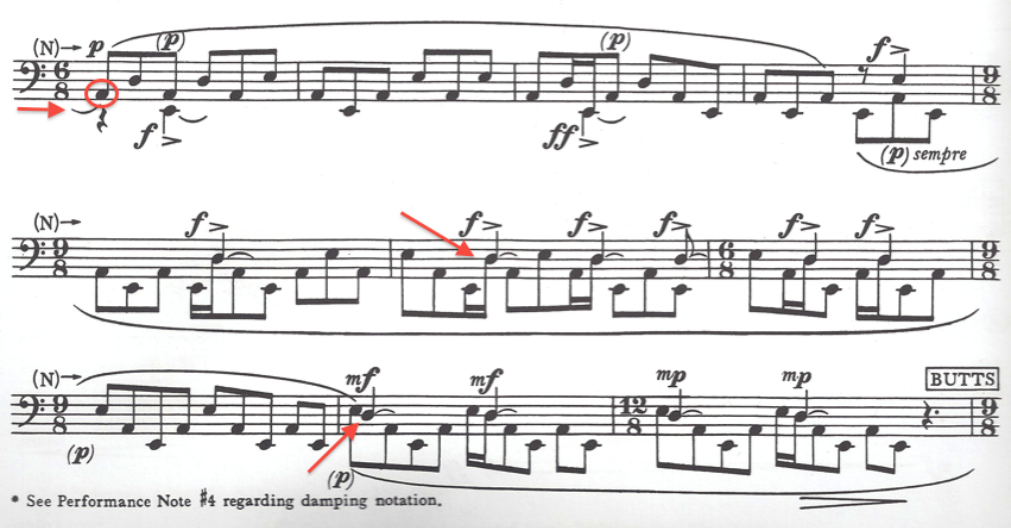


Fig. 6-10 (*Saëta* – Measures 53-62 – evenly spaced pitch of A for six consecutive measures / in-tempo acceleration in forte accents / implied pulse on D)

These accents appear to foreshadow an in-tempo acceleration which starts in measure 58 (indicated by the *forte* accents on D with stems up) in which the space between each note decreases by one sixteenth-note over the course of two bars. However, by measure 61, the upper notes on D are evenly spaced and should be articulated as an implied pulse that decrescendoes.

Though the entire second page of *Saëta* is played with the felt mallets in the normal playing area, the final page of the piece starts with the performer using the wood end of the mallets. In this section, which is the transition to the recapitulation, the performer again has many challenging issues to solve (Fig. 6-11). One is the slightly unnatural sticking needed to achieve the rhythms at the fast tempo. Another is achieving the extreme dynamic level of *pp* (at a fast tempo) using the loud wood end of the mallets (a beautiful effect when achieved – like raindrops lightly falling on the drumheads). Another challenge is the articulations – creating a difference between the legato and staccato notes, which is important because the legato As will develop into the implied pulse, which becomes part of a layered shift, that emerges as the dominant pulse through the transition into the recapitulation of the piece.

Also in figure 6-11, one observes Carter's transition back to the opening theme of the piece (the last measure in the figure). Through metric modulation, we arrive at the recapitulation at the same tempo as the beginning of the piece. Shortly thereafter, Carter employs a similar layered shift to transition into the coda of the piece.

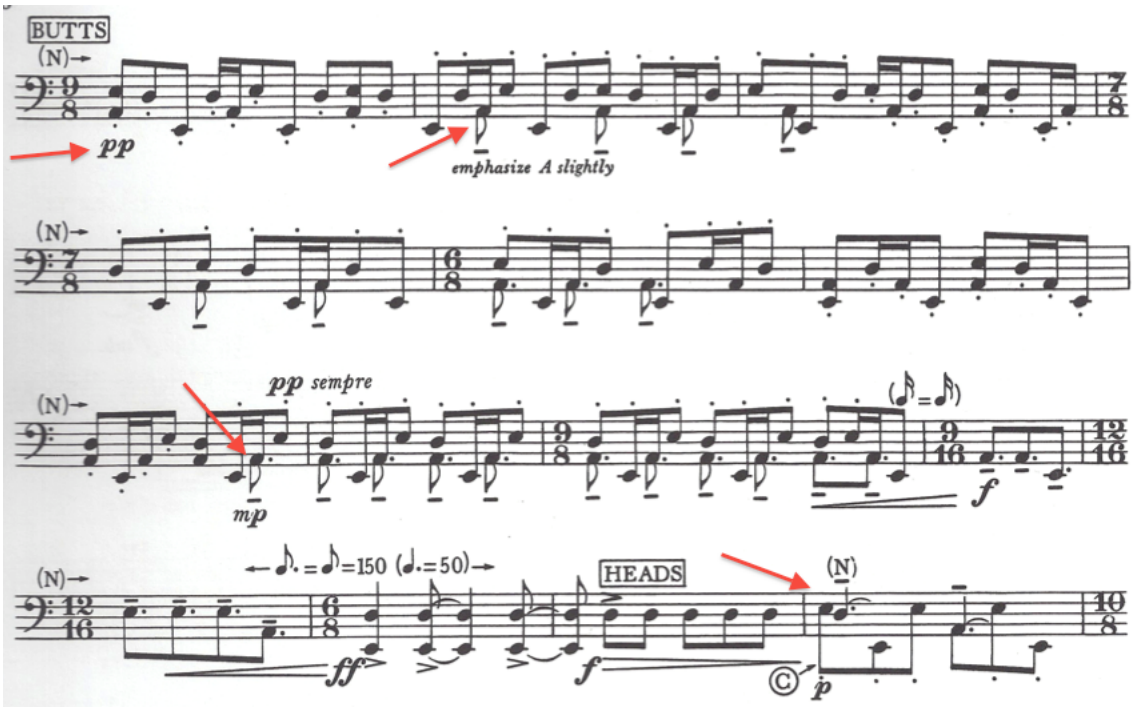


Fig. 6-11 (*Saëta* – Measures 63 to 76 – section before the recapitulation includes challenging sticking and dynamic issues / legato As in measure 64 develop into an implied pulse in measure 69 and become part of the layered shift / measure 76 is the start of the recpitulation)

Finally, throughout *Saëta* Carter makes effective use of various time-related musical ideas. These ideas offer insight into the general framework of the piece, and allow for a better understanding of how Carter uses these elements for musical effect. The following chart displays an expanded general form of *Saëta* with the time-related musical elements listed within each section (Fig. 6-12). As the chart reveals, Carter uses layered shifting to transition into each major section of the piece, providing a large-scale structural consistency, while using other time-related effects such as implied pulses and in-tempo accelerations for musical effects within those major sections. Since these elements provide musical tension and release, performers should take all of these

elements into consideration when making articulation decisions surrounding these moments in the music.

SAËTA – Expanded General Form

Section	Measure(s)	Main Idea
A	**1-25**	**Opening Thematic Material**
		Time-Related Musical Elements
	1	Non-metered acceleration
	7	Non-metered acceleration
	8	Non-metered deceleration in tempo
	19-25	Layered shift to quarter note = 60
B	**26-75**	**Development**
		Time-Related Musical Elements
	27-31	Quintuplet (first, third, and fifth notes) versus triplet
	29	Start of notated rhythmic muffling
	39	Implied pulse through the use of accents
	40-41	Straight shift to half-note = 45
	53-58	Evenly spaced quarter-notes on A
	58-59	In-tempo acceleration through the use of forte accents on D
	61-62	Implied pulse
	69-74	Layered shift to eighth-note=150
A-1	**76-90**	**Recapitulation (Return of Opening Thematic Material)**
		Time-Related Musical Element
	85-90	Layered shift to quarter-note = 60 (similar to LS in A section)
Coda	**91-96**	**Ending**
		Time-Related Musical Element
	93	Non-metered acceleration

Fig. 6-12 (Saëta – chart displays expanded general form including time-related musical elements within each section)

MARCH

March is a wonderful piece that draws upon the sounds of marching percussion and the techniques of drum set. From the start, the performer is required to articulate a difference between two independent voices. These voices are the C and G played in the left hand with the wood end of the mallet, and the E and B played in the right hand with the normal end of the mallet. The performer must address the balance and dynamics accordingly since the different sticks produce different timbres and react differently on the drumheads. However, these independent voices also have two different pulses that need to be communicated. The C and G represent the metered pulse, while the E and B represent the implied pulse (Fig 6-13). Though the E and B start out as an implied pulse,

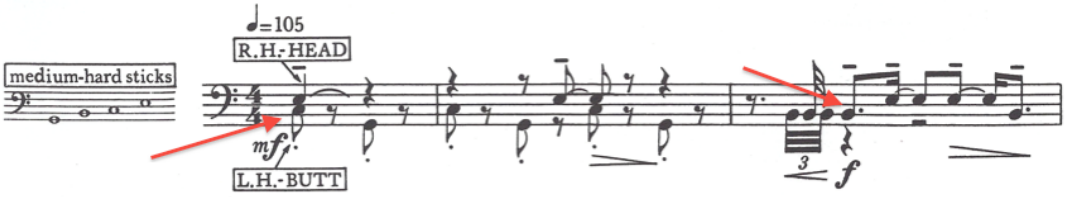


Fig. 6-13 (*March* – Measures 1-3 – metered pulse in lower stems-down voice, implied pulse in upper stems-up voice)

they should be played as the dominant pulse when they occur (such as in measure 3) as they will eventually become the main pulse by the fifth line of the piece.

Though the dotted eighth-note figure in measure three will become the dominant pulse, the second line of *March* introduces two other implied pulses that are cleverly integrated as well. Mostly on E, the first implied pulse is evenly spaced by seven sixteenth-notes apart, and occurs in measures 4 and 5. The second implied pulse (bar 6),

is evenly spaced five sixteenth-notes apart. Last, the implied pulse of the dotted-eighth notes introduced in measure 3 returns. In the span of four measures Carter introduces three implied pulses (while mostly reinforcing the metered pulse). Each is faster than the previous, creating a separate effect of *accelerating the implied pulses* (Fig. 6-14). At this moment in the music, the listener may perceive that the music is actually speeding up,

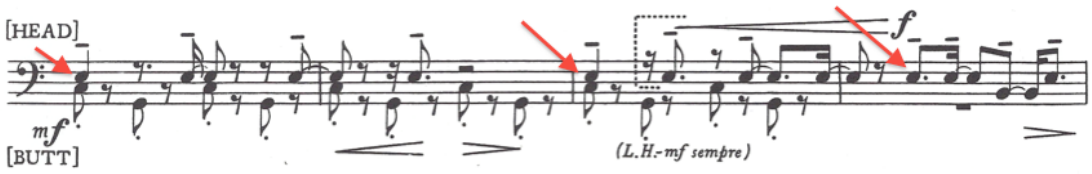


Fig. 6-14 (*March* – Measures 4-7 – three implied pulses that accelerate in the upper voice)

when it actually is staying constant. While Carter helps the performer keep these ideas separate by using different sticks, it is critical for the performer to feel the implied pulses as well. Similar to a polyphonic drum set part that requires superb coordination, this musical line projects multiple grooves that need to be clearly communicated by the performer.

The interplay between the dotted eighth-note pulse and the metered quarter-note pulse becomes more intricate and involved throughout the first section of the piece. This interplay adds anticipation to the first metric modulation at measure 15 (Fig. 6-15). This

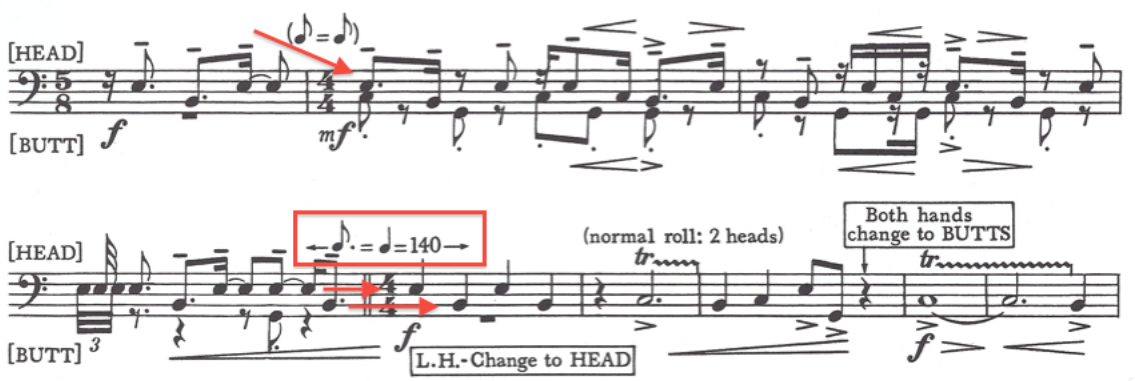


Fig. 6-15 (*March* – Measures 11-19 – interplay of dotted eighth-note leads to an altered shift)

is an altered shift in which the dotted eighth-note becomes the new quarter-note pulse in 4/4.

Transitioning to the development section in measure 15, the performer must execute fast changes of timbres between the wood end and felt ends of the timpani mallets. While flipping the mallets to shift between wood and felt timbres can be difficult (a job usually assigned to a multiple percussionist), most of the passage utilizes traditional playing techniques and common beating spots.

In measure 29, Carter writes another metric modulation, again an altered shift (quarter-note plus dotted quarter-note becomes the half-note), referencing a new tempo of half-note = 50. For the performer, establishing the pulse of the new tempo quickly is important, particularly to reinforce the feel of upcoming legato quarter-notes. However, starting in measure 30, there is another interesting idea that Carter presents, similar to an in-tempo acceleration (Fig. 6-16). In measure 30 there is a five- note grouping against

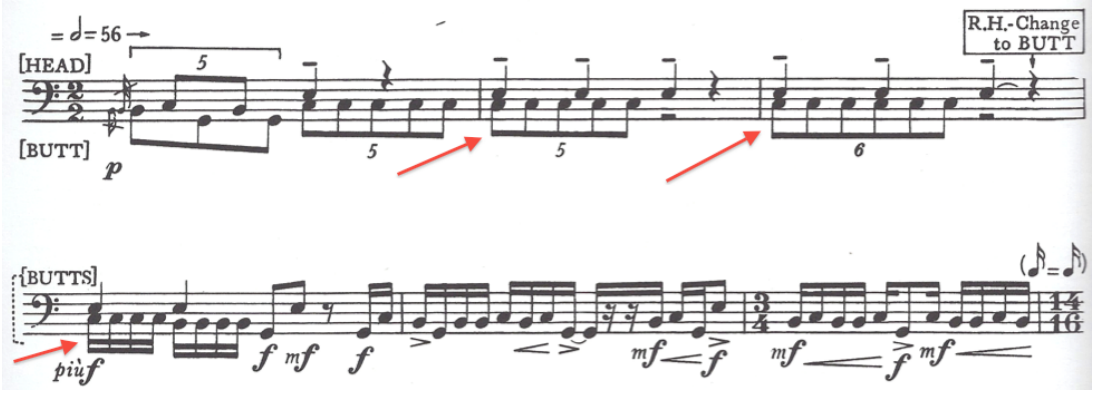


Fig. 6-16 (*March* – Measures 29-34 – increase in number of notes over the first two pulses of the measure for three consecutive measures, similar to an in-tempo acceleration, in measures 30 to 32)

the quarter-note pulse in the first two counts. In measure 31, there is a six-note grouping against the quarter-note pulse in the first two counts. Then in measure 32, there are eight notes against the quarter-note pulse in the first two counts. This gradual increase in the number of notes per beat (over the first two quarter-note pulses of the measure) appears to be a continuous idea from measures 30 *through* 32. This is reinforced by the steady quarter-note pulse on counts one, two, and three in each bar. This gives an increasing momentum to the musical line. However, in the transition from measure 31 to 32, Carter requires the performer to change timbre (in the right hand mallet) and dynamic levels (from *p* to *f*). Thus, a performer might approach the beginning of measure 32 as the beginning of a new musical phrase, but should also communicate the momentum that is carried over from the previous two measures.

Further into the development section, at measure 37, there is an altered shift, establishing a new tempo of half-note = 60 (Fig. 6-17). The new tempo at the 2/2

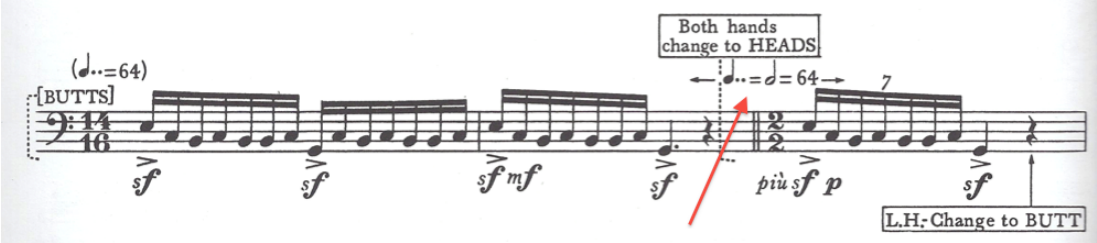


Fig. 6-17 (*March* – Measures 35-37 – altered shift)

measure is foreshadowed by accents in the 14/16 measures preceding it. Due to the evenly placed *sf* accents preceding the metric modulation, the listener may not perceive the tempo change. The accents do, however, set up the half-note feel of the following section of music, and should be approached with a consistent articulation and dynamic from one accent to the next.

In addition to metric modulations that involve tempo changes, Carter sometimes simply creates a new meter with a new pulse reference, but with the same metronomic tempo. This often creates a change in the momentum, which he might use as a future modulation involving a tempo change. Additionally, he will indicate in the score certain tempos that related to certain note values, but in parenthesis, as if to suggest a reference for this pulse, in addition to the metered pulse. All of this can be observed in measures 41- 46 of the score (Fig. 6-18). For a performer, all of these pulse references should be considered (and subdivided mentally) while navigating the other musical elements in the phrase (such as the in-tempo acceleration in measure 44).

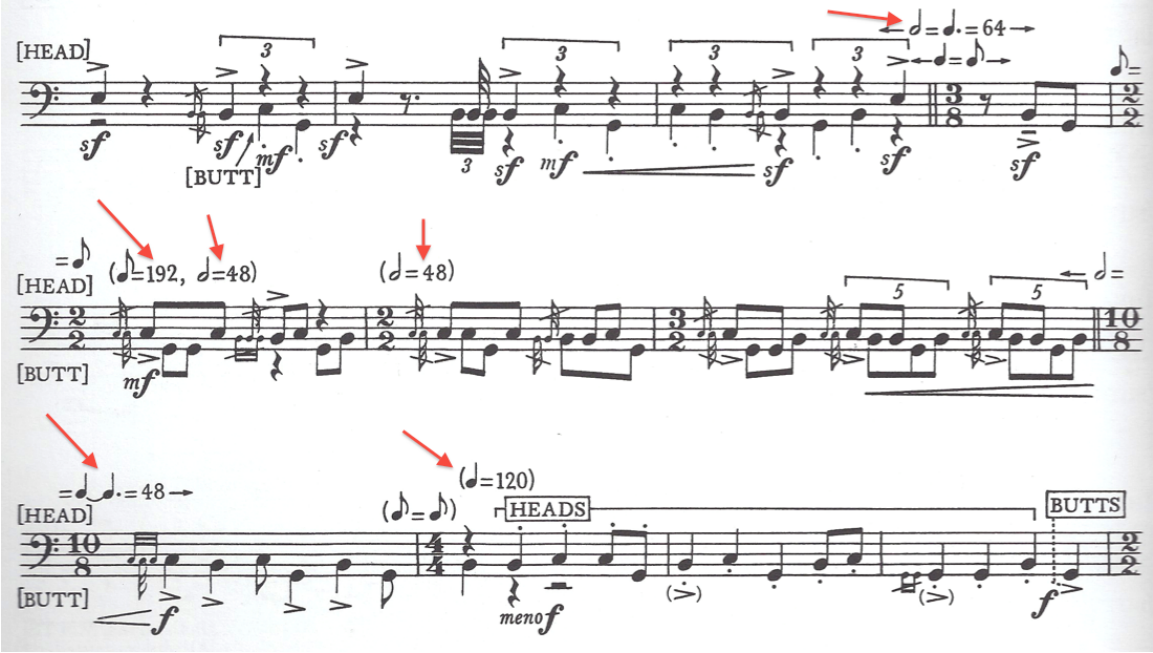


Fig. 6-18 (*March* – Measures 38-48 – tempo references throughout this section, including parenthetical tempo references related to certain note values)

Transitioning to page 3 of *March* (still in the development section) there is an emphasis on the half-note = 60 feel, starting with the quarter-note = 120 reference (in measure 46), and reinforced by both the accents and note groupings throughout this section. This leads into an altered shift (with a new tempo reference of doubly-dotted quarter-note = 60 in measure 57), a meter change with a new parenthetical tempo reference in measure 58, and an eventual transition into the recapitulation of the opening theme at the same tempo as the beginning at measure 62. However, during this transitional section to the recapitulation, Carter cleverly includes an in-tempo acceleration, creating the perception of *accelerating to a slower tempo* (Fig. 6-19).

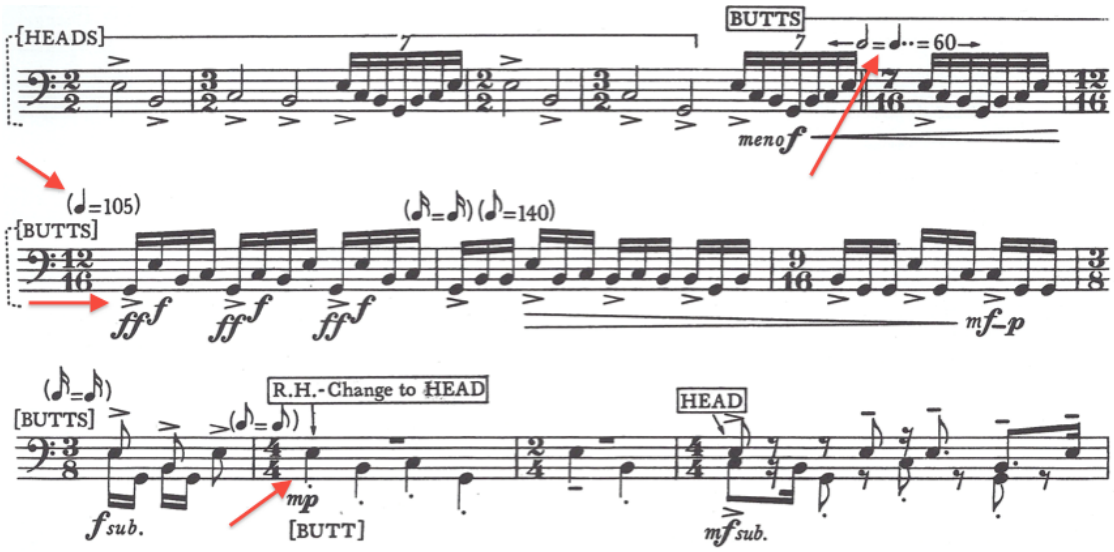


Fig. 6-19 (*March* – Measures 53-64 – in-tempo acceleration with accents and transition into recapitulation)

This in-tempo acceleration starts in measure 58 and contains a constant stream of sixteenth-notes in which the accents get closer together, creating the sensation of speeding up, even though the tempo stays the same.

The musical phrasing in the recapitulation is similar to the opening. However the performer is given a new task of muting the drums with felt devices that are placed on the heads while playing the notes with one hand and muting with the other (note the several muting indications in the score – Fig. 6-20). Much like using the different ends of the mallets, negotiating the timpani mutes can be challenging. The method for achieving this varies from one performer to another, and takes time to master. Musically, it creates yet another palette of timbres to emphasize the closing statement of this piece.

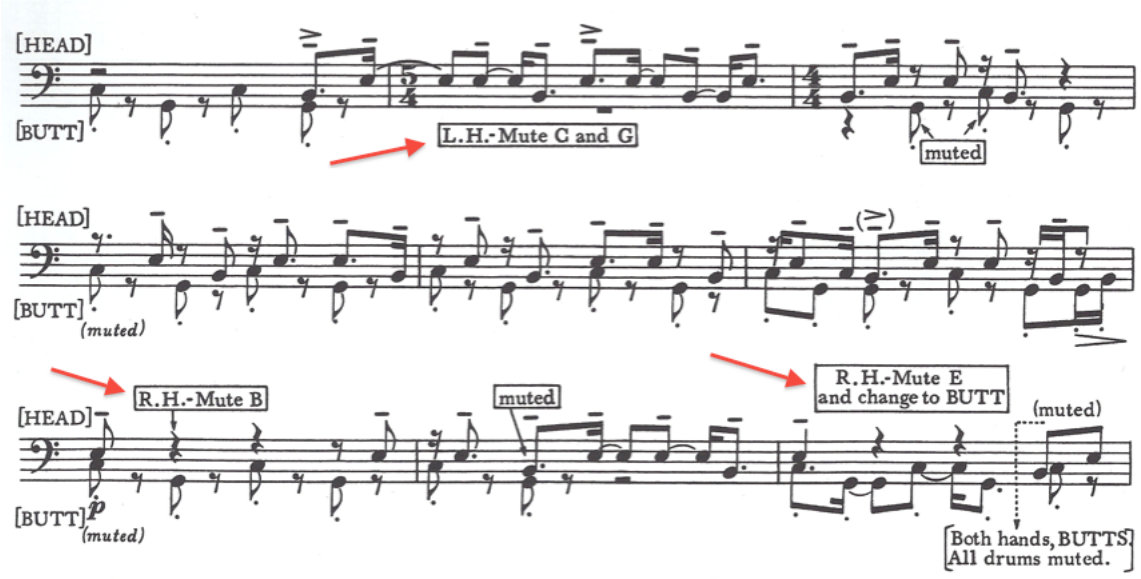


Fig. 6-20 (*March* – Measures 68-76 – recapitulation, muting indications)

In the last few measures (the coda) of *March*, Carter creates the idea of the two independent voices gradually merging together and accelerating into a final roll (Fig. 6-21). There has been some debate between performers as to how to play the last roll

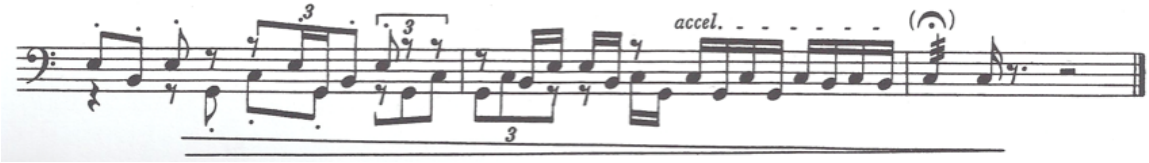


Fig. 6-21 (*March* – Measures 77-79 – coda, merging of two sets of voices into one final roll)

(between the use of single strokes or buzz strokes) but different techniques have been used effectively. More importantly for the performer, after the use of different voices using different timbres and articulations, all the voices are unified in the use of the same

timbres (muted drums with the wooden end of the mallets), the same articulations, and end on a single pitch. This integration, in a piece characterized by separate voices, is the most appropriate ending for *March*.

As in *Saëta*, Carter weaves several different time-related musical elements into the music to create structure and effect. The following chart displays these elements within each section (Fig. 6-22). Unlike *Saëta*, Carter employs altered shifting in *March* as a means of transitioning from one major section to another (though he does insert an in-tempo acceleration right before the recapitulation, for increased musical tension). Similar to *Saëta* is the manner in which these transitions provide an overall large-scale structure to the piece while transporting the piece back to specific tempos. As well, Carter utilizes other time-related elements within each section of *March* to great effect, providing increased tension and anticipation through the use of in-tempo accelerations and implied pulses throughout.

MARCH – Expanded General Form

Section	Measure(s)	Main Idea
A	**1-14**	**Opening Thematic Material**
		Time-Related Musical Elements
	3	Implied pulse
	4-7	Three implied pulses that become consecutively faster
	14	Altered shift to quarter-note = 140
B	**15-61**	**Development**
		Time-Related Musical Elements
	28-29	Altered-shift to half-note = 56
	30-32	In-tempo acceleration through increase in the number of beats per pulse in first two counts of three consecutive measures
	36-37	Altered shift to half-note = 64
	42-43/46	Parenthetical tempo (pulse) references different from meter
	44	In-tempo acceleration through number of notes per pulse
	56-57	Altered shift to doubly-dotted quarter-note = 60 (quarter-note = 105, same as tempo from measure 1)
	58-61	In-tempo acceleration through the use of accents
A-1	**62-76**	**Recapitulation (Return of Opening Thematic Material)**
		Time-Related Musical Element
	68-72	Implied pulse throughout
Coda	**77-79**	**Ending**
		Time-Related Musical Elements
	78-79	Accelerando into fermata

Fig. 6-22 (*March* – chart displays expanded general form including time-related musical elements within each section)

Conclusion

Carter's *Eight Pieces for Four Timpani* have remained extremely popular since their composition. With the many different musical opportunities they present, there are likely numerous reasons for their popular longevity in the ever-increasing body of timpani literature. By having to deal with performance issues that are common to many disciplines, the *Eight Pieces* offer a performer an opportunity to improve coordination, technique, musicianship, and general approach to the art of timpani playing. Beyond that, they compel us to contemplate the essence of timpani, and thus speak to several different styles of performer. One player may enjoy something specific, such as the experience of musical time travel through the process of metric modulation, while another may feel that they are simply fun to play, without pointing to a specific compositional technique. Elliott Carter offered us a profusion of creative ideas in the *Eight Pieces*, and they continue to be a major influence in the modern canon of timpani literature.

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