AN EXAMINATION OF THE PERCUSSION WRITING IN THE
CHAMBER WORKS OF GEORGE CRUMB, 1960-1980
WITH THREE RECITALS OF SELECTED WORKS
OF BERGSMAN, KURKA, MIYOSHI, NIIMI,
TAKEMITSU, AND OTHERS

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF MUSICAL ARTS

By

Robert B. LedBetter, B.M., M.M.

Denton, Texas

August 1993
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In this study, the unique style of percussion writing in the chamber works of George Crumb, written between 1960 and 1980, is examined. This intuitive and inventive composer who displays extraordinary sensitivity towards timbre and sonority has developed a distinctive style of writing for percussion which presents many challenges to the performer. He is an inventive extractor of unconventional sounds from conventional instruments as well as a deviser of new sound sources. Due to this emphasis upon sound and timbre, the percussion instruments represent an important voice within the total sound spectrum of George Crumb's chamber works.

The principal aspects examined within this study include: the extended instrumental techniques, the use of percussion within the musical imagery, soloistic treatment, compositional and notational procedures, and specific performance problems pertaining to the chamber work Songs, Drones, and Refrains of Death. In addition,
the texts of two interviews held between this author and the composer are included.
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CHAPTER I

INTRODUCTION

It has been within the chamber music medium that percussion has made its greatest strides in experimentation and increased use since the close of the Second World War. Prior to World War II, there are few examples, though among the few are some outstanding and very influential works that set the stage for the great expansion to follow. When Igor Stravinsky discovered in his *L'Histoire du Soldat* (1918) that a single percussionist could very effectively cover an array of instruments in a single "multiple-percussion" set-up, he established a new performance practice ideal and opened the door for the acceptance of percussion within the chamber ensemble.¹ Other notable examples of the use of percussion in chamber works between the World Wars include William Walton's *Facade* (1923) and Paul Hindemith's *Kammermusik Nr. 3* (1925), which both employ a single percussionist playing a battery of instruments; and Béla Bartók's *Sonata for Two Pianos and Percussion*

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¹. Stravinsky's choice of instruments and style of writing for the percussion part was influenced by his enthusiasm for American jazz. James Blades, *Percussion Instruments and Their History* (London: Faber and Faber, 1970), 340.
(1938), a chamber quartet for two pianists and two percussionists.

As music became free from the tonal superstructures and architectonic ideals of the past, composers began to experiment with areas other than pitch. As Reginald Smith-Brindle states:

While previous developments in instrumental usages were comparatively slow, in this century they have surged ahead at an accelerating pace. This increasingly frenetic search for novel instrumental possibilities has been due primarily to a need for colour contrasts, and for the creation of that brittle, almost metallic kind of sound which is so representative of our age and has come to dominate our music.  

The exploration of timbre and new sonic resources took on greater importance, influencing many composers to turn to percussion in order to widen their timbral palettes. As a result of this search, composers began to employ the percussion instruments of non-Western cultures such as Asia, Africa, and Latin-America. As interest in the use of percussion grew, the percussion sections in some orchestral works became the "tail that wagged the dog."^3  

This was especially true of the works of Edgar Varèse, whose interest in "primitivism" led him to pursue a

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revitalization of rhythm and an emphasis on percussion. 4 His *Amériques* (1922) for orchestra requires ten percussionists employing twenty-one different instruments and his well-known work, *Ionization* (1931), is scored for thirty-nine percussion instruments, played by thirteen performers, and represents the first work by a major composer for the percussion ensemble medium. In regards to his percussion writing, Varèse came to be one of the most influential composers in this century. He was also influential in the area of new sound resources for percussion since he avoided, to a large extent, the standard orchestral percussion instruments, seeking instead to introduce new and unusual instruments. In *Ionization*, he calls for instruments from Latin-America (bongos, guiro, claves, maracas, cowbell), a variety of sustaining metal instruments (tam-tams, gongs, and various cymbals), as well as other exotic and unfamiliar instruments ("lion's roar," tarole, and sirens). The percussion pieces of John Cage, Henry Cowell, and Lou Harrison, written between 1935 and 1942, require many "found" instruments that had never been associated with musical performance: automobile brake drums, tin cans, rice bowls, bottles, seed pods, and steel pipes, just to name a few.

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In addition, new instruments were invented in reaction to the continuing search for new sound resources. The vibraphone was invented in 1916 by Hermann Winterhoff and became associated with vaudeville and jazz before becoming an official member of the orchestral percussion section in works like Alban Berg's opera, Lulu (1934). It has since become an avant-garde cliché, especially following Pierre Boulez's extensive and virtuosic use in his Le Marteau sans Maître (1954). Harry Partch, unlike Cage, Cowell, and Harrison, created entirely new percussion instruments from wood, glass, bamboo, and gourds, with names like the "Mazda Marimba," "Boo," "Cloud Chamber Bowls," and "Marimba Heroica."

Another important factor influencing the increased use of percussion and more refined palettes on the part of composers, has been the advent of electronic music. Paralleling the immense variety of sounds at the fingertips of electronic composers has been the ever-increasing experimentation with percussion sound sources. Interestingly, the composers responsible for leading the way in electronic music (Chavez, Varèse, Cage, Messiaen, Boulez, Stockhausen) have also been important in bringing percussion to the forefront. Such technically demanding and innovative works as Karlheinz Stockhausen's Zyklus (1960) for solo

percussionist, which introduces new graphic notations and symbols, and includes a large circular set-up of instruments; and Luciano Berio's Circles (1960) for soprano, harp, and two percussionists playing an immense array of instruments lend support to the statement:

The percussion group has moved from 'almost off-stage' to the footlights, and performers have done a lightning change from being the dull boys of the orchestra to playing the role of virtuoso.6

Coinciding with these developments in new sound sources and performer virtuosity in the sixties, has been a series of works by American composer George Crumb, whose music has sought to "... synthesize the conservative trends, the use of a chromatic vocabulary, and the most avant-garde experimental approaches." His music has been so well received that he was one of the most highly acclaimed "young" American composers of the sixties and seventies. Crumb's music stands apart from many of his contemporaries with a unique style that is sensitive to sonorities, unusual timbres, and expressive means for portraying symbolism and ritual. He is an assiduous and inventive extractor of unconventional sounds from conventional instruments, as well as a deviser of new sound.


sources, and exhibits a highly personal handling of percussion. Because of his emphasis on sound and timbre, percussion takes on an equal importance to the other "voices" within the total sound spectrum of his chamber works. His music utilizes numerous unusual instruments from our own popular music culture and other non-Western cultures, employs a wide range of unique performance techniques, and demands virtuosity from its performers.

George Crumb was born in Charleston, West Virginia on October 24, 1929, into a musical family. His father was a professional clarinetist and his mother, a cellist. George was playing piano by ear at age nine, studied music with his father, and began composing while in school. He was even fortunate enough to have some of his pieces performed by the Charleston Symphony Orchestra during those years. He then went on to study composition at Mason College in Charleston (B.M., 1950). While there, he met Elizabeth May Brown, a piano student, whom he married in 1949, and with whom he had three children. He went on to study at the University of Illinois (M.M., 1952) where he met the person he refers to as one of the "grandfathers" of the "percussion revolution" in the United States: Paul Price (percussion teacher there at the time).  

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8. George Crumb (Interview at Southern Methodist University, Dallas, Texas, May 3, 1992).
The University of Illinois, with Price's vision and direction, was the first school to give credit for percussion ensemble. 9 He continued his studies with Ross Lee Finney at the University of Michigan (D.M.A., 1959), who profoundly influenced him as a composer. In some of his early compositions (during his student period), such as String Quartet (1954) and Sonata for Solo Violincello (1955), he composed using the methods of what he terms the "classical" twentieth century composers: Bartók, Hindemith, and Berg. Between 1959 and 1964, he taught piano and composition at the University of Colorado at Boulder, during which time he began to establish his "mature" style. In his first major work for orchestra, Variazioni (1959), he experimented with the twelve tone system, but in a personal, rather than rigorous, manner.

During this period, he began his interest in new sonorities, and exotic means for producing percussive effects not found in the technique of dodecaphony. This tendency, an important aspect of his "mature" style, first appeared in his Five Pieces (1962), for piano. While at the University of Michigan, he had come across the poetry of the Spanish poet, Federico García Lorca, in which he found a reflection of his personal artistic aims and

beliefs. For the next seven years, Lorca provided a source of inspiration for an extended cycle of works, starting with *Night Music I* (1963, revised 1976) for soprano, keyboard (piano and celesta), and two percussionists. This piece also marks the beginning of Crumb's unique style of percussion writing in his chamber works. Most of the works examined in this study are from the Lorca cycle (eight works). The cycle continues with four books of Madrigals: Book I (1965) for soprano, contrabass, and vibraphone; Book II (1965) for soprano, flute, and one percussionist; Book III (1969) for soprano, harp, and one percussionist; and Book IV (1969) for soprano, flute, contrabass, harp, and one percussionist; *Songs, Drones, and Refrains of Death* (1968) for baritone, electric guitar, electric contrabass, amplified piano, and two percussionists; *Night of the Four Moons* (1969) for alto, banjo, alto flute, amplified cello, and one percussionist; and *Ancient Voices of Children* (1970) for soprano, boy soprano, oboe, mandolin, harp, electric piano, and three percussionists.

In 1965, Crumb joined the faculty at the University of Pennsylvania to teach composition and has been teaching there to this day. In 1964, he received a Rockefeller grant followed by grants from the Koussevitsky (1965) and Coolidge (1970) foundations. In 1967, he held a Guggenheim fellowship and was also presented with the National
Institute of Arts and Letters Award. He was elevated to national prominence with the award of the Pulitzer Prize for his orchestral work, *Echoes of Time and the River*, in 1968. In the seventies, Crumb wrote three chamber works utilizing percussion: *Lux Aeterna* (1971), for soprano, bass flute, sitar, and two percussionists (a piece employing many theatrical gestures); *Music for a Summer Evening (Makrokosmos III)* (1974) for two amplified pianos and two percussionists utilizing thirty-two different instruments; and *Dream Sequence* (1976) for violin, cello, piano, a percussionist, and two off-stage "glass harmonica" players. The instrumentation of *Music for a Summer Evening* is based on Bartók's *Sonata for Two Pianos and Percussion*. Crumb speaks of this connection:

The combination of two pianos and percussion instruments was, of course, first formulated by Béla Bartók in his *Sonata of 1937*, and it is curious that other composers did not subsequently contribute to the genre. Bartók was one of the first composers to write truly expressive passages for the percussion instruments. Since those days there has been a veritable revolution in percussion techniques and idioms and new music has inevitably assimilated these developments.  

Besides the influences of his West Virginia origin and the poetry of Federico García Lorca, Crumb's music was also influenced by such twentieth century composers

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as Debussy, Charles Ives, Béla Bartók, Anton Webern, Oliver Messiaen, and Luciano Berio. The composer who has had the most influence on his style of percussion writing is Béla Bartók.

There are certain passages in Bartók that go beyond percussion just as a means of punctuation and got into the expressive side of percussion; passages like the [timpani] glissandi in a couple of works and the xylophone motif in the Music for Strings, Celesta, and Percussion. These "classical" passages . . . or a good bit of the percussion writing in that work has influenced me because of its coloristic and even "expressive" aspects . . . going beyond the traditional percussion.  

Besides these influences from Bartók, Crumb learned the most from the percussion performers he has worked with through the years. An early introduction to the instruments came while he was teaching at the University of Colorado. From that point on, he was able to work with such well-known performers as Jan Williams, John Bergamo, and many other percussionists interested in the promotion of new music.  

His style of composition frequently brings percussion to the forefront due, in part, to the clearly defined and exposed texture (often consisting of solo lines), the use of instruments equally for pitch and for their unique timbral qualities, and the use of instruments to provide musical imagery, reflecting the text or symbolic titles

found in most of his works. The chamber works of George Crumb written between 1960 and 1980 can be viewed, in many ways, as representative of many of the developments that have taken place concerning the use of percussion in musical composition since World War II, keeping in mind that he was one among many composers around the world at that time, turning to the percussion instruments as an almost endless source of new sounds and musical possibilities. The extended instrumental techniques, unusual instruments (from various cultures and sources), compositional and notational techniques, and performance problems found in his chamber works written between 1960 and 1980 will constitute the subject of the following chapters in this study.
CHAPTER II

EXTENDED INSTRUMENTAL TECHNIQUES

When George Crumb wrote *Night Music I* in 1963, percussion, from that point on, became an important element in his unique arsenal of sounds. Since those initial experiments, the percussion instruments have provided him with a rich source of fresh and unusual timbres of tremendous variety and emotive potential. Concerning the development of his style of percussion writing, Crumb states:

. . . I was intuitive to the possibilities of percussion as capable of being as expressive, subtle, elastic, and as important as a violin or flute . . . far beyond the traditional sense of percussion. That is what has happened all over the world with so many composers now. It has become the glue that has held together so much of the music of today.¹

During the past twenty to thirty years, instrumentalists have played an increasingly important role in the development of instrumental techniques on their respective instruments. Many of the instrumental techniques for which Crumb has gained such wide recognition were, in fact,

¹. George Crumb (Interviewed by author at Southern Methodist University, Dallas, Texas, May 3, 1992).
suggested by performers he has worked with through the years. When asked about his extended techniques on percussion instruments, he replied:

I don't know what percentage of the things I do would be original to me . . . maybe some of them. Probably most would have been suggested by percussionists and I borrowed or "stole" them [laughs]. Stravinsky said: "Stealing is best." It would be cumbersome to give credit to all of the sources.2

Crumb has utilized a great number of techniques for deriving new colors from every instrumental group that he has written for. He rarely approaches the instruments in a conventional manner, seeking instead to create new and unique sonorities whenever possible.

His first approaches to percussion writing in his chamber works leaned more heavily toward the standard "orchestral" instruments and especially on the mallet keyboard. As time progressed into the seventies, he increasingly began to utilize unusual instruments, including instruments from other cultures around the world (Asia, Latin-America, and Africa). This trend is illustrated in Table 1 (pp. 14-15), indicating the number of players and types of instruments required for the eleven works being examined in this study.

2. Ibid.
<table>
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<th>PIECE</th>
<th>No. of Players</th>
<th>Conventional Pitched Idiophones</th>
<th>Conventional Membranophones</th>
<th>Conventional Non-Pitched Idiophones</th>
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* = Only one instrument needed

1-8 = Number of instruments needed

(may be various graduated sizes)

Letters = specific pitch required
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<th>PIECE</th>
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* denotes the presence of an instrument type.
On the conventional percussion instruments, Crumb has employed a variety of extended and unconventional techniques for obtaining special colors within his compositions, where all of the elements are involved with enormous contrasts. For the performers, mastering these techniques is crucial to successful performances due to the fact that so many of the passages incorporating these techniques are within thin and exposed textures and are frequently soloistic in nature. In *Night Music I* (1953), the first of his chamber works to utilize the poetry of Lorca and the percussion instruments, the instrumentation is predominantly pitched. The piece calls for soprano, keyboard (piano and celesta, at times played simultaneously), and two percussionists employing glockenspiel, xylophone, vibraphone, marimba, crotales (Crumb always refers to these as "antique cymbals" in his scores), low bell (no pitch specified), and a timpano, plus a number of non-pitched percussion instruments such as cymbals, tam-tams, triangle, and several kinds of drums. As with so many of his works to follow, all of the instruments (and voice) are articulated in a great variety of conventional and unconventional ways.

Most of his experimentation into extended techniques for playing the mallet keyboard instruments occurred in the first three Lorca works and recur in the later works. In *Night Music I*, he incorporates a few of these techniques,
some of which have now become clichés of sorts in contemporary percussion scoring. On the vibraphone, he calls for simultaneous "black key" and "white key" glissandi (Example 1), and "dead stick" technique, achieved by pressing the mallets into the bar, producing a "dead" or short, muted effect.

Example 1. **Night Music I**, Nocturne III, #2 in "circle music."

![Example 1](image)

In *Music for a Summer Evening* (1974), he employs the same kind of vibraphone glissando and in *Songs, Drones and Refrains of Death* (1968), both the vibraphone and glockenspiel play these total chromatic glissandi. In this instance, the glissandi rise and fall the full length of the instruments and are executed with wire brushes while the performers play a continuous roll. The percussionists must also simultaneously whisper part of the Lorca text in a "ritardando molto" rhythm.

Crumb also calls for unusual striking implements in *Night Music I*, in order to achieve extremely soft and delicate effects. In the third Nocturne, "La Luna Asoma"
[The Moon Rises], the marimba player must play with his fingernails, "ppp." At the very end of the second song, "Gacela de la terrible presencia" [Gacela of the terrible presence], the crotales are played with a paper clip in the last three notes before the final note is played by the soprano on the finger cymbals which is marked, "ppppp (quasi niente)."

In the first book of Madrigals (1965) written for soprano, vibraphone, and contrabass, Crumb thoroughly explores many new techniques for the vibraphone (he also gives clear instructions regarding mallet choice and pedalling). He brings back the "dead stick" strokes which he notates with "+" signs over the intended notes. These "dead" strokes are used in conjunction with many of the grace note figures occurring in the first song. His treatment of grace notes in this first movement is unique in that, within a given figure, the grace note receives the most weight and accent (marked "fz"), while the main note (on a stronger beat) is understated (marked "p sub") (Example 2a). This approach to grace notes is one of the "fingerprints" of his style and will be discussed in more detail later in the study. Three more extended techniques are utilized on the vibraphone in this work and were suggested to him by percussionist, John Bergamo.  

3. Ibid.
include a three octave "total chromatic cluster" on the instrument, the execution of harmonics, and a "pitch bending" technique. He notates the "total chromatic cluster" in what has become the conventional manner for notating tone clusters of such dimensions, as developed by Henry Cowell in his *New Musical Resources* (1930)(Example 2b). In the score, Crumb describes the technique:

Strike the damper bar of vibraphone sharply so that all plates vibrate. If this effect cannot be satisfactorily achieved, a very rapid glissando over all the plates (with two mallets) may be substituted.  

This author has found that the performer must strike the damper bar at either the very top or very bottom, where it extends from underneath the bars. Immediately after striking the damper bar, the pedal should be rapidly depressed allowing the bars to ring. The sound produced by the technique, however, is at a very low volume level and can only be used in exposed passages.

Vibraphone harmonics are employed in the second and third songs of *Madrigals Book I* and in the fourth movement of *Songs, Drones and Refrains of Death* (Example 2c). Crumb describes this technique:

Vibraphone harmonics are produced by placing l.h. forefinger lightly against very center of plate and

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striking with a rather hard mallet. The harmonic sounds two(!) octaves higher than the fundamental.\(^5\)

This author would add that the effect is heightened if the bar is struck on the nodal point (where the cord passes through). The harmonics emanate most clearly on this part of the bar.

Example 2. Extended Vibraphone Techniques.

(a) *Madrigals Book I*, 1st song, measures 1-3.

(b) *Madrigals Book I*, 1st song, measure 13.

(c) *Songs, Drones and Refrains of Death*, 4th movement, "senza misura," p. 19.

\(^5\) Ibid., 6.
In the third measure of the third and last song, the "pitch bending" technique is brought into play (Example 2d). This, he refers to as a "glissando on one plate." In the score, he describes the technique:

The ½ tone glissando is obtained by holding a hard mallet (with left hand) against end of plate as plate is struck in conventional manner (with right hand) with another (rather hard) mallet. The left hand mallet should lightly touch a point about ½ inch from end of plate and immediately after plate is struck, the player should gradually increase pressure and at the same time move the mallet head to the end of the plate. In this way, the pitch is "bent" down ½ step.6

Another (and possibly more effective) manner of executing this technique, is to place the hard mallet on the nodal point (where the cord goes through the bar);

6. Ibid., 8.
when the bar is struck with the other mallet in the traditional manner (this mallet does not necessarily need to be hard), simultaneously slide the hard mallet (with increased pressure) towards the center (or edge) of the bar. It is crucial, in producing this effect, to find the right density for the hard, "note bending" mallet. A hard rubber marimba/xylophone mallet has the right amount of density to react with the vibrations of the bar, producing an effective glissando. If the density is too hard, however, the mallet will "buzz" against the bar producing an undesirable sound. In addition to these effects in Madrigals Book I, Crumb calls for unusual striking implements such as a very light triangle beater, wire brushes, and the player's fingernails. In the second song, the performer must execute a passage with a triangle beater in one hand and two soft mallets in the other producing a unique contrast of timbres. In the final movement, the brushes are brought into play for cluster rolls and glissandi up and down the instrument (Example 2e).

Madrigals Book II (1965) contains some difficult passage work involving rapid switches between the three mallet instruments (glockenspiel marimba, crotales). There are instances where the performer must play crotales

7. The Musser M-213 medium-hard rubber mallet (blue) is one of the best mallets for this effect that this author knows of.
and glockenspiel simultaneously, producing a shimmering and subtly shifting sonority. In the first song, the glockenspiel and crotales are played with "very light metal rods" (knitting needles would be very effective for this passage) and later with wire brushes, producing small, delicate-sounding tone clusters (Example 3).


At the beginning of the second song in Madrigals Book IV (1969), the chimes (Crumb uses the British terminology: "tubular bells") have a delicate and exposed passage to be played with soft mallets (probably yarn or cord wound). In addition, there are several passages that call for three and four mallets on glockenspiel and vibraphone. In Music for a Summer Evening (1974), a work which presents a large number of extended playing techniques and unusual percussion instruments (as well as the largest number of instruments of the eleven works being studied), Crumb utilizes the unique effects of bowing, as applied to the metallic, sustaining percussion instruments: vibraphone, crotales, cymbals, and tam-tams. After this initial use, he has continued to employ the technique in later works. In the
opening of *Music for a Summer Evening*, he presents the vibraphone player with an interesting combination. The left hand plays a double stop with two mallets while the right bows a note located in between the double stops. This bowing is done with either a cello or contrabass bow and is executed on the very edge of the bar (Example 4a). The fourth movement, "Myth," is written exclusively for percussion instruments, and like the first song in *Madrigals Book III*, it is based on an isorhythmic structure (discussed in Chapter IV). One of the recurring "voices" within this texture is the unique sound of tam-tam "harmonics" produced by bowing the edge of the disc with a cello or contrabass bow (Example 4b).


(a) *Music for a Summer Evening*, 1st movement, opening "senza misura" section.

(b) *Music for a Summer Evening*, 4th movement, opening measures.
Dream Sequence (1976) for violin, cello, piano, percussion, and offstage "glass harmonica" (two players), consists predominantly of sustaining sounds. The pianist depresses the pedal throughout, the "glass harmonica" (crystal goblets) sustains a four-note chord throughout, and all of the percussion instruments appear to have been chosen for their sustaining quality (suspended cymbals, crotales, Japanese temple bells). In the percussionist's "circle music" (discussed later), he is called upon to play suspended cymbals and bow the crotales at the same time, at a very soft dynamic level.

Paying homage to Bartók, the composer who influenced so much of his percussion writing and compositional style in general, Crumb makes frequent use of the timpani glissando (used so effectively in Bartók's works). In the fifth Nocturne of Night Music I, the Percussion I player executes timpani glissandi between the interval of a tritone (Example 5a). As Example 5a also shows, he indicates for the use of "sponge mallets," as mentioned by Berlioz in his scores. Very soft timpani mallets would be sufficient for these passages since sponge mallets are not easily obtainable and produce too much contact sound upon impact. In the second song of Madrigals Book II, the percussionist must play numerous glissandi with fingertips throughout the movement (Example 5b). Later in the same movement, the left hand must play a roll on the low drum (with the
fingertips) while the right hand executes the glissandi on the top drum (Example 5c). The third song in *Ancient Voices of Children* (1970), contains passage work for the third percussionist who must play timpani glissandi, rising and falling, while also playing the "Bolero" rhythm along with the staggered statements of the same basic rhythmic material by the other two percussionists (Example 5d); this pattern repeats for the entirety of the song (a reference to Ravel's *Bolero*).

Example 5. Timpani Glissando Techniques.

(a) *Night Music I*, Nocturne V, measures 3-4.

(b) *Madrigals Book II*, 2nd song, opening passage.

(c) *Madrigals Book II*, 2nd song, "senza misura," later in the movement, p. 7.
There are also numerous examples of unconventional playing techniques on the non-pitched membranophones and idiophones. At the end of the fourth Nocturne in Night Music I, Percussion I player is instructed to play on two different parts of the tenor drum head (near rim and in center) and near the rim of the timpano (Example 6).


In the first song of Madrigals Book III, the percussionist plays the isorhythmic pattern on the five drums (two bongos and three timbales, graduated in pitch) with his fingers throughout. Ancient Voices of Children includes the technique of scraping the surfaces of suspended cymbals and tam-tams with a coin (or triangle beater) as well as
striking the triangle with a "tenpenny nail" to achieve a very delicate effect.

*Dream Sequence* presents the percussionist with a unique technique for obtaining harmonics from a suspended cymbal and is used in the percussion phrases marked 3A, 3B, and 3C in the "circle music." Figure 1 below illustrates the technique and Crumb describes it as follows:

Attach a strand of horsehair (from a violin or cello bow) or a very thin piece of thread to the cymbal stand, as shown. The strand is pulled taut over the rim of the cymbal by the left hand; the right hand pinches the strand while very slowly moving back and forth along its length. Variable harmonics of very high partials will result. 8

![Figure 1. Cymbal Harmonics.](image)

Crumb suggests that if this technique cannot be satisfactorily produced, the player may substitute the use of a bow to achieve the harmonics.

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9. Ibid.
Another important category of extended techniques on percussion instruments is the production of what Crumb refers to as "combination sounds." His compositions utilize three different approaches to this technique: combining two or more different percussion instruments and techniques to produce a unique timbre; combining percussion instruments and techniques with non-percussion instruments; and the use of various forms or vocalizations (whispering, speaking, shouting) in conjunction with performance on various percussion instruments. A strange clashing of harmonics is produced in the first Nocturne of Night Music I when Percussionist I is instructed to strike together two crotales (suspended by leather straps) of different pitches (F-sharp and C-sharp in one instance; C and C-sharp in another). Crumb then instructs the player to "shake cymbals rapidly after striking to produce oscillation in pitch!" In order to achieve this oscillation to greatest effect, the edge of each crotale should meet in a glancing blow, in the same manner that finger cymbals are played, and then shake the instruments in close proximity to each other.

10. George Crumb, Interview, op. cit.

11. Performers must be especially careful not to knock these delicate instruments out of tune with this technique by using too much force during the glancing blows.
Tambourine and bass drum are combined in "Song of the Rider, 1860," the third song in Songs, Drones and Refrains of Death (a reference to Schubert's Erlkonig of 1815), giving an impression of a giant tambourine (playing "galloping" music). A tambourine is placed on the head of a bass drum (laid flat) and the player is instructed to play alternately on the head of the tambourine and that of the bass drum (Example 7a). Another instance when a bass drum is used as a form of resonator occurs in the fourth movement ("Myth") of Music for a Summer Evening, where the claves are used in conjunction with the drum. The player is to hold one clave against the head of the bass drum while using the other clave to strike it in the conventional manner (Example 7b). In Lux Aeterna (1971) written for soprano, bass flute (and soprano recorder), sitar, and two percussionists, Crumb combines the timpani glissando technique with crotales and cymbals to produce an unusual "pitch bending" on the instruments. The effect serves to open the entire work with both percussionists utilizing the crotale "pitch bending" (Example 7c). For this effect, the crotales (two for each player in this case) are placed on the head of the timpano (near the center) with the bell facing downward. Simultaneous with the striking of the crotales, the player executes the pedal glissandi figures. Percussionist I also performs a similar technique using a detached cymbal in the fifth measure.
(on a separate timpano). The percussionist performs a roll on the cymbal while executing the glissandi figures on the pedal, as before (see Example 7c, 5th measure). There are diagrams provided at the bottom of the score indicating the proper placement of the instruments on the timpani heads and explanations of the technique. Crumb also incorporates these "pitch bending" techniques to great effect in Music for a Summer Evening. In the third movement, "The Advent," the cymbal "pitch bending" is utilized, while the first movement includes more involved "pitch bending" passages with eight crotales placed on a single timpano head. At the very conclusion of this first movement, "Nocturnal Sounds [The Awakening]," the Percussion I player must place the eight crotales in four groups of two pitches (with 1/2-step relationships) on the head. They are struck in pairs in conjunction with the rhythm of the pedal glissandi. The passage starts out at the level of "fffz" concluding at "ppp" to produce a startling effect (Example 7d).

Example 7. Combination Sounds With Percussion Instruments.

(a) Songs, Drones and Refrains of Death, 3rd movement, opening measures.
(b) *Music for a Summer Evening*, 4th movement, measure 9.

N.B. Hold one clave against bass drum membrane; strike this clave with the other clave held m.b.

(c) *Lux Aeterna*, opening five measures.

(d) *Music for a Summer Evening*, 1st movement, concluding passage.

Interesting "combination sounds" are achieved when the percussion instruments are played inside of the piano with the sustain pedal depressed. The pianist is called upon to strike the bass strings gently with a crotale (of any pitch) in the third Nocturne of *Night Music* I. The strings inside the piano act as sympathetic vibrator and resonating chamber in several passages in *Music for a Summer*
Evening (heightened by the effect of amplification). In the second movement, "Wanderer-Fantasy," the two percussionists play slide whistles into the open-lidded pianos; the strings resonating "sympathetically" with the pitches of the whistles. In the fourth movement, "Myth," the two pianists take on the roles of percussionists, playing several percussion instruments inside the amplified pianos. As in Night Music I, the bass strings are struck with a crotale (in this case, a G-sharp is specified) after which the player strikes the crotale in the conventional manner and then strikes a metal crossbeam with the beater (Example 8a). This is executed by the Piano I player, who also employs a guiro inside the piano. For this effect, he holds the guiro against a crossbeam inside the piano for sound reinforcement and scrapes the guiro in the usual manner. This is done while also speaking the phonetic syllables in the specified rhythm (Example 8b). The Piano II player employs the "mbira," an alto African thumb piano, in the same manner using the crossbeam for "magnification of the sound" (Example 8c). In both instances, the pedal must be held down. The third song of Madrigals Book I contains a passage where the vibraphone player is to play on the strings of the contrabass, a technique used in Lou Harrison's Labyrinth No. 3 (1941). The bassist fingers certain stipulated pitches while the vibraphone player rolls on the four strings with his mallets. In the third
movement, "Canción de Jinete, 1860" (Song of the Rider, 1860), of Songs, Drones and Refrains of Death, Percussion II player is called upon to play on the strings of the electric contrabass and electric guitar. This is executed with glockenspiel or marimba mallets and creates an interesting timbre in these very rhythmical passages (Example 8d).

Example 8. Combination Sounds With Non-Percussion Instruments.

(a) Music for a Summer Evening, 4th movement, measure 8.

(b) Music for a Summer Evening, 4th movement, measure 14.
(c) **Music for a Summer Even**ing, 4th movement, measure 11.

(d) **Songs, Drones and Refrains of Death**, 3rd movement, measures 31-35.

In many of his chamber works, George Crumb utilizes vocalizations of one kind or another—speaking, shouting, whispering, whistling—on the part of the instrumentalists. This occurs either completely independent of instrumental playing or else combined with various methods of sound production on the instruments. Beginning with the series of Madrigals, almost every work examined in this study includes some form of vocalizing from the percussionists. In the second song of *Madrigals Book I*, the percussionist uses spoken sounds taken from the International Phonetic System while playing the vibraphone. In the following song, the percussionist whispers "Los Muertos" (The Dead)
while rolling on the contrabass strings (as discussed earlier). The second song of Madrigals Book II includes passages where the percussionist must whistle the same pitch (two octaves higher) that he is playing on the glockenspiel (Example 9a). In the first refrain of Songs, Drones and Refrains of Death, both percussionists speak, shout, and whisper syllables taken from the International Phonetic System, reminiscent of the Japanese taiko drummers (Examples 9b).

There are numerous other examples of vocalization by the instrumentalists in this work. While playing with the fingers in the isorhythmic percussion part in the first song of Madrigals Book III, the percussionist whispers part of the Lorca text. The vocalizations here are an integral part of the isorhythmic "talea" (in a seven bar pattern) (Example 9c). Numerous examples can also be found in Ancient Voices of Children. In the first movement, the three percussionists imitate the sound of crickets while also executing scrapes on tam-tams. Crumb directs the players: "While producing a continuous buzzing sound (zz--) the lips form alternating vowel positions [i-u-i-u, etc.]." In the third movement, the percussionists whisper "kai!" while playing the "Bolero" rhythm (refer to Ex.5d). The two percussionists in Music for a Summer Evening even sing passages in parallel fourths on the syllable "ah" in "Hymn for the Nativity of the Starchild," bringing to
mind Medieval parallel organum. These passages are sung in unison with the pianists and chimes (Example 9d). Percussion I player in "Myth" shouts "chai!" while simultaneously striking the quijada ("jawbone") (Refer to Example 6b).


(b) Songs, Drones and Refrains of Death, opening section.

(c) Madrigals Book III, opening 7 measures.

These represent only a few of the numerous examples found within Crumb's chamber works. Referring to his use of vocalization on the part of the instrumentalists, he states:

A lot of the things that people think are so theatrical in my music seem to me really quite natural. For example, I will ask an instrumentalist to shout or whisper something. I know some passionate cellists that I have heard who were singing along with their own playing while playing a Dvořák concerto. For me, it is natural. Their intensity reaches a point where they want to go into the vocal direction. It almost goes beyond the instrument . . . That does not seem to me an unusual request. It can be an interesting combination sound or a special dimension . . . but something natural.  

12. Ibid.
CHAPTER III

UNCONVENTIONAL PERCUSSION INSTRUMENTS

In accord with his appreciable sensitivity to new and unique timbres and instrumental combinations, George Crumb has utilized percussion instruments from other cultures as well as from our own folk and popular cultures. Table 1 (pp. 13 & 14), indicates the wide range of instruments required in his chamber works written between 1960 and 1980. The table separates the instruments into the categories of conventional instruments, Latin-American instruments, African instruments, instruments of Asian origin, and those of the exotic and sound effect variety. The table also serves to illustrate the wide variance in the number of instrument types employed within a given piece; from the single vibraphone required for Madrigals Book I, to the thirty-one types of instruments called for in Music for a Summer Evening. Songs, Drones and Refrains of Death, Ancient Voices of Children, and Music for a Summer Evening are the works requiring the greatest number and variety of instruments while also requiring two to three percussionists. Since the world wars, there has been ever-increasing awareness and interest in the music and instruments of other cultures around the globe. Due to
this trend, many percussion instruments that at one time may have been viewed as "unusual" have become and continue to become more familiar and are utilized in an increasing number of scores by contemporary composers. This chapter will concentrate, therefore, on the more obscure and "unusual" instruments found in George Crumb's scores, with attention given to their description, sources, and unique playing techniques.

The first three works, as mentioned earlier, tend to employ the more conventional percussion instruments. Night Music I, however, does require two "unusual" percussion effects: a low pitched bell and a "water gong." Crumb mentions in the score that a low chime note can be substituted, however, a true bell sound would be preferable (no pitch is specified). A possible source for this sound would be a large ship's bell or carillon bell. Madrigals Book IV requires a low B-flat chime note which is below the range of the commercially available instruments, which have a normal range from middle-C up to F or G above the treble clef staff. In the score, he states that the higher B-flat (within the instrument's normal range) may be substituted. However, this octave displacement would distract from the melodic contour of the passage. Special instruments like these are not easy to come by, as Crumb states:
They should have an alternate set that is easily available that carries the range down. It would be useful for orchestras too. There are a lot of bell sounds that are written in a lot of romantic orchestra pieces. They have to use special bells . . . I have written for bells that exceed the range and it is always a hassle to go and get special bells . . . There could be more imagination on the part of [instrument] builders.

The "water gong" is not really a specific instrument but is instead a special playing technique for producing a glissando on a gong or tam-tam. The technique was employed in John Cage's First Construction in Metal (1939) and involves dipping a vibrating gong or tam-tam (while executing a roll on its surface) into a tub of water. As the gong submerges a downward glissando is produced, and conversely, an upward glissando results as it is raised from the water. The best effect is achieved with smaller, thinner instruments, and a pedal device can be made for raising and lowering the gong, which frees up the hands of the player for playing. Crumb instructs the player to use the smallest of the three tam-tams on his part ("about thirteen inches in diameter") and to execute a roll with one soft beater (Example 10). A smoother roll might be achieved if the player designs a pedal/pulley mechanism for lowering and raising the instrument with his foot while using both hands for the roll. The "water

1. George Crumb (Interview at Southern Methodist University, Dallas, Texas, May 3, 1992).
"Water Gong" effect is used in the first song, "La Luna Asoma" [The Moon Rises], to open (upward glissando . . . possibly representing the title) and close (downward glissando) the movement.


**Songs, Drones and Refrains of Death** utilizes a large number of instruments (twenty-seven types), including several uncommon instruments: Chinese temple gong, tiny Japanese bell, lujon, tuned cowbells (or "almglocken," tuned to C-sharp, F and G), flexatone, three Jew's harps, and ten water-tuned crystal glasses. The size and pitch of the Chinese temple gong is not specified in the score. However, when he calls for it again in **Night of the Four Moons**, he does clarify the type of instrument to some degree as a "gong with protruding nipple." It is not out of ignorance but of choice that Crumb does not indicate specific pitches for the gong (as gongs are pitched instruments as opposed to tam-tams which are not), as he states: " . . . the nipple gong can have a predominant
pitch but I do not treat it as a pitched instrument."²

Crumb may be suggesting the use of a fairly large instrument
by using the term "temple" gong.

The tiny Japanese hand bell (with clapper), called
for in the score, is to be played by the baritone
(vocalist). There is no further description as to the
type of instrument he wants. He could be referring to
the "Rei," a Buddhist sutra bell employed in religious
services, which has a clapper, is held by a handle, and
is made of brass.³

![Figure 2. Tiny Japanese Hand Bell.](image)

Any small brass bell with a clapper, possibly from India
or China, would probably be sufficient as a substitute
(found in import stores).

The lujon (also spelled "loon") was developed in
America as what is essentially a bass metallaphone. It

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2. Ibid.


4. Ibid., 227.
consists of a tall rectangular resonator box which is open at the top and is partitioned into as many resonating chambers as it has aluminum-alloy plates. It is a pitched idiophone and is usually arranged in a keyboard fashion so that, for the range of an octave, it would include thirteen plates. The instrument has limited carrying power and is often used with some sort of amplification. Luciano Berio calls for the instrument in his *Circles* (1960). Crumb utilizes the instrument in the third movement, "Song of the Rider, 1860," at the fortissimo level in conjunction with the electric harpsichord (at fff level); this may be an instance when amplification would be advantageous for good balance. Here again, Crumb does not specify pitches though the instrument is of the pitched variety (Example 11).


Percussionist I is required to play "three tuned cowbells (the genuine large cowbells, imported from

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Austria). These tuned cowbells are also referred to as "almglocken" or "Alpine herd bells," originating from the Alps of Switzerland/Austria, and can be obtained in chromatic scales from $c$ to $c^4$ or even $c^5$.

The Percussion II part calls for a flexatone, an instrument which appeared, along with the musical saw, when vibrato and glissando were of such interest in the American jazz of the twenties. The instrument consists of a steel blade or tongue which is struck on both sides by small wooden beaters (may be leather padded) which are attached to it by flexible wires. While the instrument is shaken, causing the beaters to produce a roll, the thumb presses on the end of the steel tongue to produce glissandos as the pressure changes. The instrument has a general range of a little over an octave. The most famous orchestral example occurs in Khachaturian's Piano Concerto (1936), where the flexatone plays the melody line along with the violins in the second movement. Crumb does not write specific pitches but instead uses a four-line staff to indicate four approximate levels, over which the instrument follows contour lines. The flexatone appears

7. Peinkofer, op. cit., 130.
8. Ibid., 74-75.
in the fourth movement, "Casida Del Herido Por El Agua" [Casida of the Boy Wounded by the Water], and represents one of the numerous "drones" in the work. The sound here may be representative of the "Water" in the title.

Three Jew's harps are required for the piece, to be played by the two percussionists and the guitarist: one small (high pitched) and two large (low-pitched). The instrument has been known in Europe since the Middle Ages and has come to be associated with American folk music. Crumb's use of the instrument is an example of the influence of his West Virginia origin. Also called the "jaw's harp," the instrument is played by plucking the metal tongue while holding the instrument against the teeth. The mouth cavity serves as a resonating chamber while the player mouths vowel positions to form various "pitches." Crumb again uses a contour-type notation to indicate these sounds and a "+" sign to indicate the plucking of the metal tongue.

The two percussionists are also required to play ten water-tuned crystal glasses. Each player has a set of five, tuned to the same pitches: B-flat, D, E, G-sharp, and A (all of which are above the treble clef staff). In this case, the players are directed to play on the edges

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of the glasses with very light metal beaters (knitting needles would work very effectively here due to their lightness and hollow construction). While one player performs a short passage on the glasses, the other plays with similar beaters on the glockenspiel or vibraphone (Example 12).


For the best sound production, the glasses should be thin-walled and standing on a cloth-covered base. By pouring water into the glasses, it is possible, within limits, to lower the "pitch" of each glass though this can reduce the dynamic volume to a degree. These instruments were in use in Europe as early as the eighteenth century and were known as "glass harps."^10

A "glass harmonica" is called for in Dream Sequence. There is no essential difference, however, between the "glass harmonica" and the crystal glasses, except in the manner of playing. The "glass harmonica" may require

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glasses of finer quality, however, since the technique involves rubbing the edges of the glasses with moistened fingers (this works best on fine crystal). The "glass harmonica" consists of four crystal goblets tuned to a chord (C-sharp, E, A, and D), played by two players who sustain the four-note chord for the entirety of the piece at the dynamic level, "ppppp." The pianist plays three crystal goblets (F-sharp, B, and E), which he plays in certain passages in his "circle music." At the very end of the piece, the four notes of the "glass harmonica" drop out one by one (from lowest to highest pitch). The last note (final ten seconds) is marked "al niente." Crumb provides clear instructions in the score, mentioning the tuning process and the need for small containers of water since the fingertips of the players would need remoistening at intervals. The true "glass harmonica" (from which the name is derived) was, of course, invented by Benjamin Franklin in 1762 and was made up of hemispherical glasses which were attached to a treadle-operated spindle. The moistened fingertips were placed on the revolving glasses to obtain the pitches.\footnote{Ibid.} Vinegar can also be used in the place of water as an alternate source for remoistening.
Besides employing the Chinese temple gong already mentioned, Night of the Four Moons also requires three other instruments not usually associated with the Western musical tradition: Japanese Kabuki blocks, Chinese prayer stones, and alto African thumb piano ("mbira"). Japanese Kabuki blocks are one of the best known instruments used in the Kabuki theater. These are basically concussion blocks consisting of two hardwood blocks, about seven to ten inches long, that are clapped together to produce the characteristic sharp, penetrating sound. One side of each block is slightly curved in a convex manner. When clapping them together, the player must make sure that they meet in exactly the right place on the curved surface to give the strongest possible clap. In traditional Kabuki, the blocks, known as "hyoshigi," are used to signal the audience as to when the curtain will open and at many other important points in the drama. Stockhausen had utilized the instrument in his Telemusik (1966).

Figure 3. Japanese Kabuki Blocks.

Crumb employs the blocks in a dramatic way as well, in the fourth movement. The blocks enter with exposed passages that serve to punctuate the dramatic text of the alto (Example 13).


Though other composers have written for stones in their scores in recent years, George Crumb may be the only one to specifically call for Chinese prayer stones or "Tibetan prayer stones," as they are referred to in Ancient Voices of Children. One assumes that the two names are referring essentially to the same instruments. Crumb mentions his first encounter with and subsequent use of the stones:
Well, it was a colleague of mine, Dick Wernick [at U. of Pennsylvania], who had some that someone had given him. I got the idea of using the stones from him. I was always interested in simple, tiny instruments . . . what is the voice of this instrument? Could this instrument have an identity in a piece? . . . a simple, little instrument? . . . like the jug from Appalachia or the hammered dulcimer which I use a lot in my more recent works. I became convinced that any instrument, no matter how simple or how strong the folk associations are, can have a voice that could be used in another way.  

The real Chinese/Tibetan prayer stones are made of volcanic stone which tends to be porous and tends to break or crumble. Crumb encourages performers instead to use any kind of hard stones found around rivers or beaches that are "more or less elliptic in shape and not too thick." James Holland mentions in his book, the difficulty of locating the authentic stones, adding: "... I confess that we have used stones from Brighton Beach in place of the former." Two of these elliptic-shaped stones are required and Crumb describes the playing technique in the score:

... one stone is cradled in left hand palm and struck with edge of second stone held in right hand. The left hand can be flexed to produce a varying cavity, thereby yielding different pitches.

15. Ibid.
Holland adds that the highest sound is produced when the stone lies flat in the palm and that the pitch is progressively lowered as the grip is tightened while the chamber is opened in the palm.\textsuperscript{18} Crumb utilizes a contour-type of notation on a single line to notate the part, which contains approximately six pitch levels. The stones are employed in the second movement, "Cuando sale la luna" [When the moon rises], and always appear in a solo context (Example 14a). In Ancient Voices of Children, the stones are also employed in a solo context and appear in "Dances of the Ancient Earth," following the first song. In this case, the stones are notated with a wider range, more dynamic contour, and with more specific rhythmic material (Example 14b).


(a) \underline{Night of the Four Moons}, 2nd movement, "senza misura," p. 3.

\begin{center}
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The alto African thumb piano ("mbira") is called for in both Night of the Four Moons and Music for a Summer Evening. This fairly small hand instrument with plucked tongues of metal is known by many different names in Africa, depending on the respective tribal languages. It is also commonly known as "kalimba" and "sanza," is now manufactured commercially in South African factories, and is easily obtainable. It consists of a wooden resonator in the shape of a rectangle or trapezoid, though the shape varies. The number of tongues varies as well (seven to seventeen). In most cases, the placement of the metal tongues proceeds from shorter to longer as they get closer to the center. The most common version has fifteen to seventeen tongues tuned to the G major scale and the tongues can be moved within the "bridge" for tuning. In Night of the Four Moons, Crumb instructs the player to re-tune two of the pitches. The instrument is a predominant sound in the third movement, performing complex rhythms. The part is

19. Peinkofer, op. cit., 76.
notated on two staves which clearly divides the part between the right and left hands. The player is also called upon to perform a kind of vibrato effect, executed by opening and closing holes located in the back of the instrument, with the middle fingers of each hand (Example 15).


Another Asian percussion instrument called for in Crumb's scores are the Japanese temple bells known as "dobachi." Five bells are required for *Ancient Voices of Children* and *Dream Sequence*, while three are called for in *Music for a Summer Evening*. These bells are in the shape of a deep bowl or cup, rest on cushions, and are normally played with a leather covered beater. The larger ones can reach a size of thirty-six inches in diameter and are usually made of bronze, while the small ones are made of brass and can be as small as one and a half inches in diameter. The same instrument ("dobachi") is also known in Japan as "uchinarashi" and "kin," and are found in temples and home shrines.20 The bells'

characteristic sustaining tone, which generates sub-tones in the larger bells, resemble in color, that of glass bells struck with the same kind of beater but with much greater volume. These bells tend to have a predominant pitch but are never treated in such a manner in Japan, where they are usually found singly. Crumb does not treat them as pitched instruments, as he states:

... if you wrote for ten pitches and tried to find them you would spend your lifetime trying to find a tuned set. I decided that the charm of the bells was not in the precise pitch but in the ambience.21

He once again employs a four-line staff for the temple bell passages and asks that the bells be graduated in size. If the traditional leather-covered beater is not available, soft rubber, yarn or cord wound mallets can be substituted. In Dream Sequence, Crumb specifies that the lowest bell be very large and resonant, as it is employed in an unconventional manner. This technique, which he calls a "stroking effect," is performed with the special beater and involves holding the beater firmly against the edge of the bell while slowly moving it in a circular fashion around its circumference (see Figure 4).

Figure 4. Japanese Temple Bell.22
Crumb mentions the "special beater" but does not clarify its material or design. The traditional leather-covered beater will not produce the required effect. Instead, a similar beater made of wood, without the leather covering, will vibrate against the bell to produce the kind of sound that Crumb is after.

_Ancient Voices of Children_ includes a part for the musical saw, to be played by the mandolin player (though Crumb mentions that an additional musician could be used). Though the saw is a larger instrument, it shares the same basic range as the flexatone (octave and a fourth starting on the C above middle C). The instrument is played with a cello or contrabass bow, is held between the knees, and bent into an S-shape by the left hand which also adjusts the pitch by changing the amount of pressure. It produces a very high resonant, singing tone and a vibrato is also achievable. Pitch can only be obtained through glissandi between notes. Unlike the flexatone, where Crumb only calls for approximate pitches, the saw passages are written with specific pitches, many of which go above the written range. James Holland states: "... we found it impossible to find a saw capable of producing all the

21. Crumb, Interview (May 3, 1992), _op. cit._

notes expected." Even with a saw capable of producing the written pitches, the part is a difficult one and would require a lot of practice in order to execute the melodic material very accurately (Example 16).


![Musical Saw](image)

Indian elephant bells are required in Lux Aeterna, which also includes other Indian instruments: the sitar and its traditional accompanying drums, the tabla. Indian elephant bells are also known as "sarna bells" and are well known as a dinner and ornamental bell, as well as a favorite export item from India (available at many import stores). These bells are made of brass and are spherical in shape. The upper half is decorated and has a handle, while the lower half consists of several pointed claws and has a clapper inside. Crumb calls for three" about 1 3/4, 3, and 4 1/4 inches in diameter," to be played by the soprano, bass flutist and sitar player.


Crumb again alludes to his Appalachian heritage with a part for "jug" in *Music for a Summer Evening*. The instrument is played by blowing across the opening. Large wide-bodied wine bottles are effective substitutes if an old-fashioned ceramic jug is not available. The instrument is used in the isorhythmic fourth movement, "Myth" (Example 17).


The African log drum is required in the same movement. The traditional African log drum is also known as a "slit drum" and is made from a section of a tree trunk. The section is hollowed out with a length-wise cut which provides the resonating chamber and several playing areas with different tones. A "log drum" that has been developed in America is based on the same principal as the old Mexican wooden drum, *teponaztli*, which is played with two padded beaters on two tongues cut into the surface of what is essentially a wooden box. These log drums come in variable sizes and with variable numbers of tongues but usually no more than six. Here, the log drum is notated with two "pitches" and plays quintuplet figures (Example 18).

In **Dream Sequence**, the pianist is required to play another obscure instrument of Asian origin: a Thai buffalo bell. The pianist plays a tremolo on this tiny, wooden instrument at the very end of the piece. These bells could be related to those mentioned in James Blades' **Percussion Instruments and Their History**, which states that in the Far East: "Wooden bells with clappers are hung from the necks of animals. Specimens up to three feet in length are hung from the necks of oxen."

25 A possible substitute for this obscure instrument would be a "cricket caller," a small sound effect/novelty instrument made of wood that consists of small wooden balls mounted on a dowel that passes through the main body of the instrument. When it is shaken, the balls on each end alternately hit either side of the instrument producing a high, "cricket"-type sound.

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25. Blades, *op. cit.*, 120.
This little instrument has two clappers positioned outside the bell. The buffalo bell should be extremely high in pitch, approximating the frequency of the cicada’s "voice."

Figure 5. Thai Buffalo Bell.  

CHAPTER IV

COMPOSITIONAL TECHNIQUES

In the chamber works of George Crumb, the percussion instruments are treated as equal partners with the other instrumentalists and vocalists, though his music is rarely contrapuntal in the traditional sense. Instead, the music is made up of hierarchies that are constantly shifting. At one point, an instrument or voice will be in the foreground while the others assume secondary and tertiary roles. The different "voices" shift into other levels within this hierarchy as a piece progresses so that, at a given point, any one of them may become the primary voice. Crumb discusses this effect in his music:

It is not rationalized and thought out so much as it is rather intuitive. I am more interested in contrast within a piece. It is more a mosaic kind of technique where voices are immediately contrasted.¹

Crumb is widely known for his sensitivity to timbre and sonority. All of the elements of his music are involved in contrast, whether it be dynamics, rhythm, pitch, or timbre. When composing a piece, Crumb places special

¹. George Crumb (Interview at Southern Methodist University, Dallas, Texas, May 3, 1992).
attention on the timbres he employs. Regarding this process, he states:

The timbre comes very quickly. It is part of the conceptual aspect for me. I regard timbre as a very elevated parameter of the music. Not just a superficial aspect that decorates the composition but more integral . . . structural. It tends to come with the conception.2

Crumb's percussion writing takes an "economy of means" approach as opposed to what he terms the "scatter shot" approach found in some works, where the listener is bombarded with so many different percussion sounds simultaneously, that the piece produces "diminishing returns."3 While he may require the use of a large number of instruments in certain works, Crumb rarely "overwrites" and instead focuses on individual instruments and their own distinctive sonorities. He is a very careful composer, leaving nothing to chance. All of the percussion parts are well conceived and include detailed instructions, when necessary, in order to describe, as accurately as possible, an unconventional technique or musical effect. The percussion instruments are utilized in a variety of ways that demonstrate his interest in a more "expressive" approach. The percussion writing is involved in the symbolism found throughout his music, providing musical

2. Ibid. 3. Ibid.
imagery to support the Lorca texts and descriptive titles. Percussion instruments are employed as unifying elements in many of the works but especially in those with cyclic aspects such as *Songs, Drones and Refrains of Death*. Certain compositional techniques such as timbre modulation or "sound-link," echo devices, and soloistic treatment are also aspects affecting his style of percussion writing.

Most of the works covered in this study are settings of the poems of Federico García Lorca and Crumb views them as an extended cycle. The remaining works employ either a different textual source (as in *Lux Aeterna*, based on the familiar Latin text from which its name is derived) or descriptive titles (*Music for a Summer Evening* with many "cosmic" references and *Dream Sequence* which portrays the "dream-state"). There are, therefore, many extra-musical elements within these works that can be and are reflected as "musical imagery." The percussion instruments are frequently involved in the "mesh" formed between the images of the poetry and the musical lines.

There are many instances where percussion passages reflect a specific word or mood of the text.

In *Night Music I*, in the first song, "La Luna Asoma" ([The Moon Rises]), the "water gong" effect is employed with the ascending glissando representing the rising moon. Crumb utilizes an unconventional arrangement for notating the percussion and piano parts in this movement (Example
19). This is the first instance of what has become one of the "fingerprints" of his style, known as "circle music," a notational procedure he has utilized in many works since. In this case, the circular notation is symbolic of the roundness of the moon.


The second song in Madrigals Books I includes a passage in which the vibraphone player must play with his fingernails, reflecting the word "lluvia" (rain) stated by the soprano (Example 20a). The note bending technique on the vibraphone, mentioned in the last chapter, is employed in the last song. The unique sound of the des-
ceding glissando represents "Los muertos" (The dead) in the text (see Ex. 2d). The term "La muerte" (Death) is symbolized in the second song of Madrigals Book II, by the descending glissandi on the timpani (See Examples 5b and 5c).

In "La Guitarra," the first song in Songs, Drones and Refrains of Death, the text includes the passage: "Se rompen las copas de la madrugada" (The wine cups of daybreak are broken). Simultaneous with the utterance of "rompen" (broken) is an "ffz" attack by glockenspiel and triangles while the percussionists also vocalize, with an "incisive whisper," one of the syllables of the International Phonetic System -- "tsai!," followed by an unvoiced wind sound "sh---" which is coupled with a double-stop roll on the lujon, possibly to represent "daybreak" (Example 20b).

In much of Crumb's music, movements and entire works are usually fixed in form and the total shape is either strongly palindromic or arch-like in form. In some cases, even the formal structure takes part in the symbolism. The form of the entire first song in Madrigals Book IV is a symbolic representation of the accompanying text: "¿Porqué nací entre espejos?" (Why was I born surrounded by mirrors?). The form is that of a large palindrome reflecting the word "mirror." The central six measures, are rhythmically palindromic but the pitches change in
the second group of three measures. The outer twenty-four measures (twelve on either side of the central six-bar section) are an exact palindrome with the material being passed around between the musicians. The last word of the text in the second song, "frío" (cold), is punctuated with a sharp attack marked "fz," on the glass wind chimes.

In the first movement of Ancient Voices of Children, the three percussionists imitate the sound of crickets with vocalizations and scrapes on tam-tams at the statement of the phrase: "La tenía el rey de los grillos" (The king of the crickets had it) (Example 20c). In the opening of the fifth movement, the text: "Se la llenado de luces me corazón de sada" (My heart of silk is filled with lights) is represented by brilliant, ringing chords on the vibraphone, chimes, glockenspiel crotales, and electric piano to represent the shimmering "lights" (Example 20d).

Music for a Summer Evening does not have a text but is instead based on a variety of "cosmic" images and is third in the series of Makrokosmos works, which center on the piano. In the first intermezzo, "Wanderer-Fantasy," the two percussionists each play a slide whistle into the strings of the piano (pedal held down) as if to represent two wanderers calling and echoing one another (Example 20e). The movement marked "The Advent," has the additional directions: "Slowly, like a sound of nature." This "sound of nature" is represented with the two passages for
thundersheet which is shaken at the fortissimo climaxes (Example 20f). These represent just a few of the numerous examples of the musical imagery portrayed on the percussion instruments.

Example 20. Use of Percussion as Musical Imagery.


(b) Songs, Drones and Refrains of Death, 1st movement, "senza misura," p. 7.
(c) Ancient Voices of Children, 1st movement, "senza misura," p. 7.

(d) Ancient Voices of Children, 5th movement, opening three measures.
Though Crumb views all of the works that are settings of the Lorca poetry as an extended cycle, there are single works that display an overall cyclic structure. Songs, Drones and Refrains of Death is, in fact, subtitled as "a cycle of poems by Federico Garcia Lorca." For this work, Crumb chose four of his favorite "death poems" by the poet and combined them into a single work. The piece is cyclic in that the music is continuous throughout and that the four "songs" fit together to form an overall musical unit. The cyclic form is also indicated through recurring material found in the four "refrains" as well as certain motives that recur within the work. 4 The

4. George Crumb (Follow-up interview via telephone, Dallas, Texas, July 16, 1992).
percussion instruments play an important role in unifying the work when they are employed within these motives.

Regarding the role of percussion within these unifying motives, Crumb states:

The specific timbres of each percussion instrument . . . is an important part of the motives . . . I couldn't switch instruments in these motives and achieve the same musical effects. It was my concern to find a special voice for these passages.  

An important motive that recurs throughout the "refrains" and in other sections of the work consists of a three note figure made up of a rising tritone followed by a descending whole step. It is treated differently at each occurrence in regards to rhythm and transposition. Example 21a indicates the first appearance of the motive as it appears on the electric piano in Refrain One. The two percussionists play the motive simultaneously with a pitch difference of a half step in Refrain Three. The rhythm and transpositions are different but the essential intervallic material is the same (Example 21b). The motive recurs again in the percussion in Refrain Four. In this case, it appears on the three tuned cowbells (almglocken) in what is the only passage for the instruments in the work (Example 21c). In the last song, "Casida del Herido por el Agua" (Casida of the Boy Wounded by the Water),

5. Ibid.
the motive makes its last appearance on electric piano and is echoed by the chimes or "tubular bells" (Example 21d). The motive used to close the entire work, executed by the water-tuned glasses (See Example 12), is foreshadowed in the second song, "Casida de las Palomas Oscuras" (Casida of the Dark Doves). It appears in the Percussion I part on the glockenspiel (Example 21e).

Example 21. Use of Percussion in Unifying the Cyclic Work: Songs, Drones and Refrains of Death.

(a) Refrain One, opening measures.

(b) Refrain Three, "senza misura," p. 12.

(c) Refrain Four, "senza misura," p. 18.
With the composer's increasing awareness of the subtle timbre alterations available in different registers of various instruments -- muting, dynamics, attacks, and decays -- comes the realization that a wealth of timbre overlap exists between instruments.6

This statement by David Cope points to an important compositional technique which George Crumb has used very

effectively in his works: timbre modulation or sound-link. This technique is one of the significant developments resulting from the instrument exploration that has taken place in the last few decades. The technique involves the combination of two or more instruments to create changes in timbre through some form of overlap in their attacks and the accompanying decay of sound. There are two variations of the technique apparent in Crumb's percussion writing. The most common version affecting the percussion instruments is a ring-off technique wherein a loud attack on one instrument masks the entrance of another instrumental timbre which, in most cases, is at a lower dynamic level. As the louder timbre decays, the listener gradually becomes aware of the contrasting, softer timbre. The other version of the technique involves a subtle shifting of colors between instruments that are producing similar timbres. Donald White describes this version of the technique:

Its essence is a gradual and often very subtle bending of the timbral spectrum in such a way as to lend organic unity to the element of sound while furnishing variety of color. It is the timbral counterpart of the harmonic technique of modulation.7

At the very center of the palindrome (a form favored by Crumb and employed in many of his works) in the first

song of Madrigals Book IV, the percussionist uses a coin
to scrape a large suspended cymbal at the level of "fz,"
simultaneous with the "ppp" level entrance of the
contrabass, playing a rapid trill "sul ponticello (at the
bridge)(Example 22a). Another variation of the ring-off
technique occurs in the opening of Refrain One in Songs,
Drones and Refrains of Death. In this case, the
percussionist plays a "fz" attack on the claves along
with a short "fz" attack by the electric guitar (on a
harmonic). These attacks cover the simultaneous entrance
by the electric contrabass harmonics, at the "ppp" level.
This sound grows out of the sudden "fz" attacks (Example
22b). Later in the same movement, the two percussionists
vocalize an unvoiced wind sound which melds into a scrape
on the tam-tam so that the prior timbre leads into the
later (Example 22c). A similar example of two similar
timbres melding together to create subtle shifts in the
sonority of the music occurs in the fourth movement. Here,
the electric guitar, playing harmonics at the "mp" level
(legato) blends back and forth with the vibraphone, which
is also utilizing harmonics and producing the same pitches
in a kind of echo (the vibraphone harmonics sound two
octaves higher than written)(Example 22d).

Another example of this subtle shifting or "modula-
tion" between timbres occurs in the second movement of
Night of the Four Moons, where the Chinese prayer stones
are paired with alto flute key clicks (with the mouth covering the mouthpiece to sound an octave and a fourth lower than written)(Example 22e). A striking sound-link effect is achieved in the first movement of *Music for a Summer Evening*. First, the vibraphone player executes a chromatic glissando for the full length of the instrument, with the pedal held down. Simultaneous with a "fz" attack on the claves, the vibraphone player switches on the vibrato (motor)(Example 22f).

Example 22. Timbre Modulation Techniques.

(a) *Madrigals Book IV*, 1st movement, measure 15.

(b) *Songs, Drones and Refrains of Death*, Refrain One, opening of movement.
(c) Songs, Drones and Refrains of Death, Refrain One, "senza misura," p. 8.

(d) Songs, Drones and Refrains of Death, 4th movement, "senza misura," p. 19.

(e) Night of the Four Moons, 2nd movement, closing measures.
A compositional technique that is pervasive in Crumb's chamber works is the echo device. It can be viewed as a type of imitation technique but not in the traditional sense. A musical figure sounded by one instrumentalist will be repeated by another, often a tritone or whole tone away. There are two principal forms of the device that are apparent. If the musical material on one instrument is explosive with instant repetition from another instrument or instruments, the effect is that of a repercussion or ricochet. If the repeat or imitation of the musical material is somewhat more delayed, it becomes more of an echo. This type of device determines the musical treatment of the percussion instruments in numerous passages within the chamber works in this study.

An early example of the ricochet effect appears in the second song in Madrigals Book I, between the contrabass and the vibraphone. The contrabass begins the passage executing harmonics followed by the immediate and staggered entrance of the vibraphone. The pitch contours of the instruments mirror each other and an interesting rhythmic
interplay results due to the staggered entrances and meter changes (Example 23a). There are several examples in Songs, Drones and Refrains of Death. In Refrain Three, marimba provides an instant ricochet to the electric piano (playing harmonics). In this case, the echo includes an exact repetition of the pitch material (Example 23b). In "Song of the Rider, 1860," the xylophone and marimba execute a more complex ricochet effect to an arpeggiated passage on the electric harpsichord. The echo, in this case, is with a pitch difference of a tritone (Example 23c). Later in the same movement, the glockenspiel provides more of a delayed echo to the vibraphone, while also being written a major third higher (plus an octave; since the glockenspiel sounds two octaves higher than written)(Example 23d).

An even more delayed echo effect occurs in the third song of Madrigals Book III. Here, the vibraphone echoes the material presented by the harp at the unison, while both instruments are echoing the soprano's material at a major sixth above (Example 23e). In Music for a Summer Evening, the ricochet device is pervasive throughout. In the first movement, all four players (two pianists and two percussionists) engage in the ricochet of the materials. The percussionists echo the rhythmic material while the pianists echo each others material at the interval of a major third (which shifts throughout the movement)(Example 23f).
Example 23. Echo Devices.

(a) Madrigals Book I, 2nd movement, measure 12.

(b) Songs, Drones and Refrains of Death, Refrain Three, "senza misura," p. 12.

(c) Songs, Drones and Refrains of Death, "Song of the Rider, 1860," p. 15.
(d) Songs, Drones and Refrains of Death, "Song of the Rider, 1860," p. 16.

(e) Madrigals Book III, 3rd song, measures 4-8.

As mentioned earlier, one of the distinctive features in Crumb's chamber works is the extremely defined and thinly exposed textures, often resulting in solo lines. This aspect, coupled with the virtuosic treatment of the instruments, creates music wherein all of the parts are treated soloistically at various times within a constantly shifting mosaic of sound. There are, therefore, many instances where percussion takes on the role of a primary or solo voice. These passages are fairly brief in length and are essentially one thread within the web of sound. There are still some instances where percussion comes to the forefront for more lengthy soloistic passages.

The movement, "Song of the Rider, 1860," from Songs, Drones and Refrains of Death, includes very involved percussion passages with constant instrument changes. Each percussionist has a large set-up, and employs almost every percussion instrument called for in the score. The musical material constantly shifts between measured and non-measured ("senza misura") passages, but the perpetual motion does not cease until the conclusion of the movement. Towards the end, there is a "Cadenza appassionata (for 2 drummers)." This section is non-measured yet in strict tempo. It is a lengthy solo section for the two percussionists, each playing five or six drums while executing the complex rhythms (Example 24, on next page).
Example 24. *Songs, Drones and Refrains of Death*

"Cadenza Appassionata"
Night of the Four Moons is dominated by single line textures, creating a mood of intimacy and a sense of improvisatory freedom. Percussion, therefore, takes on a soloistic role in several instances throughout the work. In the first movement, the percussionist plays a pair of bongos and a Chinese temple gong. Each appearance of the two instruments is in the form of a solo line or solo note (gong). One of the solos for bongos involves "irrational" rhythms\(^8\) in a "senza misura" context (Example 25). The second movement features the Chinese prayer stones in a similar manner (see Ex. 14a). It is the only instrument used by the percussionist in the movement. Thus, its unique sound permeates the movement and is one of its distinctive features.


8. Term used by Gardner Read in his Modern Rhythmic Notation (Bloomington, Indiana: Indiana University Press, 1978), 34.
The entire fourth movement, "Myth," of *Music for a Summer Evening* features the percussion instruments with all four musicians participating (including the two pianists). It represents the only instance, in Crumb's chamber works written between 1960 and 1980, of an entire movement being written exclusively for percussion instruments, making the movement essentially a piece for "percussion ensemble." A wide variety of instruments and techniques are employed within the overall isorhythmic structure of the movement (discussed later in the chapter)(Example 26 on the following pages).

As part of his compositional process, Crumb employs a variety of symbolic and unconventional notational practices. This symbolic notation, which began with *Night Music I* (see Example 19), has seen extensive use in many more works, from the *Makrokosmos* piano works to other chamber works such as *Songs, Drones and Refrains of Death*, *Ancient Voices of Children*, and *Dream Sequence*. In the second movement of *Songs, Drones and Refrains of Death*, the "circle music" is used to represent "El Sol" (The Sun) and "La Luna" (The Moon). This purely graphic type of notation serves to convey these non-musical images to the eye of the performer. Similar practices date back to the fifteenth and sixteenth centuries and the use of "augenmusik" (German for "eye music") when the most common form of this technique involved the use of blackened notes.
for texts expressing grief or lament.\(^9\) Besides the symbolic connotations of this type of notation is the practical purpose for which Crumb employs the approach. It can be referred to as music of "controlled chance" which permits free of flexible interpretation within a composer-controlled framework. Kurt Stone refers to this "circle music" as "frame notation."\(^{10}\) Crumb mentions his reasoning behind this notational use: "I do like a degree of freedom sometimes in the vertical alignment in my scores. I like to write the notes out but suspend the sense of a precise vertical alignment."\(^{11}\) This notation presents the performers with a certain amount of freedom while at the same time requires rehearsal time, in order for the performers to become familiar with (and complement with their own playing) the other musical elements functioning concurrently. Once the players are familiar enough with their own and other musicians' musical materials, they are able to integrate their elements together in a more complimentary manner while keeping the improvisatory nature of the piece. In Night Music I, for instance, the per-

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11. Crumb, Interview (May 3, 1992), Ibid.
formers play each numbered segment in the notated context of the dynamics, tempo, and forms of attack (composer-controlled elements) while improvising the amount of time between segments so that there is a continuous web of sound. The improvisatory nature is reduced somewhat for the percussionists, since they must agree as to which segment will be the starting point, and what the direction will be (since they both must follow the same circle).

As mentioned earlier, one of the unique "fingerprints" of Crumb's compositional style involves the placement of accented grace notes (which are to be performed exactly together) prior to the unaccented, softer main notes. This is another of the influences from Bartók, who wrote similar passages but with the accents falling on the beat instead of slightly before it. Crumb speaks of the connection: "... the short, loud note is on the beat and that is the Hungarian rhythm from Hungarian folk music. All Hungarian words are accented on the first syllable."\(^{12}\) This is another example of Crumb's interest in contrasts where he takes the musical idea presented by Bartók a step further, placing the two notes (accented and unaccented) closer together and disguising the downbeats with the accented grace notes (Example 27).

\(^{12}\) Ibid.
While his contemporaries, Luciano Berio, Morton Feldman, Karlheinz Stockhausen, and others, have formulated new graphic types of notation, Crumb has always remained faithful to conventional notation, for the most part. He, instead, has devised many flexible means of treating the traditional notation to suit his needs and musical goals. In addition to the musical notation, he frequently includes written instructions on the score to clarify the musical requirements or to describe a new technique. He has stretched the meanings of some aspects of conventional notation, for instance, with the addition of a dot in front of a note that is already dotted in the usual manner \( \cdot \). He employs this unique note value in many of the irregular meters found in much of his music, such as 5/16 \( \cdot \) a measure of rest). He has also been credited
with the invention of a device that has gained general acceptance and has almost become synonymous with new music. The device at one time was known as the "Crumbando" and involves a free rubato-like change of speed for a short phrase or group of notes that occurs within a non-rubato context. The device is often combined with a spacing between the notes (horizontal) to imply the desired speed of the changes. The device can be used to represent an accelerando, ritardando, or combination of the two (see Figure 6) and can be seen in his chamber works starting with Night Music I, 1st Nocturne. The device ultimately could be said to have come from the accelerando-ritardando represented by the xylophone in Bartók's Music for Strings, Celesta, and Percussion, third movement.

![Figure 6. "Crumbando."](image)

13. Ibid.
Another notational aspect, that has gained wide acceptance, involves the use of empty space ("cut away") on the score for instruments which are "resting." This aids the performers, who all read from the score, in following the primary lines in the texture, while they themselves are not playing. The score then becomes a much clearer visual representation of the musical events occurring. In such cases where there are no bar lines ("senza misura"), Crumb utilizes vertical arrows to indicate how the parts are to line up, in addition to serving as visual cues for entrances.

In the first version of Night Music I, Crumb leaves some of the "composing" up to the performers. During "senza misura" sections, some of the players are instructed to improvise. This was all changed in the 1976 revision which unfortunately is not available in a published version due to a shifting of ownership that has taken place in the publishing company (Belwin-Mills) since then. Only Night Music I and Echoes and Time of the River were published with this company instead of C. F. Peters, which publishes the rest of his works. The 1976 revision of Night Music I is only available by contacting the composer, at this point. Crumb revised the score in order to write material to replace these improvised passages, which includes specific pitches and rhythms but in a "senza misura" framework and with the instructions to be "quasi" improvised
and played "freely." Crumb states:

I simply found out, in a very pragmatic way, that everybody could not be equally inspired every time they played those passages. Clunkers can occur; and I decided that the composer should know best.  

Crumb’s scores also demonstrate his partiality towards unconventional time signature formats. In addition to using the standard note values for the denominators (half note to sixteenth note), he frequently utilizes smaller note values as the meter denominator. Most of his scores use note-head denominators as well, some of which are dotted. *Night of the Four Moons* has the meter 7/\text{15}^\text{14}, denoting conventional 21/32, while *Madrigals Book II* employs 7/\text{15}^\text{14}, which denotes the conventional 21/64. These are examples of some of the inordinately large numerators coupled with very large denominator values.  

There are many cases, however, when Crumb does not use time signatures, choosing instead to indicate only the rate of tempo above the staff at the beginning of such sections with metronomic markings. In many of these cases, he still utilizes extremely short note values as the basic time unit. There are lengthy sections and entire movements in *Night of the Four Moons*, *Ancient Voices of Children*, and *Music for a Summer Evening*, that incorporate this

\footnotesize

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approach with metronomic markings like: \( \frac{4}{4} = 72 \). His rhythmic notation in general is unusual in its preference for very small units of measurement and minute beat divisions. This notational and rhythmic aspect is found in many of Crumb's works and has been described with the use of the term, "microrhythm." He describes the meaning behind the term as referring to:

... when there is a series of slow pulses and there is a possibility of subdividing notes to an immense extent so that you have even a sense of very fast motion temporarily within a pulse that may still be rather slow and sedate ... I had to play the Beethoven Opus 111 which has an incredible number of 128th notes. The pages are black with notes. That is an example of "microrhythm"... the almost immobile melody rising out of all the notes. So there is nothing new in that regard.  

One of the challenges to performers of his music is deciphering some of these miniscule subdivisions of the primary pulse, which may be a sixteenth or thirty-second note.

A particularly unique aspect affecting percussionists in two of the works in this study, is Crumb's use of the Medieval device of isorhythm. In the first song of Madrigals Book III, the harpist and percussionist are involved in an isorhythmic structure, while the soprano sings her material freely above it. The percussionist

has a "talea" of seven measures that repeats seven times. The harpist's "talea" is ten measures long, repeating five times, starting one measure later. The musical material, or "color," for both instrumentalists, changes for each repetition of the "talea."

The fourth movement of Music for a Summer Evening, "Myth" (written exclusively for percussion instruments), is cast as a "fourteenth-century isorhythmic hoquetus [Latin for "hocket"] with a double tenor." Remaining faithful to this format, the metrical divisions are in perfectio. One "long" (the measure) divides into three "breves" (dotted half notes) which divide into nine "semibreves." The "semibreve," however, divides into five "minums" (sixteenth note quintuplets) at the prolation level. Quintuplet divisions are a secondary system that is also applied to the "long" (alto recorder part), "double breve" (claves), "breve" (guiro and vocalizations), "double semibreve" (tom-toms), and the "semibreve" (log drum).

The "triplum" (Percussion I) has a "talea" of thirteen "longs" (measures) which is stated three times. Eleven elements comprise the pattern and form a symmetrical "talea" with the alto recorder at the center (Figure 7a). The prime letters in Figure 7 indicate the same rhythmic or

durational structure as the non-prime counterparts, but not necessarily the same instrument. The G-flat on the recorder of the second "talea" marks the exact midpoint of the piece which is itself, symmetrical in form (see Ex. 26 for score).

The "duplum" (Percussion II) has a "talea" of seven measures, stated five times, making it four "longs" (measures) shorter than the Percussion I part. It begins and ends, therefore, with a rest of two measures. The axis of its symmetry matches that of the "triplum" and occurs at the midpoint of the third "talea." The "talea" is also symmetrical in form (Figure 7b). Both of the top two parts interlock in a hocket-like fashion.

The first "tenor" (Piano I) consists of two basic elements (crotales and guiro played inside of the piano) which are repeated three times in a "talea" made up of eleven measures. It enters after a rest of seven measures (Figure 7c). The second "tenor" uses only the African thumb piano (inside the piano) and enters three measures after "tenor I" playing free, cadenza-like passages in a quasi-symmetrical form which compliments the isorhythmic "taleas" of the other three voices (Figure 7d). The symmetry in this case is not exact since the length of the rests vary in the second half of the movement in order to prevent overlapping of the two "tenor" parts.\[18\]
Figure 7. Isorhythmic Structure.

In "Myth," 4th movement of *Music for a Summer Evening*.

(a) "Triplum" (Perc.I)

\[
\begin{align*}
A & B & C & D & E & F & E' & D' & C' & B' & A' \\
\end{align*}
\]

\[
\begin{align*}
D & -- & E--G-flat--E & -- & D
\end{align*}
\]

13 "longs"

(b) "Duplum" (Perc.II)

\[
\begin{align*}
G & H & I & J & I' & H' & G' \\
tam. & toms & cym. & jug & cym. & toms & tam. & cym. & bongo & tam. & groan & moan
\end{align*}
\]

7 "longs"

(c) "Tenor I" (Piano I)

\[
\begin{align*}
K & L & K & L & K & L \\
crot. & speak & crot. & speak & crot. & speak & guiro & guiro & guiro & guiro
\end{align*}
\]

11 "longs"

(d) "Tenor II" (Piano II)

\[
\begin{align*}
M & N & P & P & N & M \\
accel & accel/rit & accel & rit & accel/rit & rit
\end{align*}
\]

18. Ibid., 298
CHAPTER V

Performance Problems in Songs, Drones and Refrains of Death

The performers of George Crumb's chamber music are presented with many challenges. There are many performance problems that are shared by the instrumentalists: various forms of vocalizations, extended instrumental techniques for achieving new sonorities, unorthodox notational procedures, extreme dynamic contrasts, and ensemble problems. When asked what advice he might have for performers of his chamber music, Crumb states:

... I always stress that they approach the music with the same care as they would practice a Chopin etude. The difficulties are not just simply digital in my music. My music is not always that difficult, in terms of velocity and dexterity. It has to do with studying, very carefully, the projection of tone and certain extended possibilities of the instruments so that these seem natural and convincing as part of the performance.

There are several aspects that the percussionist(s), in particular, must take into consideration when performing these works. These include instrument selection and set-up; mallet (or striking implement) selection and mallet changes.

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1. George Crumb (Interview at Southern Methodist University, Dallas, Texas, May 3, 1992).
in performance; special techniques for obtaining new
timbres; as well as certain aspects pertaining to rhythm,
tempo, dynamics, and notation that affect performance.

Songs, Drones and Refrains of Death written for baritone,
electric guitar, electric contrabass, electric piano and
harpsichord, and two percussionists, serves as an excellent
example of Crumb's style of percussion writing and presents
the percussionists with a variety of performance problems.

Several unique and uncommon instruments are called
for, reflecting Crumb's constant search for new sonorities.
The large array of instruments in the two percussion set-
ups and that of the baritone (who also plays several per-
cussion instruments) include: a tiny Japanese bell, lujon,
tuned cowbells (almglocken), Chinese temple gong, Jew's
harps, and flexatone. In addition to the problems of
locating these uncommon instruments are some specific
problems concerning the choice the drums required in the
score.

Percussionist II requires two tenor drums, two
timbales, and two bongos to form a group of six graduated
drums. In this instance, the player should strive to locate
instruments that produce a homogenous timbre, since the
group of drums is treated as a unit of graduated "pitches."
If, for instance, the two timbales have plastic heads
while the bongos have skin heads, the result will be an
unmatched sound. If possible, the drums should be mounted
with heads of uniform material. Since the time that this piece was written, concert toms have been developed by instrument builders (ranging from six to about sixteen inches in diameter). For most composers and performers today, these instruments have superseded the use of various drum types for achieving a graduated set. Crumb is not opposed to their use as substitutions for the drums he indicates as long as the high toms can effectively produce a similar sound to that of bongos.\(^2\) Concert toms produce a more homogenous sound, can be adjusted to a variety of positions, and would work well for this piece as an alternative to the suggested instrumentation.

In the score of his first published chamber work, Night Music I, Crumb indicates a set-up diagram for all of the instruments, including the percussion instruments. Thereafter, he provides a stage set-up diagram indicating only the arrangement of performers on the stage but no specific percussion set-ups. Indeed, for some of the works not requiring many percussion instruments, there is little need. However, in works like Songs, Drones and Refrains of Death, that require a large array of instruments, the percussion set-ups take on more importance for the players. This becomes particularly important in certain passages

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\(^2\) George Crumb (Follow-up interview via telephone, Dallas, Texas, July 16, 1992).
and movements that incorporate a large number of instruments to be played in rapid succession where an economy of motion is critical to an effective performance. Crumb states that he decided that the set-up was: "... best left in the hands of the percussionists ... depending on the particular choreography required in certain works."³

It is usually best for the performers to decide upon their set-ups based on the movements with the most activity and frequent instrument changes, keeping in mind the instruments which need to be located in close proximity to one another for quick and easy access. For the remaining movements, only minor adjustments may need to be made. Another consideration regarding the set-up is insuring that the instruments are placed so that eye contact can be maintained with the other performers and conductor. Figure 8 on the following page is a diagram of the set-ups used in this author's performance of the work. Notice that the set-ups are arranged in such a manner so that the performers are never forced to face directly away from center stage (allowing for better eye contact) and that the Percussion II set-up leaves a pathway for the quickest route to the guitar and bass for those passages when the percussionist plays on the strings of the two instruments.

³ Ibid.
Figure 8.

Percussion Set-ups for Songs, Drones and Refrains of Death.

Percussion I

Percussion II
In this work, Crumb is consistent in indicating, in general terms, the kind of mallets or implements he wishes; using terms like "soft," "medium hard," and "hard" to describe the mallets; and leaving the specific choices up to the performer. In certain instances where he may have a special sound in mind, he will indicate very specific kinds of beaters: "coin" (for tam-tam scrapes), "very light metal beaters," "wire brushes," and "fingers." For the numerous extremely delicate passages with dynamic markings like "pppp," very light-weight mallets and implements would be the most effective. Small, hollow aluminum knitting needles are very effective in sections he marks to be played with "very light metal beaters" such as the passages for water-tuned glasses at the conclusion of the work.

A performance problem encountered frequently by the percussionists in the work is the numerous and frequent mallet changes that occur. In many instances, holding a triangle beater or other striking implement in an outside position of the four-mallet grip is advantageous and even necessary due to rapid instrument changes. In "La Guitarra," Percussionist II must play two triangles and immediately execute a soft roll on the lujon (see Ex. 20b). In "Song of the Rider, 1860," Percussionist I must play xylophone passages holding a yarn mallet in the four-mallet grip since there is a "fz" attack on the
large tam-tam one sixteenth note later. In one instance, both percussionists must hold brushes in the middle and regular mallets in the outside of the four-mallet grip in order to execute a specific passage which does not allow time to switch mallets. In most cases, however, Crumb has allowed ample time for the necessary mallet changes.

"Canción de Jinete, 1860," (Song of the Rider, 1860) is the most aggressive and percussive of all the movements, requiring percussive and rhythmical sounds from all of the performers. As with many other passages throughout the work, the movement calls for numerous vocalizations that are executed while performing on the instruments. In addition, Percussionist II is called upon to play rhythmic passages on the strings of the contrabass and guitar. The "Cadenza Appassionata" for the two percussionists represents Crumb's percussion writing at its most aggressive and virtuosic, including passages of thirty-second note triplets interspersed with irregular figures (See Example 24). These drum passages are well-conceived with no cross-stickings necessary in the rapid, shifting patterns.

Due to Crumb's consistent use of such small note values as the basic time unit, the performers face challenges in deciphering the numerous "microrhythms" which are so commonplace. Certain "irrational" rhythms and irregular
meters such as $6\frac{1}{6}$ and $2\frac{1}{6}$ in Refrain Two must be worked out. The use of unison grace note attacks between performers requires rehearsal time for working out the timing, cues, and the sense of touch and dynamic control required.

Since the work is to be read from the score, the performers must learn to read the whole score, being always aware of the other musicians' parts. This is especially true in the numerous "senza misura" sections. In these situations, though no bar lines are present, Crumb employs vertical arrows (↑, ↓) indicating how the performers should line up at entrances and other critical points. Though Crumb frees the music from the bar line (in the many "senza misura" sections), he still leaves nothing to chance. All of the performers carry equal weight and must make certain that their individual lines are projected as part of the musical "whole." Charles Wuorinen refers to the kind of "ensemble" that must be developed when performing in these situations:

In the realization of contemporary ensemble rhythms, a new "chamber music style" must develop, and indeed already has. Such a style is based on the transfer of that rubato which used to be the province of the individual player -- and which is as necessary (though in new domains) in the performance of contemporary music as in any other -- to the entire playing group: a "collective" rubato, unthinkable to musicians who view the art in terms of individual aggrandizement.
SUMMARY

In this study, the unique style of percussion writing in the chamber works of George Crumb, written between 1960 and 1980, has been examined. The principal aspects covered include: extended playing techniques; unconventional percussion instruments; percussion in musical imagery and timbre modulation; soloistic treatment; compositional elements such as rhythm, dynamics, and texture; unique notational symbols; and the inherent performance problems.

All of these aspects affect the percussion performers in some way. Many of the extended playing techniques require the performers to go beyond the normal boundaries of performance practice with the numerous unconventional techniques, unusual instrumental combinations, and various forms of extra-curricular practices such as the variety of vocalizations employed while playing. The percussion performers must also become familiar with many uncommon percussion instruments that may be unfamiliar. In some cases, the performer may need to search through import and curio shops for the obscure, tiny instruments or even build instruments himself.

Crumb's distinctive compositional style presents many challenges to the performers. All elements undergo
extremes in contrast: dynamics, tempo, rhythm, instrumental ranges, pitch, and notation. Dynamics may range from "ppppp quasi niente," to "fffz" and markings like "con tutta forza." Tempos can be so slow as to seem almost immobile, and at other times can be driving and dance-like. His unique, intuitive sense of "time" and duration is represented in the music through continuing states of resonance and decay.

The rhythmic structure takes various forms within the mosaic-style of the music: abstract or "irrational" patterns which are constantly changing and passing between the performers, flexible shifts between barred and "senza misura" sections, and even Medieval isorhythmic structures. The percussion instruments are employed within the compositional procedures of timbre modulation and echo and ricochet devices. They serve to unify cyclic works and are featured as primary or solo voices within a texture that can be, at times, extremely thin and exposed.

Crumb consistently employs conventional notation while stretching its boundaries with the use of "Crumbandos," irregular or "irrational" rhythms, accented unison grace notes, and notation which frees the vertical alignment between performers, such as his well-known "circle music."

The performance problems are numerous but vary between the works. Madrigals Book IV and Dream Sequence, for
instance, are probably the least demanding, while the works employing the greatest number of percussion instruments also tend to contain some of the most difficult and solo-istic passages for the performers (Songs, Drones and Refrains of Death and Music for a Summer Evening). At the same time, works like Madrigals Book I, wherein the percussionist only plays one instrument (vibraphone), the demands can still be numerous. Additional considerations include the selection and set-up of the instruments, mallet choice and frequent mallet changes, as well as the technical, notational, and ensemble situations that frequently arise.

This study has attempted to provide an overview of George Crumb's style of percussion writing in the chamber works composed within the twenty year period between 1960 and 1980. This intuitive and inventive composer who displays such sensitivity towards timbre and sonority has developed a distinctive style of percussion writing and continues to compose his characteristic works utilizing the percussion instruments.
INTERVIEW WITH GEORGE CRUMB

Interviewed by Robert LedBETTER at
Southern Methodist University
on May 3, 1992

RL: I'd like to start off by asking about composers and works that may have been influential to your style of writing for percussion.

GC: There are not so many since the big explosion in percussion, you know, really was in our own day. But I would have to refer to Bela Bartok, who influenced me. There are certain passages in Bartok that go beyond percussion just as a means of punctuation and got into the expressive side of percussion. Passages, you know, like the [timpani] glissandi in a couple of works and the xylophone motif in the Music for Strings, Celesta, and Percussion. These "classical" passages, you know... or a good bit of the percussion writing in that work has influenced me because of its coloristic and even "expressive" aspects... going beyond the traditional percussion. I wasn't so familiar at that time with Varese. But I never think of Varese in a sense of "expressive" percussion anyway. I think of his music as representing a "field" or "band" of percussion. The thing is the texture... that's the sense of his music for me. It's that "web of sound."

RL: Was Boulez an influence?

GC: A little bit in the '60's, uh-huh. Maybe some of his vibraphone writing in Marteau sans maître.

RL: Berg had introduced the vibraphone to the orchestra with his opera, Lulu. Is that where you first ran into the vibraphone or was it possibly jazz?

GC: No, say in the early '60's when I was evolving my style, I probably wouldn't have heard Lulu. I think it came from the percussionists I ran into. While at the University of Colorado, I learned a lot from the percussionist there, Tom McCluskey, who turned into more of a music critic. This was kind of an
early introduction to the instruments then. Subsequently, since then, I have known so many percussionists . . . John Bergamo, Jan Williams, all the New York guys, people in my area of Philadelphia . . . and when you travel, you meet people and they show you things. So maybe what I'm trying to say is that I've learned more from the players themselves than I have from "classical examples" of percussion writing.

RL: So your approach to percussion writing essentially came from within your own ideas and goals and percussion became another voice within that framework?

GC: Well, I guess I was intuitive to the possibilities of percussion as capable of being as expressive, subtle, elastic, and as important as a violin or a flute. It could be something I thought that went far beyond the traditional sense of percussion. That's what's happened all over the world with so many composers now. It has become the glue that has held together so much of the music of today.

RL: You haven't had any direct connection with electronic music have you?

GC: Not for my own work but I've always made the statement that the advent of electronic music has influenced the way we hear music now and I'm sure that my music has been influenced by some aspects of electronic music. Now as far as earlier percussion music goes, I must confess that I didn't really know about the Cage ensemble in the '60's and his percussion pieces of the '40's though I have heard them since and find them quite charming. I don't think those would have influenced me since they are written from a different concept.

RL: How about Luciano Berio? Were you familiar with his writing in the '60's?

GC: Yes. I've always liked his music and must have picked up some things from works like Circles or even Stockhausen's Refrain but I think, in a way, the Americans in those years were maybe even moving ahead of the Europeans in the liberation of percussion. Maybe Circles is an exception, but there was something about the European scores that still seemed closer to the traditional. I have a feeling that the percussion revolution was a United States thing primarily. Paul Price was one of the grandfathers.
When I was a student at Champagne-Urbana, he was on the faculty as the percussion teacher. And Harry Partch, who made all those instruments like the glass bowls and the "Marimba Heroica" and all that stuff. That seems to me distinctly American. Maybe it's the "Yankee tinkerers." Wasn't the vibraphone invented in the United States? I'm guessing it was.

RL: Yes it was. Right after the turn of the century.

GC: I think that a lot of the latin [percussion] instruments first showed up in the popular music of the United States. Maybe why I associate this as an American development is because so much of it came out of jazz. In a strange way, jazz liberated not only percussion, in a sense, but also the virtuosity sense. Not only in percussion but on other instruments like trombone and clarinet, for instance.

RL: Referring back to the examples of John Cage and Lou Harrison who experimented with "found" instruments such as brake drums, cans, certain Eastern instruments, etc., there are several instruments that you have used that fall into the category of unique and unusual percussion instruments like the musical saw, the Jew's harp, Japanese temple bells, and many others. For instance, the Tibetan prayer stones which you use in Night of the Four Moons and Ancient Voices of Children . . . I am curious as to where you encountered some of these instruments.

GC: Well, it was a colleague, Dick Wernick, who had some that someone had given him. I got the idea of using the stones from him. I was always interested in simple, tiny instruments. The thing that interests me is what is the voice of this instrument? Could this instrument have an identity in a piece . . . a simple little instrument? . . . like the jug from Appalachia or the hammered dulcimer which I use a lot in my more recent works. I became convinced that any instrument, no matter how simple or how strong the folk associations are, can have a voice that could be used in another way.

RL: I have a question about the Tibetan prayer stones. How does one play them, what are they exactly, and how many are required?
GC: There are just two. The real Tibetan stones are volcanic stones . . . porous. I encourage people not to use the genuine ones because they break too easily. Any kind of stone that you can find on beaches or around rivers that are very hard and more or less elliptic in shape and not too thick. You need two of them; one that is cradled in the palm of one hand and the cavity underneath is varied, giving you a range of an octave and a half when you strike the stone with the other stone . . . varying the cavity and producing a scale, like flipping your cheek.

RL: I saw the notation in Ancient Voices...

GC: I use kind of a contour indicating a rise and fall in pitch.

RL: How do you view percussion within the framework of your compositions? Equal partner? . . . supportive?

GC: Equal. Yes, I see percussion as equal to the other voices. Occasionally it will recede back into the background like any other instrument in the ensemble, but philosophically, you know, I see all the parts as equal.

RL: Talking now about the texture of your music, do you ever incorporate any contrapuntal features?

GC: No, I guess my music is rarely contrapuntal. It tends to be something where the hierarchy is always changing. An instrument might be in the foreground and the others are background (secondary and tertiary) and that shifts during the piece. Different voices can become primary. I might write counterpoints of "musics" but not counterpoint of "points."

RL: Such as the numerous quotations you superimpose within the texture of a piece?

GC: Yes, or works like Starchild that has strings of opposite "musics" that are kind of going along but not counterpoint in the traditional sense.

RL: I've encountered the term "timbral modulation" or "sound link" used to describe the subtle connections between timbres within the web of sound in your works. Do you feel that is an appropriate term to describe those aspects of your music and can you comment on the concept?
GC: Yes, I guess that fairly describes the effect of some of my music. It's not rationalized and thought out so much as it is rather intuitive. I am more interested in contrast within a piece. It's more a mosaic kind of technique where voices are immediately contrasted. I guess not "modulation" in the conventional sense of something phasing into another thing and becoming something different but modulation in the sense of changing textures and colors. There's a predominant color and the color just changes.

RL: How about timbral imitation? Do you try to imitate timbres between the different instruments?

GC: Yes. Maybe a good term for that would be something like "idiomatic cross-fertilization" which is something that is always operating in music. But now so much so that any sound image one can think of on one instrument may be applied to another instrument. An example would be the concept of pedal tones. We all know about trombone pedal tones. I found that I could use pedal tones in Black Angels for string quartet. Some of the players produce sounds that are below their apparent range. By very special and heavy bow pressure you can pull out sub-tones that knock the played note down the octave. Flutter-tongue, that was used early in this century, is something that the flute does. It was then applied to brass instruments then to vocal writing. Berg used it in his clarinet pieces.

RL: What about innovations or unusual techniques on percussion instruments in your music?

GC: Kind of extended ways of using instruments? I don't know what percentage of the things I do would be original to me . . . maybe some of them. Probably most of them would have been suggested by percussionists and I borrowed or "stole" them [laughs]. Stravinsky said "Stealing is best." It would be cumbersome to give credit to all of the sources. For example, John Bergamo invented the vibraphone glissando and vibraphone harmonics. I've forgotten who the percussionist was who showed me the possibility of bending the crotales sound by placing it on the timpani membrane and moving the pedal.

RL: That produces quite as strange harmonic doesn't it.
GC: It sounds like "Banshees" or something [laughs]. It's one of the most incredible sounds. I've used the same technique for cymbals as well. *Music for a Summer Evening* uses the technique with both the crotales and the conventional cymbals. So I guess I'm just saying that a lot of things that people may think are original to me, in some cases, are not, really. I may have been the first to apply them and there's no limit to what can be done. People are always inventing new ways to use instruments. These are just a few that attracted me because of their special color value for a certain moment within a piece.

RL: Along those lines; when you compose a piece, do you initially "visualize" the piece in terms of the colors or does that come later?

GC: The timbre comes very quickly. It is part of the conceptual aspect for me. I regard timbre as a very elevated parameter of the music. Not just a superficial aspect that decorates the composition but more integral . . . structural. It tends to come with the conception.

RL: I've encountered the terms "musical imagery" and "symbolism" as being associated with your works . . . especially those that include a text. Can you shed some light on how you might write for percussion when there is a text?

GC: You know that if you're working with a text, you're interested in a mesh between the images of the poetry and the musical line. You're interested in not adding two things together that don't mix. You're grappling with aspects of the poetry and their musical conception.

RL: For instance, the two spiral notations in the third movement of *Night Music I*. Is this notation not a reflection of the references toward the moon in the text?

GC: Yes, I believe it was.

RL: You hadn't written the *Makrokosmos* yet, so was this the first time you had used such unique notation?

GC: That was the first time I used as unconventional arrangement on the page. In that case, it was maybe some kind of symbolic notation with the roundness
referring to the moon. It's the kind of thing that
Bach did in his cantatas . . . if there's a word
that can be symbolized musically. There is a
reference to bells in some of the text of Ancient
Voices of Children that is accompanied by bells along
with that word or immediately preceding that sung
phrase. If there's a reference to the wind or to
a sound of nature, to a bird's song, . . . that will
probably be reflected in some imaginative way. Of
course, not literally. Nobody's going to run for
their umbrellas when they hear the "Storm" in
Beethoven's "Pastoral Symphony" [laughs].
Nonetheless, it is some kind of reference to the
music of nature. In Music for a Summer Evening,
I use the motto from Rilke. The basic concept of
the poem is a falling kind of motion and the music
reflects that, based on falling figures. That's
traditional text setting, you know.

RL: In the score for Night Music I, you recommend a
conductor. Have you seen successful performances
without a conductor and do you still feel that it
needs conducting?

GC: A lot of pieces I originally thought may need a
conductor. Later on, as the style became more
familiar, performers got a sense of how it all goes
and were able to do it as a chamber piece. It is
interesting, but that has happened over the past
twenty years. What used to be conducted is seldom
conducted now. I mean people were sometimes
conducting piano and violin which is kind of absurd
when there are only two people [laughs].

RL: Also in Night Music I, there is a part for water
gong. Where did you encounter that instrumental
technique?

GC: I heard about it somewhere. In fact, John Cage had
used it twenty years earlier though I hadn't heard
his use of it. I didn't know what it sounded like
yet.

RL: Going back to notational aspects of your music,
. . . you're known for your beautiful manuscript
and some unique notation. In your scores, you use
the contemporary notational approach of leaving empty
space on the page for instruments when they are
resting. Is that one of your contributions or are
there any other examples?
GC: I was one of the first, but there were several others who were using that at the same time, so I don't claim originality for that. The one thing that I did invent, I think, was what they used to call the "Crumbando" (which he draws on a piece of paper) which can be used for accelerando or ritard or a combination of the two. I believe I was probably the first composer to use that.

RL: Do you recall, in your percussion writing, having any difficulty in notating what you wanted . . . causing you to come up with a unique notation to represent the sound you were after?

GC: No, I've found that our old conventional notation is an incredible invention and it really can be so flexible. Sometimes you may have to write in additional words to clarify the situation but it can be adapted to almost anything. There are certain areas where you have to make decisions. As you know, there are certain percussion instruments that you can treat as non-pitched or as pitched and you just have to decide what it's going to be . . . like Japanese bells which I never treat as pitched instruments.

RL: You mean Japanese temple bells or Dobachi?

GC: Yes.

RL: They do have a pitch don't they.

GC: Oh yes, but if you wrote for ten pitches and tried to find them, you'd spend your lifetime trying to find a tuned set. I decided that the charm of the bells was not in the precise pitch but in the ambience . . . and the nipple gong can have a predominant pitch but I don't treat it as a pitched instrument.

RL: So when you call for gongs in your scores, it is never for specific pitches.

GC: Not for pitch, no. In fact, sometimes even with a more precisely pitched instrument I might notate contour as with a pedal timpani passage with glissandi. I think, as a matter of fact, I used steel drums in Haunted Landscape for orchestra and I don't treat those as pitched though that's the way they are treated conventionally.
RL: In *Night Music I*, first movement, the percussionists conclude a section with the directions to improvise in the context, "delicatissimo." How much of a role does improvisation play in your music?

GC: Well, I don't do that anymore. The first version of *Night Music I* has such passages but that was all revised and later scores have written out quasi-improvising. I simply found out in a very pragmatic way that everybody couldn't be equally inspired every time they played those passages. Clunkers can occur and I decided that the composer should know best. He may want to give a sense of a very free music and yet put the notes down so that it will be coherent in the style and so forth. I do like a degree of freedom sometimes in the vertical alignment in my scores. I like to write the notes out but suspend the sense of a precise vertical alignment.

RL: That reminds me again of the circular notation in *Night Music I*.

GC: Yes. Kind of free-floating for the first vocal portion.

RL: In the opening of *Night Music I* and in other works, you employ accented unison grace notes shared between performers which are written before the main note. I was curious as to why you chose to write the grace notes as the accented notes in these instances.

GC: It's a "fingerprint" of my style.

RL: These grace note figures combined with the notated rhythm seem to give an a-rhythmic impression for the listener while other passages are clearly in a steady rhythm. Is this also a reflection of your interest in contrasts?

GC: All elements in my music are involved with enormous contrasts... like the dynamics. I may juxtapose a whisper and a sharp stab on an instrument or from the softest to the loudest. Or the highest as opposed to the very lowest note. But I was just musing on your previous question. That thing with the accented grace notes probably was a borrowing from Bartok although he writes it on the beat. The short loud note is on the beat and that's the Hungarian rhythm from Hungarian folk music. All Hungarian words are accented on the first syllable. That memorable phrase in *Music for Strings*...
example. So it was just taking a step further to the accented grace notes which are a little earlier and closer together . . . which makes for interesting effects if other instruments are on the beat.

**RL:** Earlier, you were saying that you occasionally like some flexibility of vertical alignment. Is this one of those instances, with the grace notes, or are you aiming to have the grace notes played exactly together?

**GC:** Those are to be played exactly together. Some of my music is quite rhythmic. I guess what I'm talking about, in an extreme case, would be in *Eleven Echoes of Autumn* where some of the instruments are playing their own "circles" and there are other parts that are written out in a linear way. They're not meant to line up vertically and that notation, in fact, shows that beautifully . . . that they're independent. There is a flute cadenza that is written out linearly and against that is the "circle music" which will never be played exactly the same way. So there is a relaxation of the vertical coincidence of the parts.

**RL:** Are there any recurrent problems in performances by percussionists performing your works that you have noticed?

**GC:** Percussionists have become so good and flexible and such expressive and imaginative musicians that they solve most of the problems. There are some problems that are endemic to the instruments. I wish one truly could get rid of the pedal rattle in timpani. Sometimes the "lion's roar" effect produced by running the thumb around the membrane of a bass drum doesn't work if it has plastic heads. It's not as effective, you know. In other words, some membranes don't allow that to work. There are other limitations, I must tell you, in percussion and I wish there was more imagination on the part of instrument builders. There's no reason why we couldn't have a vibraphone like they do in Europe that has precisely the marimba range. I've heard those instruments. They're just beautiful. They go from C to C (four octaves). It would be just so wonderful to have all those extra notes. It's a question of just a few extra plates to get those notes . . . the quality is superb. There's no reason the marimba couldn't go down to F.
RL: Well, actually there are marimbas available now with low F and E [below bass clef] and they are becoming more common.

GC: Oh really. OK!

RL: Kori and Yamaha started the trend [commercially] with low F marimbas and Musser has come out with a low E. Yamaha also makes a five octave instrument, a low C instrument. The low range of the marimba, I'm sure you agree, is a really beautiful part of the instrument.

GC: It sure is. In the old days, we were always restricted to the C instrument and another thing again is the tubular bells [chimes]. They should have an alternate set that is easily available that carries the range down. It would be useful for orchestras too. There are a lot of bell sounds that are written in a lot of romantic orchestra pieces. They have to use special bells. Let's see, we go down to middle C. That's not a very low bell. The carillon bells go a whole lot lower than that. I have written for bells that exceed the range and it is always a hassle to go and get special bells. If only they were easily available as rental instruments even another fifth below that C. There could be more imagination on the part of [instrument] builders. The nineteenth century, you know, was almost more inventive than we are today. We've become kind of ossified and willing to accept things. They could also explore the possibilities of glass instruments of various kinds in the sense of tuned instruments like Partch's.

RL: Like the "Cloud Chamber Bowls."

GC: Yes. There should be some kind of generally available instrument, even if it is only a chromatic octave. I love stone chimes . . . the Korean stone chimes. It's endless, what could be done there.

RL: One performance problem for the percussionist in the Madrigals Book II, for instance, is the many mallet changes.

GC: Yes. They study those difficulties and I've heard so many good performances. They work them out, some way.
RL: In many instances, you indicate the type of mallet to be used.

GC: In very general terms. I never indicate the color of the yarn or anything like that. I sometimes will write a word like "metallic" or "hard stick" or "medium hard stick" and sometimes not even that. I leave it to the taste of the performer. If I have a special sound in mind like where something is played very soft but I want to have a hard-edged sound, I will mark down dynamically very soft while indicating for a very hard beater. Those are special cases.

RL: A lot of your works utilize percussion techniques on non-percussion instruments . . . such as the percussionist playing on the harp strings and playing percussively inside of the piano. Can you comment on this aspect of your writing?

GC: I haven't made a catalogue of all the sounds I've used, for example, on piano. Music for a Summer Evening has percussion sticks and instruments applied directly to the frame of the piano. You know . . . using the guiro or a crotale against the bass strings of the piano gives a marvelous double sound . . . and a clave against the bass drum, one against the head and the other hitting that one. I've had the percussionist play the double bass strings and on the harp, and these instances are for exact notated pitches. That occurs in Book III of the Madrigals. They are played with hard plastic-type glockenspiel beaters. There's also a place where the percussionist plays with a wire brush on the harp strings. The part with the hard beaters on the harp strings is a very rhythmic passage.

RL: So when writing for these passages, were you primarily after achieving unusual sounds?

GC: Not just for the sake of being unusual but for their particular value as a sonority that heightens the effect of the music.

RL: Do you view these possibly as theatrical kinds of gestures? . . . because if one were to listen to a recording as opposed to watching a performance, the percussionist playing on the harp would give a totally different impression.
GC: The first consideration was musical and then I saw afterwards, of course, that it does have a bit of that too. I believe all music is theatrical. When I watch a Beethoven quartet played, I'm conscious of the choreography of the players. The bows changing positions on the strings, to me, is theater too.

RL: Do you prefer a kind of "theatrical" approach from the performers who play your music?

RL: I like all musicians to play that way. You know, it was the old-fashioned way of performing music where a flutist would stand up there, stiff. No flutist plays that way anymore. It's a natural thing and a percussionist can move so beautifully. I don't think they're acting when they do that. I think it's part of the performance... a beautiful aspect that's just natural as part of the music. A lot of the things that people think are so theatrical in my music seem to me really quite natural. For example, I will ask an instrumentalist to shout or whisper something. I know some passionate cellists that I have heard who were singing along with their own playing while playing a Dvorak concerto. For me, it is natural. Their intensity reaches a point where they want to go into the vocal direction. It almost goes beyond the instrument. I have the player whistle. That doesn't seem to me an unusual request. It can be an interesting combination sound or a special dimension but something natural.

RL: I've heard the term "microrhythm" used in referring to aspects of your music. What exactly, would you say, is that referring to?

GC: I think that is referring to when there is a series of slow pulses and there is a possibility of subdividing notes to an immense extent so that you have even a sense of very fast motion temporarily within a pulse that may still be rather slow and sedate. It's such a common thing in new music by lots of composers where the pulse is kind of slow, almost suspended, wherein they can get flurries or ripples of notes that are notated smaller, like clusters of grace notes and other micro-divisions of the beat.

RL: How about your use of such large denominators in some of your time signatures, like 21/64 and the like?
GC: Well, it looked right to me and, you know, it's always composer's choice when it comes to the basic units and note values . . . plus, historically, the unit has been diminishing with the history of music. Starting with the double breve, it has moved down through the whole and half notes and the quarter note, you know, dominates everything from Bach through the end of the nineteenth century. But now, I would almost say that the eighth note is maybe the more usual unit of beat with our music. Sometimes I use big notes too . . . 5/2 time or 5/2\(\frac{1}{2}\) time. The performers may gripe initially but they quickly adjust. I had to play the Beethoven Op. 111 which has an incredible number of 128th notes. The pages are black with notes. That's an example of "microrhythm" . . . the almost immobile melody rising out of all the notes. So there's nothing new in that regard.

RL: Do you have any advice for percussionists and/or other instrumentalists in performing your music?

GC: I guess I don't even need to say this to percussionists because they are usually so sensitive in the way they feel their way into the music, but for certain other performers I always stress that they approach the music with the same care as they would practice a Chopin etude. The difficulties are not just simply digital in my music. My music is not always that difficult in terms of velocity and dexterity. It has to do with studying, very carefully, the projection of tone and certain extended possibilities of the instruments so that these seem natural and convincing as part of the performance.

RL: Well, compared to a work like Stockhausen's Zyklus which is so demanding and "digital," like you say . . .

GC: It's a "tour de force" to get all his notes in, yes.

RL: Your music calls on a totally different and unique approach.

GC: That's true. I have never used the "scatter shot" approach to percussion. Not referring to Zyklus, but some music that has a lot of percussion to me doesn't work because it is "overwritten" and doesn't focus in on the individual instrument and utilize it. It depends on a kind of "scatter gun" approach . . . banging on all kinds of stuff which
I find very tiresome. It doesn't produce much and has diminishing returns. In other words, the idea of economy of means is more interesting... so that you're not bombarded with noise. I've heard some scores that overuse certain instruments. The ear just can't take quite that much of that one sound. Crotales is one that you can overuse so quickly and it's so much more effective if it is saved for those moments when it's telling. Overwritten xylophone parts is another thing that I try to discourage my students from... to develop more economy. I don't want to be too doctrinaire because Steve Reich does achieve some beautiful effects, but drums, you can listen to. These pointed, sharp, metallic instruments... you can't use wind chimes all the way through a piece or they have no effect anymore. Certain special instruments can be abused and that's a good lesson for young composers when they are including percussion. I'm not saying that percussion can't produce "noise." In my work Starchild, I require eight percussionists and they're all playing quite a variety of instruments. There are a couple of places in that score that I call on their "noise"-making capacity but I wouldn't write a whole piece like that. It's a strategic question in a composition. But I love the percussion writing in Varese... the band of sound that he gets. I don't consider that to be an abuse of percussion at all. That works... and Stravinsky has good percussion writing even though it is pretty much mostly punctuation. The percussion never becomes expressive in the modern sense.

RL: Well, I really appreciate you so graciously taking the time for this interview today.

GC: Oh no, not at all. It was my pleasure.
FOLLOW-UP INTERVIEW

(Via telephone, Dallas, Texas, July 16, 1992)

RL: Do you view Songs, Drones and Refrains of Death, which is a setting of four "death poems" by Federico Garcia Lorca, to be "cyclic" in form?

GC: Yes, it is cyclic in that you couldn't take one of the movements out to be performed separately and because of the continuity between the four songs. The cyclic form is indicated through the recurring refrains and motives that unify the work.

RL: How then does your use of percussion help to unify the work?

GC: The specific timbres of each percussion instrument, especially the smaller instruments like the Jew's harps and others, is an important part of the motives. To the ear, you know, that's part of the motive . . . what it's played on. Each instrument is a very important part of the motives. I couldn't switch instruments in these motives and achieve the same musical effects. It was my concern to find a special voice for these passages.

RL: Speaking of the small percussion instruments, you call for a tiny Japanese bell in that work. Where does one find this particular instrument or what could be used as a substitute?

GC: Yes that one is a very tiny bell with a high pitched sound. I was looking for the smallest bell with the highest, dryest sound. There are other very small bells that would be similar.

RL: What about the Indian elephant bells you call for in Lux Aeterna?

GC: There are certain rental places that might have them. They are prong-shaped at the bottom . . . an ornate looking bell. I have two or three of those myself. There's a supplier in my area, Steve Weiss, who may have some. I think he's the one who gave them to me.
RL: Another unique bell is called for in Dream Sequence. The Thai Buffalo bell . . . how about that one?

GC: It has a dry sound and is made of wood. It produces a kind of insect sound with very high pitch. It could have been Steve Weiss who gave me these as well.

RL: There is a similar instrument available called a cricket caller which produces a high pitched "cricket" sound. Would this be a suitable substitute?

GC: As long as it has a very high pitched sound, yes.

RL: In several works like Madrigals Book III, Songs, Drones and Refrains of Death and others, you ask for graduated sets of drums. In Songs, Drones and Refrains of Death, for instance, Percussionist II has two tenor drums, two timbales, and two bongos in his set-up. My question is, are you after a more homogenous sound with six graduated pitches or do you prefer the variance of timbre between the different drum-types? The reason I ask is because of the current availability of concert toms which are graduated from 16 inches to six inches which cover the pitch range of the instruments you specify. Would you be opposed to the substitution of concert toms for your instrumentation.

GC: No, I imagine that those could be substituted as long as the high toms produce a sound similar to the higher pitched sound of the bongos.

RL: In Night Music I, you indicate a set-up diagram for the percussion instruments. Thereafter, you indicate stage set-ups for the performers but no specific set-ups for the percussion instruments. I was curious as to why you chose not to include these set-ups in your later works.

GC: I'm not sure why I included the set-up in that work. It was probably the set-up we used in the first performance. I think I decided later that the set-up was best left in the hands of the percussionists . . . depending on the particular choreography required in certain works.
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