THE INFLUENCE OF BELA BARTOK ON SYMMETRY AND INSTRUMENTATION IN GEORGE CRUMB'S MUSIC FOR A SUMMER EVENING WITH THREE RECITALS OF SELECTED WORKS OF ABE, BERIO, DAHL, KESSNER, MIKI, MIYOSHI, 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

Michael Gregory Kingan, B.M.E., M.M.
Denton, Texas
August, 1993
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George Crumb has frequently stated how much he admires the Sonata for Two Pianos and Percussion by Bela Bartok. He often wonders why more composers have not written for the instrumentation of two pianos and two percussionists. Music for a Summer Evening (Makrokosmos III) does not sound like Bartok, and in no way is a direct attempt by Crumb to compose his version of the quartet. However, there is an acknowledged Bartokian influence, and examples will demonstrate that the qualities and traits of the first composer are present in the music of the second.

The purpose of this document is to investigate the influence of Bela Bartok's music, specifically the Sonata for Two Pianos and Percussion, on George Crumb's Music for a Summer Evening. It concentrates on two specific areas: 1) the role of symmetry and 2) instrumentation. These two items were stressed during an interview with Crumb by the author, which is appended to the paper.

Chapter One discusses pitch symmetry with respect to melody, harmony, and architecture, while rhythmic symmetry focuses on the use and appearance of proportions that symmetrically divide the measure or the beat. This chapter also examines combining different systems of tonality, and
demonstrates how the principles of Bartok’s tonal language were utilized as a point of departure for the development of Crumb’s compositional style.

Crumb believed that Bartok played an important role in the “liberation of percussion instruments.” He followed Bartok’s lead by continuing to explore the expressive possibilities of percussion. Chapter Two examines the treatment of percussion instruments by exploring the traditional and extended techniques of all instruments employed by both composers. It also identifies the influential characteristics of Bartok’s music found throughout *Music for a Summer Evening.*
Tape recordings of all performances submitted as dissertation requirements are on deposit in the University of North Texas Library.
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School of Music

Faculty Chamber Recital

Robert W. Wason, Guest Lecturer, Piano
Adam Wodnicki, Piano
Laurel Miller, Voice
Ellen Ritscher, Harp
Robert Schietroma, Percussion
J. B. Smith*, Percussion
Michael G. Kingan*, Percussion

Monday, April 13, 1987  8:15 p.m.  Concert Hall, NTSU
Tuesday, April 14, 1987  4:00 p.m.  Bates Recital Hall,
                                UT Austin

An Introduction to Bela Bartók's
Sonata for Two Pianos and Percussion (1937)

Sonata for Two Pianos and Percussion (1937) . . . Bela Bartók
Robert Wason, Adam Wodnicki,
Robert Schietroma, J. B. Smith

Circles (1960). . . . . . . . . . . . . . . . . . . . . . . . Luciano Berio
Laurel Miller, Ellen Ritscher,
Robert Schietroma, Michael G. Kingan

*Presented in partial fulfillment of the requirements
for the degree Doctor of Musical Arts
North Texas State University
School of Music

Graduate Recital

MICHAEL G. KINGAN
J. B. SMITH
Percussion

Monday, July 27, 1987 8:00 p.m. Recital Hall

Dream of the Cherry Blossoms (1984) . . . . Keiko Abe

Space Model (1971) . . . . . . . . . . Marta Ptaszynska
Mr. Kingan

Intermission

Dulcimer Dream (1985) . . . . . . . . Phil Winsor

Psappha (1976) . . . . . . . . . . Iannis Xenakis
Mr. Smith

Enlacage III (1980) . . . . . . . . . . Tokuhide Niimi
J. B. Smith, Michael G. Kingan, Marimbas
Robert LedBetter, Dr. Robert Schietroma, Percussion

Presented in partial fulfillment of the requirements for the degree of
Doctor of Musical Arts
MICHAEL G. KINGAN, percussion

Monday, November 4, 1991  8:00 p.m.  Recital Hall

CONVERSATION, Suite for Marimba (1978)

Tender Talk
So Nice It Was . . . Repeatedly
Lingering Chagrin
Again The Hazy Answer!
A Lame Excuse

DUETTINO CONCERTANTE (1966)

Alla Marcia
Arioso Accompagnato
Fughetta
Presto Finale

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RAGA, No. 1 (1981)

William Cahn

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George Crumb

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   (Night sings naked above the bridges of March)
2. "Quiero dormir el sueño de las manzanas"
   (I want to sleep the sleep of apples)
3. "Nana, niño, nana del caballo grande que no quiso el agua"
   (Lullaby, child, lullaby of the proud horse who would not drink water)

Teresa M. Gomez, soprano
Ellen Ritscher, harp

MARIMBA SPIRITUAL (1983)

Minoru Miki

Percussion
Thomas Canale
Joe McCarthy
Jeff Prosperie
University of North Texas
College of Music

presents
A Graduate Recital

MICHAEL G. KINGAN, percussion

Monday, November 30, 1992  8:00 p.m.  Recital Hall

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  Refrain and Variations
  Tremolos
  Elaborated Chorale
  Whisper Melisma

ILLEGIBLE CANONS (1973)  ................. William Bergsma
  Allegro
  Lento
  Allegro Vivo

Donell Kingan, clarinet

WIND IN THE BAMBOO GROVE (1987)  ........ Keiko Abe

THREE FACETS (1981)  ...................... Michael Kosch
  Laura Monroe, flute  •  Elaine Davidson, piano
  Jimmy Finnie, vibraphone

EDGE (Corrugated Box) (1991)  .......... Bruce Hamilton
  (Piece for Percussion Soloist and Tape)

Presented in partial fulfillment
of the requirements for the degree of
Doctor of Musical Arts
University of North Texas

College of Music

presents

A Graduate Lecture Recital

MICHAEL G. KINGAN, percussion
assisted by
Elaine Davidson and Jon Schweikhard, piano
Michael Varner, percussion

Monday, July 5, 1993 5:00 p.m. Recital Hall

THE INFLUENCE OF BÉLA BARTÓK ON SYMMETRY AND INSTRUMENTATION IN GEORGE CRUMB'S
MUSIC FOR A SUMMER EVENING

followed by a performance of

Music for a Summer Evening (Makrokosmos III)  George Crumb
I. Nocturnal Sounds (The Awakening)
IV. Myth
V. Music of the Starry Night

Presented in partial fulfillment of the requirements for the degree of
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CHAPTER I

INTRODUCTION AND HISTORY

To demonstrate that one person influenced another, it is necessary, by definition, to show that the first person - either indirectly or intangibly - had the power to sway or modify the path (or course of events) of the second. The evidence would have to be that the qualities and traits of the first person are, in some manner, present in the second.¹

Composers often attempt to establish their own style, hoping to create music set apart from their predecessors, to be considered unique. But, heard equally as often is the comment that, "he (or 'T' in some cases) was influenced by another composer." This is the case involving two particular pieces from the genre of chamber music. Both the Sonata for Two Pianos and Percussion by Bela Bartok and Music for a Summer Evening (Makrokosmos III) by George Crumb are composed for two pianos and two percussionists. Written about four decades apart, these works are often compared, first, because of their unique instrumentation, and second, because so many times, in published articles, George Crumb comments about, "the Bartok influence."²

This paper will compare these two works in an effort to understand how Crumb was influenced by Bartok. Specifically, the characteristics in the music of the first composer will be compared to those of the second to see how they are present. The music of George Crumb does not sound like Bela

² Interview with George Crumb found in Appendix.
Bartok's, but aspects of his writing can be traced to him, and it will be clear that Crumb used ideas of Bartok that he favored as a point of departure.

Before comparing the music, we will briefly compare the musicians. Bela Bartok, the great Hungarian composer, lived from 1881 to 1945. He began playing piano in public at the age of eleven, and studied piano and composition at the Royal Academy of Music in Budapest. His earliest compositions show a combined influence of Franz Liszt, Johannes Brahms, and Richard Strauss; however, he soon became interested in exploring the resources of national folk music, including elements of Hungarian music and those of his native Transylvania. In 1906, together with Zoltan Kodaly, he published a set of folk songs which were collected during their travels. In 1907, he became professor of piano at the Royal Academy of Music in Budapest.

During his concert performances, he usually limited his programs to his own compositions. He also gave concerts with his wife Ditta Pasztory playing works for two pianos. His works have been described as basically tonal, expanded by polymodal structures and dissonance. The use of symmetrical and asymmetrical rhythmical figures, as well as the modalities of Slavic folk music, are characteristic of Bartok. His melodies sometimes veered towards atonality and chromaticism, and although his melodic figures often employed all twelve notes, he never fully adopted the integral techniques of the twelve-tone method.

Bartok's interest in folk music included ideas of meter, rhythm, and modality of songs and dances of the people. He regarded his analytic studies of popular music his most important contribution. He also believed that
children are capable of absorbing modalities and irregular rhythms with
greater ease than adults with formal, classical training. Mikrokosmos, which
means "little world," is a collection of 153 piano pieces in six volumes
composed between 1926 and 1939. It is arranged in order from very
elementary works to very difficult ones. It was intended as a method to
initiate beginners into the world of unfamiliar tonal and rhythmic
combinations.3

Bartok's output includes works for piano (two and four hands),
orchestra, stage, voice, and chamber music. A significant work from this
genre is the Sonata for Two Pianos and Percussion, completed in 1937. Less
than four months after the successful premiere of Music for Strings,
Percussion and Celeste, Bartok received a commission for the Sonata from
the Basle section of the International Society of Contemporary Music for the
celebration of its tenth anniversary. The piece was premiered by Bartok, his
wife Ditta Pasztory, Fritz Schiesser, and Philipp Ruhlig on January 16, 1938, in
Basle. It was re-orchestrated in 1940 as the Concerto for Two Pianos and
Orchestra with added pairs of winds, four horns, and strings. The percussion
parts were absorbed into the orchestra.

As to the unusual instrumentation of this quartet, Bartok wrote, "the
role of percussion is manifold: often the sound merely colours the piano
sound, sometimes it reinforces the more important accents, at other times it
carries motifs serving as a counterpoint to the piano part, while the timpani
and the xylophone often play themes acting as main parts."4

3 "Bela Bartok," Baker's Biographical Dictionary of Musicians ed., Nicolas Slonimsky,
4 Bartok quoted in Gyorgy Kroo, trans. Ruth Pataki & Maria Steiner, A Guide to Bartok
Paying attention to the details of percussion was important to Bartok, as it was to George Crumb. Crumb was born in Charleston, West Virginia on October 24, 1929. He received his B. A. from the Mason College of Music in Charleston, and continued his studies in music at the University of Illinois in Champaigne-Urbana and at the University of Michigan. It was there that he studied with Ross Lee Finney and received his doctorate. He has received numerous commissions, grants, and awards including the 1968 Pulitzer Prize in Music for *Echoes of Time and the River*. Crumb served on the music faculty at the University of Colorado in Boulder and S.U.N.Y. in Buffalo. Since 1965, he has been professor and composer-in-residence at the University of Pennsylvania. His home is in Media, just southwest of Philadelphia.

The *Makrokosmos* collection was written during the span of years between 1970 and 1979. It consists of four major works. Both *Makrokosmos Volume I* (1972) and *Volume II* (1973) are subtitled “Twelve Fantasy-Pieces after the Zodiac for Amplified Piano.” The title and format of these solo piano pieces were meant to reflect Crumb’s admiration for Bartok’s *Mikrokosmos* and Debussy’s *24 Preludes*. But these associations are only external. Crumb admits that “the ‘spiritual impulse’ of his music is more akin to the darker side of Chopin, and even to the child-like fantasy of early Schumann.” The pieces are inscribed with the initials of Crumb’s friends born under each particular Zodiac sign.

*Musics for a Summer Evening* (*Makrokosmos III*), completed in 1973, is written for two amplified pianos and two percussionists. The work was commissioned by the Fromm Foundation to celebrate the opening of a new

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hall at Swarthmore College in Pennsylvania. The large scale "cosmic drama" is in five movements. The first, third, and fifth are for the full ensemble, while the intermediate movements serve as intermezzos. The second movement, "Wanderer-Fantasy," is mostly for the two pianos, and Movement IV, "Myth," is for percussion instruments. The three main movements carry the following poetic quotations: "Nocturnal Sounds" is inscribed with an excerpt from Quasimodo: "Odo risonanze effimere, oblio di pienta notte nell'acqua stellata" ("I hear ephemeral echoes, oblivion of full night in the starred water"); "The Advent" is associated with a passage from Pascal: "Le silence éternel des espaces infinis m'effraie" ("The eternal silence of infinite space terrifies me"); and the last movement, "Music of the Starry Night," cites these transcendentally beautiful images of Rilke: "Und in den Nachten fällt die schwere Erde aus allen Sternen in die Einsamkeit. Wir alle fallen. Und doch ist Einer, welcher dieses Fallen unendlich sanft in seinen Handen halt." ("And in the nights the heavy earth is falling from all the stars down into loneliness. We are all falling. And yet there is One who holds the falling endlessly gently in His hands.")

The final work in this series, titled Celestial Mechanics (Makrokosmos IV), was completed in 1979. It was written for four hands on the piano, except at two times where the page turners get involved and add two more hands. Crumb considers the idiom of piano duos, "a strange hybrid of the pianistic and the orchestral, that lends itself readily to a very free and spontaneous kind of music." The titles of the four movements, added after the piece was

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7 George Crumb, record jacket notes for Celestial Mechanics (Makrokosmos IV) (Elektra/ Nonesuch P66788, 1979).
completed, are named after four stars.

Purpose of Dissertation

George Crumb has frequently stated how much he admires the Bartok Sonata for Two Pianos and Percussion. He often wonders why more composers have not written for this instrumentation. Although Music for a Summer Evening does not sound like Bartok, and in no way is a direct attempt by Crumb to compose his version of the quartet, there is a strong Bartokian influence on George Crumb which is not only evident in his music, but acknowledged openly by him.

The purpose of this document is to investigate the influence of Bela Bartok's music, specifically the Sonata for Two Pianos and Percussion, on George Crumb's Music for a Summer Evening. It does so by examining two main areas: 1) the role of symmetry and 2) instrumentation. Pitch symmetry is discussed with respect to melody, harmony, and architecture; while rhythmic symmetry focuses on the use and appearance of proportions that symmetrically divide the measure or the beat.

It also examines the treatment of percussion instruments in both of these monumental chamber pieces by discussing their instrumentation and creative utilization. Both composers went beyond the ordinary punctuation effects - such as signaling the beginning and ending of phrases, assistance with louder volumes, and reference to military or ethnic sounds - and turned towards rhythmic support and interaction, color and sonority, and specific expressive sounds and ideas. This paper shows how Bartok and Crumb elevated the importance of percussion instruments by continuing to include
specific performance directions in the scores. And finally, how they increased the significance of percussion entrances by assigning solo passages to these instruments.

Accomplishments in these areas by Bartok were influential on Crumb and his writing for percussion instruments. Through musical example and statements by Crumb, this document will demonstrate that the general influence experienced in Bartok's music was a point of departure for the development of his own compositional style.
CHAPTER II

SYMMETRY

Symmetry in Pitch

This chapter will examine aspects of symmetry and pitch with respect to melody, harmony, and architecture, to see how Crumb was influenced by Bartok's music. George Crumb has related the following comment in the interview appended to this paper:

All through my fifty's period, really, I felt the influence, in some student works of mine, by the Bartok sound . . . it was an influence among others . . . but a very important source, since I hadn't found my own style . . . I think, in terms to [Music for a Summer Evening] itself that the influences would be in a much more general way, [regarding] influences of Bartok's style on my style . . . I think the idea of symmetry, generally, as applied to rhythm and certain pitch constructs [influenced me].

Before looking at how his predecessor effected Music for a Summer Evening, it will be helpful to discuss some basic concepts of Bartok's musical language.

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5 Interview with George Crumb found in Appendix.

4 This document is not intended to be a detailed analysis of the Sonata for Two Pianos and Percussion or Music for a Summer Evening, since there are texts that already do this. It is an investigation to help understand the influence of Bartok on Crumb, so it will briefly define the general analytical terms used to describe Bartok's music as they suit the discussion. Examples will be chosen and described in an effort to prove this influence. For very thorough analytical coverage of these two works, the reader is referred to: Elliott Antokoletz, The Music of Bela Bartok (Berkeley: University of California, 1984) and Principles of Pitch Organization in Bartok's Fourth String Quartet (Ph. D. dissertation, City University of New York, 1975), Errol Eugene Haun, Modal and Symmetrical Pitch Constructions in Bela Bartok's Sonata for Two Pianos and Percussion (D.M.A. Dissertation, The University of Texas at Austin, 1982) and Joseph DeBaise, George Crumb's "Music for a Summer Evening:” A Comprehensive Analysis (Ph.D. dissertation, University of Rochester, 1982).
Principles and Definitions

Elliott Antokoletz states that "Bartok's musical language may be approached from either two points of view - one in which the concepts and terminology are derived from folk music sources, and the other in which the concepts and analytical tools are derived from certain currents in contemporary music."\(^3\) Bartok's music is set apart, "in contrast to the traditional tonal system, in which the octave was divided into unequal parts (the fundamental division being derived from the perfect fifth, which served as the basis of harmonic root function and as the primary structural interval of major and minor triads). Pitch relations in Bartok's music are primarily based on the principle of equal subdivision of the octave into the total complex of interval cycles."\(^4\)

"An interval cycle is a series based on a single recurrent interval, the sequence of which is completed by the return of the initial pitch class at the octave. These cycles include one cycle of minor seconds, two of major seconds, three of minor thirds, four of major thirds, and six of tritones. The unique cycle of the perfect fourth must extend through many octaves before the initial pitch class returns."\(^5\)

A Cell, as defined by George Perle, is "a kind of microcosmic set of fixed intervallic content, stable either as a chord or as a melodic figure or as a combination of both."\(^6\)

\(^4\) *Ibid.*, xii.
Symmetrical pitch collections have the following properties: any collection of two notes is symmetrical, since the two notes are equidistant from an imaginary axis. If we join a second dyad to the first, with the two notes of the second dyad equidistant to the same axis of symmetry, a four-note symmetry results. Three particular four-note symmetries are significant to much of Bartok's music. These have been designated as the X cell, the Y cell, and the Z cell (see Figure 1).

Figure 1: Four-Note Symmetries: X, Y, and Z Cells

The interval cycle based on a minor third creates three diminished seventh chords. The notes of these chords correspond to the Subdominant - Tonic - Dominant relationships, described by Erno Lendvai, which create the poles and counter poles of the Axis of Symmetry (see Figure 2).

Figure 2: Lendvai's Diagram of the Axis of Symmetry:

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7 Antokoletz, op. cit., 69.
By combining certain Interval Cells, Bartok constructed hybrids such as the Octatonic, Hexatonic, Pentatonic, Whole-tone, and Chromatic scales. Figure 3 shows how two Z Cells are combined to create an Octatonic scale:

Figure 3: Two Z Cells create an Octatonic scale

Z-6/0

C-D-Eb-F-Gb-Ab-A-B-(C)

Z-9/3

The next two examples (Ex. 1 and 2) show a relationship (as Haun sees it) of two melodic themes, in the Sonata, that are generated by combining the whole-tone scale with an Octatonic scale. The first is the xylophone theme of Movement III, and the second is found in the Recapitulation of Theme II in the first movement.¹⁰

Example 1: Bartok, Sonata, Mvt. III, mm. 5 - 6, and construction

(a) Xylophone

(b) Whole tone - 0 (Bb - C - D - E - F# - ( ))

C - D - E - F# - G - A - Bb

Octatonic - 1 (E - F# - G - A - Bb - C - ( ) - ( ))

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Errol Eugene Haun, Modal and Symmetrical Pitch Constructions in Bela Bartok's Sonata for Two Pianos and Percussion (D.M.A. Dissertation, University of Texas at Austin, 1982), 12.

Example 2: Bartok, *Sonata*, Mvt. I, mm. 311 - 313, and construction

![Musical Example](image)

(c) **Whole tone - 0**

E - F# - G# - A# - B - C# - D

(d) **Octatonic - 2**

In the next example (Figure 4), Haun explains that the first half of the main theme of Movement I is based on a bimodal collection that joins C - Mixolydian with C - Dorian, yielding this eight-note formation:

\[ C - D - Eb - E - F - G - A - Bb \]

This collection can be shown to be symmetrical around Eb - E when arranged in this order:

\[ Bb - C - D - Eb / E - F - G - A \]

This is encompassed by the Z - 10/4 Cell. Note that the "10" and the "4" refer to the number of half-steps away from "0," or "C."

\[ Z - 10/4 cell: Bb - Eb / E - A \]

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Haun, *op. cit.*, 86-87.
The two tritones of this $Z$-Cell form the boundaries of the following two implied seven-note 5/7 interval cycles (circle of fifths). The axis of the entire linear thematic collection is basic sum 7.

$$Bb - F - C - G - D - A - E$$ and $$Eb - Bb - F - C - G - D - A$$

Figure 4: Bartok, Sonata, Mvt. I, Theme I

The final example (Ex. 3) is also from Movement I. This passage forms a matrix of $Z$-Cells (horizontally) and perfect fourths (vertically) which has several important properties. Because of the interrelation of tritones and fourths, $Z$ Cells can be formed at many levels in the matrix.\(^{12}\)

Example 3: Bartok, Sonata, Mvt. I, mm. 183 - 184, chords in fourths and Matrix

\[^{12}\text{Haun, op. cit., 32-33.}\]
Z Cells can be observed by pairing any two columns and grouping the top and bottom voices (columns one and two: F - Gb - and B - C equals Z Cell 6/0), or by grouping any pair of notes with an adjacent pair (columns two and three, rows one and two: Gb - C - and Db - G equals Z - Cell 7/1). This idea works throughout the matrix.

Crumb and Symmetry

In terms of the previous theoretical aspects, Crumb does not consider himself very analytical. He does not compose this way, nor does he hear music this way. He comments:

I don't quite know what they mean by "Interval Cycles," but I'm aware that for Bartok each interval had a very special value, almost an emblematic value. You know he was particularly fond of the minor third, melodically. And the tritone and the perfect forth, all of these things occurred almost emblematically in Bartok. Sometimes they'll occur in combination, [singing:] "f - c - d" being so common, or "f - d" the minor third. Sometimes he focuses in on a particular interval that may dominate.  

Melody

The fundamentals of Bartok's music revolve dividing the octave into equal and symmetrical parts. The following are all symmetrical divisions of the octave: chromatic scale, both whole tone scales, the three diminished seventh chords, the four augmented triads, and six tritones. The influence of symmetry is seen in Crumb's music through particular devices Crumb claims
are found in Bartok's output. First we will examine some examples of melodies from *Music for a Summer Evening* that Crumb admits are traceable to Bartok's influence.

This section focuses on smaller symmetrical events in melody such as motives, arches, and palindromes. At the local level, the arch figure can be found frequently during the work. The four excerpts in Example 4 are arches of pizzicato entrances that rise and fall with a peak in the center, first of five notes, then of seven.

Example 4: Crumb, *Summer Evening*, Mvt. II, four arch figures
Example 5 is another arch event of five entrances. It is represented by the ascent and descent upon the arpeggiation of C and G in the tubular bells, doubled by the quintuplet tremolo of the piano. After the explosion of three tam-tams struck simultaneously, the entire phrase of the "The Advent" is repeated a minor third lower. So later, this arch returns over the arpeggiation of A and E.

Example 5: Crumb, *Summer Evening*, Mvt. III, Chimes arch

This event (Ex. 6) from Movement IV (Percussion I) is another example of an arch. It is also the center measure of the palindromic talea (repeated rhythmical pattern) used in this movement. This will be discussed in detail later in the chapter on form.

Example 6: Crumb, *Summer Evening*, Mvt. IV, Alto Recorder Arch
In the “Song of Reconciliation,” in Movement V, the pentatonic ostinato that is continually present is found in Example 7. It can be reduced to a symmetric pitch formation. The inside intervals surrounding the Ab are both major seconds, and the intervals extended from these notes are minor thirds.

Example 7: Crumb, Summer Evening, “Song” Symmetrical Ostinato

Although his cell structure is not always symmetrical by nature, there is a correlation between Crumb and Bartok. Crumb discusses the topic:

It’s all through Bartok, and it’s something that he might have gotten from late Beethoven or from Brahms style generally, because he knew all that music cold, you know, being a pianist, he played a lot of that stuff. So his music is, and interestingly is Debussy’s music, too, has a lot to do with cell structure and cells. I’m thinking that it’s almost like a mosaic of little cells.¹⁴

Robert Moevs describes the three fundamental cells, heard in the first seven sound items of Music for a Summer Evening that summarize Crumb’s vocabulary:

¹⁴ Appendix.
Most important is the three-note chromatic sound, conceived as a whole tone with an intermediate semitone, usually, as here, displaced by an octave, giving rise to a whole tone, semitone, major seventh, and minor ninth. The second item presents the second idea, the three-note whole-tone sound. The third item combines the two figures, and includes the disposition major third and minor ninth, D - B - D#, a sound that has been important also in Makrokosmos I and II.

Item four couples three-note whole tone with three note chromatic figures, and adds the echo by the same piano. Item five presents the tam-tam, three temple bells, and the three-note chromatic on the vibraphone drawn out with a bass bow. For item six, returning to the piano, the intermediate pitch of the three-note chromatic is given accelerating repetition. [Refers back to Bartok's *Music for Strings, Percussion and Celeste*, third movement]

Item seven, a grace-note cadenza, includes the third basic sound, a combination of tritone and major seventh. This sound is closely associated with the others but should be identified because of its specific exploitation and because, heard as tritone-plus-fourth (T + 4), it produces this new interval, which can lead to pentatonic figures. Often the figure is "completed" through the addition of another tritone (T + 4 + T). 

Crumb has a fondness for particular intervals that he feels he shares with Bartok. "Just the tritone melodically and harmonically ... I wasn't always conscious of it, and I'm not very self-analytical either, but I'm aware that it is all over the place. Melodically, singers love it [laughs], it's one of the hardest intervals to tune." 

The intervals in the cells described by Moevs include seconds and tritones. If we add to this complement and compound intervals (sevenths and ninths), and intervals that symmetrically divide the octave, we get Crumb's favorite vocabulary. Most of these intervals are spun out in the slide whistle melody that frames the second movement (see Ex. 8).

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16 Appendix.
Example 8: Crumb, *Summer Evening*, Mvt. II Slide Whistle melody

As shown earlier, Bartok would create melodic structures by combining or immediately following one scale type - or interval cycle - with another. Crumb does something similar to this in the final movement of *Music for a Summer Evening*. He places the rising, first half of the vibraphone melody in Example 9 into the key of Bb minor. The falling part, however, is based on the whole tone scale. The combining of systems, a Bartok influence, will be discussed in more detail later in the chapter.


Harmony

Regarding symmetry and harmonic structure, Crumb comments:

In terms of pitch, the symmetry might be certain chords that are built symmetrically, like the chord that is built by a central perfect fourth flanked by two tritones on either side. This a favorite chord of
mine, and was a favorite chord of Bartok's, which I borrowed. There must be other things, too. Occasionally, I guess I would use a Octatonic Scale, although, I don't think in this work I did. ”

The chord to which Crumb refers is a Z-Cell. When it is examined in its normal position, two perfect fourths are found with a half step between them. Crumb’s version appears to be a permutation:

\[
\text{Z-Cell: } \text{G - C} / \text{C# - F#} \quad \quad \quad \quad \quad \text{TT + 4 + TT: } \text{C# - G} / \text{C - F#}
\]

This symmetrical pattern can be found in the harmonic structure of Movement III. The ostinato in Example 10 is an arpeggiation of F# and C#. Superimposed over this, in the chimes and right hand of Piano II, is an arpeggiation of C and G. All four notes are played in a cluster during the fermata measure.

Example 10: Crumb, *Summer Evening*, Mvt. III, TT + 4 + TT
Another symmetrical construction that Crumb uses that is in common with Bartok is whole tone clusters. In the first movement there is a tremolo between C whole tone and C# whole tone. The result is a blurred combination of all twelve notes sounding at the same time, even if it is a grace note apart or just a note apart. Crumb agrees, "Oh yeah, that's something that Bartok did. It's roughly like the white against the black keys. I use that to some extremes, but sometimes, too, I do combine both whole tone sets. [It] gives you totally chromatic chords." Two examples worth mentioning (Ex. 11 and 12) are in the outer movements, providing unification of the work.


During a discussion regarding the concept of the Bartok's axis of symmetry, Crumb referred to the opening of Movement V (see Ex. 13). He points out, "there would be the juxtaposition of two dominant seventh
chords a tritone apart by roots. Kind of a Mussorgsky *Boris Godunov* sound. This was taken over by Bartok and by Debussy.” The two dominant seventh chords are separated by a grace note, and are in different inversions. The roots of the main chords follow the intervallic progression of down a fourth and up a second, with the total distance traveled being a minor third (Ab - Eb - F). In an earlier quote of Crumb’s regarding Interval Cycles (repeated below), he sang this same pattern as one of Bartok’s favorites . . .

I’m aware that for Bartok each interval had a very special value, almost an emblematic value. You know he was particularly fond of the minor third, melodically. And the tritone and the perfect fourth, all of these things occurred almost emblematically in Bartok. Sometimes they’ll occur in combination [singing:] F - c -- d being so common.


The first of the “three fundamental cells” described earlier by Robert Moevs, was “the three-note chromatic sound, conceived as a whole tone with an intermediate semitone.” A detailed discussion of the use of this symmetrical structure is found in the chapter on Crumb’s use of Percussion (See Example 59).

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19 Appendix.
20 Ibid.
Formal Plan & Architecture

Vera Lampert and Laszlo Somfai in the *New Grove Dictionary of Music and Musicians* discusses Bartok’s advances in symmetrical forms during his mature style:

Palindromic form had been introduced in the stage works. It became elaborated further in the five-movement form of the Fourth Quartet (1928). He used the term “Bruckenform” (bridge form) to describe the palindromic structure of the third movement of *Music for Strings, Percussion and Celeste*. The essence of this form, which customarily follows the five-component scheme A-B-C-B¹-A¹, is that the fourth and fifth sections are not just variations on the second and first sections, but are recast to produce something aesthetically conclusive. One type of five-part form has two scherzos surrounding a slow movement (as in the Fourth Quartet); the other has two slow movements around a scherzo (as in the Fifth Quartet and the Second Piano Concerto). In his palindromic forms the outer movements are sometimes related in such a way that a new theme in the finale provides a framework for the reworking of the first movement material, as in the Second Piano Concerto. Gradually, Bartok extended the palindromic principle to the sonata structures of opening movements, so that the recapitulation brings back the themes in retrograde order and in inversion, as in the Fifth Quintet.²¹

Crumb was very aware of this type of form, and it appealed to him. In an interview he stated, “there are certain formal connections that Bartok would make, like a procession to a midpoint (of a piece), and then a drop off, like in a couple of the quartets. Like the second and fourth movements highlight the centerpiece of the third movement, the same with the first and the fifth . . . [however] that doesn’t really reflect that symmetrical structure [of

This important formal concept is being discussed because it is an influence on Crumb, even though it is not reflected in either work. The forms in the *Sonata for Two Pianos and Percussion* are not symmetrical. Bartok wrote the following account (which originally appeared in the Basle “National-Zeitung” in January 1938:

The first movement opens with a slow Introduction, which anticipates a motive in the Allegro. The Allegro movement itself, in C, is in Sonata Form. The exposition presents the principal subject groups consisting of two themes (the second of which has already been mentioned in connection with the Introduction); then there follows a contrasting theme which gives rise to a broadly fashioned concluding section, at the end of which the contrasting theme again appears briefly. The development section, after a short transition with fourths overlaying each other, consists basically of three sections. The first of these uses the second theme of the principal subject group, in E, as an ostinato motive, above which the imitative working-out of the first theme of the principal group takes on the character of an interlude. After this, the first section - with the ostinato in Gb and inverted - is repeated in a greatly altered form. The recapitulation has no real final section; this is replaced by a fairly extensive coda which (with a fugato opening) is based on the concluding theme, to which the principal theme is eventually added.

The second movement, in F, is in simple ternary form, a - b - a. The third movement, in C, represents a combination of rondo and sonata form. Between the exposition and the reprise there appears a new thematic group fashioned from two motives of the first theme, treated in imitation. The coda, which dies away pianissimo, concludes this movement and the work.  

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22 Appendix.

23 John Coombs, record jacket notes for *Sonata for Two Pianos and Percussion*, (Deutsche Grammophon 2530 964, 1977).
Symmetrical Plans of Movements

Symmetry does come into play in a different way for Crumb in *Music for a Summer Evening*. Joseph DeBaise, in his comprehensive analysis of *Music for a Summer Evening* observes symmetrical thinking, in general terms, of the arrangement of three large movements (asymmetric in nature), separated by two smaller forms, both being symmetrical. The larger movements have two identifiable parts to each of them, and give the impression of being through-composed, but logical in progression. Regarding Movement II, DeBaise calls it A - B - A form, the A's being the slide whistle frame.

The first part of Movement V, “Music of the Starry Night,” is somewhat symmetrical because it can be viewed as thirteen components with a middle section containing unique thematic material. This formal plan can be seen on page 26 in Figure 5.

A few comments can be made about this plan. A fermata or some kind of pause occurs between each event. The middle section (D) has a fermata included within the event. The thirteen-second pause and the “Fifefold Galactic Bells” can be interpreted as an ending punctuation to this first section, as well as a bridge, connecting it to the “Song of Reconciliation.” Finally, each quote of the Bach is immediately preceded by a small glissando and a fermata. It is possible to view this as one event, as does Robert Moevs (Figure 6) in his formal plan (also on page 26).²⁴

²⁴Moevs, op. cit., 299.
Figure 5: Symmetrical Form of Movement V

A) Juxtaposed dominant seventh chords

B) Cascading motive

B) Cascading motive

C) Juxtaposed chords followed by xylophone accelerando and large and small glissandi on piano strings

Quote from Bach W.T.C.

B) Cascading motive

D) Center - Two events of five-note groupings, separated by a fermata and followed by small glissando

Quote from Bach W.T.C.

C\(^1\) Juxtaposed chords, double piano accelerando, ten-note complex

B\(^1\) Cascading motive with glockenspiel and vibraphone added.

B\(^2\) Cascading motive with only vibraphone, followed by small glissando.

Quote from Bach W.T.C.

E) Thirteen second pause followed by “Fivefold Galactic Bells”

Figure 6: Roberts Moevs - Form of Movement V


Movement IV

There is no question about the symmetrical nature of Movement IV.

“The Myth,” is marked with the indication “Adagio isoritmico; lonely, bleak.”

Robert Moevs says this:
The fourth movement is cast as a fourteenth-century isorhythmic hoquetus with a double tenor. Faithful to that conceit, metrical divisions are in perfectio: one long, the bar divides into three breves, dotted halves (modus perfectus), which divide into nine semibreves (tempus perfectum); the semibreve, however, divides into five minums, sixteenths, at the prolation level. Quintuplet division is a secondary system applied to the long (recorder), double breve (claves), breve (guiro and spoken syllables), double semibreve (tom-tom), as well as the semibreve (log drum).  

This isorhythmic movement is made up of a "triplum" (Percussion I) of thirteen measures in length, a "duplum" (Percussion II) which is seven measures long, and two tenors, (Piano I and II). The first "tenor" consists of two elements, each repeated three times in an eleven measure talea. One event involves striking the bass strings of the piano with a G# crotale, then striking the crotale, itself, then finally striking the crossbeam of the piano, quickly, seven times. The other parts require speaking phonetic syllables while scraping a guiro (see Example 33). The second "tenor" uses an African Thumb Piano, or Mbira, to play three different cadenza-like figures. "The symmetry of these figures is not exact because the length of the rests varies in the second half to permit the Mbira to overlap with the elements of the first tenor."

A layout of the formal plan of this movement shows the symmetrical nature of all four voices. Both of the percussion parts, the "triplum" and the "duplum" are palindromes. Percussion I has three phrases of thirteen bars, and Percussion II has five phrases of seven bars. The centerpoint of the piece,

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25 Moevs, op. cit., 297.
26 Ibid., 299.
measure 20 is the midpoint of both Percussion voices. The rhythmical arrangement of each percussion event is such that they seldom coincide. They more often interrupt each other in hocket-like fashion. Since the two Piano parts do not exactly line up, symmetrically, with the percussion parts, the isorhythmic plan is more concealed to the ear. Regarding the tenors, Arlene Goter states that:

The material of Piano I is also highly organized, with its opening figure stated first in measure 8 and then repeated twice with a spacing of ten bars between each statement, thus occurring in measures 8, 19, and 30. The material’s placement within the movement as a whole is not symmetrical, as was Percussion II, with Piano I’s first statement seven bars from the beginning and the last statement ten bars from the end. The same procedure is followed with Piano I’s speaking of the syllables “kai - ko - ko - ki - ka” with guiro: it is first stated in measure 14 and repeated two more times at ten measure intervals, thus occurring in measures 14, 25, and 36. The placement of the material of Piano II does not fall into a discernible pattern of numerically determined entrances; however, it uses three sets of materials in the following order: A B C C B A.  

The smaller events that make up each voice have already been discussed as to their palindrome and symmetrical nature. The following graphs illustrate how these small incidents fit into the larger symmetrical scheme, what DeBaise refers to as “the macrocosmic design” of the movement. Figures 7 and 8 are DeBaise’s analysis of the rhythmic patterns of the duplum and the triplum, respectively. Figure 9, from Arlene Goter’s dissertation represents the formal scheme of the entire fourth movement.

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Figure 7: DeBaise:
Symmetrical rhythmic pattern of duplum in Mvt. IV

Figure 8: DeBaise:
Symmetrical rhythmic pattern of triplum in Mvt. IV
Figure 9: *Music for a Summer Evening, Mvt. IV*, Formal Scheme
Combination of Systems

An additional general influence of Bartok's that does not involve symmetry is the combining of different tonal systems. Crumb explains:

In a more general sense . . . Bartok was interested in the problem of combining different systems . . . he might use tonality - or some kind of tonality - and include atonality, pentatonics, or other modal sort of things. He might use whole tone configurations, just like Debussy did. You know they were interested in the same things, combining all kinds of systems. It could go in and out, it could be in the same movement. So that's a general influence."

One example already mentioned was the vibraphone melody in the "Song of Reconciliation," (see Ex. 14) which blends diatonics with the whole tone scale.

Example 14: Crumb, Summer Evening, Mvt. V, "Song" Vibraphone Melody

Example 15, from the first part of Movement V, shows how Crumb combines several systems and trends. The piano is "prepared" to the extent that a sheet of paper is placed on the strings. The diatonic dominant seventh chords are used, but without their standard function. Their roots are juxtaposed around the tritone axis. The grace notes to the accelerando effects in the piano (a'la Bartok) are both of the whole tone sets in a cluster. The

\footnote{Appendix.}
event after this is what Crumb referred to as a “complex of ten notes” made mostly of tritones and fourths. The five notes in the left hand repeat their pattern, while the rhythm and the order of the right hand are varied. There is also a quote from a Bach fugue with the canonic echo in the vibraphone to distort its clarity (see Ex. 68).

Example 15: Crumb, Summer Evening, Mvt. V, combination of systems
In Movement III, during the "Hymn for the Nativity of the Star Child," Crumb continually alternates between the fourteenth and twentieth centuries. Moevs describes, "The hymn is in octave-fifth parallel organum as in the Musica Enchiriadis, but interspersed with minor six-three triads, suggesting Machaut . . . The medieval quality is enhanced occasionally by the doubling with chimes or singing the parallel fourths." Example 16 shows the hymn part enclosed in the box. The chords are created by strumming on the strings inside the pianos while depressing the appropriate keys. The four hymn phrases are continually interrupted by contemporary-sounding Crumb: grace notes of tritones and sevenths, repeated "stings" of open fifths, and a glissando over the low strings of the piano, with all of this material echoing and overlapping a minor third lower.

Example 16: Crumb, Summer Evening, Mvt. III, from "Hymn"

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30 Moevs, op. cit., 297.
Crumb explains why he likes to combine systems: "The turn of the century composers interested me because they were into this. Here we are again approaching another turn of the century, and I think these composers are relevant to today, not any purists who primarily wrote in one system. So those are some general things about Bartok."\footnote{Appendix. Crumb would have been more accurate to refer to Bartok as an early Twentieth-century composer rather than a turn of the century composer.}

Symmetry in Proportions

Erno Lendvai analyzes sections of the Sonata for Two Pianos and Percussion in several ways. One examines the formal structure in regard to the Golden section\footnote{Lendvai, op. cit., 17-22.}, which is a geometrical proportion where the larger part of a length corresponds to the geometric mean of the whole length and the smaller length (shown in Fig. 10). Although this proportion is not truly symmetrical, it demonstrates Bartok's intuitive concern for a natural sense of balance in his music.

![Figure 10: Diagram of simple Golden Section](image)

In his book Bela Bartok: An Analysis of His Music, Lendvai cites how this concept is expressed in the formal plan and the phrase structure on a large and small scale. The division of lengths of phrases can be seen in two different possibilities depending on which comes first, the short section or the long section. He designates the term positive for the long section followed by
the short one, and the term negative for a short part followed by a long. Each of these smaller segments can be part of an overall larger concept (See Fig. 11). This is the geometric nature of the Golden Section. Numerically, the larger part is .618 of the whole. This number, and the proportion that it creates, corresponds so many times in the music of Bela Bartok, specifically the *Sonata for Two Pianos and Percussion*, that, to Lendvai, it is difficult to consider it coincidence. It has been noted that the relationship of the length, in measures, of Movement I to the entire work is .618: the amount of the Golden Section.

Figure 11: Lendvai's Diagram of Introduction to Bartok's *Sonata*

Lendvai uses the opening bars of Movement I, measures 2 - 17, as a model to demonstrate his point “because it is here that the organic life of the work begins.” The diagram in Figure 11 represents the architecture of this section. Observations show how Bartok uses this proportion in the formal plan of the music. In some cases, he utilized percussion instruments to highlight and punctuate significant structural measures. Again, note that this

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33 This concept is elaborated in Appendix III of the Lendvai text on page 110 - 115 with geometric images such as circles, angles, squares, pyramids, and pentagrams. These figures visually represent the architecture of the music.

34 Lendvai, *op. cit.*, 18.
proportion demonstrates a natural, yet asymmetrical balance, where the moment of importance is not the midpoint.

Lendvai also points out Bartok's interest in the Fibonacci series, which is a mathematical progression where every number is equal to the sum of the previous two numbers. It has been observed in pieces like *Music for Strings, Percussion and Celeste* that the entrances of the fugue voices correspond to measure numbers which belong to the Fibonacci series. He also uses this sequence to explain interval content of chords and melodies:

Calculated in semi tones:

<table>
<thead>
<tr>
<th>Number</th>
<th>Interval Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>major second</td>
</tr>
<tr>
<td>3</td>
<td>minor third</td>
</tr>
<tr>
<td>5</td>
<td>perfect fourth</td>
</tr>
<tr>
<td>8</td>
<td>minor sixth</td>
</tr>
<tr>
<td>13</td>
<td>augmented octave, etc.</td>
</tr>
</tbody>
</table>

Even though Lendvai's theoretical speculations are interesting, some consider that what Lendvai has observed was not necessarily intentional by Bartok, but fortuitous. Stephen Walsh comments that Lendvai's explanation "of how Bartok's harmonies relate to the development of ideas and forms . . . hardly amount to a method at all. What they do is codify certain perhaps puzzling relationships and reference points that keep cropping up."

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35 Lendvai, *op. cit.*, 35.
The Use of Numbers in the *Sonata for Two Pianos and Percussion*

According to Crumb, both he and Bartok shared the fondness for numbers that are symmetrical by nature. The influence is that of a "general one" by Crumb's own admission. Crumb cites, "Bartok's early interest in metrical patterns like sevens, fives and nines, for example; which are, you know, symmetrical divisions of the measure, in a way that fours and eights are not." Crumb qualifies these numbers as symmetrical because their centerpoint falls clearly on a beat, rather than in between two beats. Keeping this in mind, symmetry in a general sense is reflected in several cases in the *Sonata for Two Pianos ad Percussion*. One example is the predominant time signature of the first movement, which is 9/8. Within this time element, the only true symmetrical beat grouping that Bartok uses is 3 + 3 + 3. However, he also exploits several asymmetrical groupings such as 2 + 2 + 2 + 3, 3 + 2 + 2 + 2, 4 + 2 + 3, and 3 + 2 + 4. Bartok also wrote five 5/8 bars in Movement III, measures 325 to 329. This property is also found in symmetrical subdivisions of a beat. The most obvious in the *Sonata* is the quintuplet motive in the second movement (see Ex. 17 on page 38). As Crumb relates, "the five is special . . . A four wouldn't sound the same, and a six wouldn't sound the same . . . he used [this] proportion a lot."
The motive usually appears as a sixteenth-note quintuplet. At the conclusion of the movement, however, it occurs in augmentation, in eighth notes and quarter notes as shown in Example 18.
Example 18: Bartok, Sonata, Mvt. II, mm. 88-90, quintuplet motive in augmentation

In Movement III, quintuplets appear, briefly in the form of accompaniment (see Ex. 19).

Example 19: Bartok, Sonata, Mvt. III, mm. 223-226
Another effective moment involving numbers is the scale passages of Piano I accompanying the melody. These glissandi-like runs divide the beat into units of 8, 9, 10, 11, 12, and 13, and sometimes by two of these at once. Example 20 shows how the two hands perform polyrhythmic blurs of 11 against 8 and 13 against 9. Crumb uses a device in a similar fashion during the opening movement to Music for a Summer Evening (see Ex. 21).

Example 20: Bartok, Sonata, Mvt. II, mm. 69, beats 5 and 6

Example 21: Crumb, Summer Evening, Mvt. I, similar blurs

Crumb’s Use of Numbers and Symmetry

The numbers 3, 5, 7, 9, 11, 13, and 15 are all considered to have symmetrical qualities because their centerpoints fall clearly on a beat, rather than in between two beats. It is because of this feature that Crumb employed
these special numbers extensively in time signatures and rhythms. They are also significant to his formal plan. He claims this to be a general influence of Bartok on his music. The following examples will demonstrate the use and appearance of symmetrical numbers in *Music for a Summer Evening*, which was inspired by that influence.

Time signatures using these numbers divide the measure symmetrically. There is no time signature in the first two movements, but a strong implication of a grouping of five pulses is found in the second one (see Ex. 22). Time signatures used in the third, fourth, and fifth movements are 15/8, 3/dotted half, and 7/8, respectively. These all have the symmetric nature that Crumb attributes to Bartok.

The entire second movement is an example of Crumb’s fondness for the symmetrical number five. The implied time signature is 5/16. The grouping of the eighth notes in the left hand of Piano I suggests a secondary time of 5/8, while the pizzicati of Piano II plays an arch of five notes, suggesting a time signature of a slower pulse, 5/quarter tied to 16th. When this arch returns in the second phrase of this interlude movement, it has seven notes instead of five.

Example 22: Crumb, *Summer Evening*, Mvt. II, overlapping time signatures
Appearances of beat subdivisions such as 3’s, 5’s, and 7’s are widespread. When perusing the score, it is apparent that George Crumb used these numbers even more than Bartok.

In the first movement, there are only a few complete triplets or quintuplets in which all of the are notes sounded without rests, grace notes or subdivisions. Three of these events are performed by Percussion I on three Japanese Temple Bells (see Ex. 67). The remaining events are triplets with grace notes, incomplete (or broken) triplets and quintuplets. Incomplete means that some of the notes have been replaced by rests. In some cases, some of the notes of the triplet are, themselves, subdivided.

Because of the notation and the sparseness of the entrances, there is an impression of improvisation. Each event is random and unpredictable, like nature’s sounds. This reflects the title “Awakenings of Nocturnal Sounds.”

In the interview appended to this paper, Crumb was asked why he used this notation - with the painstaking rhythms that are so sparse and so irregular - when he could have used a spatial notation with a time line and dots representing entrances as other composers might have? He replied,

Yeah, I tend to put [my rhythms] into measures, that’s true, because I think it effects the way you interpret the little figures. Like that little bunch of five’s there [Mvt. I] that has rests, too, if that were to be notated spatially, I don’t think it would sound the same. I rarely used spatial notation, just a couple of contexts. I have some of that in Songs & Drones and in Night Music I ... in the last, or second of the two Songs, there’s some spatial there, even though it’s through-composed, in a way, with some other indications. 39

39 Appendix.
The pulse during the opening of Movement I is so slow (eighth note equals fifty) that it is difficult to perceive the rhythmic context in which each musical event occurs. In isolated cases, certain events seem to be heard within a momentary time-frame. Shown with an arrow, in Example 23, is a group of three semi-tone articulations. Even though this is actually played between the two pianists in a trade-off fashion, upon listening, one hears it as a localized triplet with each note subdivided.

Example 23: Crumb, Summer Evening, Mvt. I, irregular note groupings

The second main section of the Movement I is also imitative. The predominant “nocturnal call” of this imitative counterpoint is the sixteenth-note quintuplet figure, which omits the second note - followed by a sextuplet. A polyrhythm of five against six is created when the echoing voice enters. The second half of this motive is written as two partial quintuplets, where each of the seven notes that are played are subdivided into triplets (see Ex. 24). The percussion enters the imitative process with the quintuplet motive. The dry wood sounds add a new timbre to piano sonorities (see Ex. 25).

The imitative motif develops into compound polyrhythms, constructed as a quintuplet against the second and third notes of the triplet (see Ex. 26).

Example 26: Crumb, *Summer Evening*, Mvt. I, compound polyrhythms

Occurrences of Crumb's favorite symmetrical numbers pervade Movement IV. The time signature is a triple meter, 3/dotted half note. Several types of groupings with arrangements of 3, 5, and 7 pulses are to be found. The number of events in each talea is a symmetrical number. This will be discussed in greater detail in the chapter on percussion.

These three and five note groupings recur with some variation throughout this movement. The log drum event, consisting of three groups of five notes (see Ex. 32), is performed starting with either the high or low note. The clave quintuplet (see Ex. 27) is varied in two ways from the normal style shown below. It is altered by striking one clave against the other while it is pressed against a bass drum, or it is played by Tibetan Prayer Stones. The three Jug pitch-bends are altered by the use of groaning or humming sounds. Even though variations occur, the rhythm and entrance of each event is not altered. Each has been placed carefully in a symmetrical chain of events. This
will also be discussed in more detail in the percussion chapter on Movement IV.

Example 27: Crumb, *Summer Evening*, Mvt. IV, claves

In the final movement, we find appearances of the same numbers in similar ways as the previous movements. The opening two musical motifs, found in Example 28, are rich in these numbers.


The first triplet is made up of parallel dominant seventh chords. Each chord has a grace note, also containing a dominant seventh chord. The root of the grace note chord is juxtaposed by a tritone to the root of its main chord. This triplet is followed by a cascading motive, which is actually a written out ritard made of polyrhythms: 5 vs. 3, 4 vs. 3, 3 vs. 2, and a quintuplet. The result is "rhythmic dissonance." During the first half of this movement,

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these ideas recur several times. Before the “Song of Reconciliation” the triplet is played three times, and the cascading motive five times.

Following the second juxtaposed dominant seventh chords, there is a written out accelerando on a high B natural (see Ex. 29). It uses the numbers three, five and seven. This figure resembles the one found in Music for Strings, Percussion, and Celeste by Bartok (see Ex. 30).

Example 29: Crumb, Summer Evening, Mvt. V, xylophone accelerando

Example 30: Bartok, Music for Strings, Mvt. III, xylophone, accelerando

Just before “Song of Reconciliation” begins, which is in the time signature of 7/8, there are four fermati. The two holding silence are of five and thirteen seconds. The other two sustain the first two of three descending chimes of the “Fivefold Galactic Bells.” Each is held for seven seconds.

As the movement progresses to its powerful climax, Crumb writes a rhythmical figure answering the accelerando of Example 29. Still using sevens and fives, this pentatonic figure has its entrance dovetailed between
the two pianos and the xylophone (see Ex. 31).

Example 31: Crumb, *Summer Evening*, Mvt. V, dovetailed accelerandos

This final section deals with examples of smaller symmetrical events such as motives, arches, and palindromes that appear throughout *Music for a Summer Evening*. These are techniques found in Bartok's music as well. The arch figures such, as the pizzicati in Movement II, the chime arpeggiations in Movement III, and the Alto Recorder in Movement IV have been discussed in the chapter on Pitch. There are more symmetrical events, though. The African Log Drum figure in Example 32 is interesting from the standpoint of symmetry. It is palindromic on two levels. The event is made up of three quintuplets. Each quintuplet is palindromic, as is the entire figure. The event occurs six times in the movement. Three times the low
note is first, and three times the high note is first.

Example 32: Crumb, Summer Evening Mvt. IV, African Log Drum

Taking the number of vocalizations and the dynamics into consideration, the event in Example 33 is symmetrical. However, the guiro accompanimental pattern of two pulses followed by rests obscures the pattern and keeps it from being completely palindromic.

Example 33: Crumb, Summer Evening Mvt. IV, vocalization and guiro Piano I

Conclusion

By observing these many examples from Bartok and Crumb, the influence of symmetry is certain. It is heard through symmetrical divisions of the octave, regarding interval content of melody and harmony. These divisions also relate to the formal plan and architecture of the works cited. Symmetry also appears in rhythms through appearances of certain numbers and symmetrical divisions of the measure and the beat. The impressions from Bartok’s music developed into basic vocabulary for Crumb and he absorbed these concepts into his compositions. Although Crumb’s melodic and rhythmic system is not quite the same as Bartok’s, and in some ways, it is more developed, the inspiration still lies with Bartok.
CHAPTER III

INSTRUMENTATION

Bartok’s Use of Percussion

When writing on the “remarkable phenomena of recent music,” George Crumb lists “many contributing factors.” Among them was “the liberation of percussion instruments, a development for which Bartok is especially important.”

Obviously, Crumb’s treatment of percussion instruments was influenced by Bartok, as was his choice of instrumentation since both Music for a Summer Evening and the Sonata for Two Pianos and Percussion are composed for two pianos and two percussionists. This section investigates how Bartok used percussion instruments. It cites examples of Bartok’s use of percussion in several orchestral works to demonstrate his general style and unique innovations. It also shows how these trademarks occur in the Sonata for Two Pianos and Percussion. Finally, it shows the influence on George Crumb in Music for a Summer Evening and how Crumb expanded Bartok’s ideas to develop his own style of writing for percussion.

Steven Walsh, in his book on Bartok’s chamber music, describes the genesis of the Sonata for Two Pianos and Percussion:

Like the Music for Strings (which was commissioned by Paul Sacher for the Basle Chamber Orchestra) the Sonata was the result of a commission from Basle, this time from the local ISCM group, who

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wanted a chamber work to mark their tenth anniversary in January 1938. One supposes that they may have had in mind a new string quartet. But this seems to have been far from Bartok's mind. "For some years now," [Bartok] wrote in the Basler National Zeitung, "I have been planning to compose a work for piano and percussion. Slowly, however, I have become convinced that one piano does not sufficiently balance the frequently very sharp sounds of the percussion." Thus there emerged the idea of a "quartet" written solely for percussion instruments, two of which, however, assume pre-eminence through their greatness of power and versatility. Although this idea is a logical enough extension of the concertante piano-and-percussion parts in the preceding works for orchestra, it seems to have caused anxiety to his publishers, as works in unfamiliar genres are apt to do, and it was at the instigation of Ralph Hawkes that Bartok rearranged the Sonata for Two Pianos and Percussion as a concerto for two pianos and orchestra late in 1940. However, the transcription must be regarded as a dilution of the original work, and only a very doubtful alternative to it.²

Bartok's use of orchestral percussion instruments was both traditional and developmental. He used standard scoring choices in his symphonic works such as timpani, bass drum, cymbals, tam-tam, snare drum, triangle, and xylophone. By the turn of the twentieth century, most of the important innovations in the evolution of the construction of timpani had occurred. Briefly, up through the time of Beethoven, the timpani parts generally reinforced fundamental harmonies. Usually, a pair of timpani had one note per drum, per movement, and in some cases, per piece. The normal interval was the perfect fourth. Retuning a drum to a different pitch took time because individual tuning pegs needed to be adjusted, and took one or both hands to do. New instrument designs by people such as Gerhard Cramer (Munich, 1812), Johann Stumpff (Germany, 1821), and Johann Einbigler (Frankfurt, 1836) meant more rapid tuning by the addition of a lever; a

²Walsh, op. cit., 70.
swivel-rotary apparatus, or a hand crank, respectively, to the tuning mechanism. These ideas made the tuning process more efficient, but still took one or both hands. The first foot-activated tuning device was created by August Knocke (Munich, 1840). After a series of improvements, the Dresden-type pedal, similar to what is used today, was developed by Carl Pittrich in Dresden around 1895. In fact, composers such as Verdi, Mahler and Strauss were writing timpani parts with instantaneous tuning changes. It is not surprising that Bartok would write such a challenging timpani part as this passage from Concerto for Orchestra in Example 34, which calls for several fast tuning changes within just a few measures.

Example 34: Bartok, Concerto for Orchestra, Mvt. IV, mm. 42 - 50, timpani part

Although Bartok was not the first to use the glissando on timpani, he definitely exploited it in his vocabulary of expressive percussive sounds. Probably the most famous place is the opening of the third movement of Music for Strings, Percussion and Celeste (see Ex. 35). The two downward sighs and the upward glissando of a tritone are difficult to perform, and very

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4 that credit goes to Wallingford Davis in Conversation for Piano and Orchestra (1914) - from Robert Schjetroma and I. B. Smith. Introduction to Percussion Literature, (Denton, Texas: North Texas Percussion Press), 1990, 196.
effective for an eerie performance.

Example 35: Bartok, *Music for Strings*, Mvt. III, mm 1 - 5, timpani and xylophone

The glissando is an effect by a percussion instrument that imitates the string portamento (see Ex. 36). The violin slides of major sevenths, which appear in mm. 22, are imitated by the timpani in mm. 31 at the interval of a perfect fourth (see Ex. 37).

Example 36: Bartok, *Music for Strings*, Mvt. III, mm. 22 - 23, Violins I & II

Example 37: Bartok, *Music for Strings*, Mvt. III, mm. 31 - 33, timpani and xylophone
Bartok’s use of orchestral percussion instruments was both traditional and developmental. He used standard scoring choices in his symphonic works such as timpani, bass drum, cymbals, tam-tam, snare drum, triangle, and xylophone. However, Bartok goes beyond the ordinary punctuation effects of signaling the beginning and ending of phrases, assistance with louder volumes, and reference to military or ethnic sounds. His utilization of percussion turned towards rhythmic support and interaction, color and sonority, and specific expressive sounds and ideas. He elevated the importance of percussion instruments by including specific performance directions. And finally, he increased the significance of percussion entrances by assigning them solo passages. All of these accomplishments are influential on Crumb and his writing for percussion instruments.

It was moments from his orchestral works and the Sonata for Two Pianos and Percussion that Crumb found to be inspiring for his own compositions. He would refer to these places as Bartok’s “expressive use of percussion.” Creative use of percussion, regarding rhythmic support, can be seen in the patterns and ostinati in parts of the Miraculous Mandarin. The snare drum and bass drum are very prominent, either by their continuous running notes or by the accents they punctuate. They are both especially active at the beginning and ending sections, where the music is particularly exciting. Bartok creatively used tam-tam and cymbals, or tam-tam and bass drum in combination to create new colors and sonorities in his orchestral work Music for Strings, Percussion and Celeste. The snare drum or side drum, takes on a hollow resonant character when the snares are released from the bottom head (see Ex. 38). Bartok blends this “quasi tom-tom” sound,
notated "Tambour piccolo senza corda," with the full orchestra in *Music for Strings*. If the snares were used, the sound would be considerably different.

Crumb admired Bartok's specific expressive sounds and ideas involving percussion. As mentioned before, a significant passage in percussion literature is the soloistic percussion opening of the third movement of *Music for Strings, Percussion and Celeste*. The passage is a dialogue between timpani glissandi and the xylophone. The accelerando-ritardando figure was considered very expressive by Crumb. This passage was seen earlier in the example regarding the timpani glissando (See Ex. 35).

Example 38: Bartok, *Music for Strings*, Mvt. III, mm. 48 - 50
Another unique sound that Bartok created is a cymbal sonority which came to be known as the “Bartok roll.” It is found in Miraculous Mandarin and Music for Strings (see Ex. 39). The roll is produced by swirling two crash cymbals together in a circular motion. Sometimes one of a slightly smaller diameter is matched with a larger one. Another (cheating) way to make this effect work is to have one percussionist horizontally hold a pair of crash cymbals loosely together, while another player rolls on them with soft mallets. Sometimes, when the swirling effect is played by one player, another one will perform a crash at the end of the crescendo for more impact.

Example 39: Bartok, Music for Strings, Mvt. III, mm. 51 - 53, a2 cymbal roll

The other cymbal sounds Bartok utilized are regular crashes, suspended cymbals using a variety of implements (drum sticks to soft mallets), and specific directions to let the cymbal ring or to muffle it with the hand after it is struck. More directions involving snare drum, cymbals, and triangle will be discussed in detail regarding the Sonata for Two Pianos and Percussion. An interesting example of using of the bass drum is found in the Miraculous Mandarin. This aggressive part - - more rhythmic and soloistic, at times, than Stravinsky’s Rite of Spring - - calls for the bass drum to be played with two different mallets to produce distinctly different sounds, simultaneously. Some performers will use both sides of the drum to help make this more effective (see Ex.40).
Example 40: Bartok, *Miraculous Mandarin*, bass drum part

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\begin{music}
\Staff{\perc}{\quantity{1}{\small\text{Timp.}}}
\Staff{\perc}{\quantity{1}{\text{Tom. picc.}}}
\Staff{\perc}{\quantity{1}{\text{Cassa gr.}}}
\Staff{\perc}{\quantity{1}{\text{Xyl.}}}
\end{music}
```

*B) bei den mit der rechten Hand gespielten Noten der Obersstimme soll das Fell mit dem Griff eines kleinen Trommel-Sticks berührt werden.*

*B) The notes over the line - played with the right hand - should be executed by touching the membrane with the handle of the drum-stick.*

Bartok increased the significance of percussion entrances by assigning solo passages to percussion sounds. Percussion solos are found throughout *Music for Strings, Percussion and Celeste*. The percussion ensemble soli and solo passages in the *Sonata for Two Pianos and Percussion*, will be discussed in detail. An important orchestral passage, worth mentioning here, is from the *Concerto for Orchestra*. Bartok assigns the rhythms of the main theme of Movement II “Gioco Della Coppie” to the side drum (without snares). The drum is heard as a solo instrument (see Ex. 41) at the opening and closing of the movement, and with the chorale during the development of the piece.

Example 41: Bartok, *Concerto for Orchestra*, Mvt. II, mm. 1 - 7, Snare solo

```
\begin{music}
\Staff{\perc}{\quantity{1}{\text{SIDE DRUM (without snares)}}}
\Staff{\perc}{\quantity{1}{\text{Allegretto scherzando J=94}}}
\end{music}
```
**Sonata for Two Pianos and Percussion**

This chapter examines specific passages in the *Sonata for Two Pianos and Percussion* that demonstrate creative ideas in percussion scoring. These situations can be cited as George Crumb’s point of departure for his utilization of percussion. The instrumentation of Bartok’s quartet calls for three timpani, xylophone, side drum with snares, side drum without snares, suspended cymbals, crash cymbals, bass drum, triangle, and tam-tam. Percussion parts are scored in such a way that both players have instruments of definite pitch and indefinite pitch in their equipment. One player only plays timpani and the other performer plays only xylophone. Even though Percussion I plays timpani most of the time, there are points when the player shares the drums that are in the set-up of Percussion II. This can be seen in the diagram of the suggested set-up that accompanies the score, which will be discussed later in this chapter.

**The Timpani**

The timpani writing in *Sonata for Two Pianos and Percussion* can be examined through different standpoints or functions. This section will examine the percussion style from the aspects of rhythm contribution, melodic and harmonic function, and expressive effects. All of these ideas found here are reflected in George Crumb’s music, even though the manner in which Bartok and Crumb scored for instruments like timpani is considerably different.

The role of the timpani is rhythmically very interactive with the other voices. In the primary theme to Movement I, the timpani sets up the
syncopated chords of the melody in the piano (see Ex. 42). This occurs every other measure four times in a row. The timpani is an equal partner with the piano.

Example 42: Bartok, Sonata, Mvt. I, mm. 32 - 34

\[
\begin{align*}
\text{Allegro molto} & \\
\begin{array}{c}
\text{P. II} \\
\text{Timp.} \\
\text{Perc. I}
\end{array}
\end{align*}
\]

In Example 43 (on page 60), the interval of a minor sixth is passed from register to register descending from the xylophone, down through each octave of the piano, then finally into the timpani in an imitative fashion. In measure 416, the timpani reiterates the same interval three more times, leading into the next phrase. This demonstrates the interplay of the timpani, as well as the xylophone. Later we will see how imitation between the piano and percussion will be increased in Crumb’s music.

In the second movement, the all-important quintuplet motive is passed around to each instrument. The timpani articulates the rhythm as a soloistic accompaniment to the cluster chords in the piano and xylophone, repeating this measure eight times. This important example (see Ex. 44) is referred to several times in this study. In the interview appended to this paper, George Crumb goes as far as singing this section in citing what he felt to be an inspiring Bartokian moment.\(^5\)

\(^5\) Appendix.
Example 43: Bartok, Sonata, Mvt. I, mm. 413 - 417

Example 44: Bartok, Sonata, Mvt. II, mm. 47 - 49
The rhythmical nature of the final movement calls for much interplay between all four instrumentalists. The pianos continually play drum-like figures of eighth and sixteenth notes, triplet strums resembling a "ruff" of a drum, and syncopated punches. Example 45 shows this type of interplay between the xylophone, timpani and one piano. For a brief two measures, the timpani and piano rhythms match each other. After that, the rhythmical line is divided between the ensemble. Interaction like this is found in many situations in *Music for a Summer Evening*.

Example 45: Bartok, *Sonata*, Mvt. III, mm 205 - 211

As the first movement builds, there is a section in which several rhythmical layers overlap. At the climax of this section, the timpani plays an ostinato based on perfect fourths which accompanies two triplet-type rhythms in Piano II, also based on fourths. Piano I has the main theme of the movement in each hand, but it is rhythmically staggered. This type of canonic imitation (see Ex. 46), accompanied or unaccompanied, is also a device that Crumb will use.
The melodic and harmonic use of the timpani in the *Sonata*, is seen at several different points. As mentioned before, the drums now have the capability of rapid tuning. Bartok can now use the sonority of the timpani at any pitch location, either in a solo capacity or to support the harmony. Examine the timpani part starting just before the solo at the Allegro Molto in Example 47. As the accelerando occurs, the timpanist is alternating between an F and a B on the two lowest drums. In the measure before the solo, the F becomes F#. In the rest just prior to the solo, the B on the middle drum becomes a C, creating a tritone. The pitch on the low drum now has to change every other measure for the first nine bars of the Allegro. This is all done while the performer is playing on the middle drum. The F# goes to a G, then an A, and then an F, until it settles on a G.
Example 47: Bartok, Sonata, Mvt. I, mm. 28 - 40

The next device is the harmonic pedal. Bartok uses the sound of the timpani to sustain key tones at several places throughout the piece. In Example 48, the first part of the pedal is held out through the use of tremolo. The second part is done rhythmically, with continuous eighth notes.
Melodically, the timpani achieves equal importance to the pianos in the second movement. In the middle and ending sections of this movement, the quintuplet motive passes through each voice of the ensemble, from the pianos, through the xylophone, and to the timpani (see Example 44).

Gyorgy Kroo, in his book A Guide to Bartok, describes what he sees as the importance of the presence and sonorities of percussion instruments in the Sonata for Two Pianos and Percussion.

In the introduction to the first movement the sound of the cymbal struck by a wooden stick and the sudden cutting short of the timpani accompaniment to the piano theme has the effect of a volcanic eruption accompanied by eerie changes of light. Through the combined sound of the piano and the tam-tam, the “Tarrantara” (Hallali) theme in the first movement is embedded in one single colour chord. At the beginning of the slow movement the cymbal and two side-drums introduce and accompany the piano melody. The cymbal struck alternately with soft and hard sticks, sometimes at the edge and other times on the dome in the center, and the snare of one side-drum vibrates, while the dry knocking sound of the other changes according to whether it is struck in the middle or on the edge. After the choral theme heard on the piano and accompanied by timpani and xylophone, a wind storm is raised on the two keyboard instruments, thus sounding Bartok’s forest. At the beginning of the third movement there is a dialogue between a xylophone melody and a timpani rhythm; among the background sounds we can distinguish the rustling of the piano.6

Another effective mood setting percussion technique is the glissando. Earlier, an example of the timpani used as a rhythmic ostinato was cited in the first movement. Example 49 is another case where, instead of a rhythmical pattern, Bartok writes a roll-glissando effect. The entire section lasts twenty-eight measures, with some variation of the interval content of

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the glissando. There is thirteen measures of F# to A, then six measures of F to Bb, and finally ten measures of F# to Bb.

Example 49: Bartok, Sonata, Mvt. I, mm. 133 - 137, glissando-ostinato

Intervals used during glissandi in Sonata for Two Pianos and Percussion are tritones, perfect fourths, major and minor thirds, and in one case, an augmented second (mvt. III, m. 215). Glissandi are only found in the first and third movement. There are no occurrences in the second movement. All in all, the timpani uses the glissando technique nearly one fifth of the time that it is playing. Most of Crumb's writing for timpani is very different from Bartok's, but this extended technique of glissandi is something he will borrow.

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Percussion Instruments

Bartok’s use of percussion instruments, other than timpani, was imaginative and therefore influential on composers such as George Crumb. Beyond the role of punctuation, dynamic assistance, and reference, Bartok had creative ideas involving rhythmic support, color, sonority, and specific expressive sounds. From these points of view, the next section examines percussion utilized in the Sonata in the categories of membrane instruments (side-drums and bass drum), instruments of metal (cymbals, tam-tam, and triangle), and lastly, the xylophone. Examples will be chosen to complement those already given for the timpani.

In this passage (Ex. 50), the drums are actually playing the main rhythmic motive in dialogue between the two timbres of snares on and snares off. The color of the one handed bass drum roll, played by the same performer, underlines the harmonically and rhythmically supportive timpani part.

Example 50: Bartok, Sonata, Mvt.I, mm. 46 - 50

These dovetailing drum rhythms, in Example 51, assist the pianos as they build the final crescendo in Movement III. The melodic parts are playing arpeggios, until all four hands are moving similarly. As the stringendo
continues, the six-note overlapping crescendos on the drums drive the music towards the 5/8 bars. The bass drum has the indication to be played with a heavy wooden stick on the edge of the skin until this passage is completed.

Example 51: Bartok, Sonata, Mvt. III, mm. 321 - 325
dovetailed drum rhythms

The opening eight measures of the second movement are significant for several reasons (see Ex. 52). The first four measures of percussion ensemble serve as a soli introduction. When the piano enters in measure five, the ensemble becomes a colorful accompaniment. The notation of the snare drum with snares off (side drum s.c. which means senza cordes) calls for two tone colors from one drum. The performer is instructed to strike the drum in the center when the note is written on the line, and at the edge when the note falls below the line. The cymbal part also has three different
indications. Within the space of eight measures, the cymbal is struck “with a thin wooden stick on the extreme edge”, “on the dome”, and “with a soft headed stick.” Altogether, there is a total of six different percussion colors. Note how the “suspended cymbal with soft headed stick” always accompanies the color of the lowest chord of each phrase (mm. 6 and 8). This idea of a percussion sonority accompanying a particular color chord will be found in *Music for a Summer Evening*.

Example 52: Bartok, *Sonata*, Mvt. II, mm. 1 - 8, opening percussion ensemble
The closing of the entire piece is left to percussion instruments as the resonance of the final piano cadence dies away. At measure 351, about seventy measures from the end, the snare drum starts a rhythmic motive of two sixteenths and three eights, which resembles rhythms to melodies heard earlier. It starts on a drum with snares, and moves to one without snares at measures 387. It is accompanied at different times by timpani, cymbal with soft headed stick, triangle with wooden stick, two cymbals clashed, and finally, as the snare rhythm dissipates into nothing, accompanied only by a suspended cymbal played “with the fingernail, or the blade of a pocket knife, on the very edge.” Using the implements requested allows for a clear but extremely soft sound. Although the snare drum is important in this last section, it is heard purely as a solo instrument only in the final ten measures, shown in Example 53.

Example 53: Bartok, Sonata, Mvt. III, mm. 412 - 419, final snare solo
Regarding György Kroo’s earlier description of how effective percussion color can be to the mood of a piece, he states, “in the introduction to the first movement the sound of the cymbal struck by a wooden stick and the sudden cutting short of the timpani accompaniment to the piano theme, has the effect of a volcanic eruption accompanied by eerie changes of light.”

Example 54 shows the moment of which he speaks:

Example 54: Bartok, Sonata, Mvt. I, mm. 6-9

Cymbal color and the function of rhythmic interaction is important in this next example. First, Bartok calls for crash cymbals (notated Cyms. clashed a2) to emphasize beat two. This supports the rhythm of Piano II, in which a quarter note is tied over to four sixteenth notes. He then punctuates the beginning of the next phrase by the addition of color made by a soft mallet on the suspended cymbal. One stroke of a suspended cymbal sets up the syncopated rhythm of Piano II (see Ex. 55).

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Kroo, op. cit., 193.
Example 55: Bartok, Sonata, Mvt. III, mm. 301 - 305, cymbals

The triangle and tam-tam are the most economically used percussion instruments. These sounds are very effective either for a rhythmic accent, aligned with another player, or as a supportive roll, accompanying the ensemble. Example 56 demonstrates the different colors and functions of the triangle in the first movement. The darker tone of a series of strokes "col legno," with wood stick, articulates the downbeats of each measure. But, in measure 188, where the pianos have a rest on the downbeat, Bartok asks for "ordinary means, with a metal beater" for a brighter, shimmery sound.

Example 56: Bartok, Sonata, Mvt. I, mm. 185 - 188, triangle
The xylophone is a very active instrument in the piece. Its functions included melodic doubling, interactive counterpoint with other percussion instruments, addition of color, and as a solo instrument. Bartok is very creative with these ideas, as is Crumb, with not only xylophone, but also glockenspiel, chimes, and vibraphone. The carry-over of Bartok’s writing for xylophone into Crumb’s music will be demonstrated later.

As a solo instrument, we have already examined the quintuplet section of the second movement in which the rhythmic theme is passed around the ensemble, then stated in augmentation at the conclusion of the movement. This is a place where all four voices are of equal importance. The only true solo the xylophone has is just a moment later at the opening of the final movement (see Ex. 57).

Example 57: Bartok, Sonata, Mvt. III, mm. 5 - 9 xylophone solo

About this solo, Gyorgy Kroo writes:

this light and playful tune, which is reminiscent at times of a folk dance or of a street song, is now heard for the first time since Bartok’s early descriptive pieces.⁹

Halsey Stevens says:

with the third movement we are on familiar ground. Here again is the jaunty dance movement in 2/4 meter, with the folklike tunes, the abrupt theme-changes, the pronounced contrast of weight

⁹Kroo, op. cit., 195.
and sonority. The principal theme, given at last to the xylophone, is in C, the mode embracing both F# and Bb, and presently with Eb, Ab, Db, and Cb - the black keys as a unit - serving as a species of appoggiatura to the original mode. The scale thus augmented therefore includes eleven of the twelve chromatic notes (lacking only the F natural), but its character is nevertheless diatonic.\(^{10}\)

Erno Lendvai writes:

> This scale is dominated by the major third, perfect fifth, 'natural seventh,' and further by the augmented (acoustic) fourth and the major sixth . . . all this in contrast to the minor third, perfect fourth, minor sixth \((3 : 5 : 8, C - Eb - F - Ab)\) the milieu of the Golden Section system.

He continues to explain that the interval content of the main theme of the first movement fits the interval content of this Golden Section. If the main theme and the xylophone theme are placed side by side, they create the complete chromatic scale.\(^{11}\) These three observations about this solo can be compared to Errol Haun's (see Ex. 1), who sees it as a combination of a whole tone scale and an octatonic scale.

The role of the xylophone changes after its eighteen measure solo. In Example 58, Piano II takes over as the lead melodic voice when the xylophone part becomes more interactive; punctuating the rests in the melody. The right hand of Piano II and the xylophone are chased one beat later by the left hand and the timpani, two octaves lower.


\(^{11}\) Lendvai, *op. cit.*, 69.
Example 58: Bartok, *Sonata*, Mvt. III, mm. 17 - 24

In the passage found in Example 59, the xylophone part is interwoven into the chord structure of the piano parts which creates a complicated melody out of the vertical sonorities.

Example 50: Bartok, *Sonata*, Mvt. III, mm. 175 - 180, xylophone with piano

In the early stages of manipulating the primary theme of the first movement, Bartok uses the xylophone to add one more layer of color to the thick chords of the melody (see Ex. 60). The brittleness of the instrument gives the motive a more biting timbre.
As has been seen with many of these examples, Bartok elevated the importance of percussion instruments by continuing to included specific performance directions in his scores. A summary of his requests is found at the beginning of the score to the Sonata for Two Pianos and Percussion. A diagram of the set-up is included with the score, not so much for the stereo effect, but to make it possible for the two percussion players to reach the instruments. Figure 12 is this diagram as it appears in the Boosey & Hawkes edition, copyright 1942.

Figure 12:
Bartok, Sonata, diagram of set-up

(1) The symbols should be tied on cloth, when not in use, to prevent vibration.
(2) The Xylophone should be placed above or next to the Bass Drum.
The general performance instructions are included in the "Notes":

The bass drum is to be played with a double-headed stick.

The triangle is to be played (a) with the usual metal beater; (b) with a thin wooden stick; (c) with a short but rather heavy metal beater; each according to the indication in the score.

The cymbal is to be played (a) with an ordinary timpani stick; (b) with the heavy end of a side drum stick (marked in the score "col legno" or "c.l." - here the cymbals should be struck either on the edge or, if indicated, on the dome in the center; (c) with a thin wooden stick; (d) with the blade of a pocket knife or some similar instrument. The sign "a2" indicates that two cymbals should be clashed.

The side drums, either with or without snares, are to be played with the usual sticks. If, however, the side drum with snares should sound too loud, thinner sticks may be used especially in mezzoforte, piano and pianissimo passages (the same as those mentioned above in (c) for cymbal). The snares of the side drum should be released when the instrument is not in use, to prevent vibration.

Experience has proved that two skilled players are sufficient for the whole percussion part. Should this in some cases prove difficult, a third player may be employed for the xylophone, which in this case should be placed either behind or in front of the other percussion instruments.¹²

Finally, he increased the significance of percussion entrances by assigning solo passages to percussion sounds. Examples stated earlier of the soloistic use of percussion sounds include the timpani in the primary motive of Movement I, the percussion ensemble at the opening of Movement II, the passing around of the quintuplet motive and the augmentation of that idea at the end of the same movement, the heightened importance of the xylophone solo in the final movement, and finally, the snare drum solo at the close of the entire work.

Summary

All these examples show how Bartok increased the importance of percussion instruments to equal partnership with the pianos. George Crumb uses drums, cymbals, and mallet instruments to a greater extent than Bartok. But - - in respect to rhythm, color, sonority, expressive sounds and innovations, specific performance directions, and the soloistic nature of percussion effects - - observations can be made to show a correspondence to Bartok's method and an influence on Crumb's ideas regarding his percussion instruments.

Crumb's Use of Percussion and Bartok's Influence

As cited earlier, George Crumb acknowledges "the liberation of percussion instruments [as] a development for which Bartok is especially important." 13 From the interview appended to this paper, Crumb starts out, ". . . on the question of the Bartok influence, I think I really experienced just two items . . . one being the same instrumentation - Summer Evening being the same . . . as the Bartok Sonata for Two Pianos and Percussion [the other being symmetry]." 14

Crumb writes these notes in the record jacket liner of the recording of Music for a Summer Evening:

The combination of two pianos and percussion instruments was, of course, first formulated by Bela Bartok in his Sonata of 1937, and it is curious that other composers did not subsequently contribute to this genre. Bartok was one of the very first composers to write truly expressive passages for the percussion instruments; since those days

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13 George Crumb, op. cit., 17.
14 Appendix.
there has been a veritable revolution in percussion technique and idiom, and new music has inevitably assimilated these developments.\textsuperscript{15}

Even though both pieces are for two pianos and two percussionists, the actual choice of instruments is vastly different. Here is the instrumentation of the two works side by side.

Bartok's instrumentation:

- two pianos, plus
- 3 timpani, xylophone, Side drum with snares, side drum without snares, suspended cymbal, crash cymbals, bass drum, triangle, and tam-tam.

Crumb's instrumentation:

- two \textit{amplified} pianos, plus
- Percussion I: Three Japanese temple bells, placed on special cushions (a series of three different pitches from low to high), large tam-tam (as large as possible), small tam-tam, two maracas, glass wind chimes, large suspended cymbal, small suspended cymbal, a detached cymbal with a flattened dome (to be placed [inverted] on timpano membrane), claves, three wood blocks, sleighbells, glockenspiel (sounding two octaves higher than written), large timpano, slide whistle (the plastic whistle is preferred over the metal), two octaves of crotales (sounding one octave higher than written), (N.B. eight crotales [from the lower octave] are placed on the timpano membrane at the conclusion of I: \textit{Nocturnal Sounds}; these eight crotales can be detached from the mounted set, or else additional crotales could be obtained), a well-rosined contrabass bow, for bowing tam-tam and crotales, quijada (jawbone of an ass-a vibraslap may be substituted), African log drum, sizzle cymbal, bass drum (positioned on its side), two tom-toms (two different pitches), sistrum, Tibetan prayer stones (these stones should be considerably larger than the normal stones), bell tree, alto recorder, and tubular bells and xylophone (both shared with Percussionist II).

Percussion II: vibraphone, bamboo wind chimes, five temple blocks, sizzle cymbal, large suspended cymbal, slide whistle (the plastic

\textsuperscript{15} George Crumb, record jacket notes for \textit{Music for a Summer Evening} (Elektra / Nonesuch 9 79149-2, 1975).
whistle is preferred over the metal), a well-rosined contrabass bow, for bowing tam-tam and vibraphone, large tam-tam, small tam-tam, two tom-toms (two different pitches), jug (to be blown, in Appalachian style), bongo drums (mounted, to be played with sticks), bell tree, two triangles (large and small), sleighbells, tubular bells (shared with Percussion I - two extra low bells are desirable, if available: G & A below middle C), and xylophone (shared with Percussion I).

Again, from the record liner: “This kaleidoscopic range of percussion timbre is integrated with a great variety of special sounds produced by the pianists.” 16 In addition to their own extended piano techniques:

Piano I plays: a detached crotale (G#) equipped with a leather thong so that it can be held suspended (A special crotale beater will be needed), guiro (the crotale beater will serve as a “scrapper”), a sheet (or sheets) of paper (to be placed on the piano strings for V: Music of the Starry Night).

Piano II plays: alto thumb piano (mbira) - it is recommended that the pianist use the American version of this instrument, called Alto Kalimba, Model B. This instrument is normally tuned to a two-octave G Major scale; for this present work, the metal “reeds” should be retuned to conform to the required scale of pitches. And finally, a sheet (or sheets) of paper (to be placed on the piano strings for V: Music of the Starry Night).

Obviously, Crumb’s arsenal of percussion equipment is vastly larger than Bartok’s. But what is similar is how specific Crumb’s indications are about details regarding the instruments. Crumb, gives precise directions so performers will produce the desired effects from the instruments.17 Compare Bartok’s suggestion to use different beaters on the suspended cymbal, at

16 Crumb, op. cit., record jacket notes for Music for a Summer Evening.
17 From: “Interview with Robert Shuffett” in Don Gillespie, George Crumb: Profile of a Composer (N.Y.: C.F. Peters, 1986), 37: “I want to communicate as clearly and economically all the necessary information to the performer. If a score is a ‘book of seven seals,’ then the composer is working against his own interests.”
certain times, for certain sounds, to Example 61 from "Nocturnal Sounds." Crumb not only suggests his mallet choice for the vibes, but he clearly indicates when the vibrato should enter the texture.

Example 61: Crumb, Summer Evening, Mvt. I, vibraphone glissando and clave strike

Both composers provide a set-up diagram, although Crumb elucidates "the xylophone and the tubular bells are shared by the two percussionists and should therefore be centrally positioned (see Figure 13). The exact positioning of the other percussion instruments is left to the discretion of the percussionists." Crumb has been known to give stage set-up directions for location of players. He has also given complete and specific percussion instrument set-up suggestions for Night Music I (for piano & celeste - one player, two percussionists, and mezzo soprano). When asked why he discontinued the diagrams with that work, Crumb replied, "I'm not sure why I included the set-up in that work. It was probably the set-up we used for the first performance. I think I decided later that the set-up was best left in the hands of the percussionist ... depending on the particular choreography required in certain works." His faith in percussionists is higher than that of

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Bartok’s, evidently. In the directions of the *Sonata for Two Pianos and Percussion*, Bartok states that, “one of the pianists should lead the whole ensemble. In addition, he should supervise the percussion players during the rehearsal and see that the requirements of the score are strictly observed.”

Figure 13: Crumb, *Summer Evening*, diagram of set-up

The remainder of this chapter will examine the treatment of percussion instruments by George Crumb in *Music for a Summer Evening*. It will compare his treatment to that of Bartok’s, citing examples from each work to demonstrate the influence of Bartok on Crumb. It will not attempt to show that they had the same style or techniques because this is not necessarily the case. In many ways, Crumb is vastly different from Bartok. What will be evident is the inspiration Crumb experienced, and how he used Bartok for a point of departure for his own style and original thinking.

Since Crumb’s battery of percussion instruments is large, it will be broken into several categories in order to examine it, and compare it to Bartok. The *Sonata* was approached by looking at timpani and percussion instruments, which were separated into membranes, instruments of metal, and the xylophone. The partitions to be used for *Summer Evening*, as Crumb

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26Bartok, *op. cit.*, 3.
himself calls it, will be that of traditional and contemporary instruments, those that are exotic and of ethnic origin, and lastly, his creative sounds and effects.

This is the criteria of how each instrument was used in an attempt to show an influence by Bartok:

1) investigate traditional use and contemporary techniques
2) use of percussion regarding:
   - rhythmic support and interaction
   - color and sonority
   - specific expressive sounds and ideas.
3) whether specific performance directions were provided
4) level of importance; was the sound a solo passage or accompaniment

Traditional and Contemporary Instruments

The traditional instruments are those typical to an orchestral section: tam-tams, cymbals, timpani, tom-toms, triangle, xylophone, glockenspiel, and tubular bells. Crumb utilizes these with standard and what he calls “extended technique,” which will be described throughout the chapter. Tam-tams and cymbals are a traditional sound effect, whose soft punctuations create a wash of sound that blends with the colors of the other instruments, while in louder situations, serve as a powerful rhythmical accent. Crumb carries the power of the tam-tam to an extreme when he calls for three of them to be play simultaneously at the end of two phrases in Movement III (see Example 10).

Crumb uses tam-tams and cymbals in association with other sonorities and colors. In Movement V, during the “Song of Reconciliation,” the pianos play whole tone clusters at several points. When Piano I performs them, they are accompanied by a cymbal stroke. When they are played by Piano II, a tam-tam note is played at the same time, instead. (see Ex. 31) This example
should be compared to how Bartok used the suspended cymbal in the opening of Movement II.

An extended technique involving the tam-tam is found throughout the fourth movement. The first event in the duplum of Percussion II is a tam-tam sound produced, first by striking the instrument softly. It is then bowed to create a harmonic. Below (Ex. 62), the order of striking and bowing is reversed. Then, this sonority is combined with other sound effects.

Example 62: Crumb, Summer Evening, Mvt. IV tam-tam effect

George Crumb rarely uses timpani in the traditional orchestral sense, but he continually uses some of the extended techniques that Bartok initiated. In Music for a Summer Evening, a forty minute piece, a single timpani is used only twice. At one time the percussionist rolls gently on a cymbal placed inverted on the membrane, while producing a glissando with the foot pedal. This glissando, encompassing a tritone, is very similar to the roll-ostinato cited in the Sonata to Two Pianos and Percussion. If Bartok had been aware of this effect, he might have used it in one of the “Night Music” sections of Music for Strings, Percussion and Celeste. Another effective moment uses eight different crotales on the timpani. The crotales are struck while pedaling between an E and a Bb. As a result, the pitches of the crotales bend (see Ex. 63). This very eerie effect reminded Crumb of “Banshees . . . one of the most incredible sounds.”

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21 Ledbetter, op. cit., 113 - Banshee: a female spirit believed to presage a death in the family by wailing; Gaelic folklore.
fade out, similar to how the final movement of the *Sonata* ends.

**Example 63: Crumb, *Summer Evening*, ending of Mvt. I, timpani and crotale**

The tom-toms use only traditional technique and are only played in the fourth movement, the percussion interlude. The rhythms they play, however, have a Bartokian influence. They are all soloistic, they are symmetric, and they often are palindromes. The color or shading these events create is done by using soft mallets and the dynamics that are indicated (see Ex. 64).

**Example 64: Crumb, *Summer Evening*, Mvt. IV, tom-toms**

The triangle performs its traditional function, a rhythmic accent, although Crumb asks for two of them. Along with the ability to articulate certain notes of the instruments it accompanies, the triangle is helpful in changing color and timbre (see Ex. 15). The complex of notes in the right hand of Piano II is played softly with the exception of the high G and F. First these two notes are doubled by the glockenspiel and then with the triangles. This is similar to Bartok's use of percussion to change color. Incidentally, this is the only place in the entire work where Crumb calls for triangle.
There are no contemporary techniques for the xylophone, glockenspiel or tubular bells. The chimes and bells are used often to add or change the color of the melodic line or chord structure. They are also used soloistically. The most Bartok-like figures are played by the xylophone. Bartok's influence is seen in the symmetrical note groupings (five's and seven's), accelerando effects (similar to Music for Strings), intervals of tritones or sevenths, and rhythmic accents - using the xylophone to begin and event with a spark. Both of the excerpts in Example 65 are echoed in the piano part. So instead of Bartok's way of percussion imitation other instruments, the role is reversed.

Example 65: Crumb, Summer Evening, Mvt. V
a) xylophone accelerando  b) "Song" pentatonic solo

Contemporary instruments and techniques included those that have gained more prominence since Bartok's time: vibraphone, (as well as xylophone, glockenspiel, tubular bells), crotales, wood blocks, and temple blocks.

The vibraphone is Crumb's most expressive percussion instrument. It compares to Bartok's timpani and xylophone. Music for a Summer Evening is rich with beautiful vibraphone writing, using both conventional and innovative techniques. Its most important solo passage is saved for the last movement, just like the xylophone of the Sonata. To the normal tone of the instrument, Crumb instructs the player to whistle the melody in unison.
This creates a more connected, legato effect—slightly referring to a wind instrument, or even the violin portamento used by Bartok. It also adds a haunting quality to the theme (see Ex. 14).

As was shown, Bartok used his percussion instruments for melodic and rhythmic support. Crumb uses the vibraphone in the same manner. In Movement V, there is a quote from J.S. Bach’s *Wohltemperiertes Clavier*, Vol. II Fuga VIII. This sonority is made by putting paper on the strings of the piano, while the vibes echoes the fugue melody a quarter note behind the piano. This exquisite color creates the eerie quality of a “ghostly-surreal harpsichord.”

Sometimes, both percussionists play on the same instrument, as seen in Example 66.

Example 66: Crumb, *Summer Evening*, Mvt. V, Quote from Bach

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Crumb uses the extended technique of bowing in the first percussion event of the work. The player strikes a major second with mallets and then bows the note in the middle. This semi-tone cluster, in Example 67, foreshadows much of the music to come in this movement.


As Bartok uses the timpani for sustaining an harmonic pedal, so does Crumb use the vibraphone with this semi-tone cluster. Every aspect of page nine of the score (see Ex. 68 on page 89) can be traced to Bartok and to examples cited in the chapter devoted to his percussion style:

1) The vibraphone is now playing a trill based on the semi-tone cluster. By following the main (or middle) note along the movement of the harmonic pedal that it creates, we observe the notes of Bartok’s tritone axis: F# - D#(Eb) - A - C.

2) Piano I (and later Piano II, when they exchange roles) opposes the hands on white and black keys. Crumb also uses the Bartok technique of combining systems - the black keys are pentatonic, and the white keys are from the lydian mode. Since the hands are moving at two different speeds, this resembles the blurred effect of Movement II of the *Sonata* (see Ex. 20).

3) Piano II: Crumb adds whole tone clusters to this mix of pentatonics, modality, and tritone axis. The grace note is one whole tone scale while the main note is the other. Together, they produce all twelve notes of the
chromatic scale.

4) The interactive dialogue between the pianos and the xylophone is comparable to Bartok's use of the pianos, timpani, and xylophone in excerpts from the Sonata. The suggestion of Bartok's sections of "night music" are present, as well. The interval of tritones and sevenths are favorites of both Bartok and Crumb. Also, the semi-tone cluster is present, although one or two notes are displaced by an octave. The image of the inscribed quote from Quasimodo, "I hear ephemeral echoes, oblivion of full night in the starred water" is clearly audible at this point.

Exotic and Ethnic

Crumb incorporates exotic or ethnic instruments into Summer Evening, not for reference or cliche, but as an expressive sonority, similarly to how Bartok used his "newer" sounds, such as the "pop" of a side drum without snares, the darker sound of a triangle struck with a wooden beater, or the versatility of a cymbal actuated by different implements. Each is used in a soloistic setting, and sometimes accompanied by specific performance instructions. This category includes: temple blocks, wood blocks, bongos, maracas, quijada, guiro, claves, bell tree, sistrum, sleighbells, African log drum, Tibetan prayer stones, Japanese temple bells, Appalachian type jug, and Mbira.
Example 68: Crumb, Summer Evening, Mvt. 1 page 9
The temple blocks and wood blocks originate in the Orient, and the bongos belong to the family of Latin-American instruments. When Crumb writes for these instruments in *Music for a Summer Evening*, he uses them in little motivic cells that interact with the other instruments of the ensemble. In both cases, he writes symmetrical rhythms, of which Bartok was fond, and manipulates them by inversion (high and low), slight rhythmic variation, and repetition. (See Examples 69, 25 and 26)

Example 69: Crumb, *Summer Evening*, Mvt. IV, Bongo quintuplet

The maracas, quijada, guiro, and claves are also Latin-American instruments. Crumb uses them economically. There are only two occurrences of maracas. They are not played in the typical alternating-shaking style, but more expressive. The swirling followed by first three, then five snaps, brings the image of wind in trees and twigs breaking (see Ex. 70).

Example 70: Crumb, *Summer Evening*, Mvt. I, maracas

The quijada is actually the jawbone of an ass. The substitution instrument is the modern vibraslap. Crumb uses this sound in the triplum of Percussion I in the isorhythmic movement. The rattlely sound is an extension of the percussive vocalization. Crumb would call this “cross-fertilization.” The little notes, in Example 71, are provided by the vibrations as a result of one single impact on the quijada. The instrument is not stuck

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five times, as one might interpret from the notation.

Example 71: Crumb, *Summer Evening*, Mvt. IV, quijada

The guiro, another Latin-American scraping instrument, is also used in combination with vocal sounds (see Ex. 72). Like several of Bartok's effects, Crumb gives this sound special performance instructions: "The guiro is to be held firmly against the crossbeam of the piano for magnification of the sound." The length of the event and the dynamic indications create an image of something approaching, then passing by your ear.

Example 72: Crumb, *Summer Evening*, Mvt. IV, guiro

The clave produces a very resonant but penetrating sound. Crumb uses the sound by itself and in conjunction with the bass drum (see Ex. 73). In Movement IV, the percussionist is instructed to "hold the clave against the bass drum membrane; strike the clave with the other clave." This extended technique combines the high frequencies and low resonances of both instruments together to make an unusual sonority.
The belltree, sistrum, and sleighbells are all shimmery instruments of metal. Instead of using the sleighbells for a Christmas-time reference, Crumb creates a wash of sound, a sustained coruscating pedal point that builds with the chromatic clusters of the first movement. He also uses it briefly with a colorful pointalistic moment in the final movement (see Example 15).

The belltree has its origins in the Orient and in Pakistan. It consists of small, inverted bowl-shaped bells, suspended closely, one above the other, high to low. It is tuned somewhat chromatically and produces a beautiful sparkling glissando. It is usually present as an additional color with the cascading motive throughout the fifth movement (see Example 74).
The sistrum is an ancient Egyptian instrument. The metal rattle, similar to a paddle with tambourine jingles, produces a sharp attack with a short amount of metallic resonance. It is used in the palindromic triplum of Movement IV, and can be found as the mirror partner to the quiijada - “chai” sonority.

The African log drum, Tibetan prayer stones, Appalachian type jug, and Mbira are multi-cultural instruments. The Japanese temple bells help unify the entire work because that are heard only at the beginning and the very ending of the piece. In Movement IV: the African log drum uses a palindromic figure like the drums and bongos. This Bartokian influence on rhythm has been previously discussed. The Tibetan prayer stones produce a unique cracking sound, which can be varied by the degree it which they are cupped in the hand. It is heard as an event of five strokes of ascending, descending, or equal pitches. The three jug blows, or the alternative vocal sounds (moaning “mm” or groaning “ah”) include the directions qualifying directions “eerie and uncanny.” The African thumb piano, or Mbira, is to be held against the crossbeam of the piano in the same manner as the guiro. There are two performance styles, either “quasi improvvisando [sic]” plucking, or accelerando - ritardando effects, in the style of the Bartok xylophone measures from Music for Strings, Percussion and Celeste.

Unusual Sound Effects

This last group of percussion examples comes under the category of special sounds and effects. Crumb uses the thunder sheet two times, and in the same manner during Movement III. This loud massive metallic sound
effect helps build a crescendo that ends with an accent from three tam-tams (see Ex. 10). The sizzle cymbal, on the other hand, produces a much lighter sustained sound. This instrument, from a jazz drum set, either has rivets drilled though the cymbal, or has something like a thin metal chain laid across it. Crumb's use of these quiet and subtle sounds are very effective in the fourth movement.

The glass wind chimes, when allowed to vibrate freely, can sustain longer than a belltree. This might be why he uses it as a substitute for the cascading motives in the final movement. By initiating the glass, or the bamboo rods suddenly, the percussionists can achieve an explosive effect that dies away gradually.

Crumb calls for three wind instruments in the percussionist's stock pile. In Movement IV, the alto recorder plays a symmetrical five note motive as the middle measure of the triplum, while Percussion II plays a glass jug in Appalachian style. Also, the second movement is framed by a dialogue between two slide whistles, whose characteristics remind us of Bartok's violin technique of portamento (see Example 75). According to Curt Sachs, these instruments fit the definition of Aerophones because they contain two essential features: 1) a tube or chamber of air, and 2) a device to set that air into motion (breath). Being either a sound effect or a folk reference, they do not require the embouchure and technique to that of a flute, clarinet, or trumpet. Since the facility is so easy and approachable, a percussionist is usually expected to perform on these wind instruments as comfortably they do any percussion instrument.
This final section summarizes Crumb's creative extended techniques for percussion instruments. The vibraphone exhibits Crumb's imagination to the fullest. The techniques of bowing, and bowing combined with striking, were used extensively. He also created a blurred glissando effect by sweeping mallets across the chromatic and natural keys, from low to high.

Just about every piece by Crumb uses some type of phonetic vocalized sound. In *Music for a Summer Evening*, a groan is used to imitate the sound of a glass jug. He also uses the technique of "cross-fertilization," which is combining vocal sounds with percussive sounds in a way that they imitate each other. Another way he combined sounds is by having the percussionist whistle while playing the vibraphone or while bowing a crotale.  

Three ways he combines instrumental sounds into interesting sonorities are: rolling on a cymbal that is inverted on a timpani while performing a glissando with the foot pedal, playing crotales on a timpani in similar fashion, and holding one clave against a bass drum and striking it with another. Finally, he used the piano for resonance of percussion instruments such as a guiro or a Mbira.

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24 From David Cope, "Biography," in Don Gillespie, *George Crumb: Profile of a Composer* (N.Y.: C.F. Peters, 1986), 15: "Crumb attributes his fondness for the peculiar timbre of the whistled tone (used in several of his works) to the influence of his brother, whom he regards as a virtuoso whistler."
Summary

Bartok never used these sounds in his vocabulary, but Crumb found inspiration in Bartok's imagination and continued in the same direction with an eclectic arsenal of effects. They were all meant to be expressive sounds. That is why none of the instruments from other cultures are used in their traditional fashion. The seeds of Crumbs imagination of percussion sonority lies in Bartok's music. In an interview, Crumb was asked if he was primarily trying to achieve unusual sounds when writing these passages in his music. He answered, "not just for the sake of being unusual but for their particular value as a sonority that heightens the effect of the music." 25

25 Ledbetter, op. cit.
CHAPTER IV

CONCLUSION

In several interviews, Crumb states that when he was eleven years old he started writing in a "quasi-Mozart" style. Later, in his student pieces, he remembers the impact of Bartok on his compositions: "I quickly realized, then, that I was getting too much like it and I was really re-writing Bartok. I recognized, already, the danger of doing that. I was swayed by his music. I was reproducing it." By catching on to this in time, he departed from copying Bartok's style to developing his own.

Crumb's manuscript is unique and beautiful; the combinations of instruments that he chooses in his chamber works is sometimes unusual; he mixes media -- masked musicians, dancers, singers, and stage-lighting effects; his vocabulary is eclectic -- any sound source from any culture is fair game. What makes Crumb's music so identifiable and original is that anything experienced in his past winds up in his music.

Such was the case with Bartok. Crumb considered Bartok an important force in the "liberation of percussion instruments." More developments in the field of percussion have happened in this century than any previous one. Crumb takes advantage of these new expressive sounds. Traditional instruments now have extended techniques, and sonorities can now be combined. Bartok's timpani glissando has become Crumb's idea of bending the pitch of crotales. Bartok used the wash of soft tam-tam stroke to blend
with the orchestra. Crumb takes the same instrument and draws a bow across it to produce an eerie, harmonic overtone. Bartok wrote a somber motive involving a quintuplet. Crumb continues with ideas involving symmetrical numbers and rhythms. Finally, Bartok based much of his music on a scale divided into equal parts. Crumb employed the pitch structures he favored and combined these with many other systems of tonality.

George Crumb did not attempt to write his version of the Bartok Sonata for Two Pianos and Percussion when he composed Music for a Summer Evening. However, there was an influence, as the examples demonstrate that the qualities and traits of the first composer are present in the second. Regarding the definition of “influence” that opened this paper, among the powers - either indirectly or intangibly - that were able to sway the development of George Crumb’s style, was the music of Bela Bartok.
APPENDIX

INTERVIEW WITH GEORGE CRUMB
George Crumb interviewed by Michael Kingan at his home in Media, Pennsylvania on May 1, 1993. The conversation was recorded on cassette tape and then transcribed.

GC: OK, on the question of the Bartok influence, I think I really experienced just two items, of course, as we discussed. One being the same instrumentation - Summer Evening being the same instrumentation as the Bartok Sonata for Two Pianos and Percussion. Summer Evening, being subtitled Makrocosmos, there's a connection to the Microcosmos. Purely musical things: I think, in terms to that work itself that the influences would be in a much more general way, [regarding] influences of Bartok's style on my style, which kind of hit home, you know, in my student pieces, some aspects of his music. Now what would they be? I think the idea of symmetry, generally, as applied to rhythm and certain pitch constructs. For example, Bartok's early interest in metrically patterns like sevens and fives and nines, for example; which are, you know, are symmetrical divisions of the measure, in a way that fours and eights are not.

MK: You mean like the time signature 9/8? That's what you mean by symmetrical divisions of a measure?

GC: Yeah, so like in the Divertimento for Strings Bartok will lay a rhythm over 9/8 that goes J J j j which is a reversible rhythm (that fits in a measure). And there are certain formal connections that Bartok would make, like a procession to a midpoint (of a piece), and then a drop off, like in a couple of the quartets. Like the second and fourth movements highlight the centerpiece of the third movement, the same with the first and the fifth.

MK: Do you feel that this applies to the Summer Evening?

GC: No, that doesn't really reflect that symmetrical structure. These are just some general things. Some of my other pieces might, though. In terms of pitch, the symmetry might be certain chords that are built symmetrically, like the chord that is built by a central Perfect fourth flanked by two tritones on either side. This a favorite chord of mine, and was a favorite chord of Bartok's, which I borrowed. There must be other things, too. Occasionally, I guess I would use a Octatonic Scale, although, I don't think in this work I did.
But in a more general sense, I guess, Bartok was interested in the problem of combining different systems.

MK: When you say systems, you mean chromaticism, and pentatonics, and octatonics, all within a certain section, or even measures?

GC: Yes. Or that he might use tonality - of some kind of tonality - and include atonality, pentatonics, or other modal sort of things. He might use whole-tone configurations, just like Debussy did. You know they were interested in the same things, combining all kinds of systems. It could go in and out, it could be in the same movement. So that's a general influence.

MK: When you say general do you mean that you saw this in their music, liked the idea, and then absorbed it into your method?

GC: Yes, it was just the principle. It comes equally from Debussy. He was an influence, too, for many of us. I don't know where it came from. Mahler has it, too, to some extent. The turn of the century composers interested me because they were into this. Here we are again approaching another turn of the century, and I think these composers are relevant to today. Not any purists who primarily wrote in one system. So those are some general things about Bartok.

MK: When did you first hear Bela Bartok?

GC: I heard some of the Microcosmos, I guess when I was about twenty. I didn't know it well. I guess it was the early fifty's - I was in my early twenties - when the Bartok influence hit the country for the first time.

MK: And that's when you started studying it to see what he was doing?

GC: Yeah, oh yeah. So, then all through my fifty's period, really. I felt the influence, in some student works of mine, by the Bartok sound.

MK: When you say “student works,” that means [pieces written] while you were studying?...With Ross Lee Finney?

GC: While I was studying at the University of Michigan, in Ann Arbor, or Champaigne-Urbana.

MK: When did you first hear the Sonata for Two Pianos and Percussion?

GC: I probably heard that in the mid-fifty's, on a recording. And the first time
I heard it live, when would that have been? Probably in the late sixty's.

MK: His influence, was it a turning point, or was it just another thing to absorb into what you were already doing in your student pieces, as far as the impressions he was giving you, or inspirations?

GC: It was another source, but a very important source, since I hadn't found my own style. None of it was synthesized, yet. So it was an influence among others, you know like Dallapicolla, music of Webern, I found influence from them. Even Schoenberg. Other composers, probably like Ives, were certainly an influence.

MK: In one of your interviews you mentioned that your early pieces were in "quasi-Mozart" style.

GC: Yeah, when I was eleven years old.

MK: Did you ever write in a "quasi-Bartok" style?

GC: Yes, but I quickly realized, then, that I was getting too much like it and I was really re-writing Bartok. I recognized, already, the danger of doing that. I was swayed by his music. I was reproducing it.

MK: Still in the fifty's and sixty's?

GC: Well, in the fifty's, but not in the sixty's.

MK: In our phone conversation, you've mentioned Numbers, Reversible Rhythms, Symmetrical Measures, and Combination of Systems. How about the Centralization of Tonic through Tritone Axis and Chromaticism? Can you help me understand how these effect you?

GC: Yeah, well there's a lot of that in *Summer Evening*.

MK: Would you just have a section in one key, and then repeat a phrase or a melody and have a some relationship of a tritone?

GC: Yes, sometimes that. There would be the juxtaposition of two dominant seventh chords a tritone apart by roots. Kind of a Mussorgsky *Boris Godunov* sound. This was taken over by Bartok and by Debussy. Just the tritone melodically and harmonically ... I wasn't always conscious of it, and I'm not very self-analytical either, but I'm aware of that it is all over the place. Melodically, singers love it [laughs], it's one of the hardest intervals to tune.
MK: I noticed a lot of minor third relationships, too.

GC: Yeah, that's certainly a big part, you know, in the last movement, there's a whole section based around the distance of the minor third.

MK: I've performed Night Music I and Madrigals Book III, and I've always approached it from a performer's standpoint, and not a theorist's standpoint. In preparing to meet you, I kept my head in this score, more analytically, than the other works, as to better understand it to write the paper. I've read, actually I've wrestled, with some books about Bartok which talk about tritone axis, symmetry, and numbers, like the Fibonacci sequence. Elliott Antokoletz and a dissertation by Errol Haun, a pupil of his, cite concepts that Bartok uses in Sonata for Two Pianos and Percussion such as Interval Cycles, Symmetrical Formation, Cellular Structures, X, Y, and Z cells, Hexatonic and Octatonic Scales, Whole Tone and Pentatonic Scales. Do any of these register for you?

GC: Oh, Yeah. I don't quite know what they mean by "Interval Cycles," but I'm aware that for Bartok each interval had a very special value, almost an emblematic value. You know he was particularly fond of the minor third, melodically. And the tritone and the perfect forth, all of these things occurred almost emblematically in Bartok. Sometimes they'll occur in combination [sings: F - c — d] is so common. Or [sings: Eb-c] the minor third. Sometimes he focuses in on a particular interval that may dominate. An interesting case, of course would be Concerto for Orchestra, the Scherzo movement where the instruments come in at a certain interval, like two clarinets, together, and then two bassoons, and then two flutes, and then trumpets. Trumpets, I remember were at the Major second. Clarinets, I think were at the Major or minor seventh. Flutes at the fifth, you know, and the whole passage was at this interval. The color of this interval influenced me. Strings were at the minor sixth, I think.

MK: How about "cellular structures?"

GC: Yeah, it's all through Bartok, and it's something that he might have gotten from late Beethoven or from Brahms style generally, because he knew all that music cold, you know, being a pianist, he played a lot of that stuff. So his music, and interestingly, Debussy's music, too, has a lot to do with cell structure and cells. I'm thinking that it's almost like a mosaic of little cells.

MK: Your music is analyzed that was; do you compose it from that standpoint?
GC: Not consciously. As I say, I'm not too analytical [laughs], I just work by ear.

MK: What do you think of when you read an analysis of your music, or someone else's music and you see all of these mathematical, cellular concepts.

GC: Usually, I don't get too far with it, you know, people send me tomes that are this thick, theses, and dissertation and whatever.

MK: In fact there is the Joseph DeBaise dissertation. He is the person who wrote the "Comprehensive Analysis" on this piece which I used. There are major sections of it on number cells, like the "0 - 1 - 4" cell, or whatever. Is that the type of thesis that you are looking at?

GC: Yeah, you know, I glance at it, but I don't think of it in those terms, though. I'm not putting it down, you know; it's what some people do, it's just not something that has much meaning to me.

MK: So when you sit down and write something, you don't map it out mathematically, then, before you start, the way it's analyzed?

GC: Oh, No...No! I don't work that way.

MK: Do you think what some theorists are trying to do is try to take good music and understand why it is good, by trying to find mathematical sequences, or something that's a naturally formed property and pull it out and make conclusions about it?

GC: I'm not sure it's possible, really, that you can find in that kind of analysis what makes a piece really so good. Because a lot of music by Beethoven's contemporaries that has the same chords that he uses, but it's kind of "still-born," you know, it doesn't "soar," you know. The magic is not there, even though the vocabulary is the same. Like Hummel, you know, the Concerto by Hummel, all the chords you recognize are the ones that Beethoven uses.

MK: What do you think it is that makes a piece good?

GC: Um, I couldn't tell you; it's internally, or, it's internal musically. It might defy analysis. Mozart defies analysis, for me. I mean, some of it is so simplistic, and yet it's magnified. There's no accounting for what the dynamic of the music might be or what makes it good.

MK: Turning to instrumentation, were you familiar with other pieces that
had multiple pianos and percussion, and some with voices from around that time?

GC: Um, contemporary pieces?

MK: Well there was Antheil's *Ballet Mechanique*.

GC: I don’t know Antheil, or I don’t know the work. I know the name and I think I heard some of his music once, but I had no way of knowing it at the time.

MK: Well, his piece was part of a list of works that I’ve compiled that I found along the way [Hand him list seen below]

GC: Let me put on my other “specs” here.

**Early Pieces including Percussion & Multiple Pianos**

- George Antheil, *Ballet Mechanique* (1924 & 1952)
- Carl Orff, *Catulli Carmina* (1943)
- Luigi Dallapiccola, *Canti di Prigionia* (1939)
- Karl Stockhausen, *Refrain* (1959)
- Bernd Zimmermann, *Dialoge fur zwei Klaviere und gross Orchester* (1965)
- Darius Milhaud, *Deuxieme Concerto pour Deux Pianos et Percussion* (1966)
- Siegfried Fink and Gottfried Stramm, *Bagatelle fur Zwei Klaviere und Schlaginstrumentes* (1966)
- Donald Andrus, *Imbrications for Two Pianos, Piano Strings and Percussion* (1967)

**More Recent Pieces**

- Lukas Foss, *Ni Bruit Ni Vitesse* (1972)
- Luciano Berio, *Linea* (1972)
- Marios Nobre, *Sonancias No.3, op. 49* (1980?)

GC: Carl Orff, yeah, I heard some of his music. Dallapiccola I knew. And, of course, Stockhausen, *Refrain*, that’s a nice little piece. Ginastera, I don’t know that, or I don’t know that Cantata. Zimmermann I don’t know. Milhaud, I have very little knowledge of. Stramm-Fink, no. Yeah, all of these last pieces, I don’t know.

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1 The piece *Les Noces* (1923) by Stravinsky was inadvertently omitted from this list during the interview with George Crumb.
MK: How about the ones that were written about the same time, or since then?

GC: Yeah, Lukas Foss, I don’t know that particular piece of Foss, but I know some other things. Berio, is this for pianos?

MK: Yes, two pianos and two percussion. And that was the piece that was just performed here in Philadelphia partnered with Music for a Summer Evening.

GC: Oh yeah, I’d like to hear that because I respect his music, but I don’t know that piece of his, nor do I know these others.

MK: They are obscure, I guess, at least the names to me. The Zimmerman on the upper part is for two pianos and orchestra. But the percussion section is three timpanists and eight percussionists with large set-ups.

GC: I just know his name, and his opera, whatever it is called. I just know about him, a little.

MK: Did you say that Summer Evening gets performed quite often?

GC: Yeah, it seems to show up a lot. I hear it’s done in Europe a lot. I think in Europe it’s been recorded...it has been recording in Sweden and in Germany.

MK: How do people bring these performances to your attention? Do they send you programs, or do they call you?

GC: Yeah, sometimes I get letters, or they send me recordings. I guess there have only been two foreign recordings, and only one American.

MK: Other than the American recording, did those making the European recordings call you and ask for your participation in the preparation?

GC: No, I didn’t sit in on either of the recordings, actually.

MK: But, you did on the American one.
GC: Yes I was in on that original taping session.

MK: And the recent CD is just a digitalizing of that original.

GC: That’s correct.
MK: What other pieces of yours are performed more regularly, at least to your knowledge?

GC: Yeah, the most performed, I'd have to say that Summer Evening would have to be one of those. And you know Voice of the Whale, and of course, Black Angels and Ancient Voices are done a lot. The solo Makrocosmos is done a lot. And there have been six or seven recordings of both volumes, I and II.

MK: Do you listen to these?

GC: Oh, I hear them when they come out. But I don't listen to a recording more than once, unless I'm going on a trip and playing it for demonstration. I'm like performers who never hear their performance. They don't believe in having it "frozen." They may hear it once to check it out, at least all of the performers I know. That's "locked in time," that's how they performed it then but that's not how they feel about the piece now. You know, if they recorded it again the next day it would be completely different. So, what other pieces? I guess Eleven Echoes is played quite a bit, along with some of the other vocal pieces.

MK: When you do get to hear your own works, do you still like them?

GC: Yes, assuming I liked them to begin with! [We all laugh] Assuming I thought they were my best. I think I have about a dozen pieces that I consider my best.

MK: Is Summer Evening one of them?

GC: Uh huh!

MK: That's good! What are the other ones?

GC: Eleven Echoes would have been the first. Then, of course, the Madrigals, all four make one good work. I think Songs & Drones and Night of the Four Moons. Umm, Black Angels and Ancient Voices. Uhhh, three of the "Makros" series, the two solos and Summer Evening. Celestial Mechanics is in my class "B." [we laugh] Let's see, I said Voice of the Whale. Lux Aeterna, I guess that makes ten. Apparitions and Whitman Songs.

MK: I'm not familiar with the Whitman Songs.

GC: They are for voice and piano. And then the twelfth one would be, uhh,
the work for voice and drums, I mean flute and drums, *Idyll of the Misbegotten*. I think those are my best.

MK: How does that make you feel to get to hear your own work? I mean, every time you hear a new recording or something that must be a good feeling.

GC: Yeah, it always interests me, or a performance, because it's always different. There's always different players and performers, or even if it were the same with different performances.

MK: So do you enjoy the fact that there's some variation in each "realization?"

GC: Oh, Yup! Yeah, because I don't believe in the "definitive performance." That's what people who do record reviews talk about. [smiles] They've used the line before. And for the reasons that I've said, and even performers need to be less frozen, and that's just one thing. You know, and I can imagine two opposite interpretations by different players that could be quite different, and to me that's what music is all about, isn't it, that there could be that possibility.

MK: Regarding percussion writing, you've stated before in some written articles that Bartok's writing for percussion was "expressive."

GC: Yeah, some of it was exploring that expressive nature.

MK: Then some of the timpani glissandi, or the xylophone accelerando, is that what you were thinking of?

GC: Yes.

MK: More so than punctuation or even just color or sonority?

GC: Uh huh.

MK: Is there any other type of thing you like? How about timbre, like using a triangle with a drumstick or his other specific directions?

GC: There was lot's of experimentation in that area. As far as expressive, he didn't use the vibraphone, so, that was Berg who developed that more. Uses of the timpani glissando, I guess. Yeah, I guess those would be the main things, for me, you know.
MK: Your music doesn't seem to use timpani in an orchestral sense. Mostly you are using it as a resonating instrument for cymbals or crotales, or with your fingers. Where did that come from? Was it from another source?

GC: Those extended techniques? A percussionist gave me the idea about the crotales.

MK: Do you remember who that was?

GC: No, I don't remember. It was someone I met on a trip to the midwest a long time ago. I forget who it was. It could have been whoever was in Iowa at that time.

MK: What about some other of the extended techniques that you use on other instruments?

GC: A lot of them were suggested by performers. I think I used the cymbal, you know, a regular cymbal [inverted] on the timpani. And I imagined, myself, the claves on the bass drum.

MK: That you came up with? How did you discover that?

GC: I just tried it one time, yeah, one time in a rehearsal. The three sources would be 1) from percussionists, 2) stealing from other composers and 3) or conceiving your own possibilities.

MK: Who else did you steal from?

GC: Let's see there must be some cases. Well, for example, the water gong effect: I had not heard it but I knew that Cage had used it. I hadn't heard the sound, but that's stealing in a way because I know he did it first. That would be one case. I can't think of others, but I'm sure there are.

MK: How about the use of different instruments from different styles or from...

GC: From other cultures? Yeah, in some cases those instruments are used by other composers. Cage brought a lot of things in, you know, in his early works. His percussion was really very innovative, I think.

MK: Wasn't it partly due to necessity, and finding instruments because of economy, and the lack of money? They needed to find sounds, like tin cans in Third Construction, that uses a lot of tin cans, or cans with thumb tacks for
GC: Yeah, but he also used a lot of exotic instruments. Interestingly, though, Cage was not so much into the percussion for expressive possibilities. He was more into the traditional rhythmical approach. Those constructions, as nice as they are, I think they're charming pieces, but it's not going into the area that interests me very much as percussion being expressive.

MK: Regarding your catalogue of percussion sounds that you've accumulated over the years, do you search for a sound, do you hear something in your head, do you experiment with percussion instruments until you actually find a sound that you want to use in a piece? Or is it a combination of these?

GC: No, I think really I remember. I hear so many instruments and I remember. In a recent piece I've been working on, it's not finished yet, I use the talking drum of Africa. I've always liked that sound, and I've never used it before. And there is another piece in sketch with a serf drum. So I keep remembering things that people showed me over the years.

MK: Those two drums you just mentioned, did you discover them recently?

GC: Oh, it goes back a few years, yeah. And on this recent trip to West Virginia [April 1993], in Morgantown, this guy there has really done a lot with African stuff.

MK: Is his name Phil Faini?

GC: Is that his name? Yes, he's gone to Africa on several occasions and brought all those drums back, and brought the people back to play them, too. It's quite exciting, his drum ensembles. Do you know the guy?

MK: Yes, he's come to North Texas and given clinics.

GC: With these drums?

MK: Well, North Texas has a set of African Drums that he would use.

GC: Now, I've heard the talking drum before, but never in such a mass of different kinds of drums. That was nice. I've also used the hammer dulcimer. I got that through a percussionist. It was Chris .... [can't remember last name]

MK: Do you remember what part of the country?
GC: I think he was in Cincinnati for a while doing some graduate work. I think he's on one of the Carolinas now. But he said he wanted me to write for it and just gave me one of these things, just bought me one, but it's never here. I loaned it out to David Steraphine because they play the three existing movements of the piece. It's not complete but they play it in a torso. So they have that instrument.

MK: Where did the Tibetan Prayer Stones idea come from?

GC: I think a colleague Dick Werrnick alerted me to those. I'm not sure what he even used them for, or if he had. But he didn't use them like I did.

MK: What would be a different way?

GC: The type of figures that I had, of course. He had them in another style and so forth. Yeah, you learn from colleagues and composers, too, about some possibilities. Chris Rousse was a former student of mine, and Chris as you know started as a percussionist, and he still has used some ideas I've never used.

MK: Chris Rousse wasn't the person you were referring to about the dulcimer, was it?

GC: Oh, no, no. That was a percussionist. I'm not sure Chris knows about the dulcimer.

MK: When you and I spoke several years ago, regarding Night Music I, you used the term "microrhythm" referring to (I believe) your rhythmic notation - small beat subdivisions within large & slow time signatures. I have not heard this term anywhere since then. Do you still use it? Am I remembering it in the correct sense? Did the term come to mind to suit our conversation or is it more common?

GC: I don't know whether it's a standard term, I just used it. I use it a lot because a lot of music is in very slow beats, and sometimes to get a contrast - you know, a sense of faster pace - you have ... the beat stays the same, but then you have an available number of little notes, small valued notes.

MK: And you really conceive it in this very, very slow time, with all these small subdivisions?

GC: [Nods] Yes.
MK: I was told, I believe it was someone who spoke to Joseph Schwantner that composers, sometimes, would use small subdivisions to make the performers spend a little more time studying the piece so they wouldn't just "blow through it" and get to the next piece. Is there any of that in your work?

GC: Hmmm? Well.?

MK: Does that make sense, though?

GC: I don't know.

MK: If you have to spend a little more time learning the music, you might get into the piece. This could also be the case when teaching the piece to younger musicians.

GC: I think there is a sense of the pulse that's very, very slow. And that there are small notes within that. And if that's what you have in mind, then that is what you use. And that's the difference, rather than beating twice as fast, and maybe having fewer notes or fewer beams. As far as the notation goes, it's the composer's choice. You can make the page as black as you want it to be ... with beams, you know. Beethoven started that, in opus 111 he went pretty far with that.

MK: Lots of notes.

GC: [Chuckles] Lots of beams!

MK: Where did the word "kai" come from?

GC: Pure phonetic sound.

MK: Was it something that you experimented with in an resonant room?

GC: Oh, I didn't even experiment. I just used it, it just occurred to me as a gesture or the sound I wanted.

MK: That seems to be your trademark. I don't believe other composers are using it.

GC: Actually, you know that little work you mentioned by Stockhausen Refrain uses a few little phonetic sounds. And that was before I used it. Although, I think I used it more than he did. I don't think he used it outside of that piece. And I used it in quite a few works.
MK: But you don’t think that that came from hearing Stockhausen use it?

GC: No, I think it came from my idea of the lines of the instrumentalists and vocalists were blurred, so the instrumentalist might articulate something vocally, and the singer might pick up a percussion instrument, or make quasi percussive sounds with her voice. You know, it’s kind of like the genres were leaking into other genres. A cross-fertilization process, like in Baroque music in a sense, where sometimes the soprano in a Bach cantata has very instrumental type lines.

MK: May I open the score and go through a few things?

GC: Oh yeah, sure.

MK: You use numbers like three’s, five’s, and seven’s?

GC: Yeah, a lot of that in my music.

MK: I notice in the first movement, most of the three’s, five’s, and seven’s, with maybe three or four exceptions, are incomplete or partial, with some of the notes missing.

GC: Yes, that’s right.

MK: The numbers three and five are from the Bartok, correct? Or do you just fancy these numbers.

GC: Well he used these proportions a lot. [He starts to sing the quintuplet motive from the Sonata, movement II] The five is special. A four wouldn’t sound the same, and a six wouldn’t sound the same.

MK: This music is so sparse (Mvt. I), and so irregular, why did you use the notation with these painstaking rhythms, when other composers have used a time line with dots representing entrances, or a more spatial notation? Let me add, though, that I like your notation better. It’s very interesting to look at.

GC: I rarely used spatial notation, just a couple of contexts. I have some of that in Songs & Drones and in Night Music I.

MK: In the Improvisation parts [in Night Music II]? Didn’t you go back and write out the improvisations?
GC: Yes, but in the last, or second of the two Songs, there's some spatial there, even though it's through-composed, in a way, with some other indications. Yeah, I tend to put [my rhythms] into measures, that's true, because I think it affects the way you interpret the little figures. Like that little bunch of five's there [mvt. I] that has rests, too, if that were to be notated spatially, I don't think it would sound the same.

MK: There's a lot of imitation and canonic writing. Is this somehow a reference to nature - the echoes - or is this from Bartok, or Debussy?

GC: Well, just generally, so much of the music...I mean, I've got two pianos, so one thing that's suggested is to use them canonically. Or that one can reverberate something that the other one is doing. Rather than writing a completely different part, always, you can make things imitative.

MK: I see you use a lot of whole tone clusters. You have all twelve notes sounding at the same time even if it's a grace note apart or just a note apart. I think there is a section at the end of the first movement of Summer Evening where everything is ringing because you had all twelve tones going in a tremolo between C whole tone and C# whole tone.

GC: Oh yeah, that's something that Bartok did. It's roughly like the white against the black keys. But it's not quite there.

MK: You have some sections where you have all the flats and all of the naturals.

GC: Yeah, I use that to some extremes, but sometimes, too, I do combine both whole tone sets. Gives you totally chromatic chords.

MK: As I looked at the second movement, and there is not a time signature, but because of the overlapping of the notations of the rhythms, it looks like there's a 5/16, a 5/8, and a 5/dotted quarter implied. It looks very thought out, were you trying to give that a larger scheme?

GC: It's just a normal thinking. I'll use fives because I like that better than four, it's just normal. I don't know why, I've just picked it up and it's become natural for a lot of composers. Maybe I use it more extensively.

MK: This might be a small thing, but in this section of Mvt II, everything is a sharp: C#, D#, F# and then an Ab. Is there a reason why you notated it this way?
GC: I don't know why I did that. I think maybe because there's a G natural below.

MK: So is it a tendency tone?

GC: Yeah, well, or at least to have all different notes. Letter names. I do that sometimes, I'll mix flats and sharps, as does Bartok. That could be something that I got from him. He'll mix them up. Sometimes he'll have some impossible interval, like G# to Bb. You know, a diminished third, what type of interval is that?!

MK: Do you have any explanations as to why Bartok would do that?

GC: I think, sometimes, when there was a repetition, or repetitive factor in a measure, sometimes, to make it clear...he wouldn't have to put the naturals in. He would use as many different letter names as he could, you see. Now what would be a case for that? Say, melodically, if you had the figure using a less common form, say Fb rather than E natural, you might avoid always having to put naturals in on the same line.

MK: So it might be for convenience, or for visual clarity?

GC: Yeah, I suppose, yeah, having Eb and E natural back and forth, it simplifies it to write Fb. Or like D# and E natural, to use different letters. It will make the notation clearer. Sometimes Bartok will be focussing on a centered note will write Ab, G and F#, it's like showing the tendencies towards the nucleus. And, I guess, if you want to carry it a step further, you can write Bbb, Ab, G, F#, E#, you get a chromatic cluster of five notes with five different letter names. Otherwise, in one chord, and he writes a lot of clusters, you would have a lot of little things out to the side, you know, if you duplicate letter names.

MK: I see a lot of major 7ths, major and minor 3rds and tritones, in just the recorder section. Are these just more of your favorite intervals? Why do you like these intervals more?

GC: I don't know, it's just bias or influence of certain music like his.

MK: Did I read it correctly where the "Advent" was also in the Makrocosmos?

GC: Yes, originally it was in one of the solos. So was the last movement.

MK: Literally, note for note?
GC: No, no just the idea. I sketched a little of it for one thing.

MK: Was it the opening part of the “Advent” movement?

GC: No, not the opening part, it was the medieval sounding Aeolian harp music.

MK: The “Hymn?”

GC: Yeah, that theme is in one of the solo volumes. But what I meant about the last movement, the “Starry Night,” was only those chords at the beginning are in that in several ways.

MK: The dominant sevenths separated by the tritone?

GC: Uh huh, that’s all that stayed in there. But originally I sketched that in the theme, the pentatonic stuff, as being a solo piece, then I saw right away that wasn’t what I wanted.

MK: Which pentatonic stuff?

GC: The thing that the xylophone does a lot of. [five’s & seven’s towards end of Mvt. V]

MK: Oh, that part, yeah, I can’t wait to play that. But then I have to suffer through the “groaning” part, since it’s the same player. [we laugh] Did you chuckle when you wrote that part, thinking, “this performer is going to enjoy doing this!”

GC: [smiling] I don’t know I wrote that, it just came out of the [motive]. It just always seemed that it should be in there.

MK: Now the “Myth” is all thirteen and seven measure phrases that are all symmetric within themselves, and then there is a certain sense of symmetry through the whole piece, right?

GC: Yes, and there is the Isorhythm in there.

MK: Where else besides here and Madrigals Book III did you use Isorhythm?

GC: Those are the only two places.
MK: Now there's this whole system right here [multi system spot in V], I was able to find the diatonic dominant 7th chords with the tritone distance between them, there is also some whole tone, then there is what I guess you might call a five note tone row - in this section here the same five notes repeat, and then right above it it's the same five notes only in different orders. Would you call that a little row?

GC: Yeah, it's just a complex of several notes. It looks like about ten notes. It's a sound that goes on, you know, repeated. But I don't count them when I'm writing, I just do it by ear. [smiles]

MK: I wish it was taught that way. Sometimes, in a 20th-century music course, you might analyze it from all of the mathematics standpoints. But then you think, "I don't hear all of these numbers." I can see the coincidence, and I can see what you called a "complex.” And from a performer's standpoint it helps to see these things.

GC: You know, I'm not casual about pitches, it's just that I don't have to work with a rational scheme. I think pitch is enormously important, and I spend a lot of care to make sure each is the right note. But I don't prove that by some rational scheme. It just has to satisfy the ear. Notes, for me, should be used economically, and each note has a particular value. There shouldn't be any gratuitous notes on the page or any throw-away notes.

MK: Yeah, I noticed that. The first time I listened to "The Song of Reconciliation" when it just keeps building and building, I thought, "there is so much going on here." But then as I looked at it more closely, I realized that there are only two or three things going on. They just keep coming back in different colors, and echoing each other in dialogue. I noticed that there is a big pedal, if you think of the plucked and sustained chords as a pedal. Then I guess there is a progression of a minor third or a tritone, that gives it a sense of going someplace and the coming back, like a tonic-dominant relationship. Am I catching on to this correctly?

GC: Yeah, I think that must be so.

MK: Does this relationship, say, of one section to another, of a minor third or tritone, is this any type of a Bartok influence?

GC: Yeah, that might be true.

MK: How often do you look through your scores to prepare for lectures or teaching session?
GC: Uh, well, I don't really look through the scores for that reason. I may follow a score if I listening to a new performance, you know, to check certain things.

MK: I like the vibraphone and the whistle combination. Is that something you discovered? Or did you hear that someplace?

GC: I guess so. I don't recall hearing it any other place.

MK: There is a Jazz vibist named Ted Piltzecker that would, during the course of his soloing, as he was building the climax of his solo, in the upper end of the instrument, he would start singing or whistling the top notes of the melody. This was very effective.

GC: Was that earlier than this work?

MK: No, that was in the late 70's, when I first heard him. It was 1978 or '79. But I thought it was a neat effect.

GC: Well, I first used it in Eleven Echoes, but it was the violinist, in that case who had to whistle. He had to whistle a fourth lower or a fourth higher than the played harmonics.

MK: Are there any other places where you had percussionists whistling or humming? I know there is a lot of parts where they have to talk in rhythm while playing something like maracas.

GC: Yeah, one of the Madrigals, the second book, there is whistling against glockenspiel. That's probably the first time I used percussion like that.

MK: I know you do it with flute or recorder, too, someplace, don't you?

GC: Well it's singing, with flute.

MK: Who first started bowing vibraphones, crotales, and gongs?

GC: I guess I was doing it as early as anybody. Can you think of somebody who did it before I did?

MK: Well, I know there has been plenty of pieces since. But, I couldn't name the first occurrence.
GC: To me, it just came from experimentation, and... hah!... I can't even remember, I don't think I got it from another composer. Don't think so, I think I started doing it.

MK: Well, I would like to thank you for the time you have spent with me. It has been very helpful.

GC: Not at all, it has been a pleasure.

MK: I would like to conclude by returning to a statement that you made to me during our original phone conversation; that being about how much you admire the Bartok Sonata, but often wonder why more composers have not written for this instrumentation. Although you feel a strong Bartokian influence, Music for a Summer Evening was in no way a direct attempt by Crumb to compose his version of the quartet.

GC: Yes, that is correct.

MK: Thank you!

GC: Good luck on your dissertation. It's one of those "Rites of Passage" that we all have in our lives.

MK: I understand completely what you mean! Thank you.
BIBLIOGRAPHY


