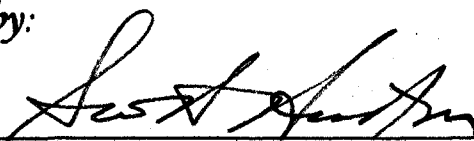


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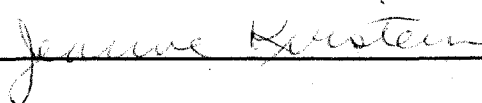
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I hereby recommend that the thesis prepared under my supervision by Susan Green Faulkner
entitled An Analysis of George Crumb's
Makrokosmos, Volume II
and its Relationship to
Makrokosmos, Volumes I and III
be accepted as fulfilling this part of the requirements for the degree of Doctor of Musical Arts in Piano

Approved by:



Donald H. Foster



AN ANALYSIS OF GEORGE CRUMB'S
MAKROKOSMOS, VOLUME II
AND ITS RELATIONSHIP TO
MAKROKOSMOS, VOLUMES I AND III

A thesis submitted to the
Division of Graduate Studies
of the University of Cincinnati
in partial fulfillment of the
requirements for the degree of
DOCTOR OF MUSICAL ARTS IN PIANO
in the College-Conservatory of Music

1979

by

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CHAPTER I

MAKROKOSMOS, VOLUMES I, II, AND III

The completed Makrokosmos of George Crumb consists of three volumes of pieces. Volumes I and II are each sub-titled Twelve Fantasy-Pieces After the Zodiac for Amplified Piano and have an identical format of twelve individual pieces. Makrokosmos, Volume III, Music for a Summer Evening, For Two Amplified Pianos and Percussion (Two Players), evolved out of two epilogues which were originally intended for Volumes I and II.¹

Crumb has written that "the title and format of my Makrokosmos reflect my admiration for two great 20th-century composers of piano music--Bela Bartók and Claude Debussy. I was thinking, of course, of Bartók's Mikrokosmos² and Debussy's 24 Preludes. . ."³ In contrast to these external associations, Crumb goes on to state "however. . . I suspect that 'spiritual-impulse' of my music is more akin to the

¹Suzanne Harkins, "A Study of Constructional Principles in George Crumb's Makrokosmos, Volume I" (Masters Thesis: The American University, 1974, University Microfilms #M6935), p. 1.

²The Mikrokosmos of Bartók consists of six volumes of pieces; it may be seen as a set of studies in the infinitely small, in comparison to Crumb's Makrokosmos, which suggests concepts of the universe in its entirety.

³George Crumb, jacket notes for Makrokosmos, Volume I (Nonesuch Records, No. H-71293).

darker side of Chopin, and even to the child-like fantasy of early Schumann."⁴ The twenty-four Preludes of Chopin, Schumann's Fantasy Pieces, and even the two volumes of the Well Tempered Clavier of J. S. Bach served as further models for the Makrokosmos; both Bach and Chopin are represented by musical quotes within the work.

General Structure of Makrokosmos,
Volumes I and II

Makrokosmos, Volume I was composed in 1972 for the pianist and close friend of Crumb, David Burge. Concerning the close association of Burge with the Makrokosmos Crumb has written:

. . . in 1962 he [Burge] had commissioned and premiered my Five Pieces for Piano. I was very much excited about the expanding possibilities of piano idiom--it seemed as if a whole new world were opening up to composers--and I was especially impressed by Burge's immediate and total mastery of this new idiom, which implied an organic synthesis of conventional (keyboard) and unconventional (inside the piano) techniques. I wanted to do a sequel to Five Pieces but, alas, several attempts proved abortive . . . (but) two or three germinal ideas finally evolved in Makrokosmos."⁵

Burge premiered Volume I at Colorado College in Colorado Springs on February 8, 1973. It bears the dedication "B. B. ♀ IN MEMORIAM." The initials refer to Béla Bartók, and the sign to Bartók's zodiacal birthdate (March 25--Aries).

Makrokosmos, Volume II was composed in 1973 for the pianist/lawyer Robert Miller. It was premiered by Miller in Alice Tully Hall of Lincoln Center in New York City on November 12, 1974. This volume bears the dedication "G. M. ♂ IN MEMORIAM." These initials refer to Gustav Mahler, and the sign to Mahler's birthdate (July 7--Cancer).

⁴ Ibid.

⁵ Ibid.

Both Volumes I and II consist of twelve individual fantasy-pieces, and each volume takes approximately thirty-three minutes to perform. A subdivision of the twelve fantasy-pieces into three groups of four each is specified by the composer, and the four pieces of a group are played without interruption. This division is emphasized graphically by a notational device in which every fourth piece is in the form of a geometrical design or symbol. (See Table I.) Crumb also uses the word "SYMBOL" in the titles to these eight pieces, such as-- I/4⁶ "Crucifixus [SYMBOL] [Capricorn]." These symbols are striking examples of Augenmusik and are also pictorial communications to the performer about the character of the music. Fantasy-piece I/8, "The Magic Circle of Infinity," for example, is a "Moto Perpetuo," in which the performer is instructed to play three and one-third revolutions of the circle-music.⁷

A second unifying device in each group of pieces is the use of surface preparations⁸ which are applied to the strings of the piano in the first of each group of four pieces. Preparations are used only in these eight pieces.

⁶Throughout this paper the fantasy-pieces will be identified and numbered as follows: I/4 refers to Volume I, the fourth piece; II/12 refers to Volume II, the twelfth piece, etc.

⁷The symbol notation of these pieces forces the performer to memorize them, and Crumb suggests that "in fact, the entire work would be dramatically and musically more effective if played from memory." George Crumb, "Performance Notes" for Makrokosmos, Volume II (New York: C. F. Peters No. 66539b, 1973).

⁸Surface preparation refers to the fact that materials are simply used in contact with the string at the time of performance. None of these preparations is inserted between the strings before performance as is done by John Cage.

Table I. Symbol notation in Makrokosmos,
Volumes I and II

I/4		"Crucifixus" is notated in the shape of a cross.
I/8		"The Magic Circle of Infinity (Moto Perpetuo)" is in the shape of a circle.
I/12		"Spiral Galaxy" is in the shape of a spiral.
II/4		"Twin Suns (Doppelgänger aus der Ewigkeit)" is in the form of two identically shaped circles.
II/8		"A Prophecy of Nostradamus" is a parabola-shaped notation.
II/12		"Agnus Dei" is in the shape of the peace symbol.

Table II. Surface preparations used in
Makrokosmos, Volumes I and II

I/1	CHAIN	"Primeval Sounds (Genesis I)": a light metal chain is dropped on the strings and allowed to vibrate freely throughout the piece. ⁹
I/5	THIMBLES	"The Phantom Gondolier": here thimbles are placed on the fingers so that their contact with the strings will produce a unique sonority; Crumb says this should "evoke the image of a spectral mandolinist." ¹⁰
I/9	METAL PLECTRUM	"The Abyss of Time": a metal plectrum (a medium sized paper clip may be used) is scraped over the metal winding of the bass strings.
II/1	PAPER	"Morning Music (Genesis II)": a sheet of paper is to be placed over the strings in order to produce metallic vibrations.

⁹ David Burge relates how Crumb had originally called for a glass rod to be placed over the bass strings; however, on a large concert grand the rod jumped into the air and would have shattered had not Burge immediately lifted it out; Burge, therefore, suggested the "light metal chain" that is now called for in the score. At the end of I/1 the directions "remove glass rod" still remain in the score. David Burge, "George Crumb and I," Contemporary Keyboard, July/August 1976, p. 42.

¹⁰ Crumb, jacket notes for Makrokosmos, Volume I.

Table II-Continued

- | | | |
|------|------------|---|
| II/5 | GLASSES | "Ghost Nocturne: for the Druids of Stonehenge (Night-Spell II)" calls for two glass tumblers to be placed on the strings near the dampers; these glasses are allowed to vibrate freely on top of the strings to produce a metallic timbre, and are also slowly moved along the string with one hand, exerting a certain pressure, while the other hand plays a trill on the notes touched by the tumbler. The consequent changes in string length result in a wailing sound; Crumb calls this a bending of the pitch. |
| II/9 | WIRE BRUSH | "Cosmic Wind": a percussionist's wire brush is used in contact with the string. |

The general structure of the two volumes is outlined in Table III. Each volume may be performed independently or in conjunction with the other volume, but Crumb has written that the performance of randomly extracted single pieces would probably not be effective "given the organic relationships implied in the work. However it is conceivable that certain of the six 'parts' comprising the two volumes might be separately performed."¹¹

Each of the twelve fantasy-pieces in both volumes is associated with a different sign of the zodiac and with the initials of a person born under that sign. This is indicated in the title to each piece (i.e. II/2 "The Mystic Chord /Sagittarius/") as well as by the zodiacal sign which appears at the end of the piece accompanied by a set of initials. Thus, at the end of II/2 appears [R. M. ↗]. These initials are dedications by Crumb to various persons whose birthdate falls under that particular sign. Many of these initials belong to composers, friends of Crumb, or musicians he has admired, but there is

¹¹ Crumb, "Performance Notes" for Makrokosmos, Volume II.

Table III. General structure of Makrokosmos,
Volumes I and II

VOLUME I

<u>Part 1</u>	<u>Part 2</u>	<u>Part 3</u>
1. Chain	5. Thimbles on fingers	9. Plectrum for scraping
2.	6.	10.
3.	7.	11.
4. SYMBOL--cross	8. SYMBOL--circle	12. SYMBOL--spiral

VOLUME II

<u>Part 1</u>	<u>Part 2</u>	<u>Part 3</u>
1. Paper	5. Glass tumblers	9. Wire brush
2.	6.	10.
3.	7.	11.
4. SYMBOL--two circles	8. SYMBOL--parabola	12. SYMBOL--peace symbol

no intentional relationship between the musical content of the piece and the person whose initials it bears. Crumb intended the initials "to pose an 'enigma' . . . however, my perspicacious friends quickly identified the Aries of 'Spring-Fire' (I/10) as David Burge, and the Scorpio of 'The Phantom Gondolier' (I/5) as myself."¹²

The pieces with their zodiacal references do not follow the normal astrological order for the signs of the zodiac. This raises the question as to whether an esoteric extra-musical significance exists in Crumb's order. However, Crumb has said that the arrangement was for "musical rather than any mystical reasons . . . for the larger rhythm and curve of the piece."¹³ This is supported by Suzanne Harkins

¹²Crumb, jacket notes for Makrokosmos, Volume I.

¹³Paul Hume, "Composer George Crumb: He (Sort of) Has the Whole World (of Such and Such) in His Hands," The Washington Post, Wednesday, August 15, 1973, Sec. B, p. 1.

in her thesis A Study of Constructional Principles in George Crumb's Makrokosmos, Volume I:

The sketches [which she was able to examine] indicated that from the beginning Crumb associated definite musical motives with particular titles and zodiacal signs. The musical and extra-musical ideas for individual pieces appear to have emerged simultaneously and developed into finished form, independent of any grand design. Perhaps as many as ten different designs for the order of the fantasy-pieces appear in the sketches before the final version emerges. The sketches, thus, add no support to any hypothesis of an extra-musical thread linking the pieces.¹⁴

Table IV. A list of the twenty-four fantasy-pieces with titles, zodiacal references and dedications

VOLUME I					
1. Primeval Sounds (Genesis I)	Cancer		G.R.	George Rochberg	
2. Proteus	Pisces		W.R.C.	Crumb's brother	
3. Pastorale (from the Kingdom of Atlantis, ca. 10,000 B.C.)	Taurus		J.B.	Johannes Brahms	
4. Crucifixus [SYMBOL]	Capricorn		R.L.F.	Ross Lee Finney	
5. The Phantom Gondolier	Scorpio		G.H.C.	George H. Crumb	
6. Night-Spell I	Sagittarius		A.W.	Anton Webern	
7. Music of Shadows (for Aeolian Harp)	Libra		P.Z.	Paul Zukofsky	
8. The Magic Circle of Infinity (Moto Perpetuo) [SYMBOL]	Leo		C.D.	Claude Debussy	
9. The Abyss of Time	Virgo		A.S.	Arnold Schonberg	
10. Spring-Fire	Aries		D.R.B.	David R. Burge	
11. Dream Images (Love- Death Music)	Gemini		F.G.L.	Frederico Garcia- Lorca	
12. Spiral Galaxy [SYMBOL]	Aquarius		B.W.	Beatrice Wernick	

¹⁴Harkins, p. 6.

Table IV-Continued

VOLUME II

1. Morning Music (Genesis II)	Cancer 	J. DeG.W.	Jan DeGaetani West
2. The Mystic Chord	Sagittarius 	R.M.	Robert Miller
3. Rain-Death Variations	Pisces 	F.C.	Frederick Chopin
4. Twin Suns (Doppelgänger aus der Ewigkeit) [SYMBOL]	Gemini 	E.A.C.	Elizabeth Ann Crumb
5. Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)	Virgo 	A.B.	Anton Bruckner
6. Gargoyles	Taurus 	P.P.	Paul Parmelee
7. Tora! Tora! Tora! (Cadenza Apocalittica)	Scorpio 	L.K.	Louis Kaplan
8. A Prophecy of Nostradamus [SYMBOL]	Aries 	H.W.	Howard Waltz
9. Cosmic Wind	Libra 	S.B.	Storm Bull
10. Voices from "Corona Borealis"	Aquarius 	E.M.C.	Elizabeth May Crumb
11. Litany of the Galactic Bells	Leo 	R.V.	Richard Valeta
12. Agnus Dei [SYMBOL]	Capricorn 	R.W.	Richard Wernick

General Structure of Makrokosmos,
Volume III

The third and final volume in the Makrokosmos series is called Music for a Summer Evening, for Two Amplified Pianos and Percussion (Two Players) and is subtitled Makrokosmos III. This work, which evolved out of two epilogues originally intended for Volumes I and II, was completed in February, 1974. It was commissioned by the Fromm Foundation for Swarthmore College and was premiered there on March 30, 1974 by Gilbert Kalish and James Freeman, pianists, and Raymond DesRoches and Richard Fitz, percussionists. The volume is dedicated to these four musicians and was written specifically for them.

The general structure of Volume III is different from the other two volumes in that it contains no astrological references, no enigmatic initials, and no Augenmusik. The work is divided into three principal movements, separated by intermezzi. Crumb has written that "Summer Evening projects a clearly articulated large expressive curve over its approximately 40-minute duration."¹⁵ The first, third, and fifth movements, which are scored for the full ensemble of instruments and laid out on a large scale, define the primary import of the work, which Crumb says "might be interpreted as a kind of 'cosmic drama.'"¹⁶ These movements evoke successive stages toward reconciliation with the cosmos; this progression takes place in the dark of the night toward the stars, hence the title, Music for a Summer Evening.

¹⁵George Crumb, jacket notes for Music for a Summer Evening (Makrokosmos III) (Nonesuch Records, No. H-71311).

¹⁶Ibid.

The three larger movements each carry poetic quotations "which were very much in my [Crumb's] thoughts during the sketching-out process, and which, I believe, find their symbolic resonance in the sounds of Summer Evening."¹⁷ The first movement, "Nocturnal Sounds (The Awakening)," is inscribed with an excerpt from Quasimodo: "Odo risonanze effimere, oblio di piene notte nell'acqua stellara." ("I hear ephemeral echoes, oblivions of full night in the starred water.") "The Advent" (III/3) 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"¹⁸ images of Rilke: "Und in den Nächten fällt die schwere Erde aus allen Sternen in die Einsamkeit. Wir alle fallen. Und doch ist Einer, welcher dieses Fallen unendlich sanft in seinem Händen hält." ("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 this falling endlessly gently in His hands.")

The two pieces which separate the three main movements were "conceived of as dream-like pieces functioning as intermezzos within the overall sequence of movements."¹⁹ The second movement, "Wanderer-Fantasy,"²⁰ is scored for the two pianos alone with two slide whistles which call and echo each other. The second intermezzo (III/4),

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ This title is an obvious reference to Schubert and his Wanderer-Fantasy for piano solo.

scored only for percussion instruments, is an isorhythmic structure of percussion sounds, an atavistic resurgence of primitivism before the "redemption," and as such is marked "Adagio isoritmico; lonely, bleak." This movement is cast as a fourteenth-century isorhythmic hoquetus with double tenor, consisting of simultaneously performed taleas of thirteen, seven, and eleven bars.

Table V. Structure of Makrokosmos, Volume III, Music for a Summer Evening. A cosmic drama evoking successive stages toward reconciliation with the cosmos

<u>III/3</u> The Advent Scored for full ensemble; Pascal quote; second part is called "Hymn for the Nativity of the Star-Child."	
<u>III/2</u> Wanderer-Fantasy For the two pianos and two slide whistles.	<u>III/4</u> Myth For percussion only; isorhythmic structure.
<u>III/1</u> Nocturnal Sounds (The Awakening) Scored for full ensemble; Quasimodo quote.	<u>III/5</u> Music of the Starry Night Scored for full ensemble; Rilke quote; second part is a "Song of Reconciliation."

The combination of two pianos and percussion instruments used in Music for a Summer Evening was first formulated by Bartók in his Sonata for Two Pianos and Percussion of 1937. The battery of percussion instruments required for Summer Evening is extensive and

includes: vibraphone, xylophone, glockenspiel, tubular bells, crotales (antique cymbals), bell tree, claves, maracas, sleighbells, wood blocks and temple blocks, triangles, several varieties of drums, tam-tams, and cymbals. Certain rather exotic (and in some cases quite ancient) instruments are occasionally employed for their special timbral character, as: the two slide whistles, a metal thunder sheet, African log drum, quijada del asino (jawbone of an ass), sistrum, Tibetan prayer stones, musical jug, alto recorder, African thumb piano, and guiro (played by the pianists). This kaleidoscopic range of percussion timbres is integrated with a great variety of special sounds produced by the pianos. The only piano preparation in Volume III is found in the fifth piece, where a sheet of paper is placed over the piano strings.

The percussion instruments form an integral part of Crumb's musical conception; without the shimmering, tenuous sound of the vibraphones, for example, the "Music of the Starry Night" (III/5) would lose much of its ethereal quality. Drawing a contrabass bow across antique cymbals and tam-tams, likewise, infuses the primitive "Hymn for the Nativity of the Star-Child" (second part of III/3) with a ghostly "whoosh." About the use of unusual instruments in general Crumb has said:

Any unconventional instrument draws one again to the recognition that music is really such a natural thing. And you're reminded of its elemental character. It's different with a violin or a string quartet--the usual instruments become stylized in a way. But the same is not true of . . . the zither or the Australian didgeridoo. Just the fact that they are relatively unconventional makes you listen more closely to them. It's like hearing an unfamiliar sound in nature--a bird you've never heard before perhaps. You're reminded of the variety of possibilities in nature.²¹

²¹ Kenneth Terry, "George Crumb: Makrokosmic Composer," Down Beat, October 21, 1976, p. 50.

In respect to style and compositional technique, Music for a Summer Evening is very much related to Makrokosmos, Volumes I and II. Crumb himself thinks of the three works as forming a trilogy. All three share important thematic elements, which will be discussed in Chapter III. An obvious link between Volumes II and III occurs in "The Advent" (III/3), which is an elaboration of the "Twin Suns (Doppelgänger aus der Ewigkeit)" (II/4) piece from Volume II. "Music of the Starry Night" (III/5) was originally sketched out for inclusion in Volume II for piano solo; "however," Crumb writes, "as the sketch evolved, it readily became apparent that my 'cosmic' conception was quite beyond the capabilities of ten fingers!"²²

Extra-Musical Aspects of Makrokosmos,
Volumes I, II, and III

In addition to the zodiacal references and the initials found in Volumes I and II, and the poetic quotations of Volume III, the Makrokosmos contains other extra-musical elements which reflect the composer's love of allusion and his poetic imagination. In keeping with the title, Makrokosmos, the work abounds in large-scale philosophical, mythological, and religious references.

A particular emphasis is placed on the astrological theme, with titles such as "Spiral Galaxy" (I/12); "Cosmic Wind" (II/9); "Voices from 'Corona Borealis'" (II/10); "Litany of the Galactic Bells" (II/11); "Music of the Starry Night" (III/5). Religious titles include: "Primeval Sounds (Genesis I)" (I/1); "Crucifixus" (I/4); "Morning Music (Genesis II)" (II/1); "Hymn for the Advent of the

²²Ibid.

Star-Child" (second half of II/4); "Agnus Dei" (II/12); "The Advent" (III/3); "Hymn for the Nativity of the Star-Child" (from III/3); and the "Song of Reconciliation" (from III/5).

Several pieces bear cryptic titles which suggest an esoteric association, such as "Pastorale (from the Kingdom of Atlantis, ca. 10,000 B.C.)" (I/3); "Dream Images (Love-Death Music)" (I/11); "The Phantom Gondolier" (II/5); "Music of Shadows" (I/7); "Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)" (II/5); "Tora! Tora! Tora! (Cadenza Apocalittica)" (II/7); "A Prophecy of Nostradamus" (II/8); "Gargoyles" (II/6).

Crumb's directions to the performer are written in the same spirit, demonstrating the strong attraction to verbal language which seems to accompany his musical thoughts. The descriptive markings are precise and can be very helpful to the performer, since such terminology suggests and "evokes" the quality of sound the composer had in mind. For example, "The Phantom Gondolier" (I/5) is marked "Eerily, with a sense of malignant evil"; "Morning Music (Genesis II)" (II/1) is marked "exuberantly, with primitive energy"; and "Agnus Dei" (II/12) bears the poetic phrase ". . . as if suspended in endless time," which gives a key to the interpretation of a four-fold repetition of a single long phrase. The descriptive phrases, therefore, are intimately connected with the musical conception itself.

Many similar descriptive phrases are repeated several times throughout the Makrokosmos.²³ Phrases dealing with "time" are seen

²³ Several of these themes are also found in other works by Crumb. Star-Child (see II/4, III/3) is the title of a work composed in 1977 for large orchestra, soprano solo, children's chorus, and four

often, and are usually associated with similar musical material, as in I/2, "vast, lonely, timeless"; II/12, "as if suspended in endless time"; I/9, (title) "The Abyss of Time"; III/3, "with a sense of cosmic time." Phrases which connote night-time, especially, are also found: (I/6), "Night-Spell I"; II/5, "Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)"; III/1, "Nocturnal Sounds (The Awakening)"; and finally III/5, "Music of the Starry Night."

Other words and phrases often seen include: "serene" (I/4, I/6, II/2, II/11, II/12, III/5, all of which share similar musical material); "dark," which is associated with the use of minor triads (I/1, I/4, I/9); "majestic" (II/4, II/11, III/3). Each time the "Galactic Bells" appear they, too, are described similarly, as: II/11, "Jubilant, metallic, incisive, echoing"; III/5, "joyous, ecstatic"; I/8, "luminous."

Throughout the Makrokosmos the magical or sacred numbers three, five, and seven abound. Measured figures are usually triplets,

conductors.

The theme of "time" is seen frequently: Echoes of Time and the River, 1967-68 (with movements entitled: "Frozen Time," "Rememberence of Time," "Collapse of Time," and "Last Echoes of Time"); Voice of the Whale, 1971, begins with a flute vocalise "for the beginning of time" and ends with a "Sea Nocturne (. . . for the 'end of time')." "

"Night-music" is found in the titles to other works: Four Nocturnes for Violin and Piano are subtitled Night Music II; Night-Music I (1963); also, Night of the Four Moons (1969); Lux Aeterna (For Five Masked Musicians,) For the Children of the Night (1971).

The use of the word "echo" and the musical echo device is found internally in most Crumb compositions, as well as being codified in two titles: Eleven Echoes of Autumn (Echoes I) (1965); and Echoes of Time and the River (Echoes II) (1967-68).

The "Rain-Death Variations" of II/3 is preceded by two other uses of this title. The second movement of the Madrigals Book I (1965) is called "Rain-Death Music I"; the Four Nocturnes contain "Rain-Death Music II."

quintuplets, or septuplets; rests will be of three, five, or seven seconds. The number of figures or bars in a section frequently will total seven, and furthermore, the number of sections will often add up to three or five.

In the record jacket notes to Volume I Crumb has written about these extra-musical associations and allusions:

While composing Makrokosmos, I was aware of certain recurrent haunting images . . . these images seemed to coalesce around the following several ideas . . . the 'magical properties' of music; the problem of the origin of evil; the 'timelessness' of time; a sense of the profound ironies of life (so beautifully expressed in the music of Mahler and Mozart), the haunting words of Pascal [see III/3] . . . and these few lines of Rilke [see III/5].²⁴

References to all of these "recurrent haunting images" can be found throughout the Makrokosmos, and Crumb's beautifully suggestive descriptive phrases and notations may be considered part of the dramatic mystery and supra-musical vision of the work as a whole.

Use of Musical Quotations

The Makrokosmos contains several musical quotations. Some of them are marked and specifically identified, while others are woven more subtly into the musical fabric. All quotations, whether identified or not, are accompanied by similar verbal language. The first volume uses two quotations. In "Night-Spell I" (I/6) the pianist whistles phrases of the revival hymn "Will There Be Any Stars In My Crown?" which Crumb calls "a remembrance of my Appalachian childhood." It is marked to be played "languidly, as from afar." II/11, "Dream Images (Love-Death Music)" contains fragments of Chopin's "Fantasie-Impromptu" (the passage made famous in the popular song as "I'm Always

²⁴Crumb, jacket notes for Makrokosmos, Volume I.

Chasing Rainbows"). The composer says it should be played "musingly, like the gentle caress of a faintly remembered music" and "as if emerging from silence."

Two uses of musical quotations are found in Volume II, one of which is labeled while the other is not. In the eleventh piece, "Litany of the Galactic Bells" the opening music--a shimmering bell effect which recalls the Coronation Scene from Mussorgsky's opera Boris Gudonov--gradually subsides and moves almost imperceptively into a short excerpt from Beethoven's Hammerklavier Sonata, marked "out of focus, surreal." Heard three times in this movement is a "Descant," accompanied by the phrase "as from afar, chaste, serene." This is actually the Appalachian valley acoustic heard in I/6, "Night-Spell I."

Music for a Summer Evening contains one identified quotation. It occurs in "Music of the Starry Night" (III/5) and is a quotation from the d-sharp minor fugue, Volume II of the Well Tempered Clavier of J. S. Bach. It is to be played "like a ghostly-surreal harpsichord." The quotation appears three times; the first two times are marked "striving . . . but falling" while the third time is marked "striving . . . attaining!"

Timbral Effects and Devices

In the Makrokosmos the piano sounds as if it has become an orchestra itself. The instrument is used to create an enormously wide range of sound, timbre, touch, and dynamics. Many factors--amplification, effects produced by the fingers in contact with the strings, the imaginative exploitation of all three pedals, various vocal effects, and the use of external devices (discussed on pages 4-5)--contribute to the

variety.

The amplification of the piano is produced by a conventional microphone suspended over the bass strings and amplified through two speakers at the side of the stage. This gives the instrument a greater presence than normal. Crumb directs that the amplification must not result in any distortion of the sound; ideally the listener should not be aware of amplification but only of a sense that the piano sound emanates from the entire width of the stage area. The amplification enhances many of the very delicate effects, such as the pizzicato playing and the muting of the piano strings, as well as some of the vocally produced effects.

The use of inside-the-piano effects is quite extensive. Unlike the prepared piano music of John Cage, most of Crumb's unusual effects are obtained by the hands themselves in contact with the strings and without elaborate preparation. Concerning these effects Crumb writes: "I can /still/ imagine whole works that would be on the keys. These inside-the-piano techniques are just possibilities that interested me; and more than that, I was intrigued by the synthesis of the keyboard with the inside effects."²⁵ Unlike the embryonic Five Pieces for Piano (1962), where keyboard passages and inside-the-piano sounds follow one another in disconnected sequence, in the Makrokosmos it is difficult to tell where the "outside" notes end and the "inside" ones begin. These non-traditional sounds are organically integrated into the total musical conception.

²⁵Terry, 18.

Table VI. Inside-the-piano effects
used in the Makrokosmos²⁶

- I. PIZZICATO. Two methods of pizzicato are used:²⁷
- a. plucking the string with the fingertip; indicated by "Pizz. (f.t.)"; vide II/2, 6, 8, 11, 12.
 - b. plucking the string with the fingernail, either at the end of the string near the pins or at the center of the string; indicated by "Pizz. (f.n.)"; vide II/2, 5, 9, 12.
- II. GLISSANDO OVER THE STRINGS. Played either with the fingertip (f.t.), the fingernail (f.n.), or the thumbnail (t.n.); glissandi thus may be: a) chromatic when the damper pedal is raised or b) the second hand may silently depress chords at the keyboard and the glissando will sound only those notes with the dampers raised (vide I/7). The strings may be strummed in front of or behind the dampers; the choice, depending on considerations of timbre and ease of performance, is left to the discretion of the performer. The approximate range of the glissando is always given in the score (vide II/2, 5, 9, 12).
- III. MUTING. The strings may be muted with the finger (indicated by a +) and then the note played normally on the keyboard (vide I/1, II/2, 3), or the strings may be plucked with the fingernail and then immediately dampened (indicated by ✧) (vide II/5, 9).
- IV. SCRAPING OF STRINGS WITH THE FINGERNAIL. The fingernail is used to scrape over the metal winding of the bass strings, either in one motion away from the player or in a tremolo motion by rapidly scraping the fingernail back and forth (vide II/9, 10).
- V. MARTELLATO. The strings may be struck sharply with curved fingers so that the fingernails contact the strings, thereby producing a rather metallic timbre (indicated by "Mart. (f.n.)") (vide II/7).

²⁶For a very helpful article on the performance of these effects see: David Burge, "Performing the Piano Music of George Crumb," Contemporary Keyboard, July/August 1976, p. 20-21, 36-37; also May/June 1976, p. 34.

²⁷In order to facilitate recognition of notes inside the instrument it is helpful to mark all the dampers that correspond to the black keys with chalk or bits of tape.

Table VI-Continued

- VI. TREMOLO ON THE STRINGS. Tremolo is used in two ways:
- a. in II/9 a tremolo on the strings is called for; Crumb directs that it be executed as "a very rapid and continuous alternation of all the fingers";
 - b. this motion is also combined (II/9) with a glissando; i.e. the same pattern is continued while slowly moving the hand laterally over the strings.

- VII. HARMONICS. Harmonics are produced by lightly touching the string in the center²⁸ (which are second partial harmonics, sounding an octave higher); (indicated by an $\circ$) (vide II/2, 3); II/10 calls for fifth partial harmonics (which sound two octaves plus a major third higher; the node for this harmonic is found just beyond the dampers on nearly all grands). Harmonics may also be played pizzicato (indicated by "Pizz. (f.t.) $\circ$ "); An unusual use of harmonics occurs in I/6, where the string is first plucked with the fingertip, then the second partial harmonic node is lightly touched.

A particularly characteristic percussive effect is obtained by hitting the metal crossbeams of the piano. Crumb directs that the two middle beams be used and that they be struck sharply with the knuckles to produce a ringing, percussive sound (vide I/6, II/10). A rapid "trill" with two fingers on a beam is also used. An additional percussive sound is obtained by hitting the soundboard of the piano through the holes in the metal frame (vide I/6).

While in many pieces the keyboard is used totally in a traditional manner, two unusual virtuoso techniques are needed in II/7, "Tora! Tora! Tora! (Cadenza Apocalittica)." Here tone clusters are to be played with the palm of the hand. The performer must also execute white key and simultaneous black key glissandi, both ascending

²⁸ Harmonic nodes may be marked with a light colored crayon (which will not rub off during performance). Harmonics will ring more luminously if the hand comes off the node immediately after the key is struck, scraped, or plucked. This allows the entire string length to vibrate freely.

and descending.

Throughout the Makrokosmos the three pedals are used with great imagination. Crumb's pedal markings, as are all his markings, are very precise. In many pieces the damper pedal is to be held down for the duration of the piece, mixing timbres and sonorities. Crumb also calls for the use of half pedals (as in II/1, "Morning Music".) In II/8, "A Prophecy of Nostradamus" the damper pedal is depressed suddenly to catch the echo of a chord. Many pieces call for a chord to be depressed silently at the beginning of the piece and then those notes to be caught with the sostenuto pedal. Thus the chord sounds sympathetically throughout the piece (vide I/12, II/2, etc.). A few pieces also use the soft pedal.

Integrated into the musical texture are various vocal sounds produced by the pianist. In "Crucifixus" (I/4) the word "Christe!" is shouted. In "The Phantom Gondolier" (I/5) the pianist is directed to hum "a ghostly moaning sound," and also must chant the syllables "I--ri--mi--ru! hass! hass! Ka--ra--bra--o! hass! hass! ah. . . ah. . . ah. . . ." This is a quotation from the Damnation of Faust by Hector Berlioz.²⁹ Whistling is utilized in "Night-Spell I" (I/6). In "The Abyss of Time" (I/9) the words "tempus, animus, veritas, mors" (time, spirit, truth, death) are first whispered ominously, then shouted, spoken, and whispered to produce a diminuendo effect. Although these words may seem to have spiritual or philosophical meanings they are there, according to Crumb, because each one ends in the sound "s."³⁰

²⁹ The words are from the language Berlioz invented for the demons to shout in the Pandemonium Scene of the opera. They are also the words which papal censors refused Berlioz permission to publish for a time.

³⁰ Hume, B, 1.

Volume II also utilizes several vocal effects. "Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)" (II/5) calls for the pianist to sing "nasal, metallic (like the Indian Tambora)" the syllables "wā-ō, wā-ō."³¹ At the end of II/7, "Tora! Tora! Tora! (Cadenza Apolittica)" the words "Tora! Tora! Tora!" are to be shouted, first loudly, then very loudly, and finally very, very loudly. This word is the Japanese code for the attack on Pearl Harbor. "Cosmic Wind" (II/9) calls for unvoiced singing (wind sound) of the syllables "a-i-u-sh, o-i-a-sh, sh-o-i-a, and sh-a-i-u." Three manners of whistling are used in "Voices from 'Corona Borealis'" (II/10). The performer must first whistle the passacaglia theme "flautando, senza vibrato"; the second appearance of the theme is marked "molto vibrato (quasi Theremin)";³² the third appearance is to be whistled "warbling." And finally, in "Agnus Dei" (II/12) the Agnus Dei prayer is sung "like chanting" and whispered. Music for a Summer Evening calls for a few vocal effects, all of which are similar to those described above.

³¹Crumb directs that sung passages may be taken an octave higher by female pianists.

³²The Theremin was one of the first electronic instruments to attract public attention. It was invented in 1924 by the Russian scientist whose name it bears. The pitch and tone volume are controlled by the distance between the player's hands and two metal rods which serve as antennas. In its earliest form the instrument could not change from one pitch to another without an intervening glissando. Willi Apel, ed., The Harvard Dictionary of Music (Cambridge: Harvard University Press, 1969), p. 284.

CHAPTER II

ANALYSIS OF MAKROKOSMOS, VOLUME II, TWELVE FANTASY-PIECES AFTER THE ZODIAC FOR AMPLIFIED PIANO

The following analysis will be concerned only with Makrokosmos, Volume II. Its purpose is to explore the methods by which Crumb achieves large and small scale musical organization and his conception of musical form. Particular emphasis will be placed on motivic structures within each fantasy-piece.

It is assumed that the reader has access to the complete score of Makrokosmos, Volume II (copyright 1973 by C. F. Peters Corporation, No. 66539b) as well as to the recording (Columbia M 34101). All examples are reprinted with the kind permission of C. F. Peters Corporation, 373 Park Avenue South, New York, New York 10016.

Part One: Fantasy-Piece II/1 "Morning Music (Genesis II)"

The first fantasy-piece in Volume II, as the use of the word "Genesis" in the title suggests, contains many of the musical elements which serve as germinal material for the construction of the entire work. Each of these important sonorities will be discussed in detail. The title of this piece, "Morning Music (Genesis II)" relates both to volumes I and III. The title of the first piece in Volume I is

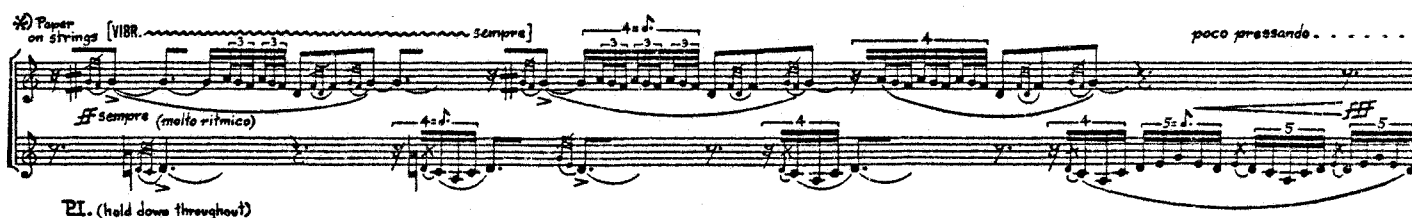
"Primeval Sounds (Genesis I)" while the "Morning Music" of Volume II is in direct contrast to the night music idea of Music for a Summer Evening and especially to the first piece of Volume III, "Nocturnal Sounds (The Awakening)."

Exploration of Motivic Structures

Motive 1a

This fantasy-piece, which uses the preparation of a sheet of paper placed over the strings, opens with a motivic construction containing several sonorities which serve as germinal or key figures for the rest of the volume. In this motive the right hand plays on the black keys only while the left hand plays on the white keys.

Example 1. Motive 1a,³³ II/1, page 6, system 1



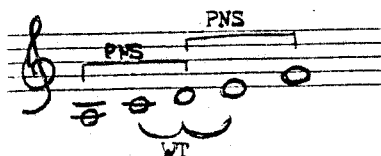
The right hand is in pentatonic construction: $D^{\#}-F^{\#}-G^{\#}-A^{\#}$ (the $C^{\#}$ is added in motive 1b). This pentatonic construction may be derived from ascending perfect fifths (or descending perfect fourths), as $F^{\#}-C^{\#}-G^{\#}-D^{\#}-A^{\#}$, and encompasses a fragment of the whole tone scale which will become important in other pieces: $F^{\#}-G^{\#}-A^{\#}$. It also contains another sonority which will be found frequently throughout Volume II, $D^{\#}-F^{\#}-G^{\#}$,

³³ Motives have been numbered consecutively within each piece. Motive 1, II/1, therefore, does not correspond to motive 1, II/2.

and which, in accordance with the Hanson system of analysis, will be labeled PNS.³⁴

The left hand in motive 1a is also in a symmetrical-pentatonic construction revolving around D.

Example 2. Symmetrical-pentatonic construction of the left hand, motive 1a, II/1.



This balances the PNS sonority and the three whole tones heard in the right hand.

Between the two hands is found an important relationship for the Makrokosmos as a whole: the tritone relationship. Two tritones are found immediately at the beginning: D-G[#] and C-F[#]. When these two tritones are combined and analyzed according to the Hanson system the "chemistry" is M₂S₂T₂. This sonority is found throughout Volume II, and is so important that it may be said to be a key germinal sonority from which

³⁴ Makrokosmos, Volume II is analyzed using a system devised by Howard Hanson in Harmonic Materials of Modern Music, Resources of the Tempered Scale (New York: Appleton-Century-Crofts, Inc., 1960). Hanson analyzes sonorities according to their basic "chemistry." In this system, although inversions do make a difference, the "chemistry" of an interval is the same whether it is a perfect fifth or a perfect fourth, a major sixth or a minor third. The symbols he uses are: P = perfect fourth, perfect fifth; M = major third, minor sixth; N = minor third, major sixth; S = major second, minor seventh; D = minor second, major seventh; T = tritone. Thus, tables VIII and IX demonstrate several transformations of a sonority which here is always labeled simply as MST, and which consists of a major third (or minor sixth), a major second (or minor seventh) and a tritone.

many other pieces derive.

The importance of the tritone further is emphasized in the relationship between the right hand and left hand constructions. The pentatonic scale formation found in the right hand is based on the projection of perfect fifths $F^\sharp-C^\sharp-G^\sharp-D^\sharp-A^\sharp$, while the left hand pentatonic construction is based on a projection of perfect fifths a tritone lower, C-G-D-A-E. An arc of tritones may be extracted from these two formations.

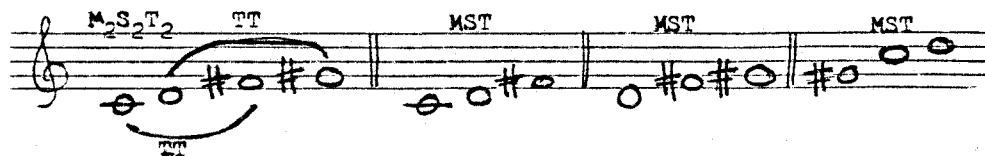
Table VII. Tritone relationships
between right hand and left hand,
motive 1a, II/1

RIGHT HAND:	$(D^\sharp)$	$(F^\sharp)$	$(G^\sharp)$	$(A^\sharp)$	$(C^\sharp)$
LEFT HAND:	A	C	D	E	G

The only tritone missing from the total chromatic is B-F. A B is found in the left hand in motive 1b, but an F does not occur until motive 2, where it is emphasized by being the lowest (and loudest) note heard up to that point.

The germinal $M_2S_2T_2$ sonority, which consists of two tritones a whole step apart, can be broken down into three-note components.

Example 3. Breakdown of $M_2S_2T_2$ sonority into three-note components



The sonority could be said to derive from the filling in of the notes of a tritone, as C (D) F[#], or C (E) F[#], both of which have the same "chemistry" of MST.

Example 4. Derivation of the MST sonority from the filling in of the interval of a tritone



The sonority also contains implications of the whole tone scale:

C(D)(E)F[#]. This sonority permeates the work in all its possible forms.

The following tables illustrate various transformations of the basic MST sonority.

Table VIII. Transformations of the germinal sonority MST (major second plus a major third)

MST

1. Original 2. First Rotation 3. Second Rotation

4. Retrograde 5. 6.

7. Inversion 8. 9.

10. Retrograde-Inversion 11. 12.

Table IX. Transformations of the germinal sonority MST (major third plus a major second)

MST

1. Original 2. First Rotation 3. Second rotation

4. Retrograde 5. 6.

7. Inversion 8. 9.

10. Retrograde-Inversion 11. 12.

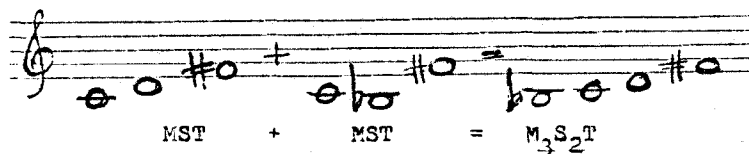
The transformations of the MST germinal sonority may be combined to form variations of the same sonority. The notes D-F[#]-G[#], combined with the MST G[#]-E-D, result in D-E-F[#]-G[#], which, while being a fragment of the whole tone scale, may also be described as $M_2S_3T_2$.

Example 5. Combinations of MST sonorities: $M_2S_3T_2$

MST + MST = $M_2S_3T_2$

When the MST C-D-F[#] is combined with its own inversion a M_3S_2T results.

Example 6. Combinations of MST sonorities: M_3S_2T



Combinations such as these become important in later pieces.

The rhythmic patterns of each hand in motive 1a serve to further emphasize the D-G[#] tritone. The right hand revolves almost in ostinato fashion around G[#] and returns to it as a point of rest, while the left hand revolves around D and also returns to it as a point of rest.

Example 7. Rhythmic patterns in right and left hands, motive 1a, II/1

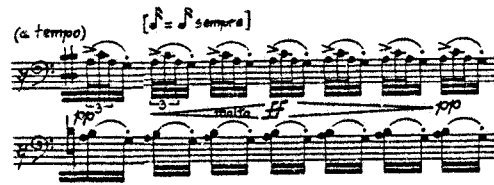


Thus the D-G[#] tritone relationship is especially strong. Motive 1a is marked "ff sempre, molto ritmico," and is played completely within the range of the paper preparation placed on the strings, giving it a harpsichord-like timbre.

Motive 1b

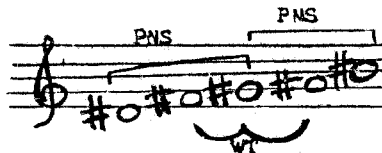
Motive 1b is found at the end of system 1 and the beginning of system 2, page 6 (example 8).

Example 8. Motive 1b, II/1, systems 1 and 2, page 6



The right hand here adds a $C^\sharp$ to complete the pentatonic scale found in motive 1a: $D^\sharp - F^\sharp - G^\sharp - A^\sharp - C^\sharp$. The addition of the $C^\sharp$ gives the right hand a symmetrical construction similar to that found in the left hand in motive 1a.

Example 9. Symmetrical-pentatonic construction of the right hand, motives 1a and 1b, II/1



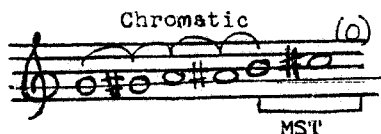
The $G^\sharp - A^\sharp - C^\sharp$ pattern, which is repeated ostinato fashion seven times and encompasses a crescendo and a diminuendo, reiterates the PNS sonority found in the pentatonic scale and especially in the symmetrical construction seen first in the left hand in motive 1a (see example 2).

The left hand reiterates the pattern of three whole steps, also found in motive 1a, with the addition of a B, to form G-A-B. (The addition of this B is derived from carrying the pentatonic scale formation from ascending perfect fifths one fifth higher, as: C-G-D-A-E-B.) This, like the right hand, is repeated in ostinato fashion seven times.

The relationship between the two hands is that of chromatic

half-steps within the range of a tritone; an MST sonority may also be derived from the combined right and left hands (see example 10). The use of chromatic cells becomes very important in later pieces.

Example 10. Chromatic cells plus MST sonority found in motive 1b,
II/1



Motive 1a', system 2, page 6, is simply a slightly varied form of motive 1a. This motivic complex, then, forms a small a-b-a' section, emphasized by the dynamics: a--ff; b--pp <> pp; a'--ff. A fragment of motive 1a is found once again at the end of the piece (system 5, page 7) to form a coda-like section. It is marked "pp," to be played as an "echo."

The motive 1 complex is important since it contains several key or germinal sonorities for the entire volume: the PNS and whole tone sonorities, which derive from the pentatonic scale; the tritone relationship; the MST sonority; and the collections of chromatic cells. It remains for motive 2 to introduce the one other germinal sonority.

Motive 2

Motive 2 consists of a single chord. This motive is not only important throughout Volume II but permeates Crumb's total output as well. It consists of two perfect fifths with roots a tritone apart. The motive is emphasized in this fantasy-piece by being placed in the lowest and highest ranges used within the piece, by being placed outside the paper preparation, and by being marked, each time it appears, "fffz"

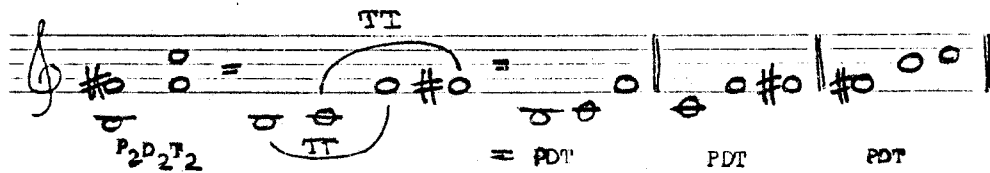
Example 11. Motive 2, II/1, end system 2, page 6



with accents. The motive is found three times in II/1: at the end of system 2, page 6; middle of system 3, page 7; and as the final two chords, end system 5, page 7.

Motive 2 is analyzed as a $P_2D_2T_2$ sonority and, like the $M_2S_2T_2$ sonority, may be broken down into three-note components.

Example 12. $P_2D_2T_2$ sonority broken-down into three-note components



The various transformations of the first type (minor second plus a perfect fourth) are seen in Table X. The transformations of the second and third types (perfect fourth plus a minor second) are illustrated in Table XI.

A theoretical framework can now be postulated for the principal motivic material of fantasy-piece II/1, which will also apply to later fantasy-pieces. If the pentatonic scale formation (which itself is derived from a circle of ascending perfect fifths), seen at the very beginning, is taken as a basis, other germinal

Table X. Transformations of the PDT
sonority (minor second
plus perfect fourth)

PDT

1. Original 2. First Rotation 3. Second Rotation

4. Retrograde 5. 6.

7. Inversion 8. 9.

10. Retrograde-Inversion 11. 12.

Table XI. Transformations of the PDT
sonority (perfect fourth plus
minor second)

PDT

1. Original 2. First Rotation 3. Second Rotation

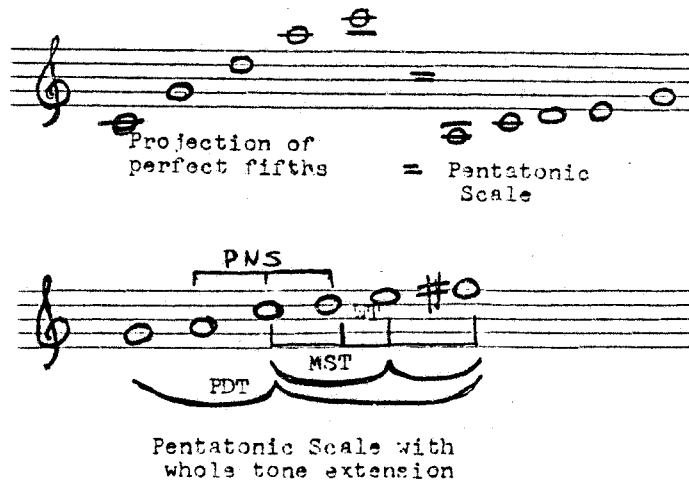
4. Retrograde 5. 6.

7. Inversion 8. 9.

10. Retrograde-Inversion 11. 12.

material may be derived from it by extension. First, the PNS sonority is found within the pentatonic scale (see examples 2 and 9); a whole tone construction is also found within the scale. The extension of the whole tone fragment to C-D-E-F[#] generates the interval of the tritone; from this may be extracted the MST sonority. When this whole tone extension is added to the pentatonic scale fragment, as G-A-C-D-E-F[#], a PDT sonority may then be extracted. Example 13 attempts to clarify this.

Example 13. Derivation of germinal sonorities from a pentatonic construction with whole tone extension



When whole tones are added to the formation above, more tritone relationships may be extracted as well as chromatic cells, another germinal sonority in the Makrokosmos.

Example 14. Chromatic cells and tritones extracted from the addition of whole tones to the pentatonic construction

Example 14 displays four musical staves illustrating concepts derived from the addition of whole tones to the pentatonic construction:

- Pentatonic:** A staff showing a sequence of five whole notes: C, D, E, F, G.
- Added Whole Tones:** A staff showing the pentatonic scale with additional whole tones (A, B, C#) added, indicated by a bracket and a sharp sign.
- Tritones:** A staff showing three tritone intervals: C-F#, D-G#, and E-A#.
- Chromatic Cells:** A staff showing a sequence of chromatic cells: C, C#, D, D#, E, F, F#, G.

Motives 3 and 4

Motive 3, which is related closely to motive 1, is framed by the PDT sonority of motive 2 and motive 4 (or 2-a).

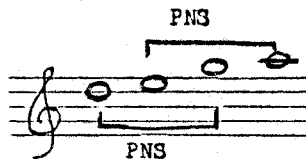
Example 15. Motives 2, 3, and 4 (2a), II/1, and system 2, system 3, page 6

Example 15 displays three musical staves illustrating motives:

- Motive 2:** A staff showing a complex rhythmic pattern with various dynamics and articulations, including *ppp sempre (legatiss.)* and *(ppp sempre)*.
- Motive 3:** A staff showing a complex rhythmic pattern with various dynamics and articulations, including *ff sempre* and *4*.
- Motive 4 (2a):** A staff showing a complex rhythmic pattern with various dynamics and articulations, including *ppp sub.*, *malta*, *ff*, and *(argagg)*.

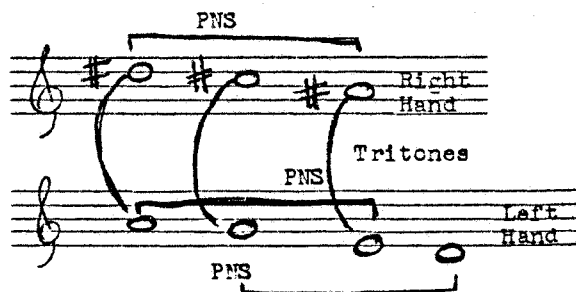
The falling grace note figure contains, intact for the first time, the pentatonic scale pattern of motive 1: $C^\sharp-D^\sharp-F^\sharp-G^\sharp-A^\sharp$. The left hand repeats the notes D-E-G-A in a triplet figure, ostinato fashion. This is the same pattern established in motive 1, but here without the C. The left hand may be analyzed as two overlapping PNS sonorities.

Example 16. Overlapping PNS sonorities in left hand, II/1, motive 3



The left hand is timbrally outside the paper preparation while the right hand crosses over to the prepared notes and plays a variation of motive 1-a. The right hand then moves up and ends with a triplet figure repeated ostinato fashion $A^\sharp-C^\sharp-D^\sharp$, also a PNS. The two hands, as in the beginning, are a tritone apart.

Example 17. Tritone and PNS relationships in motive 3, II/1



Motive 4 (see example 15) consists of the PDT sonority first seen in motive 2. Here, instead of a $P_2D_2T_2$ are found three-note chords which are simply a PDT. The chords are repeated three times, first up a major second, and then up a minor third. The bottom notes of the chords form a PNS: G-A-C (as do the other notes in the chords: $C^\sharp$ - $D^\sharp$ - $F^\sharp$ and $G^\sharp$ - $A^\sharp$ - $C^\sharp$). This motive, then, combines two key sonorities of PDT and PNS. Like motive 2, these chords are marked "fffz" with accents.

Motives 2, 3, and 4 occur again at the end of the piece (systems 3 and 4, page 7) to form a section which is very recapitulation-like (see formal analysis); the only changes are in dynamics.

Motive 5

Motive 5 is played completely within the range of the paper preparation. The hands are switched here, in that the left hand now plays on the black keys and the right hand on the white keys. Both hands consist of groupings of sixteenth notes which are repeated in ostinato fashion while effecting a large crescendo, from pp to fff. The right hand is in a pattern of seven sixteenths plus a sixteenth rest, while the left hand is in a pattern of six sixteenths plus a sixteenth rest; the two patterns, therefore, do not coincide.

The right hand begins with the notes F-A-B, the specific MST sonority heard first in the opening piece of Volume I (see I/1, systems 2 and 3, page 6). It goes on to add the note G, to form four whole steps (F-G-A-B), or a M_2S_3T sonority. The left hand consists of the notes E^b - G^b - A^b - B^b , which are the notes the right hand had in motive 1a: $D^\sharp$ - $F^\sharp$ - $G^\sharp$ - $A^\sharp$. Thus, the left hand here forms a PNS (E^b - G^b - A^b) plus

three whole tones ($G^b-A^b-B^b$), as was seen in motive 1a.

Example 18. Motive 5, II/1, system 4, page 6

Several interesting vertical relationships may be found between the two hands. A four-note chromatic cell exists with the first two notes of the right hand (B and A) plus the first two notes of the left hand (B^b and $A^b=A^b-A-B^b-B$). An MST is also found: E^b (in the left hand) plus the A and B of the right hand. Further, a PDT sonority may be extracted: G^b (left hand) plus B and F.

Example 19. MST, PNS, whole tone, chromatic cells, and PDT sonorities seen in motive 5, II/1

Motive 5 is found once again at the end of the piece (system 4 and 5, page 7). In its second appearance the patterns of the hands are reversed, and the motive disintegrates into the "echo" of motive 1a.

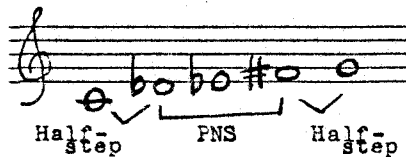
Motives 6, 7, 8, 9, and 10; Section B

Motive 6 begins the B section of the piece. The motive is a falling grace note figure which lands on C. The notes C-D^b-E-F[#]-G form a symmetrical construction with a PNS core.

Example 20. Motive 6, II/1, system 4, page 6



Example 21. Symmetrical construction of motive 6, II/1



Motive 8 consists of a rising grace note figure which lands on D, a whole tone relation with the C of motive 6. The grace notes form two three-note chromatic cells a major third apart: B^b-A-G[#] and B[#]-C[#]-D (an extension of the half-steps framing the PNS core of motive 6, see example 21).

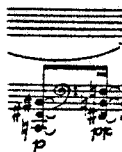
Between motives 6 and 8 is found motive 7 (or 2b): two PDT chords. This motive is found three times in the B section. Each time it occurs it is marked "p--pp," the first chord is within the paper preparation, and the second chord is lower on the keyboard, outside the preparation. The intervals forming the PDT in the first chords are

Example 22. Motive 8, II/1, and system 4, page 6



a tritone plus perfect fourth, while the second chord inverts this to a perfect fourth plus a tritone.

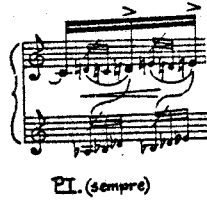
Example 23. Motive 7, II/1, end system 4, page 6



A repetition of motive 6 then occurs, followed by motive 9 (1-d). This motive is related to motive 1. The right hand has three whole steps (C-D-E, carrying the C-D relationship of motives 6 and 8 one step higher), which are embellished by grace notes; the left hand plays PNS grace notes ($A^b-B^b-D^b$ and $B^b-D^b-E^b$) which together form overlapping PNS sonorities, like those seen in the left hand of motive 3.

Motive 10 is simply a diminished fourth trill in the right hand with chromatic embellishment in the left hand.

Example 24. Motive 9 (1-d), II/1, system 1, page 7



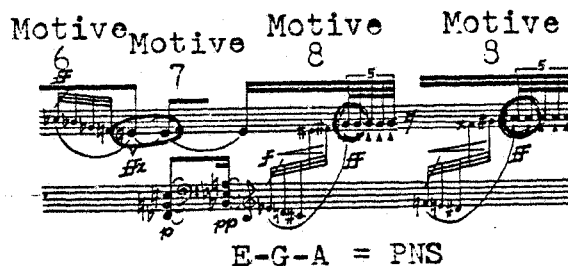
Example 25. Motive 10, II/1, system 1, page 7



The intervals used in this motive are an extension of those found in motive 8: chromatic cells ($C^\sharp-D-D^\sharp-E$) plus a major third (diminished fourth) $D^\sharp-G$.

Motives 6, 7, and 8, with 8 repeated up a perfect fourth, then follow. Motive 1b occurs as an interjection. Here the ostinato-like pattern is repeated only five times and the right hand is written using flats rather than sharps. The left hand omits the B-natural and plays instead a whole tone G-A. The complex of motives 6, 7, 8 and 8 follows, transposed up a major third. In this appearance of motive 6 the internal grace note intervals are changed to form chromatic cells a major third apart, similar to those found in motive 8 ($E-F-G^b$ and B^b-C^b). This appearance of the motivic complex of 6, 7, 8, and eight reiterates a horizontal PNS sonority, E-G-A, as seen in example 26.

Example 26. PNS sonority of motives 6, (7), 8 and 8

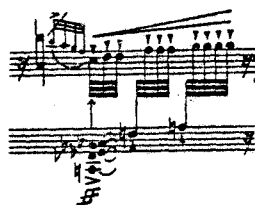


There follows a repetition of motives 9 and 10, transposed up a perfect fourth. An expanded version of motive 9 is then heard. The notes it emphasizes, A-C-D-E (PNS A-C-E plus whole tone C-D-E) are, again, derived from motive 1-a.

Motive 11

Motive 11 forms the second half of the B section. It is a new motive and is heard repeated four times with interruptions.

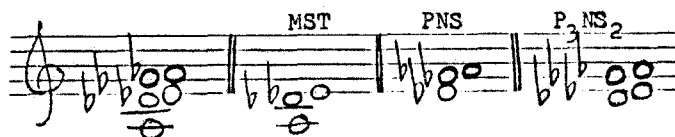
Example 27. Motive 11, II/1, system 2, page 7



The bottom three notes of the left hand chord ($A-D^b-E^b$) form an MST while the top three notes ($E^b-G^b-A^b$) form a PNS. The top four notes form a P_3NS_2 .

The grace notes in the right hand form a whole tone fragment, while the repeated notes C-D-F-G form a P_3NS_2 , which is the same sonority as the top four notes of the left hand chord, transposed a

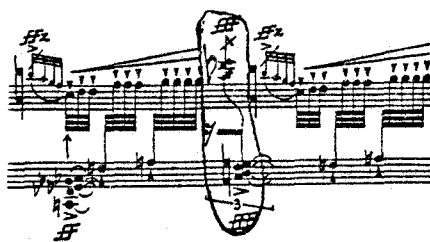
Example 28. MST, PNS, and P_3NS_2 sonorities in left hand chord, motive 11, II/1



half-step higher. This P_3NS_2 sonority may be seen as a compound of sonorities found in the motive 6, 7, and 8 complex. The first repetition of motives 6, 7, and 8 (system 1, page 7) emphasizes C-D-G, which is a P_2S . The second repetition of these three motives emphasizes E-G-A (see example 26), a PNS. Together these two occurrences of motivic complex 6, 7, and 8 add up to the P_3NS_2 of motive 11 (P_2S plus PNS equals P_3NS_2).

Motive 1b interrupts, its ostinato pattern repeated here only three times, followed by motive 11, which is interrupted by two chords.

Example 29. Motive 11a, II/1, end system 2, page 7



These chords are heard only once in the fantasy-piece and are a variation of motive 11 in that each hand contains a P_3NS_2 sonority. Together the hands may be heard as an eight-note chromatic cluster. Motive 11 is then heard twice, the second time expanded, to close

section B.

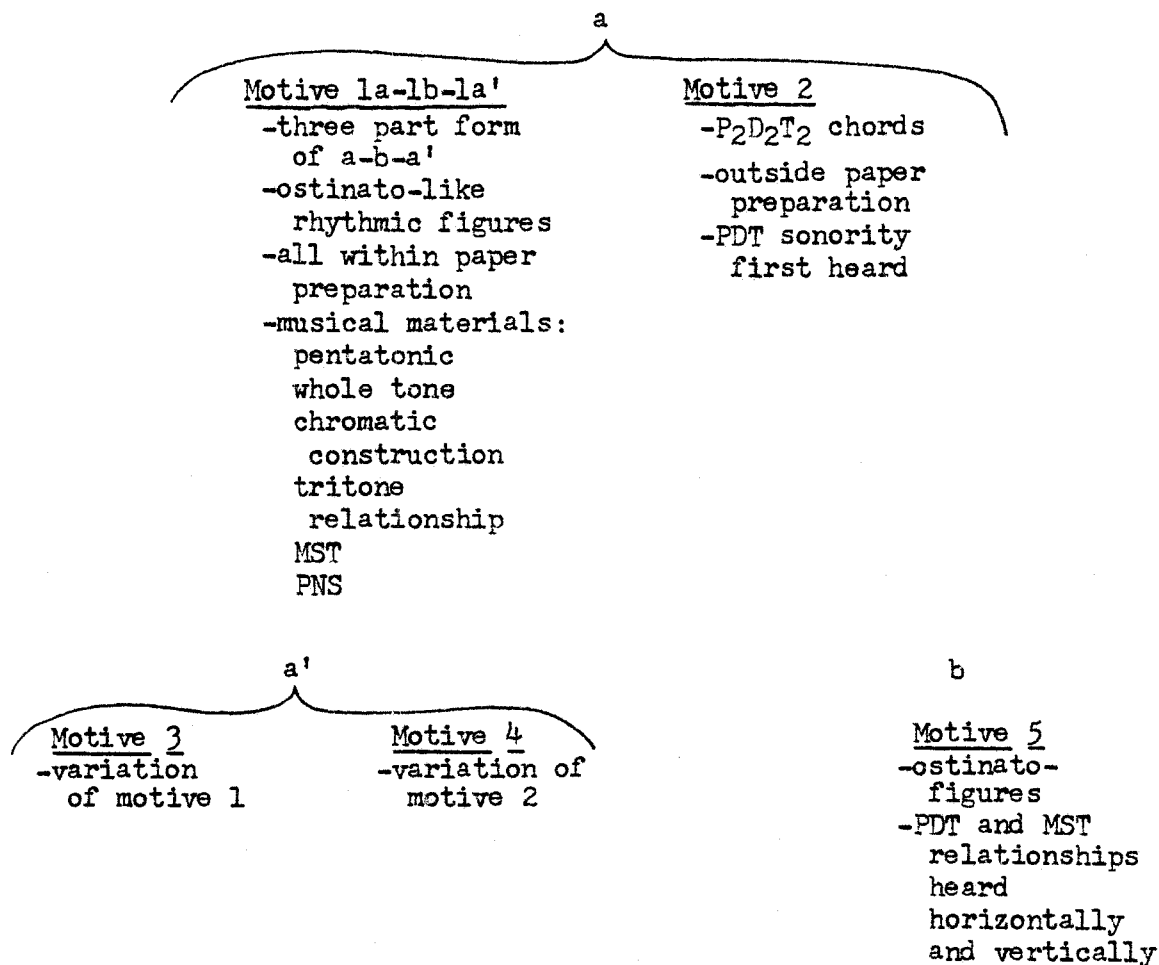
Larger Formal Structure

Formally "Morning Music (Genesis II)" appears to be in an A B A' form with coda. The A section (page 6, systems 1, 2, 3, and 4) consists of motives 1, 2, 3, 4, and 5, and can itself be viewed as an a-a'-b form. The small a section encompasses motives 1 and 2, which form the primary material for the entire piece. The a' section encompasses motives 3 and 4. Motive 3 is basically a variation of motive 1, while motive 4 is a variation of motive 2. The small b section is comprised entirely of motive 5.

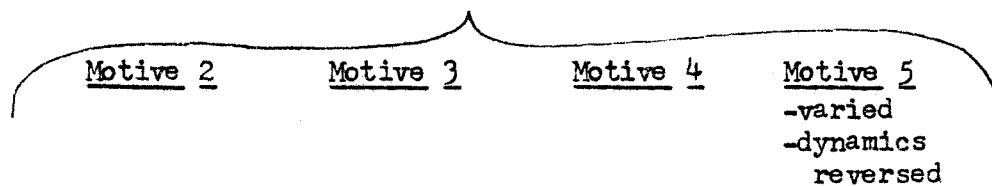
The A' section (page 7, systems 3, 4, and 5) is almost a recapitulation in that it contains motives 2, 3, 4, and 5 with slight variations. The coda (page 7, middle system 5 to end) consists of a fragment of motive 1 (which is omitted from the A' section) heard as an "echo," and the chords of motive 2. These chords are repeated once, with a five second rest between them. Thus, the coda reiterates the primary musical material of the piece as well as of the volume as a whole: tritone, whole tone, and chromatic constructions, and the germinal MST, PNS, and PDT sonorities.

The B section (page 6, end system 4 and page 7, systems 1, 2, and 3) of the fantasy-piece consists of motives 6, 7, 8, 9, 10, and 11, and itself may be broken down into a small a-a'-a''-b form. The musical materials used are those already found in section A. The following chart attempts to clarify the formal structure of the entire piece. The paper preparation is silently removed at the end of the fantasy-piece and II/2, "The Mystic Chord" follows attacca.

A



A'



CODA

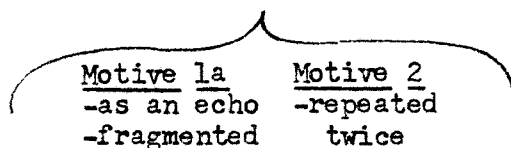
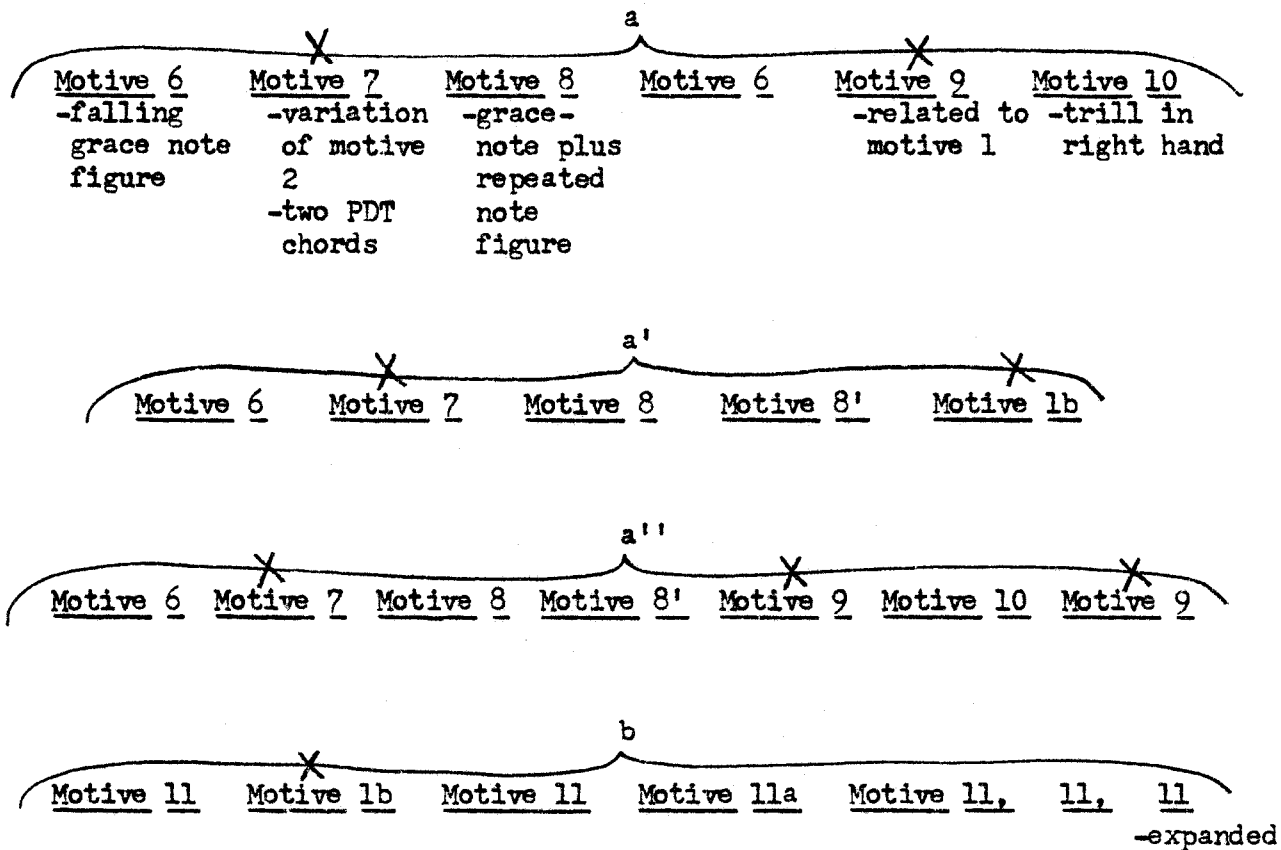


Figure 1. Formal structure of Fantasy-piece II/1

B



X = B section is interrupted by fragments of motive 1 (=motive 9)
and motive 2 (=motive 7); these motives are marked with an X

Figure 1. Formal structure of Fantasy-piece II/1, continued

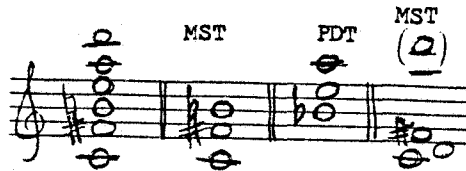
Fantasy-Piece II/2
"The Mystic Chord"

The second fantasy-piece is entitled "The Mystic Chord." This is a reference to Scriabin, who used one chord as a seminal harmony in much of his work. Scriabin's chord, which he called the mystic or "Promethean" chord, consisted of a series of various types of fourths: $C-F^{\#}-B^b-E-A-D$ (augmented, diminished, augmented, perfect, and perfect). Like the mystic chord of Scriabin, the first chord in this fantasy-piece serves as germinal material for all of the Makrokosmos as well as for much of Crumb's work as a whole. It also consists of a series of fourths, although not in the same order as those found in Scriabin's chord: $B^b-E-A-D^{\#}$ (augmented, perfect, augmented). This chord is labeled here as a $P_2D_2T_2$ and has already been seen to be an important sonority in fantasy-piece II/1, "Morning Music (Genesis II)."

Some interesting relationships can be found between Scriabin's mystic chord and the basic musical material used by Crumb not only throughout the Makrokosmos but particularly in this fantasy-piece. "The Mystic Chord" of Crumb is based almost entirely on the MST and PDT sonorities already found in II/1. These two sonorities may also be extracted from the mystic chord of Scriabin: the first three notes, $C-F^{\#}-B^b$, form an MST; the third, fourth, and fifth notes, B^b-E-A , form a PDT, while the last note D, combined with the first two, C and $F^{\#}$, form another MST.

Fantasy-piece II/2 is in direct contrast to II/1. While

Example 30. MST and PDT sonorities extracted from Scriabin's mystic chord



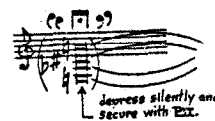
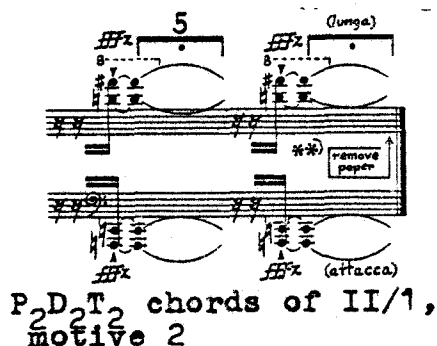
"Morning Music" is marked "Exuberantly, with primitive energy" and is basically loud, "The Mystic Chord" is marked "Adagio molto; serene, desireless, like a nirvana-trance" and is basically (except for the "Music of Strife" section) piano and pianissimo. "The Mystic Chord" also includes sensitive use of "inside-the-piano" effects.

Exploration of Motivic Structures

Motive 1

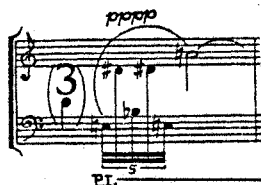
The chord $E-B^b-D^\sharp-A$ (a $P_2D_2T_2$) is depressed silently at the beginning of the piece and secured with pedal II, so that this sonority sounds sympathetically throughout. The "chemistry" of this chord serves as a link with fantasy-piece II/1, which ended with $P_2D_2T_2$ chords, although the pitches were different. (The relationship between these two chords is that of a major third: $F-F^\sharp-B-C$ and $A-B^b-D^\sharp-E$.)

Example 31. $P_2D_2T_2$ sonorities at the end of fantasy-piece II/1 and beginning of fantasy-piece II/2



Motive 1 is then played on the keys, marked "pppp," as a group of five sixteenth-notes followed by a half note.

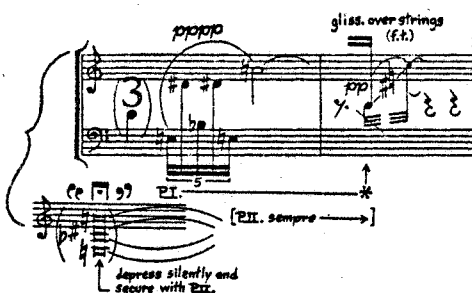
Example 32. Motive 1, II/2, system 1, page 8



The sounding of these notes on the keys activates the sympathetic vibrations which will sound throughout, and also firmly establishes the $P_2D_2T_2$ sonority in the ear.

Motive 1a consists of a glissando over the strings. Since pedal I is not depressed for this glissando, only those notes of motive 1 (E-B^b-D[#]-A) which were silently depressed and caught by pedal II will ring through. As will also be seen in later pieces, the glissando is used here to separate motives.

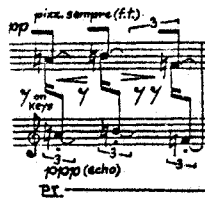
Example 33. Motives 1 and 1a, II/2, system 1, page 8



Motive 2

Motive 2 is an MST sonority: A-B-F; this specific MST was hinted at in motive 5, II/1, but was especially important in Makrokosmos, Volume I/1.

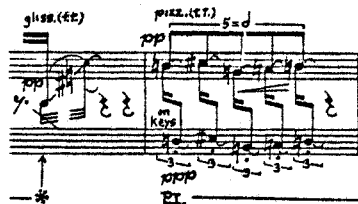
Example 34. Motive 2, II/2, system 1, page 8



Here the notes are first played pizzicato on the strings followed immediately by playing the note on the keys as an "echo." The use of the echo device was found at the end of II/1, where motive 1a returned as an echo to form a coda. The use of echoes will be found not only internally (see motive 2) in this piece, but also to form a coda section, as in II/1.

The remainder of the first section consists of alterations of motives 1, (1a), and 2 (2a). The glissando motive 1a separates the first appearance of motive 2 from the second appearance.

Example 35. Motives 1a and 2a, II/2, system 1, page 8



Motive 2-a has been expanded to four notes in a rhythmic pattern of five eighth notes followed by a quarter note rest, an imprecise augmentation of the rhythmic pattern of motive 1, or five sixteenth notes followed by a half note. The first and last notes of motive 2-a are the same, consisting of the notes G-A-B-C[#], which are four whole tones or an M₂S₃T sonority. This is simply the addition of one whole tone to the basic MST sonority of motive 2.

Motive 1 is then heard, followed by motive 2. This time motive 2 consists of three whole steps, $C^\sharp-E^b-F$, or an MS_2 . (Motive 2-a plus this occurrence of motive 2 forms a complete interlocking whole tone scale, $G-A-B-C^\sharp-E^b-F$, which is the basis of all motive 2 MST sonorities.) However, if the A at the end of motive 1, which is held over with the pedal, is added to the $C^\sharp-E^b-F$ of motive 2 an M_3S_2T results. This A, then, serves as a link between the two basic sonorities of fantasy-piece II/2: the MST and PDT.

Example 36. PDT and MS_2 sonorities of motives 1 and 2, II/2

The image shows a musical score for two staves. The top staff is labeled 'PDT' and the bottom staff is labeled ' MS_2 '. The PDT staff has a series of notes: G, A, B, C, D, E, F, G. The MS_2 staff has a series of notes: C, D, E, F, G, A, B, C. A bracket connects the A note in the PDT staff to the C note in the MS_2 staff, indicating they are the same pitch. To the right of the staves, an equals sign is followed by the sonority label M_3S_2T . The musical notation includes various markings such as 'pppp', 'pizz. sempre (ft.)', 'on keys', and 'on 5'.

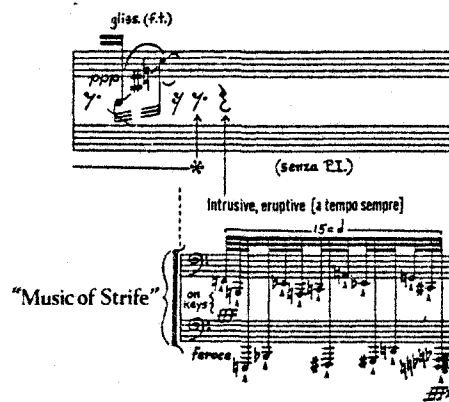
Motive 2-a follows motive 2 without the alteration of motive 1. This appearance consists of the notes $G-A-B-D^\sharp$, an M_3S_2T , the same sonority seen in example 36. Three notes here are the same as the first occurrence of motive 2-a: $G-A-B$. The first occurrence added a $C^\sharp$ to these notes to form an M_2S_3T , while the second occurrence added a $D^\sharp$ to form an M_3S_2T . Thus, even with the change of one note, the basic "chemistry" remains the same.

Motive 2-a is followed by a repetition of the notes G and A played inside the piano as harmonics, creating an echo-like effect. The glissando motive 1-a closes the first section of this fantasy-piece. Here the glissando is fully chromatic since the pedal I is depressed.

Section B: Motive 3

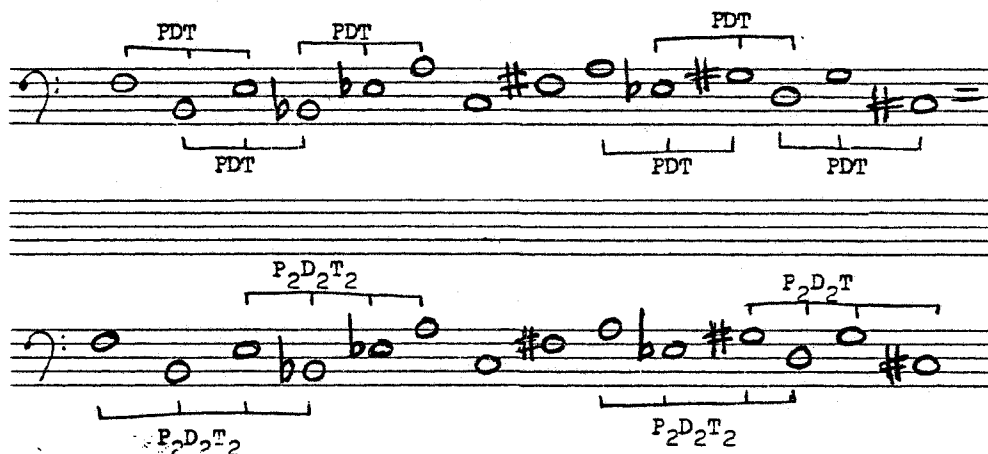
The "Music of Strife" of system 2, page 18, is in direct contrast to the opening section of the fantasy-piece. It is marked "Intrusive, eruptive . . . feroce," is played triple forte in a low range of the keyboard, entirely on the keys, and contains the fastest rhythmic motion of the piece. It is played without pedal I (although pedal II is to remain depressed).

Example 37. Motive 3, II/2, system 2, page 8



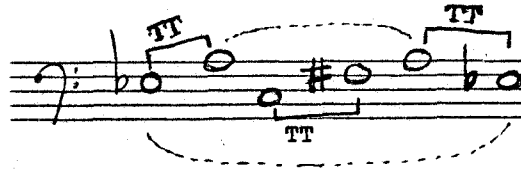
This motive consists of a horizontal series of PDT sonorities and is therefore related to motive 1.

Example 38. Horizontal PDT sonorities of motive 3, II/2



The C-F[#] tritone divides this motive in half; the tritone notes A-E^b are found symmetrically on either side.

Example 39. Tritone division of motive 3, II/2



The first half of this motive contains the chromatic tones E^b-E-F, A-B^b-B-C, while the second half contains the chromatic tones C[#]-D-E^b, F[#]-G-G[#]-A. The motive, then, contains all twelve chromatic tones with the repetition of the notes A and E^b, which serve as links in the chromatic sequence.

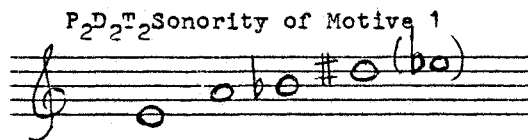
Table XII. Chromatic sequence of notes in motive 3, II/2

F [#] -G-G [#]	A	A-B ^b -B-C	C [#] -D-	E^b	E-F
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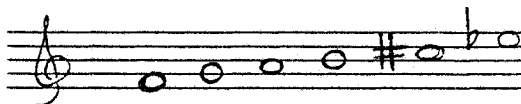
The repetition of the notes A and E^b is significant because the only shared notes of the basic PDT and MST sonorities of section A are A and E^b (see also example 36).

The outer notes of the left hand chord at the end of motive 3, E and B^b, are in a tritone relationship, and are also the notes from the original PDT sonority (E-B^b-D[#]-A) which are not emphasized as in examples 39 and 40. This left hand chord contains vertical PDT sonorities.

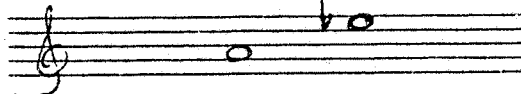
Example 40. Shared notes of PDT and MST sonorities, motives 1 and 2, II/2



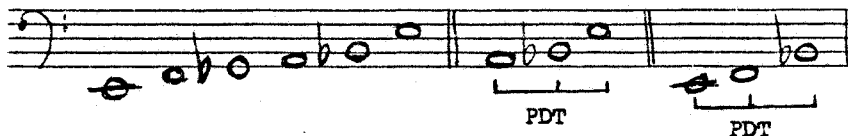
Whole tone scale which
is the basis of MST
sonorities, motive 2



Shared notes of the
two basic sonorities:



Example 41. PDT sonorities in left hand chord of motive 3, II/2

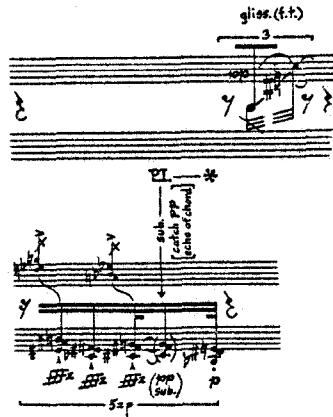


Motive 4

Motive 4 consists of a series of PDT chords, two of which are preceded by grace note chords, which are also PDT's. The top notes of the first three chords, B-D-A, form a PNS sonority.

Another use of the echo device is found here. The pedal is depressed suddenly after a "fffz" chord to catch the echo of the chord

Example 42. Motives 4 and 1a, II/2, system 2, page 8

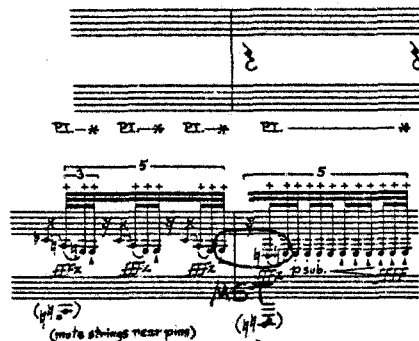


pianissimo. Motive 1-a, recalling the first section of the piece, separates motive 4 from motive 5.

Motive 5

Motive 5 uses a muted timbre not heard before in this fantasy-piece. It consists of a half step, C-B (with an E^b grace note) and a whole step, F-G. A horizontal MST sonority may be extracted: F-G-B, relating it to motive 2. The motive ends with the low G repeated and encompasses a large crescendo. This is a typical Crumb device and may be found in many of his works.

Example 43. Motive 5, II/2, system 2, page 8



Section A': Motive 1

The A' section of "The Mystic Chord" consists, as did the A section, of alternation of motives 1 and 2. Motive 1 is here expanded to ten sixteenth notes and is followed by the whole tones $C^\sharp$ and E^b , played in the same manner as motive 2. If the last note of motive 1, A, is combined with the $C^\sharp$ and E^b , an MST sonority results (as in example 36). Motive 1-a is heard followed by two whole tones, B and $C^\sharp$, forming a link with motive 2-a which follows. This appearance of motive 2-a uses the notes $C^\sharp-E^b-F-G$, which are four whole tones or an M_2S_3T . If the one different note from the linking whole steps, B, is added (these two whole steps are held by pedal I, so that they will be sounding) five whole tones result: $B-C^\sharp-E^b-F-G$, or an $M_4S_4T_2$. The two whole tones G and A are then played as pizzicato harmonics. The addition of these two notes completes the six note whole tone scale $G-A-B-C^\sharp-E^b-F$. This section, then, may be seen as a gradual build-up of whole tone sonorities to form a complete whole tone scale.

Motive 1 is then heard inverted, followed by a final occurrence of motive 2-a. Here, unlike the other appearances of motive 2-a, the same note does not frame the five eighth note pattern. The notes $A-C^\sharp-E^b-F$ form an M_3S_2T sonority. A $\underline{B}$ plucked harmonic adds a fifth whole tone, $A-B-C^\sharp-E^b-F$, or $M_4S_4T_2$.

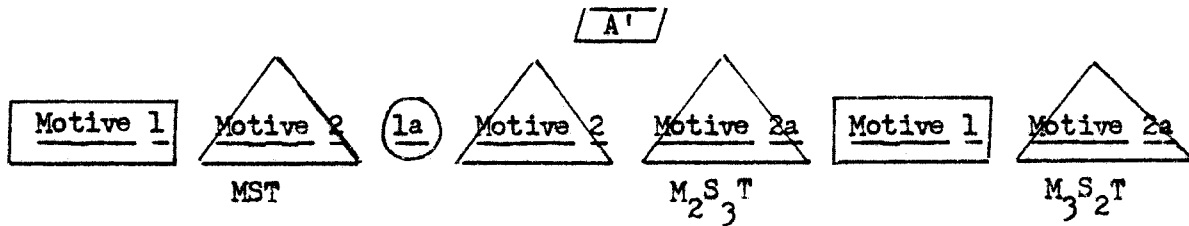
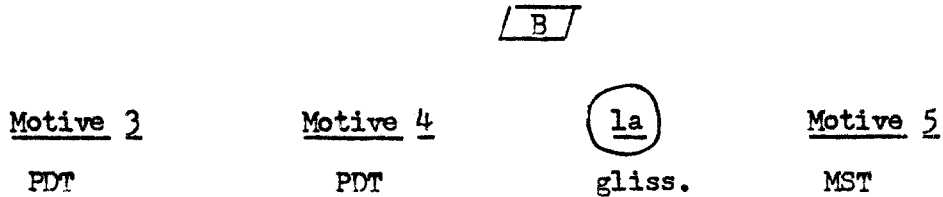
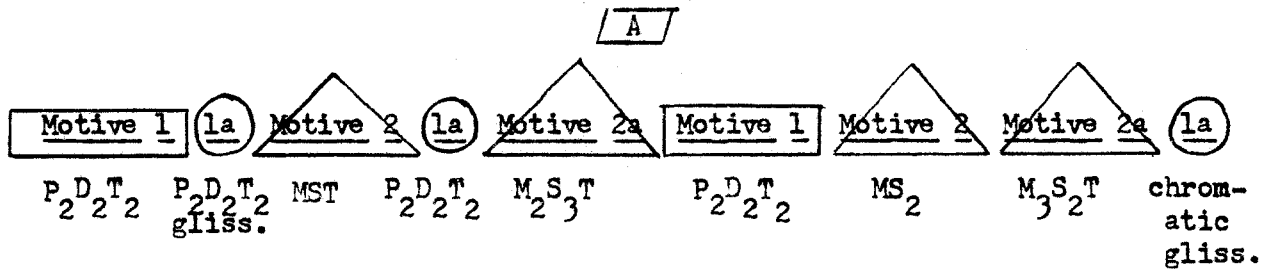
Coda

A variation of the glissando motive 1-a separates the A' section from the coda. The glissando here is fully chromatic, as was the glissando immediately before the "Music of Strife" section, but is played in a low register. Motive 5 follows, marked "Echo muffled,

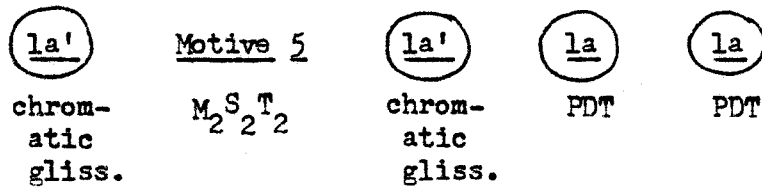
distant]. It consists of the notes $A^b - B^b$ and D-E, an $M_2 S_2 T_2$ sonority, which has not been heard before. The chromatic glissando is played again, "pppp" in the bass register, then is repeated in a higher register. The piece ends with glissando trills on the strings, which resound the notes of the original PDT sonority caught by pedal II.

Larger Formal Structure

"The Mystic Chord" is in the same form as "Morning Music (Genesis II):" A--B--A' with a coda which recalls earlier material as an echo. The A section consists of alterations of motives 1 and 2. The B section is formed by the "Music of Strife" (motives 3, 4, and 5), while the A' section is again the alteration of motives 1 and 2. The coda uses motives 1'a and 5. As was seen in II/1, the coda reiterates the primary musical material of the piece: the PDT (motive 1-a) and MST (motive 5) sonorities; further, the B section is based on musical materials found in the A section. In this piece the glissando motive 1-a is used to separate motives and each motive uses one specific and contrasting timbre (i.e. motive 1 is on the keys, motive 2 is pizzicato with an echo on the keys, etc.). Figure 2 outlines the formal structure of the piece.



CODA = ECHO



KEY: = on keys, "ppp" timbre

= glissando

= pizzicato with echo on keys

Figure 2. Formal structure of Fantasy-piece II/2

Fantasy-Piece II/3
"Rain-Death Variations"

Fantasy-piece II/3, "Rain-Death Variations," is based on a three-note chromatic sound, conceived most usually as a whole tone with the intermediate semi-tone displaced by an octave.

Example 44. Three-note chromatic sound typical of Crumb's "Rain-Death" music



Presentations of this sound make up more than a seventy-five percent of the Five Pieces for Piano (1962). Labeled as "Rain-Death Music I" it appears in the Madrigals Book I (1965); as "Rain-Death Music II" this sonority is the basis of the third movement of the Four Nocturnes for Violin and Piano (1965). "Rain-Death Variations" is the first piece in Volume II to consistently use this chromatic motive.

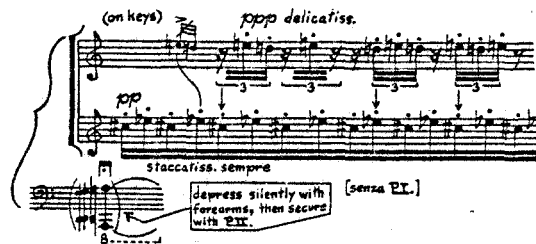
A chromatic cluster with a two-octave range is depressed silently with the forearms at the beginning of the piece and is held throughout, as were the silently depressed notes in II/2, by the pedal II. This fantasy-piece uses no pedal I; these depressed notes, then, vibrate only sympathetically, as the range of the played notes does not extend as low as the silently depressed chromatic cluster.

Exploration of Motivic Structures

Motive 1

Motive 1 consists of a whole tone figure ($C^\sharp-E^b$) in the left hand which is repeated eight times as even sixteenth notes. The right hand, also a whole tone figure ($D-E$), is in a fragmented triplet rhythm. Together the two hands sound a four-note chromatic cell: $C^\sharp-D-E^b-E$.

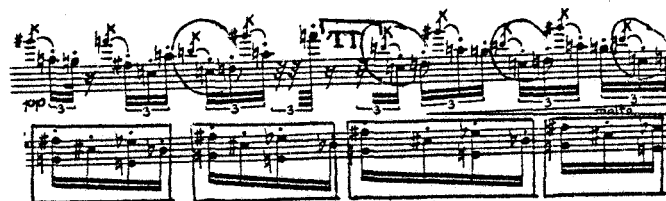
Example 45. Motive 1, II/3, system 1, page 9



Motive 2

The left hand continues its even sixteenth-note rhythm in motive 2; here a pattern of four sixteenth notes is repeated four times.

Example 46. Motive 2, II/3, system 1, page 9



The left hand contains two PDT sonorities.

Example 47. PDT sonorities of left hand, motive 2, II/3



PDT PDT

The right hand in motive 2 consists of overlapping groups of three-note chromatic cells and of horizontal PDT sonorities. The note-pattern of B-C-D is repeated four times (see example 46). The tritone F-B divides the right hand pattern in half; this division is also emphasized rhythmically.

Example 48. PDT and chromatic sonorities found in the right hand, motive 2, II/3, and the division of the motive into two parts with the repetition of the notes B-C-D-G[#]-A-G

The image shows two systems of musical notation. The first system consists of a Right Hand (R.H.) and Left Hand (L.H.) staff. The R.H. staff contains a sequence of notes: F#4, G4, A4, B4, C5, D5, E5, F#5. Annotations include 'Chromatic Cell' above the first three notes (F#4-G4-A4), 'PDT' above the next three notes (B4-C5-D5), and 'Chromatic Cell' above the final two notes (E5-F#5). The L.H. staff contains notes: B3, C4, D4, E4, F4, G4, A4, B4. Annotations include 'Chromatic Cell' above the first three notes (B3-C4-D4), 'Chromatic Cell' above the next three notes (E4-F4-G4), and 'Chromatic Cell' above the final two notes (A4-B4). The second system is a single staff showing a 'Repetition' of the R.H. pattern from the first system, with a 'TT' (Tritone) annotation below the first two notes (F#4-G4) and a 'Chromatic Cell' annotation above the next three notes (A4-B4-C5).

Motive 1a

Motive 1-a which follows (transposed up a perfect fifth from motive 1) is based on three- and four-note chromatic cells.

Example 49. Motive 1a, II/3, system 1, page 9

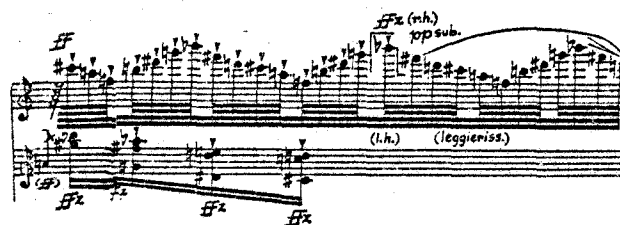
The image shows a single staff of musical notation. It begins with a treble clef and a key signature of one sharp (F#). The notes are: F#4, G4, A4, B4, C5, D5, E5, F#5. Dynamic markings are placed above and below the staff: 'fz' above the first two notes, 'fz' above the next two notes, 'pp' above the final two notes, 'f' below the first note, 'p sub.' below the next three notes, and 'pp' below the final two notes.

Motives 1, 2, and 1-a form a small a-b-a' section as seen also in II/1, "Morning Music (Genesis II)." The left hand in this section has a steady sixteenth-note figure while the right hand has fragmented triplet figures with grace notes. This section is played entirely staccato and is basically pianissimo.

Motive 3

The left hand in motive 3 contains four descending groups of three-note chromatic cells.

Example 50. Motive 3, II/3, systems 2 and 3, page 9

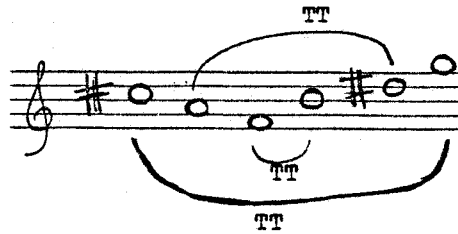


The lowest notes of these cells are $G^{\#}-F^{\#}-D-C$, or an $M_2S_2T_2$ sonority. This is the same MST sonority which was found in the coda section of II/2 (motive 5). "Rain-Death Music," then, contains the same basic musical material found in the coda of "The Mystic Chord": chromatic clusters, which were seen in the fully chromatic glissando of II/2; the MST sonority; and the PDT sonority found in the final two glissando trills of "The Mystic Chord." Use of these three sonorities forms a link between fantasy-pieces II/2 and II/3.

The right hand in motive 3 has a pattern of nine notes which is repeated three times. The first sixteen notes are fortissimo and staccato, while the last eleven are a sudden contrast, being pianissimo, leggerissimo, and having no accompanying left hand chords.

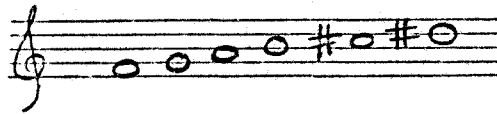
The right hand may be seen as a series of augmented triads, and as such related to the MST sonority: $F-A-C^{\#}$, $B-D^{\#}-G$, $D-F^{\#}-B^b$. The first six notes are all in a tritone relationship, with the tritone $F-B$, also emphasized in example 46 (motive 2) as the axis.

Example 51. Tritone relationships of the first six notes of the right hand in motive 3, II/3



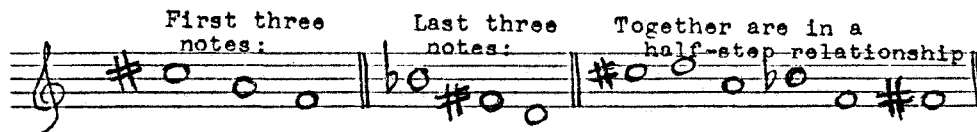
These notes also form a whole tone scale, the same scale that was the basis for all the MST sonorities of II/2, providing another link between the two pieces.

Example 52. Whole tone scale extracted from motive 3, II/3



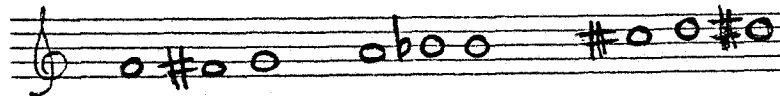
The last three notes are all in a chromatic half-step relationship with the first three notes.

Example 53. Half-step relationship of first three notes with the last three notes of the right hand, motive 3, II/3



When the middle three notes are added, three groups of three-note chromatic cells a whole tone apart result, showing the close juxtaposition and integration of whole tone and chromatic sonorities.

Example 54. Three-note chromatic cells extracted from the right hand, motive 3, II/3

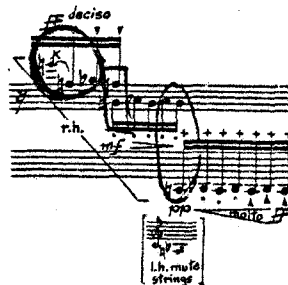


Motive 3 is found twice again in the piece. In system 4, page 9, it is transposed down a tritone. It is also found at the very end in a coda-like section.

Motive 4

The steady sixteenth-note rhythm is resumed in motive 4.

Example 55. Motive 4, II/3, system 2, page 9



This descending figure consists of chromatic cells linked by whole steps, and encompasses seven chromatic tones with the range of a tritone: E-F-G^b-G-A^b-A-B^b.

Motive 4 also occurs twice again: in system 3, page 9, it is transposed down a whole step; at the end of system 4 and the beginning of system 5 it is slightly varied, being played all very, very softly "molto delicato," and as harmonics.

Motive 5

Motive 5 is divided into two parts; the left hand has the repeated whole tone figure seen in motive 1, here on $D^\sharp$ and F. The right hand notes form chromatic cells with the left hand, as $D^\sharp-E-F-F^\sharp$. The right hand, however, adds something new in the form of a five-note sixty-fourth-note figure using the notes A and B. When this is heard with the left hand an MST is formed; when it is heard with the $D^\sharp$ in the left hand another MST sonority is formed. Together this may be compounded to an $M_2S_2T_2$, the same sonority formed by the descending chords of the left hand of motive 3. This chromatic and MST pattern is repeated once, then the right hand moves up to B and $C^\sharp$, forming another MST with the F in the left hand. The left hand moves up to $G^\sharp$ and B^b , resulting in a chromatic link between the two halves of the motive: $G-G^\sharp-A-B^b$. The second half of motive 5, delineated by a subito pianissimo, is a transposition of the first part a major third higher.

Example 56. Motive 5, II/3, system 2, page 9

Part I Part II

The musical score for Motive 5 is presented in two parts, Part I and Part II, separated by a vertical line. Part I is marked with a forte (ff) dynamic and a piano (pp) dynamic. It features a chromatic cell and a box labeled 'MST M2S2T2'. Part II is marked with a forte (ff) dynamic and a piano (pp) dynamic, and includes a 'pp sub.' marking and a 'molto' marking. The score is written on a grand staff with two staves, and various musical notations including notes, rests, and dynamic markings are present.

Motive 5 is repeated in system 3, a whole tone lower than the first presentation; it is also extended by a three-fold repetition of

the three-note chromatic cell $G^\sharp-A-B^b$.

Motive 6

The steady sixteenth-note pattern of the left hand is continued in motive 6 while the right hand returns to the triplet plus grace note rhythmic pattern. Motive 6 grows out of the second half of motive 5, basically continuing the rising whole step figure of each hand another step ($C^\sharp-E^b-F-G-A$ in the right hand, and $C-D-F^\sharp-A^b$ in the left hand). This motive consists simply of another four-note chromatic cell, here using $F^\sharp-G-A^b-A$. The motive occurs one other time, in system 4, where it uses first the three-note chromatic cell $A^\sharp-B-C$, then the three-note chromatic cell of $F^\sharp-G-A$ an octave lower.

Example 57. Motive 6, II/3, system 3, page 9



The remainder of this fantasy-piece repeats motives 3 through 6, although varying their order. The technique of establishing small motivic cells, then changing the sequence of their appearance has been seen also in fantasy-pieces II/1 and II/2. Thus, after the first occurrence of motives 3, 4, 5, and 6 they are repeated in the order 4, 5, 3, 6, and 4.

Larger Formal Structure

Formally the piece can be divided into two parts with a coda. The A section consists of motives 1 and 2 while the B section is much longer, consisting of motives 3, 4, 5, and 6 with their repetitions.

The coda (system 5, page 9), as did the codas in II/1 and II/2, refers back to key motives. Here the coda begins with a fragment of motive 2, then a fragment of motive 1 is heard. After a four second rest the right hand plays a portion of motive 3, all pianissimo, almost in an echo fashion. The use of echo ideas in the coda section has also been seen in "Morning Music (Genesis II)" and in "The Mystic Chord."

As is also true of the other "Rain-Death Music" of Crumb, this piece is based on three- and four-note chromatic cells with some incidental use of the PDT and MST sonorities. It is scored for two voices throughout; the left hand generally keeps the "Tempo metronomico" direction at the beginning by playing steady sixteenth-note patterns, while any rhythmic variation occurs in the right hand. Staccato playing predominates.

Fantasy-Piece II/4
"Twin Suns (Doppelgänger aus der
Ewigkeit) [SYMBOL]"

Fantasy-piece II/4, "Twin Suns (Doppelgänger aus der Ewigkeit) [SYMBOL]," is the first of the three pieces in Makrokosmos, Volume II which are notated in the form of a symbol, in this case two identical circles. "Twin Suns" is significant in that it closes the first large section of the work and ends with the designation Fine rather than the attacca which followed pieces II/1, II/2, and II/3. Like the fourth piece in Volume I, this piece contains Christian symbology. Fantasy-piece I/4, "Crucifixus," was notated in the shape of a cross and used the shouted word "Christe." The second circle of "Twin Suns" is called "Hymn for the Advent of the Star-Child." This piece reappears, elaborated, in "The Advent" of Makrokosmos, Volume III where the second section is called "Hymn for the Nativity of the Star-Child."

Exploration of Motivic Structures

Circle A: Motive 1

The first is marked "Majestic" and the pedal I is to be held throughout; dynamics range from fortissimo to quadruple piano. Motive 1 consists of a six-note grace note figure, which may be divided into two three-note cells; each cell is analyzed as a PDT sonority. The first cell moves down a major seventh then up a tritone, while the second cell is inverted up a major seventh and down a perfect fourth; the cells are a minor third apart: $G^\sharp-A-D^\sharp$ and $F-F^\sharp-C$.

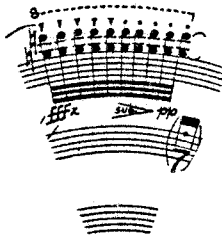
Example 58. Motive 1, II/4, Circle A, page 10



Motive 2

Motive 2, which follows immediately, is a perfect fifth and encompasses a decrescendo from triple forte to pianissimo. The first appearance of the motive uses the perfect fifth G-D and repeats it ten times. A link between motives 1 and 2 may be seen in that the last two notes of motive 1 were a perfect fourth, F-C; if the pattern of a perfect fourth is extended downward G and D result, as F-C-G-D. Motive 2, then, simply inverts the perfect fourth relationship to that of a perfect fifth.

Example 59. Motive 2, II/4, Circle A, page 10



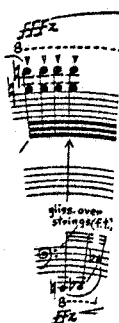
After a seven second rest, motive 1 is repeated a major third lower than its first occurrence, with a major second this time between the three-note PDT cells: E-F-B and D-D[#]-A. This is followed, as before, by motive 2. The right hand begins the G-D perfect fifths,

here repeated nine times; after a thirty-second note rest the perfect fifth, a minor third lower, E-B, is repeated seven times. Thus the minor third relationship, seen between the two PDT cells in the first appearance of motive 1, is reiterated.

Motive 3

On the fourth repetition of the G-D perfect fifths the left hand plays a chromatic glissando on the strings. This glissando covers an octave plus a tritone: A-E^b. Chromatic glissandi, especially those which cover the range of an octave plus tritone, A-E^b, are found also in Volume I and III and serve as a common motive shared by all three volumes of the Makrokosmos. Here the glissando is played fortissimo with the fingertip.

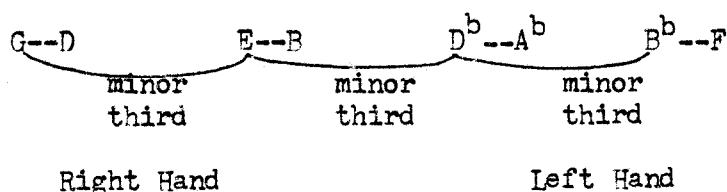
Example 60. Motive 3, II/4, Circle A, page 10



The left hand then begins the repeated perfect fifth pattern of motive 2 with D^b-A^b, which is derived from a pattern of perfect fifths descending by minor thirds. This pattern was begun with the right hand perfect fifths G-D and E-B and is continued with the left hand perfect fifths D^b-A^b and B^b-F.

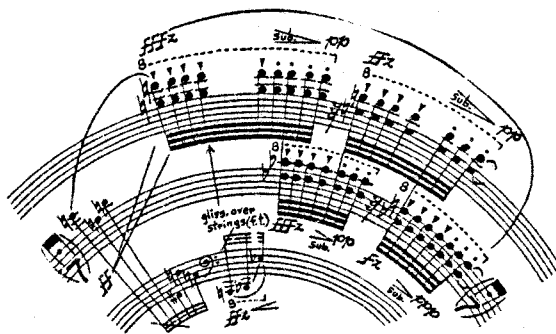
When the D^b-A^b of the left hand is combined with the G-D of the right hand a sonority of two perfect fifths a half-step apart

Table XIII. Pattern of perfect fifths
which descend by minor thirds,
found in motive 2, II/4



results, or a $P_2D_2T_2$. This sonority was first found in motive 2, of fantasy-piece II/1, "Morning Music (Genesis II)" and was also seen to be the basis of fantasy-piece II/2, "The Mystic Chord." Here it has been preceded by the use of two PDT sonorities in motive 1. The left hand D^b-A^b is repeated seven times and overlaps into the E-B of the right hand. After a thirty-second note rest the left hand, as did the right hand, moves down a minor third to B^b-F , which is also repeated seven times. The B^b-F with the E-B again forms a $P_2D_2T_2$ sonority. Rests of seven seconds frame this complex of motives 1, 2, and 3.

Example 61. Motives 1, 2, and 3, II/4, Circle A, page 10



Motive 4

A motive which will become important in other pieces in Volume

II and which, like motive 3, is found throughout the Makrokosmos, follows. It consists of two simultaneities of six whole tones a half-step apart, thus encompassing all twelve chromatic tones.

Example 62. Motive 4, II/4, Circle A, page 10



Juxtaposition of whole and half-steps has been seen particularly in the preceding piece, II/3, "Rain-Death Variations"; use of the whole tone sonority was found also in II/2, "The Mystic Chord."

The motive 4 grace note chords are followed by motive 2, here on C-G, repeated seven times. Motive 4 is again heard; this time the two simultaneities are a perfect fifth apart. This, then, forms a link with the perfect fifth interval of motive 2.

Another series of overlapping perfect fifths of motive 2 is then begun; here, however, the perfect fifths move up by whole steps in each hand, reiterating the whole step relationship of motive 4. The sonorities formed between the two hands are always a $P_2D_2T_2$. This occurrence of motive 2 reflects, again, the intervals in motive 4 by encompassing all twelve chromatic tones. It ends with the perfect fifth G-D, the same perfect fifth in the first appearance of motive 2.

After a rest of five seconds, motive 2, begun by the left hand this time, is again heard. The hands each move down by minor thirds, and as before, $P_2D_2T_2$ sonorities are formed between the perfect fifths of both hands. After a seven second rest the music of Circle B is to be played.

Table XIV. Whole step, $P_2D_2T_2$ sonority,
and twelve chromatic tones of motivic
complex 2, 3, and 4, II/4

	Whole steps			
Right Hand:	A--E	B--F [#]	C [#] --G [#]	Use of all twelve chromatic tones
Left Hand:	E ^b --B ^b	F--C	G--D	
	$P_2D_2T_2$	$P_2D_2T_2$	$P_2D_2T_2$	

Form of Circle A

The form of Circle A is a-a'-coda. The musical material used seems to grow organically out of itself. Section a consists of motives 1, 2, and 3, with motive 1 furnishing the basic material of the entire a section. The interval of a perfect fourth, taken from the last two notes of the second PDT grace note cell, and inverted to a perfect fifth, forms motive 2. If the pattern of a perfect fourth is continued downward the actual notes used in motive 2 result: F-C-G-D. The last two notes of the first PDT grace note cell, the tritone A-D[#], are used as the range of the chromatic glissando of motive 3. The minor third relationship between the two PDT cells is used as the relationship between the repeated perfect fifths of motive 2. And finally, the PDT sonority of motive 1 itself is compounded into a $P_2D_2T_2$ in motive 2.

Section a' begins with the two grace note simultaneities of motive 4 and uses also motives 2 and 3. The chromatic relationship of the two whole tone simultaneities is related to the chromatic glissando of motive 3, while the perfect fifth interval between the two simultaneities of motive 4 in their second appearance is related to the perfect fifths of motive 2. Further, use of the whole tone between the

repeated perfect fifths, and the fact that this appearance of motive 2 encompasses all twelve chromatic tones closely relates it to the musical materials of motive 4. The final perfect fifth interval in section a' forms a musical "circle" in that this is also the perfect fifth interval used in the first appearance of motive 2 (G-D) and thus is closely linked to motive 1.

The coda, which uses the perfect fifths of motive 2 and the PDT sonority of motive 1, again returns to the minor third relationship between the perfect fifths, as in section a. The musical circle is completed with the final perfect fifths, F-C, which are also the last two notes of the second PDT cell of motive 1. This coda, similar to the coda of the preceding three pieces, is played very softly, as an echo.

The music of Circle A, then, grows out of the relationships seen particularly in motives 1 and 4. The circle notation itself is reflected in the music, in that the notes found at the end (G-D and F-C perfect fifths) are those which are also used at the beginning. This piece is important because two motives which are found later in the volume and which also serve as thematic links between all three volumes of the Makrokosmos are first found here: motive 3 (chromatic glissando with the range of an octave plus tritone) and motive 4 (two six-note whole tone simultaneities a half-step apart).

Exploration of Motivic Structures:
Circle B

Circle B, marked "Solemn," is called "Hymn for the Advent of the Star-Child." In this circle the boxed notes are to be depressed silently on the keyboard while the right hand executes a glissando over the

strings with the fingertip, thereby setting into vibration only those strings which have their dampers raised. This is in contrast to Circle A, where everything (with the exception of motive 4) was played on the keys.

Motive 5

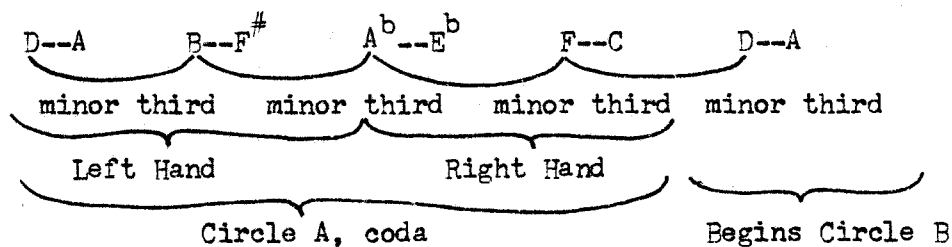
Motive 5 consists of the notes D-A-D, which are silently depressed, caught by pedal II, and held throughout Circle B.

Example 63. Motive 5, II/4, Circle B, page 10



The perfect fifth relationship was first seen in motive 2, and continues the descending minor third pattern of the coda of Circle A.

Table XV. Pattern of perfect fifths
which descend by minor thirds,
begun in coda of Circle A

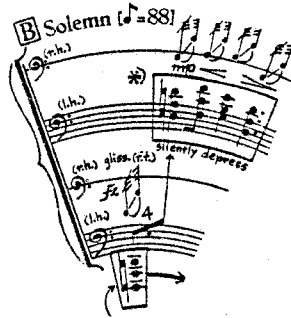


Motive 6

Motive 6 begins the actual Hymn, which is punctuated periodically

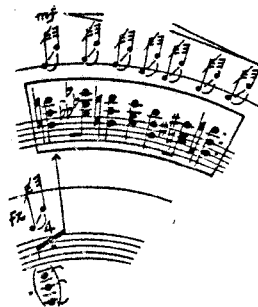
by the strumming of the pedal tones of motive 5 and the insertion of rests of four seconds. The archaic-sounding Hymn is in the octave-fifth relationship of parallel organum of the Musica Enchiriadis but is interspersed with six-three chords, quite suggestive of Machaut. The rhythm is even similar to the trochaic first rhythmic mode ($\text{♩} \text{♩} \mid \text{♩} \text{♩} \mid \text{♩}$ etc.).

Example 64. Motive 6, II/4, Circle B, page 10



The second "phrase" of motive 6, heard after the interruption of motive 5 and a four second rest, is expanded. The first and second phrases reiterate the minor third in that the first phrase ends on D and A, while the second phrase begins with F and C. This phrase ends with a Landini-type (or double leading tone) cadence.

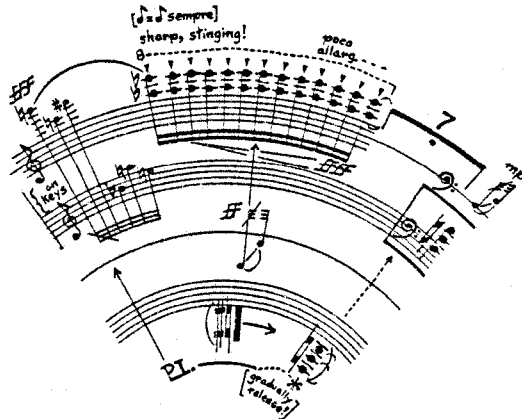
Example 65. Motive 6, phrase 2, II/4, Circle B, page 10



The third phrase follows and then motive 5 is strummed twice; the last phrase is exactly the same as the first. The form of motive 6 could be said to be a-a'-a''-a, or a-b-c-a.

The Hymn is interrupted violently by motives 1 and 2 from Circle A. This interruption is marked "sharp, stinging!" and encompasses a crescendo from triple forte to quadruple forte. The perfect fifths are repeated, symbolically, thirteen times, and a seven second rest separates this occurrence of motives 1 and 2 from the resumption of the Hymn.

Example 66. Motives 1 and 2, II/4, Circle B, page 10

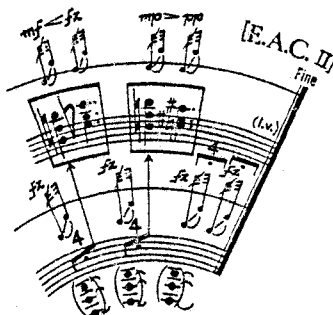


On the seventh repeated perfect fifth the left hand strums a chromatic glissando with pedal I depressed. The pedal I is then gradually released over the duration of the seven second rest, so that the D-A-D pedal tones ring through softly.

The second and third phrases of the Hymn are then played as before. The piece ends with two fragments of motive 6, separated by motive 5 and the four second rest. The final two Hymn chords are a retrograde Landini cadence--that is, it cadences on the leading tone,

almost in a questioning manner. The circle ends, as it began, with the strumming of motive 5.

Example 67. End Circle B, II/4, page 10



Form of Circle B

The form of Circle B could be said to be a-interruption-a'-coda (or a-b-a'-coda). The a section consists of motives 5 and 6 and itself could be broken down into a small (a-b-c-a) form. The interruption uses motives 1 and 2 from Circle A. A' uses only the two middle phrases of a (b and c), while the coda uses the two-chord motive of (a). The large form of "Twin Suns (Doppelgänger aus der Ewigkeit) / SYMBOL," as could be expected of Gemini--the twins--is simply A-B. That Crumb considered this piece to be important is confirmed by the fact that he uses it, enlarged, as the third movement of Makrokosmos, Volume III.

Several characteristics of the composer's style may be observed from this analysis of the first part of the Makrokosmos, Volume II. Structurally Crumb seems to work in small scale forms which achieve their coherence largely from the principle of repetition rather than of motivic development. Individual motivic units, each with its own pitch content, rhythm, and timbral/dynamic personality are ordered and

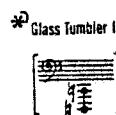
recordered for the purpose of dramatic tension and release and form a mosaic design. Typically a coda, heard as an "echo," will refer back to the key motives of the piece. This modular method of construction will be found in all of the fantasy-pieces.

Crumb's basic musical vocabulary consists of various twelve tone groupings, but there is no ordering according to any type of serial procedure. The tritone and the perfect fifth are the key intervals in the work, and the tritone functions both as a divisor of the total chromatic scale and as a basis of the two pervading sonorities, here labeled as PDT and MST. Motives from all of the pieces relate to each other through their mutual kinship to these sonorities.

Part Two:
"Fantasy-Piece II/5
Ghost-Nocturne: For the Druids of Stonehenge
(Night-Spell II) "

"Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)," as the first piece of Part Two, uses the surface preparation of two glass tumblers laid on their sides and placed inside the piano on the strings. Each of the tumblers is to span at least a minor seventh.

Example 68. Surface preparation used in II/5, "Ghost-Nocturne"



This is the first piece in Volume II to utilize the voice, which here sings the syllables "wā-ō." "Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)" is primarily concerned with unusual timbres while the motivic substance is the same as that found in earlier fantasy-pieces. It is marked "Dark, fantasmic, subliminal."

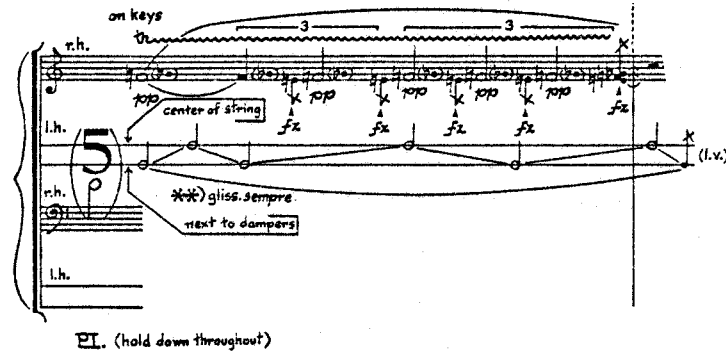
Exploration of Motivic Structures

Motive 1

Motive 1, system 1, page 11, consists of a trill on the keyboard on F and G^b with the use of an embellishing grace note, E.

The E is marked "fz" with an accent; the trill itself is pianissimo. While the right hand is playing this three-chromatic-note figure the left hand slowly moves the glass tumbler along the strings at the same time pressing the tumbler firmly against them. Crumb calls this a "bending" of the pitch and it produces a truly "fantasmic" timbre.

Example 69. Motive 1, II/5, system 1, page 11

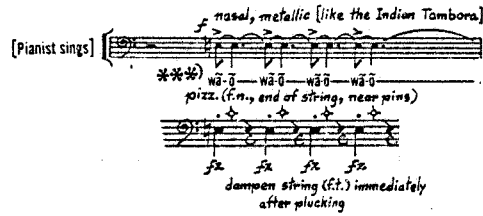


Use of a three-chromatic-note figure was seen earlier as the basis of II/3, "Rain-Death Variations." Motive 1 occurs again twice: at the beginnings of systems 2 and 3.

Motive 2

In motive 2 the pianist sings "nasal, metallic [like the Indian Tambora]" the syllables "wā-ō." The left hand plucks (with the fingernail) the same note that the voice is intoning, then dampens the string immediately, creating a second unusual contrasting and distinctive timbre. This motive is found four times throughout the piece: system 1 (middle and end); system 2 (extended); and system 3. The notes used for motive 2 form a five-note whole tone sequence E-D-A^b-F[#]-C (C-D-E-F[#]-A^b), the first three notes of which form an MST sonority (E-D-A^b), as do the last three notes, A^b-F[#]-C. As was

Example 70. Motive 2, II/5, system 1, page 11

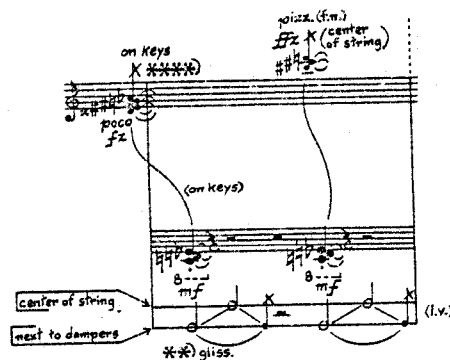


true also in II/3, "Rain-Death Variations," a close juxtaposition of chromatic half-steps (as in motive 1) and whole steps is found.

Motive 3 or 1a

Motive 3 is closely related to motive 1 in its use of three- and five-note chromatic clusters and in the "bending" of the pitch with the glass tumblers. The timbre created, however, is somewhat different from that of motive 1. The first five-note chromatic cluster (which is simply an expansion of the three-note cluster of motive 1: $D^{\ast}-E^{\sharp}-F^{\sharp}-G-A^b$) is a grace note figure which is played on the keys; when this cluster is played a metallic timbre is produced as the first glass tumbler vibrates freely on the strings.

Example 71. Motive 3, II/5, system 1, page 11



A three-note chromatic cluster (using the same notes as motive 1 but two octaves lower) is struck in the bass and the second glass tumbler is then slowly moved along the bass strings. A second three-note chromatic grace note figure, played pizzicato on the strings, preceded the repetition of the bass glissando.

This motive occurs two other times. In its second appearance, in system 2, the five-note chromatic cell is transposed down a whole step and the repetition of the bass glissando includes the use of a trill, as in motive 1. Here motive 3 overlaps into the third (and expanded) presentation of motive 2. Motive 3 is found again at the very end (end of system 3, page 11). The grace note figure now consists of simply striking glass tumbler I and allowing it to vibrate freely. At the conclusion of the piece the glass tumblers are silently removed and II/6 is to be played attacca.

Example 72. Third appearance of motive 3, II/5, system 3, page 11

Larger Formal Structure

The motivic material used in "Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)" is extremely simple. Motives 1 and 3 use three- and five-note chromatic cells, while each appearance of

motive 2 uses only one note; however, the presentations of motive 2 combined form a five-note whole tone scale. The principal interest here is timbre. Formally the piece consists of alterations of the three motives in the following order: 1--2--3--2, 1--3--2 1--2--3.

Fantasy-Piece II/6
"Gargoyles"

The sixth fantasy-piece, "Gargoyles," begins a gradual intensification in tempo and dynamics which culminates in the climactic eighth piece, "A Prophecy of Nostradamus." "Gargoyles" is a "Marcia grottesca" in 5/8 time, and Crumb directs that it be played "savagely, with irony." This piece does not focus on subtleties of timbre and texture as did "Ghost-Nocturne" and motivically is much more complex. In addition, "Gargoyles" uses several motives and figures heard earlier in the first four fantasy-pieces. For the most part this is a loud composition, and is generally very low in register. It may be divided, for the purposes of analysis, into two large sections plus a coda. However, this division into sections is aurally not apparent.

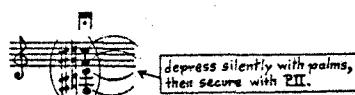
Exploration of Motivic Structures

Silently Depressed Notes--Motive 3

At the beginning two chromatic cells are to be depressed silently with the palms and secured with pedal II which is held throughout. Each cluster spans a perfect fifth: $G^\sharp-D^\sharp$ in the left hand, and $F^\sharp-C^\sharp$ in the right hand. This motive could be said to be related to the pentatonic scale formation of motive one, II/1 ("Morning Music (Genesis II)") in its use of ascending perfect fifths to form the outer notes of the clusters: $F^\sharp-C^\sharp-G^\sharp-D^\sharp$.

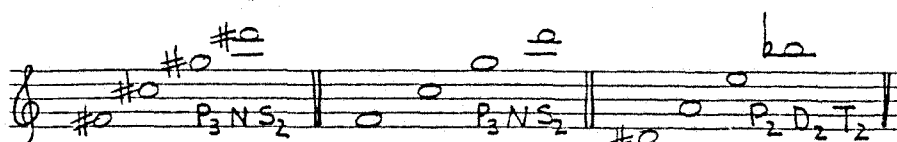
The division of the chromatic by perfect fifths was also seen as the relationship between motives one and two of II/4 "Twin Suns."

Example 73. Motive 3, II/6, system 1, page 12



Silently depressed notes, also based on ascending fifths (or descending fourths) although not all perfect fifths, were found at the beginning of II/2, "The Mystic Chord."

Example 74. Division of the chromatic by fifths (or fourths) in II/1, II/2, II/4, and II/6



Ascending perfect fifths of II/1 and II/6	Perfect fifth relationship between motives 1 and 2, II/4	Ascending fifths of II/2
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The outer notes of the motive, $G^{\#}-D^{\#}-F^{\#}-C^{\#}$, form a P_3NS_2 sonority. Although the motive is not actually sounded at the beginning, it is heard in systems 1 and 2, page 12, and systems 1 and 2, page 13, as a glissando over the strings with the fingernail. Therefore it will be labeled motive 3 as would be proper in the sequence of numbered motives.

Since the pedal I is not depressed, the notes of motive 3 will sound for this glissando. The same pedal device was also found in the glissando (motive 1a) of II/2, "The Mystic Chord."

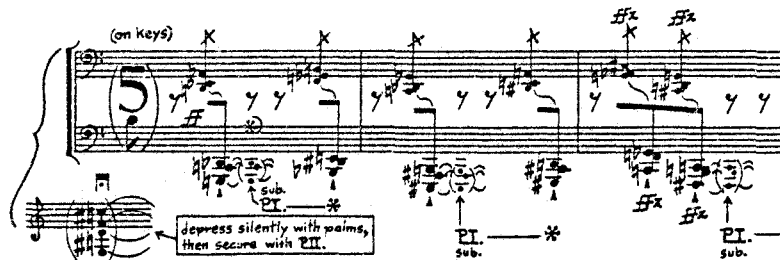
Example 75. Motive 3 sounded as a glissando, II/6, system 1, page 12



First Section: Motives 1-5
Motive 1

The "march" actually begins with motive 1, which is played on the keys and consists of a grace note figure in the right hand followed by an eighth note figure in the left hand. Pedal I is to be depressed suddenly after the eighth note chords are struck so that a faint "echo" of the chord continues to sound on the first, third, and sixth eighth notes of the series.

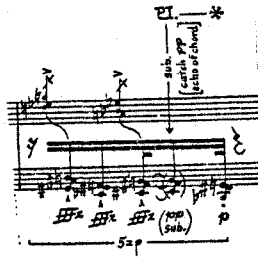
Example 76. Motive 1, II/6, system 1, page 12



This same motivic figure, with the pedal echo, was seen in the "Music of Strife" section of II/2, "The Mystic Chord" where it was labeled motive 4, a clear motivic link between II/2 and II/6.

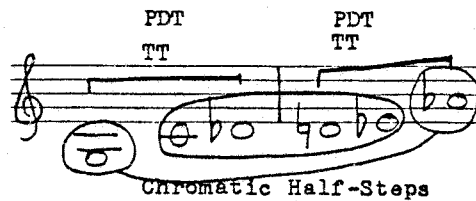
Both the grace note chords and the eighth note chords are a PDT sonority; the grace note chords consist of a minor second plus perfect fourth, while the eighth note chords invert the intervals to

Example 77. Motive 4, II/2, system 2, page 8



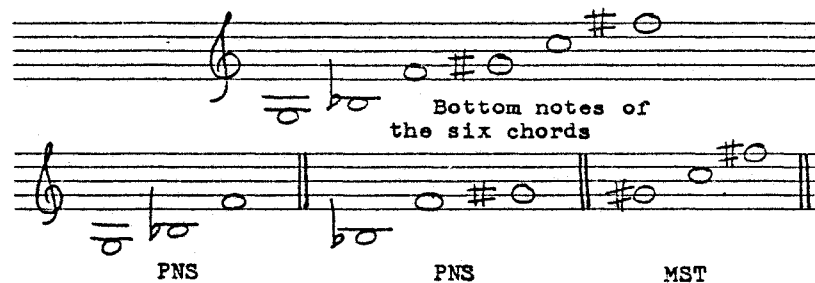
a perfect fourth plus minor second. The two PDT sonorities are connected by half-steps, so that a half-step is found between the top and bottom notes, while the four middle notes are also in a chromatic half-step relationship. The outer notes of each chord form a tritone.

Example 78. Half-step relationships between the two PDT sonorities (grace note and eighth note chords) of motive 1, II/6



Horizontally the bottom notes of the six eighth note chords form overlapping PNS and MST relationships.

Example 79. PNS and MST sonorities formed by the bottom notes of the PDT chords of motive 1, II/6

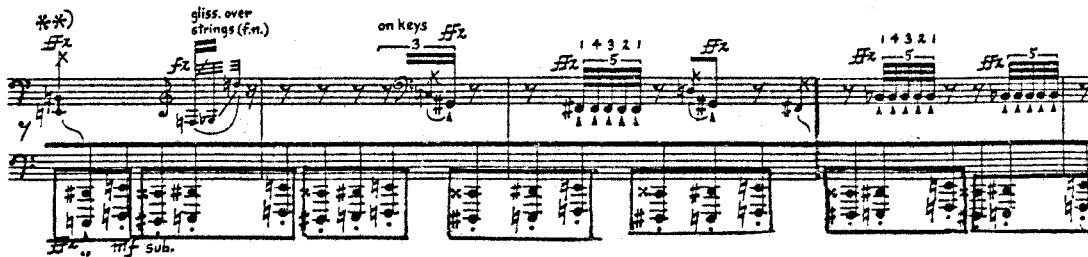


The basic musical materials of the Makrokosmos, found first in motives 1 and 2 of II/1, "Morning Music," are also seen immediately in II/6, "Gargoyles": the division of the chromatic by perfect fifths and by tritones; the chromatic half-step relationship; the PDT, MST, and PNS sonorities. While other fantasy-pieces exploited one or two of these building blocks (i.e. II/2 was based almost solely on PDT and MST, II/3 and II/5 used chromatic half-steps), II/6 is more complex in its integration of all the basic materials.

Motive 2

The first section of the piece is unified by motive 2 which is found in the left hand.

Example 80. Motive 2, II/6, systems 1 and 2, page 12

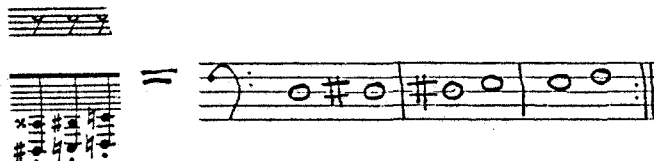


Motive 2 is an ostinato-like pattern which is continued throughout the remainder of the first section (to the beginning of system 4, page 6) with the exception of interruptions of motive 1-a (as in the second measure, system 2, page 12, and measure 3 system 3).

The first time motive 2 occurs (systems 1 and 2, page 12) it is preceded by a grace note chromatic cluster with the range of a perfect fifth, E-B. This presentation of the motive consists simply of the

interval of a major seventh, which is sequenced up a half-step twice, a pattern which is repeated seven times, forming four-note chromatic cells.

Example 81. Four-note chromatic cells formed from the first appearance of motive 2



The second time motive 2 is heard (measures 3 and 4, system 2, page 12, here labeled motive 2-a) a tritone up from the bottom notes has been added, forming a PDT sonority and therefore relating it closely to motive 1.

Example 82. Motive 2a, II/6, system 2, page 12



This PDT chord is repeated up a whole step to form a complete whole tone scale, the bottom notes of which are $D^b-E^b-F-G-A-B$. These are the same notes used as the basis of the MST and whole tone sonorities of II/2, and thus provide another subtle internal link between these two pieces. Motive 2-a is found again in measures 4 and 5 of system 3, page 12.

Motive 2-b follows the first appearance of motive 2-a in measures 4 and 5 of system 2. Here it is in a three chord ostinato

pattern as it was in its first presentation in system 1, with the addition of the tritone as in motive 2-a. This combines the PDT sonority with the chromatic half-steps, while motive 2-a combined the PDT sonority with whole tones. The pattern of 2-b is repeated seven times.

Example 83. Motive 2b, II/6, system 2, page 12

Motive 2-c is found in the last measure of system 3 and the first measure of system 4. The addition of one note in the right hand doubles the PDT sonority of motives 2-a and 2-b to a $P_2D_2T_2$. Here the pattern of three chromatic half-steps up is repeated only twice.

Example 84. Motive 2c, II/6, systems 3 and 4, page 12.

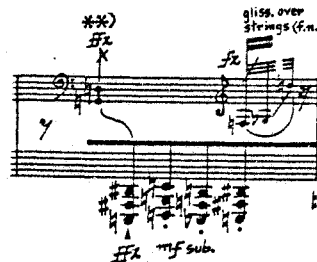
Each time the left hand motive appears, it is slightly more complex. While motive 2 uses simply the interval of a major seventh,

motive 2-a adds a tritone to form a PDT, and motive 2-c adds another tritone to form a $P_2^D T_2$. Motives 2-b and 2-c combine the PDT sonority with chromatic half-steps, while 2-a combines the PDT with a whole tone scale.

Motives 3, 4, and 5

While the left hand is repeating the various transformations of motive 2, the right hand has three motives: motives 3 and 4 are heard in combination with motives 2 and 2-b, while motive 5 is heard only with motive 2-c. The glissando over the notes which were silently depressed at the beginning and held with pedal II constitutes motive 3. This glissando motive is found twice on page 12: measure 4, system 1, and measure 5, system 2 (see example 75).

Example 85. Motive 3, II/6, system 2, page 12



Motive 4 consists of two parts. The first part is an embellishing grace note chord with an accented "ffz" main note. Five accented repeated notes make-up the second part of the motive. A precedent for these five repeated notes may be found in II/1, "Morning Music (Genesis II)," motive 8, which also consisted of five repeated thirty-second notes, all fortissimo with accents.

Example 86. Motive 4, II/6, system 1, page 12

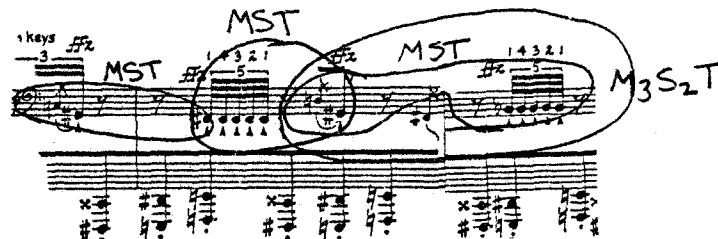


Example 87. Five repeated notes from II/1, motive 8, system 4, page 6



The first appearance of motive 4 forms a horizontal MST:
 $C-G^{\#}-F^{\#}$. The second appearance of motive 4, which follows immediately,
 also forms an MST: $D-G^{\#}-B^b$. With the $F^{\#}$ grace-note, a M_3S_2T sonority
 is found. An MST sonority also links the two occurrences of motive 4:
 $F^{\#}-G^{\#}-D$.

Example 88. MST sonorities found in motive 4, II/6

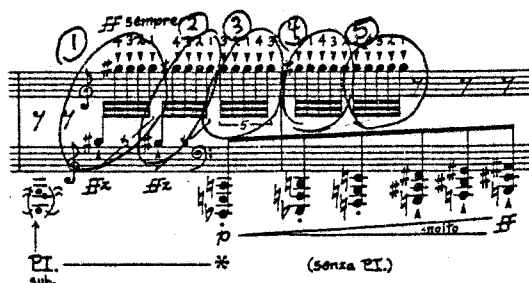


Motives 3 and 4 reiterate the horizontal sonorities formed
 by the bottom notes of motive 1 (see example 79): motive 3, a
 P_3NS_2 , reflects the relationship of the first four bottom notes, while

motive 4 reflects the relationship of the last three notes, or MST. Motive 2-b, which occurs under the second appearance of motives 3 and 4 (measures 4 and 5 of system 2, and measures 1 and 2 of system 3, page 12) reiterates the PDT vertical sonority of motive 1.

Motive 5, found in system 2, measure 3, page 12, is related to motive 4 in that it uses five repeated notes, as did the second part of motive 4, but it will be called by a new motive number. This motive achieves prominence because the range is high--the G[#] it uses is the highest note in this fantasy-piece--and because it is repeated fortissimo five times.

Example 89. Motive 5, II/6, system 2, page 12

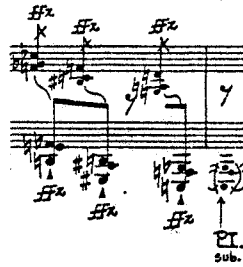


This motive occurs three times in the composition: in systems 2 and 3, page 12, and at the very end, system 2, page 13, where it is found without the left hand accompaniment.

The left hand repetitions of motive 2, as mentioned above, are interrupted briefly three times by variations of motive 1. In measure 2, system 2, and measure 3, system 3, a shortened version of motive 1 is found, here called motive 1-a. Motive 1-a consists simply of three PDT chords plus grace note embellishing chords, with descending bottom notes forming MST sonorities. (It will be remembered that the bottom notes of the last three chords of motive 1 also formed

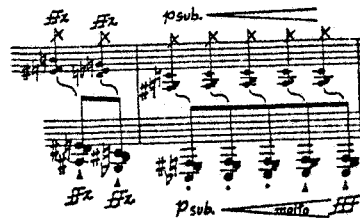
an MST; see example 79.)

Example 90. Motive 1a, II/6, system 2, page 12



Motive 1-b ends this first large section of II/6. It is found in measures 1 and 2 of system 4, page 12.

Example 91. Motive 1b, II/6, system 4, page 12



The last chord here is repeated five times, echoing the relationship of the repeated notes of motives 4 and 5. The bottom notes of motive 1-b ($C^\sharp-B^b-E^b$) form a PNS sonority, the same sonority formed by the first three bottom notes of motive 1 (see example 79).

This first section of "Gargoyles" is framed by motives 1 and 1-b, while the two appearances of motive 1-a interrupt the repetition of the left hand ostinato figure of motive 2. The form could be seen as: introduction (motive 1); a (motives 2, 3, 4, $\boxed{4}$, 1-a, 5); a' (motives 2, 3, 4, $\boxed{4}$, 1-a, 5); closing material (motives 2-c and

2-b). It is interesting to observe that this "closing material" contains all the important elements of the entire first section. The chromatic cluster with the range of a perfect fifth found at the beginning of motive 2-c reflects the chromatic clusters of motive 3. The left hand ostinato pattern of motive 2 is found in 2-c, while the $P_2D_2T_2$ sonority links motives 2-c and 1-b. The five repeated B's at the end of motive 2-c are related to motive 4 (and thus to motive 5). And finally the horizontal PNS formed by motive 1-b is the same sonority of motive 1 (and motive 3).

Second Section:

Motives 6, 7, 8, 1c, 1d, and 9

The second section of fantasy-piece II/6 is formed by motives 6, 7, 8, 1-c, 1-d, and 9. Motives 6, 7, and 9 appear only once in the piece and therefore help to define its form. The section begins in measure 3, system 4, page 12 and ends in measure 4, system 1, page 13. It is played entirely without pedal I and is entirely staccato.

Motive 6 contains the same type of figuration as motive 1-b but consists of a five-note chromatic figure $F-F^\sharp-G-G^b-A$, with the whole tone $F^\sharp-A^b$ in the bass and the three whole tones $F-G-A$ in the right hand. The last chords, emphasized by the dynamic subito fortissimo, are a four-note chromatic figure $G^\sharp-A-B^b-B$.

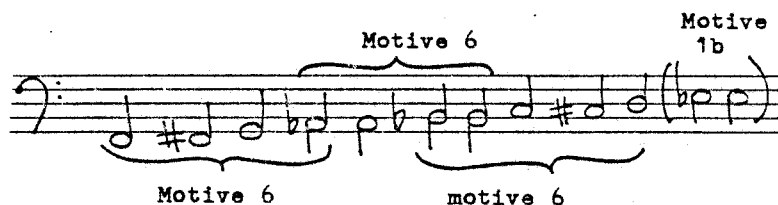
Example 92. Motive 6, II/6, system 4, page 12



Motive 7 is found in the left hand. It is a two-chord ostinato pattern which is repeated six times, similar to motive 2. The first chord is made-up of three whole tones, B^b-C-D, while the second chord consists of the whole tone B-C[#]. Together these form a five-note chromatic figure like that found in motive 6.

The notes of motive 6 and 7 form an interlocking chromatic scale. The two chromatic notes not found in motives 6 and 7, E^b and E, are the outer notes of motive 1-b which precedes motive 6.

Example 93. Chromatic scale formed by motives 6 and 7, II/6



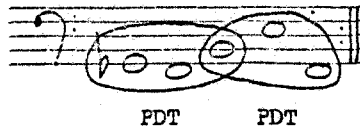
While the left hand is repeating motive 7, the right hand plays motive 8, which consists of a triplet figure plus grace notes.

Example 94. Motive 9, II/6, system 4, page 12



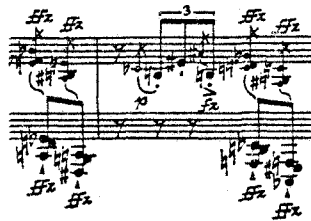
The notes in this motive form interlocking PDT sonorities. Motives 7 and 8 are not unlike figures found already in II/3, "Rain-Death Variations" (see example 46, page 60).

Example 95. Interlocking PDT sonorities of motive 9, II/6



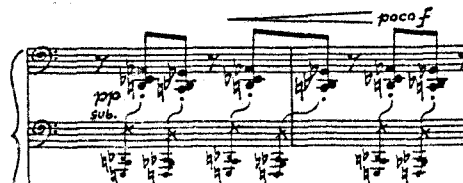
Motive 1-c, which follows motives 7 and 8, consists of a fragment of motive 1. Here the two PDT chords plus grace notes are a tritone apart. Motive 8 is heard alone, transposed down a minor third from its first appearance. Motive 1-c is then repeated, also down a minor third.

Example 96. Motives 1c, 8, and 1c, II/6, system 4, page 12



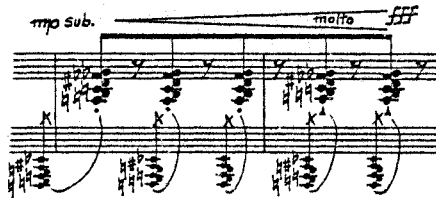
Motive 1-d which follows is repeated three times, encompassing a crescendo from subito pianissimo to forte. Here the figure is reversed so that the grace notes are in the left hand while the eighth notes are in the right hand. The interval between the two chords is a whole step.

Example 97. Motive 1d, II/6, system 1, page 13



Motive 9 uses the grace note plus eighth note figure of motive 1-d, but here each hand has a six-note whole tone scale; the scales are one half-step apart and thus encompass all twelve chromatic tones, the same figure found in II/4, "Twin Suns (Doppelgänger aus der Ewigkeit) [SYMBOL]" where it was called motive 4. It is an important figure throughout the Makrokosmos and will be found again in later fantasy-pieces. Motive 9 may be seen as an expansion of motive 6. The second section of the piece ends with this motive.

Example 98. Motive 9, II/6, system 1, page 12



The second section, then, is formed by motives 6, 7, 8, 1-c, 1-d, and 9 and it must be pointed out that these motives are not found elsewhere in this fantasy-piece. The section is based entirely on half and whole steps, plus some use of the vertical (motives 1-c and 1-d) and horizontal (motive 8) PDT sonority. It culminates in motive 9, where all possible half and whole step combinations are found.

Coda

The ending, coda-like section, again typical of Crumb in that it recalls former motives, integrates the PDT chords of motive one with the left hand ostinato pattern of motive 2 and the glissando figure of motive 3. The piece ends with the G[#] repeated notes of motive 5, here without the left hand accompaniment of motive 2. Formally, then, II/6, "Gargoyles," may be viewed as A-B-Coda.

Example 99. Coda section, II/6, systems 1 and 2, page 13

Integration of Motives

"Gargoyles" is highly integrated in its use of PDT, some MST and PNS sonorities, and in the use of chromatic and whole tone groupings. One motive seems to grow organically out of the preceding one as an elaboration. Motive 1, for example, contains a vertical PDT and horizontal PNS and MST sonorities. Motive 2 grows into a vertical PDT sonority and contains, horizontally, chromatic half and whole steps. Motive 3 is a PNS sonority, relating it to the horizontal PNS of motive 1; in addition, the chromatic cluster with the range of a perfect fifth found at the beginning of motive 2 relates it to motive 3. Motive 4 expands the horizontal MST sonority from motive 1, and motive 5 grows out of the five repeated notes heard at the end of motive 4.

In the second, P section, motive 6 uses the same type of figuration as motive 1, but contains the half-step relationship found horizontally in motive 2. Motive 7 is also related to motives 2

and 6 in its use of half and whole steps, while the horizontal PDT sonority of motive 8 relates it to motive 1. The two whole tone sonorities a half-step apart (motive 9) are related to motives 2, 6, and 7.

Several motives and figures found in "Gargoyles" have already been seen or hinted-at in the first four fantasy-pieces. The five note repeated figure of motives 4 and 5 was seen first in motive 8 of II/1, "Morning Music (Genesis II)." The use of silently depressed notes which are then sounded as a glissando was found in II/2, "The Mystic Chord." In addition, motive 1 of II/6 could be considered an almost direct quote from the "Music of Strife" section of II/2. Similarities can be found with II/3, "Rain-Death Variations," in the use of little pedal I, staccato playing, and in ostinato-like rhythmic patterns. Chromatic clusters, such as are found in motives 6 and 7 of II/6 are very much like those seen in motive 1 of II/3. And finally from II/4, "Twin Suns (Doppelgänger aus der Ewigkeit) [SYMBOL]" comes the motive of two whole tones a half-step apart.

Fantasy-Piece II/7
"Tora! Tora! Tora!
(Cadenza Apolittica)"

Fantasy-piece II/7, "Tora! Tora! Tora! (Cadenza Apolittica)" has the highest density of notes per page of any section of the entire second volume of the Makrokosmos and is the most difficult piece to perform, as its title "(Cadenza Apolittica)" suggests. The shouted word of "Tora!" found at the end is the code word for the Japanese attack on Pearl Harbor. The composition contains a myriad of motivic complexes of many contrasting textures and moves at a staggering tempo. It effectively continues to build the dramatic, rhythmic, and dynamic motion which was begun in II/6, "Gargoyles." It is marked, appropriately, "Dramatic, with great intensity; violent, restless."

Because the score of II/7 is visually forbidding, the piece will be approached from the perspective of its overall form first, so that the reader can perceive the role of the various motives within the work as a whole. To clarify the score, a brief inventory of all the motives will be given at the beginning. These motives will then be re-explored later in the discussion when a detailed dissection of the individual elements of the piece will clarify their content.

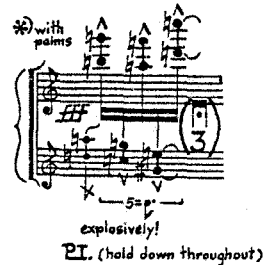
Brief Inventory of Motives

Motive 1

Motive 1 consists of a five-sixteenth-note plus embellishing grace note figure. These six simultaneities are chromatic clusters

to be played with the palms. The motive occurs four times: at the beginning, system 2, page 13; beginning of system 3, page 13; and system 1, page 14; and middle of system 5, page 13.

Example 100. Motive 1, II/7, system 2, page 13



Motivic complex 2, 7, and 8

Motive 2 is found several times throughout the piece. Its use of whole tones a half-step apart is expanded and contracted in the several occurrences of the motive, and it serves as a sonority from which two other motives are derived. It is first found after the three second rest which follows motive 1.

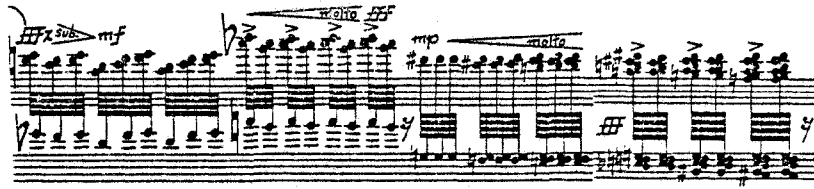
Example 101. Motive 2, II/7, systems 2 and 3, page 13



In its second appearance (end system 4 and beginning system 5 page 13) the whole tones are expanded to form two complete whole tone scales a half-step apart.

This is preceded by motive 7: two whole tone scales a half-step apart which are played as grace notes embellishing motive 2-a.

Example 102. Motive 2a, II/7, systems 4 and 5, page 13



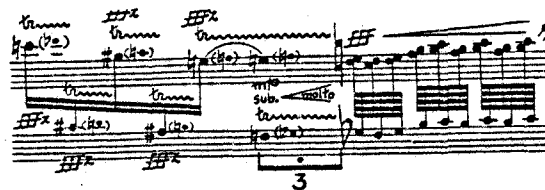
Motive 7, then, is directly related to motive 2 and is found only once in the fantasy-piece.

Example 103. Motive 7, II/7, system 4, page 13



Motive 8, which follows this occurrence of motive 2-a, consists of a realization of motive 2 horizontally. That is, the half-step trills which alternate between the hands are sequenced down a whole step. Motive 8, also, is heard only once; it is followed, after a three second rest, by a fragment of motive 2. This motivic complex of 7, 2, 8, and 2 is framed by the use of three second rests.

Example 104. Motives 8 and 2, II/7, system 5, page 13



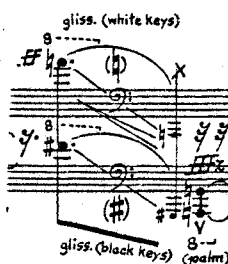
Motive 2-a is found additionally in system 1, page 14; fragments of it occur in the middle of system 4, page 14, and at the

end of system 4 and beginning of system 5, page 14.

Motive 3

Motive 3 consists of a glissando in both hands, the right hand on the white keys and the left hand on the black keys. It is found both ascending and descending and is found seven times: system 2, page 13; system 4, page 13; system 1, page 14; system 3, page 14 (twice); system 5, page 14; and at the end of system 6, page 14.

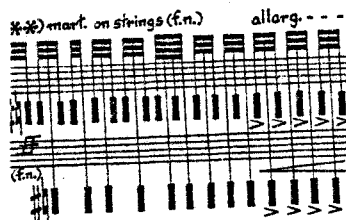
Example 105. Motive 3, II/7, system 2, page 13



Motive 4

A figure which is basically rhythmic in character forms motive 4. It consists of chromatic clusters which are played martellato on the strings with the fingernails. This occurs three times: system 3, page 13; systems 1 and 2, page 14; and system 5, page 14.

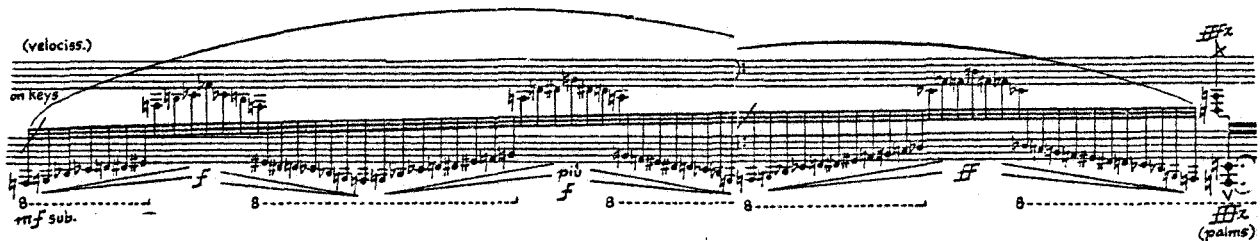
Example 106. Motive 4, II/7, system 3, page 13



Motives 5 and 9

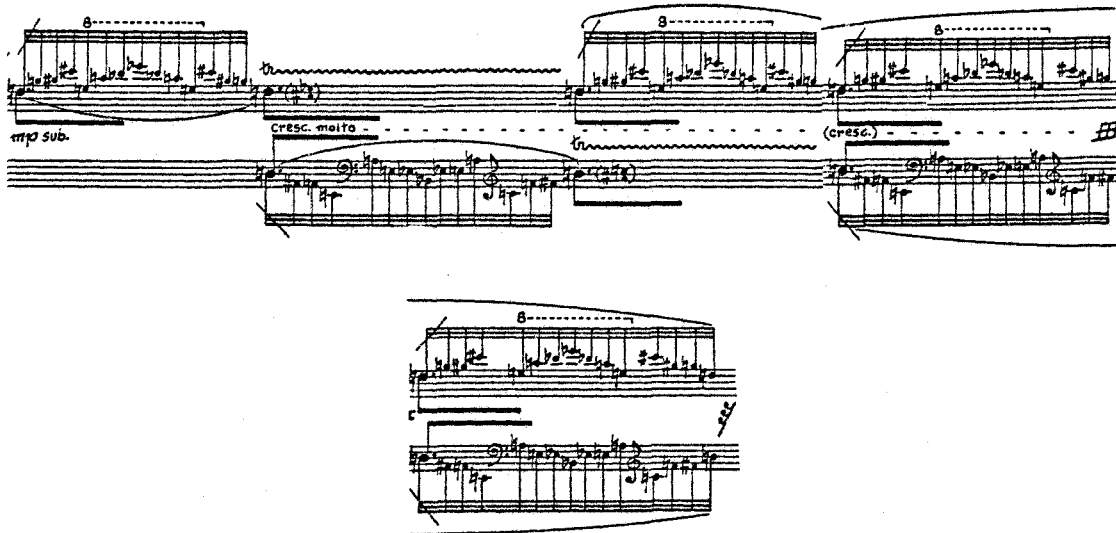
A cadenza figure of continuous running movement constitutes motive 5. It is found three times: systems 3 and 4, page 13; system 2, page 14; and with the addition of the shouted word "Tora!" in system 6, page 14.

Example 107. Motive 5, II/7, systems 3 and 4, page 13



Related to motive 5 is motive 9, which is found in system 4, page 13, and system 5, page 14. Like motive 5 it consists of continuous even rhythmic movement with a build-up in dynamics and contains use of the same (PDT) sonority. Unlike motive 5 it is only heard once.

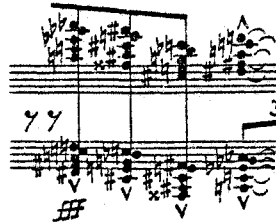
Example 108. Motive 9, II/7, system 5, page 13, and system 1, page 14



Motive 6

The final motive to be catalogued is motive 6. It is first found in system 4, page 13, where it consists of four triplet fortissimo chords.

Example 109. Motive 6, II/7, system 4, page 13



This motive is greatly expanded upon in systems 3, 4, and 5 of page 14, where it forms a section which is interrupted only briefly by motive 2.

Larger Formal Structure

The musical material of II/7 is continuous at a tempo which does not permit an easy aural division into sections. Nonetheless it may be divided into a large A-B-A-C-A form. This general form is outlined below.

[A] Begins with motive 1, system 2, page 13 and ends with motive 6, middle of system 4, page 13

Motives 1, 3, and 4 are coloristic motives, while motives 2, 5, and 6 present the basic material of the piece and are expanded upon in later sections

The first occurrence of motive 1 serves as an introduction and is separated from the main section by a three second rest; in addition, a three second rest is found again at the end of the A section (middle system 4, page 13)

[B] Begins with motive 7, middle of system 4, page 13, and ends with motive 2, middle system 1, page 14

Uses motives 7, 2-a, 8, and 9. These motives are found only in this section

The coloristic motives 1, 3, and 4 are not heard; motive 6 is also not heard

Based, with the exception of motive 9, on variations of motive 2

Motive 9 is similar to motive 5

Motive 2 "frames" the section

Therefore somewhat "develops" the material (especially motive 2) found in the A section

A Begins at the end of system 1, page 14, with motive 1 and ends with motive 3 (descending) in system 3, page 14

Contains, like the first A section, motives 1, 3, 4, 5, and 6

Does not use motive 2; however, this motive was the basis of section B

C Begins with motive 6, greatly expanded, in system 3, page 14, and ends middle of system 5, page 14

Based almost entirely on the development and elaboration of motive 6, with motive 2 occurring only twice, briefly

A' Begins middle system 5, page 14 and goes to the end

Uses motives 1, 3, 4, and 5; omits motive 2, which was the basis of section B, and motive 6, which was the basis of section C

Coda-like in its recall of important former motives

The following figure shows the organization of various motives within the fantasy-piece.

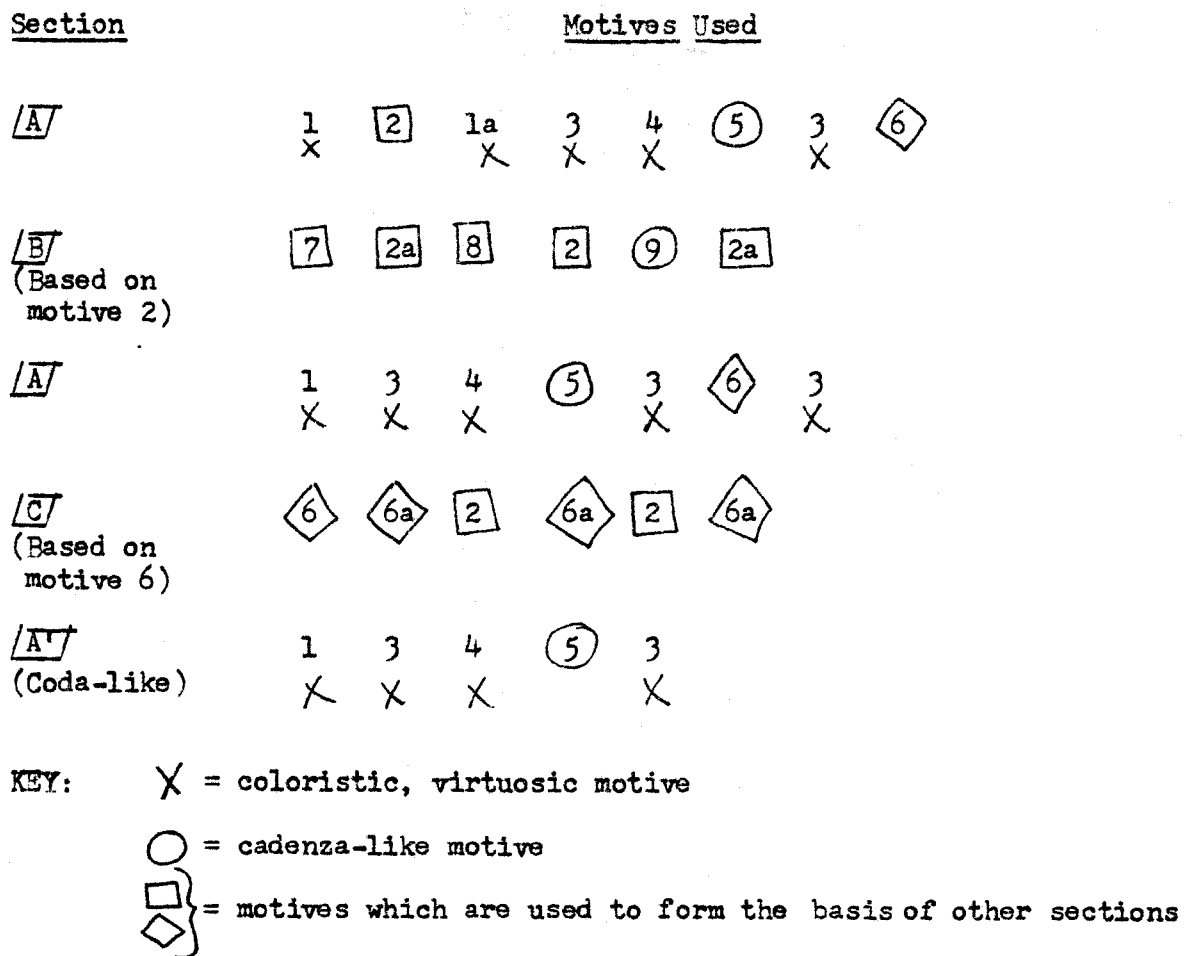


Figure 3. Formal structure of II/7

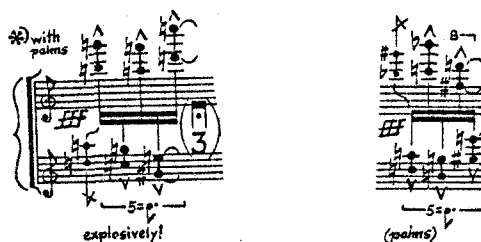
Exploration of Motivic Structures

Motive 1

An exploration of the individual motives and motivic complexes of II/7 reveals characteristics consistent with the constructional principles of the rest of the work. Motive 1, the chromatic clusters to be played with the palms, occurs in two forms.

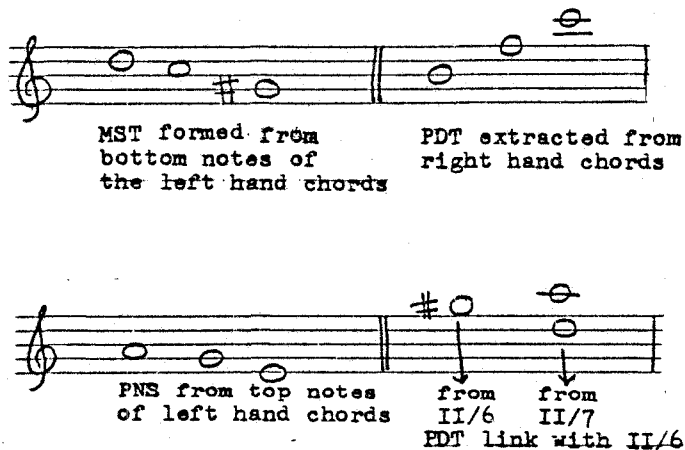
In its first form, which is found at the very opening of the piece, the motive expands the span of the six chromatic clusters from a perfect fifth to a minor seventh. All three of the germinal

Example 110. Two forms of motive 1, II/7, system 2, page 13, and system 3, page 13



sonorities of MST, PDT, and PNS may be found internally. The bottom notes of the left hand chords, D-C-G[#], form an MST. A PDT may be extracted from the bottom note of the right hand, B, with the top two notes of the right hand, F and C. The top notes of the left hand chords, E-G-A, form a PNS. In addition, a very subtle link with II/6 may be found in that the last note of II/6, G[#], with the outer notes of the first perfect fifth cluster, D-A, form a PDT: D-G[#]-A.

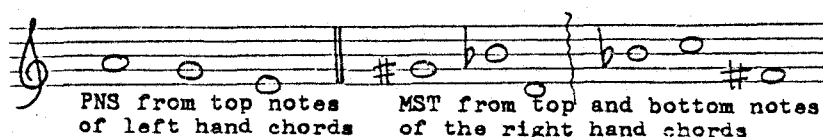
Example 111. MST, PDT, and PNS sonorities extracted from motive 1, II/7



While these relationships are of interest, the function of motive 1 is coloristic, and these sonorities are not aurally perceivable.

In the second form of motive 1, the span of the clusters is also that of fifths, sixths, and sevenths, although the motive does not expand from a perfect fifth to a seventh as it does at the beginning. Here the grace note is found in the right hand instead of the left hand. As in its first form, the top notes of the left hand chords are A-G-E and form a PNS. The top notes of the right hand form an MST ($G^{\#}$ - B^b -D), as do the bottom notes of the right hand, B^b -C- $F^{\#}$.

Example 112. PNS and MST sonorities extracted from motive 1 in its second form

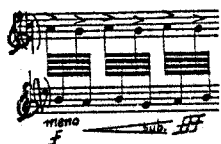


Motives 2, 7, and 8

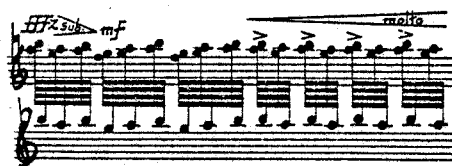
The chromatic half and whole step relationships first heard in motive 2 are found, expanded upon, as a basis of an entire section of the piece (B section). Forerunners of this motive may be found in several preceding fantasy-pieces in Volume II. In II/1, at the end of motive 5, a four-note chromatic figure similar to motive 2 was heard.

As in II/1, the right hand plays only on the white keys while the left hand plays on the black keys. In II/3, "Rain-Death Variations," motive 1-a, the same figure appears again; here a whole tone diad in the right hand has been added.

Example 113. End motive 5, II/1, illustrating its similarity to motive 2, II/7



Motive 5, II/1,
system 4, page 6



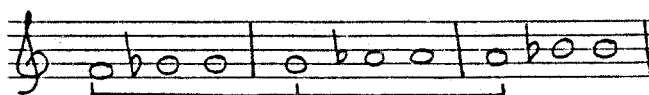
Motive 2, II/7,
system 2, page 13

Example 114. Motive 1a, II/3, system 1, page 9



Motive 2 (II/7) consists of a whole tone diad in the right hand and a single note in the left hand. Together these notes form three-note chromatic cells a whole tone apart, a pattern repeated three times.

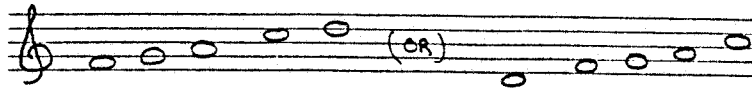
Example 115. Chromatic half-step and whole tones of motive 2, II/7



The pattern oscillates like a trill on the last two chromatic cells (roots of G and A), and then moves up a perfect fourth to "trill" on C-D^b-D and D-E^b-E. The roots of these five chromatic cells form a pentatonic scale, thereby providing another link with fantasy-piece II/1, which opened with the left hand playing the notes of a symmetrical

white note pentatonic scale.

Example 116. Pentatonic scale formed from the "roots" of the three-note chromatic cells of motive 2, II/7



All twelve chromatic tones are heard in motive 2.

Motive 2 is found as the basis of the B section. It first appears (system 4, page 13) as it did in the beginning, as three-note chromatic cells with roots of D-C and A. Here the D-C-A relationship is a PNS sonority. It then moves up a tritone to "trill" on A^b and G^b.

The second segment of the motive occurs after a sixteenth note rest. It begins as a single note in each hand separated by a half-step; it then adds whole tones (the right hand builds whole tones up while the left hand builds whole tones down) to form two complete whole tone scales a half-step apart. This gradual build-up of dissonance by adding more and more chromatic half-steps intensifies a large crescendo from mezzo-piano to triple forte.

Example 117. Second segment of motive 2, II/7, systems 4 and 5, page 13

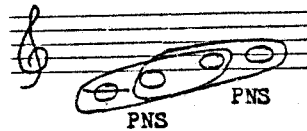


The sonority of two whole tone scales a half-step apart has already been seen in II/4, "Twin Suns," and in the preceding piece, II/6, "Gargoyles," where it was called motive 10 (measure 3, system 1,

page 13).

The occurrence of motive 2 is preceded by motive 7: two whole tone grace note chords a half-step apart. Motive 8, which follows motive 2, is a realization of the motive horizontally: half-step trills a whole tone apart alternate between the two hands. Motive 7 and 8, then, are simply variations of motive 2. A fragment of motive 2 precedes the grace note cadenza of motive 9. The roots here form overlapping PNS sonorities.

Example 118. Overlapping PNS sonorities formed by the "roots" of motive 2, II/7, system 5, page 13



The B section closes with motive 2-a and its buildup into two complete whole tone scales representing the entire chromatic scale. After being used as the basis of the B section, motive 2 is only heard twice again, quite fragmented, as triple fortissimo interruptions of motive 6, in system 3, page 14.

Motive 3

The virtuosic glissando which constitutes motive 3 is found in two forms, ascending and descending. In both forms the right hand plays on the white keys while the left hand plays on the black keys. The glissando covers the range of five octaves plus a minor sixth and the hands begin and finish a whole tone apart. In its descending form (system 2, page 13, systems 1, 3, and 4, page 14) it is ended by a chromatic cluster played with the palm, A-G. In its ascending form

(system 4, page 13, systems 3 and 6, page 14) it is preceded by two chromatic clusters a minor third apart with the span of a perfect fifth: F-C and A-E. Motive 3 could be said to be related to both motives 1 and 2: motive 1 in its use of clusters played with the palms, and motive 2 in its use of all twelve chromatic half-steps. However, this motive functions coloristically, and any relationships with other motives are not easily distinguished aurally.

Motive 4

Motive 4 is basically rhythmic in nature; chromatic clusters are to be played martellato on the strings with the fingernails. The figure encompasses a small internal accelerando and allargando. It is always found immediately before the continuous running movement of the cadenza of motive 5 and after the descending glissando of motive 3. Its purpose, like motive 3, is coloristic and it adds a new texture to the musical fabric.

Motives 5 and 9

A cadenza-like figure forms motive 5. Each segment of the cadenza becomes louder and longer, effecting a gradual intensification in dynamics and an expansion in range. The motive appears three times (system 3, page 13, systems 2 and 6, page 14), and third and last time with the addition of the shouted word, also repeated three times, of "Tora!"

The cadenza itself may be divided into three segments; each segment is two notes longer and a minor third higher than the previous segment. The top portions of each segment (see example 119) form interlocking PDT sonorities, while the first five notes form a whole

tone scale on A (A-B-D^b-E^b-F). The notes which link the PDT sonorities with the whole tone sonorities are in the pattern of a half-step plus a whole step, so that each segment adds another half-plus-whole-step pattern to accomplish the rise of a minor third. (The notes of the second half of each segment are the same as the first half, but descend instead of ascend.)

Example 119. The three segments of motive 5, II/7, and the whole tone, half-plus-whole-step link and PDT sonorities found horizontally within the motive

(Minor Third)

(Minor Third)

(velociss.)

on Keys

mf sub.

Segment 1

Segment 2

Segment 3

----- = Whole Tones

□ = Half-Step plus Whole Tone Link

○ = PDT Sonorities

The following table attempts to clarify these patterns.

Table XVI. Pattern of the three segments of motive 5, II/7

First Segment: A B D^b E^b F F[#] G[#] A D E^b A^b

Second Segment: A B D^b E^b F F[#] G[#] A B C F F[#] B

Third Segment: A B D^b E^b F F[#] G[#] A B C D^b E^b A^b A D

KEY: ----- = Whole Tones

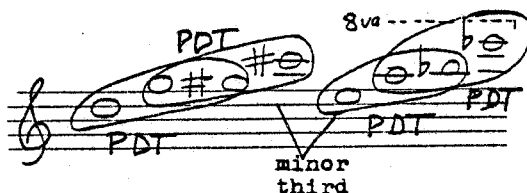
□ = Half-Step plus Whole Tone Link

○ = PDT Sonorities

Motive 9

Related to motive 5 is the cadenza figure of motive 9 (found once, in the B section, system 4, page 13, and system 1, page 14). This motive may be divided into five segments (see example 121); the fourth and fifth segments are the same. As in motive 5 a crescendo is built up throughout the motive. In the first, or a segment, the right hand may be seen as a series of overlapping PDT sonorities, much like the top notes of motive 5. A minor third ($C^\sharp-E$) separates the PDT sonorities.

Example 120. PDT sonorities of segment a, motive 9, II/7



In the second, or b segment, the left hand is an inversion of the right hand beginning on the note B. Like the right hand it consists of two sets of PDT sonorities separated by a minor third. A minor third relationship is also found between the two segments: a begins and ends on D, while b begins and ends on B. (It will be remembered that the interval of a minor third was also featured in the similar motive 5). While the left hand is playing the cadenza figure in segment b, the right hand adds a trill on D with lower and upper neighbors $C^\sharp$ and E^b (forming a three-note chromatic cell). The right hand then repeats the a segment and the left hand trills on B with upper and lower neighbors $A^\sharp$ and C. Segments four and five combine the right hand material of a with the left hand inversion a minor third lower.

Example 121. Motive 9, II/7 and its division into five segments based on the PDT sonority

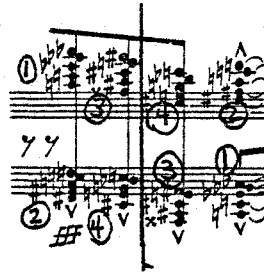
Motive 6

The last motive to be explored in depth is motive 6; it is first found at the end of the A section (middle system 4, page 13), and is later used as the basis of the entire C section of the piece (system 3, 4, and 5, page 14).

In its first appearance (page 13) the motive consists of four different five-note simultaneities, all with the intervallic construction of minor third--minor third--minor third--major second (the minor third has been seen to be an important interval in motives 5 and 9). The simultaneities are arranged so that the last four are a retrograde inversion of the first four, thus:

1	3	//	4	2.
2	4	//	3	1

Example 122. Four simultaneities of motive 6, II/7



Several interesting horizontal and vertical relationships may be found between these simultaneities. All the notes of simultaneities one and two (or three and four) are a tritone apart (see example 123). The two simultaneities, however, share four of the same notes, while only one note is different. Simultaneities one and two both contain A-C-D[#]-F[#], while simultaneity one adds a G[#] to it, and two adds a D. The outer notes of simultaneities one and two (or three and four) form a F₂D₂T₂ sonority. In addition, the top notes, linearly of one, two, three, and four form an M₂S₂T₂ sonority, while the top three notes within each simultaneity form a PNS sonority. Simultaneities one and two together contain six chromatic tones, as do simultaneities three and four, but simultaneities one, two, three, and four do not contain all twelve chromatic tones (here the notes C and F[#] are repeated twice and the tritone B-F is omitted). Thus, all the germinal sonorities of the Makrokosmos Volume II are found in these dense simultaneities: tritones, chromatic half and whole steps, and PDT, PNS, and MST sonorities.

Motive 6 is found again at the end of the second large A section (system 3, page 14). The simultaneities here are a minor third higher than they were in the first A section and could be called simultaneities 5, 6, 7, and 8. They contain the same relationships as simultaneities 1,

Example 123. Simultaneities of motive 6, II/7, and tritone, PDT, MST, and PNS relationships found between them

The musical notation consists of four staves labeled 1, 2, 3, and 4. Staves 1 and 2 are grouped under the label 'A', and staves 3 and 4 are grouped under the label 'B'. Vertical dashed lines connect corresponding notes across the staves, with the word 'TRITONES' written between the lines for staves 1-2 and 3-4. To the right of the staves, the text 'Outer notes == P₂D₂T₂' is written twice. Below the main notation, there are two sections labeled 'C' and 'D'. Section 'C' shows a single staff with the text 'Top notes of 1, 2, 3, 4 == M₂S₂T₂'. Section 'D' shows four staves with the text 'Top three notes of each chord == PNS'.

2, 3, and 4.

The C section of II/7 begins with an extended version of motive 6. It uses simultaneities 1, 2, 3, and 4 plus two "new" ones built on B and on E[#], here called simultaneities 9 and 10. They are arranged in the following manner:

2	4	/	3	1	/	9	10	//	3	1	9	4	2	10	3.
1	3	/	4	2	/	10	9	//	4	2	10	3	1	9	4

The bottom notes of the last half form a complete ascending whole tone scale from C[#] to C[#].

Example 124. Expanded version of motive 6, II/7, section C



(2 4 3 1 9 10 Ascending whole tone scale:
1 3 4 2 10 9) C#-D#-E#-F#-A-B-C#

The second part of the C section begins at the end of system 3, page 14, with a variation of motive 6. The rhythmic movement here is much faster; the section is marked "fff sempre" and "molto ritmico, fuocoso!" In addition all the chords bear accent marks. This is the climax of "Tora! Tora! Tora!"; it contains the loudest, fastest moving, and most intense passage yet to be found in Volume II. The variation of motive 6 is interrupted twice briefly by a fragment of motive 2. These "interruptions" only help to drive the music on to the return of motive 1 in system 5, page 14.

In this part of section C the right hand plays only four note simultaneities; the bottom minor third has been dropped. This was probably done to facilitate the passage for the performer, since it moves at such a rapid rate and because the simultaneities must be repeated very quickly. These simultaneities will still be called 1, 2, 3, etc. for purpose of analysis, even though they lack one bottom note. The left hand does continue to play five note simultaneities. Another simultaneity is added, built on G[#], and is labeled number 11. Thus, throughout motive 6, simultaneities have been built on all chromatic tones with the exception of D natural.

Example 125. Second part of section C, II/7, systems 3, 4, and 5,
page 14

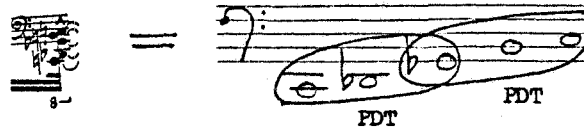
The musical score consists of three systems of music. The first system (system 3) is marked 'a tempo' and 'ff sempre'. The second system (system 4) is marked 'molto ritmico, fuocoso!'. The third system (system 5) is marked '(PI. sempre)'. The score includes a 'PDT' chord and 'Motive two interruptions'.

 PDT chord which is repeated nine times
 = Motive two interruptions

An entirely different simultaneity is found in the left hand.
 This simultaneity is emphasized by being the lowest chord in this
 section (played in the bass while the rest of the chords are high in the
 treble register) and also by having a different intervallic construction

than the other simultaneities. It consists of two interlocking PDT sonorities, which have been seen in the top notes of motive 5 and also in motive 9. The simultaneity is repeated nine times throughout the section (see also example 125).

Example 126. New simultaneity in the left hand, motive 6, II/7: overlapping PDT sonorities



The repetitions of simultaneities in the section may be seen more clearly in the following table.

Table XVII. Pattern of repetitions of simultaneities in C section, II/7

Right Hand:	1	1	1	3	1	1	1	3	1	(4 2)
Left Hand:		7		7	PDT	7		11	PDT	(8)
(Right Hand:)	1	1	1	3	1	(4 2)				
(Left Hand:)		5		7	PDT	8				

Motive 2
fragment

The remainder of the motive continues in the same fashion with the drive back to motive 1.

One additional motive may be mentioned. At the very end, before the final ascending version of the glissando of motive 3, a seven second tremolo is played low on the keyboard. This tremolo encompasses a crescendo from subito mezzo piano to triple forte. It consists of a half-step diad in the left hand on A and B^b and a half-step diad in the right hand on B and C. A four-note chromatic cell results. "Tora!

Tora! Tora!" moves immediately without a break into II/8, "A Prophecy of Nostradamus."

Fantasy-Piece II/8
"A Prophecy of Nostradamus [SYMBOL]"

"A Prophecy of Nostradamus [SYMBOL]," II/8, is the symbol piece which closes the second group of four fantasy-pieces. In this piece a quotation from the Dies Irae is both the beginning and the ending of the parabola-shaped notation surrounding it. "A Prophecy of Nostradamus" is the climax of the dramatic, rhythmic, and dynamic motion which was begun in II/6, "Gargoyles"; the ponderous opening, minor triads are at the apex of an arc of energy and tension generated by the two preceding pieces. These repeated minor triads almost suggest a slow majestic march for the dead which revolves around the Dies Irae quotation. After this climatic eighth piece the Makrokosmos Volume II begins a slow spinning-out to the sustained and hypnotic Dona Nobis Pacem conclusion of II/12. Nostradamus was a sixteenth century French prophet who was supposed to have foreseen, among other things, the Japanese attack on Pearl Harbor which was referred to at the end of II/7, "Tora! Tora! Tora!"

The analysis of this piece will not focus as it has in other pieces on small motives but rather will explore the six sections (labeled by Crumb A-B-C-D-E-F) and their relationship to one another. The musical form of II/8 is A-B-C-C'-B'-A', which reflects the parabola-shaped notation. Each section has its own individual timbre and texture which makes an aural division into parts easy to identify.

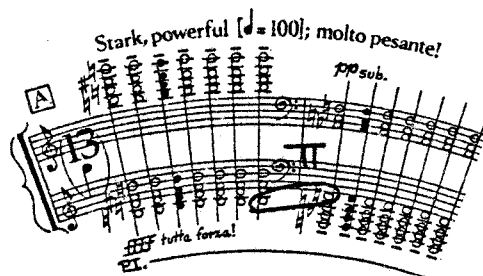
Analysis of Sections

A and A' (F) Sections

The A section consists of minor triads, most of which are in root position. It is marked "Stark, powerful; molto pesante" and contains sudden changes in dynamics (from quadruple forte to pianissimo subito) and register (the fortissimo chords are played in the treble while the pianissimo chords are played in the bass register). An unusual pedal effect is called for in the second half, in that the pedal I is to be depressed after a chord is struck to catch an echo of the chord. The same pedal effect was found in II/2, in the "Music of Strife" section and also in II/6, "Gargoyles."

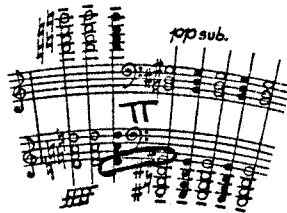
The first measure of section A contains full b minor triads plus octaves in both hands. Symbolically, these triads are repeated seven times to span thirteen beats and are marked quadruple forte, "tutta forza!" The second measure changes to f minor triads, with a sudden contrast in register and dynamics. These chords are also repeated seven times to span thirteen beats, but the rhythm is slightly varied. The relationship between the first two measures is that of a tritone, B-F. The relationship of the tritone, particularly the B-F tritone, will be seen to be very important in this fantasy-piece.

Example 127. First two measures of section A, II/8, page 15



In the third measure the movement of the chords is speeded up: the first half of the measure contains three d minor triads, while the second half contains g[#] minor triads, repeated five times. The sudden change in register and dynamics is maintained, as is the tritone relationship, here of D-G[#].

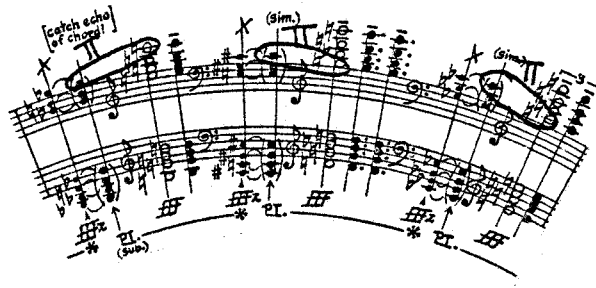
Example 128. Third measure of section A, II/8, page 15



In the fourth measure of the section the chord movement is accelerated greatly. A B^b minor chord is struck and its echo caught with the pedal; an e minor six-four chord is then played twice, spanning three beats (again, the tritone is found between B^b and E). A c[#] minor chord is played in the same manner as the B^b chord with the pedal echo, and a g minor six-four chord is played three times, spanning four beats. The tritone C[#]-G is found here. This second part of the measure is a sequence of the first part up a minor third, as the third measure was a sequence of the first two measures up a minor third. This pattern is then sequenced up a whole step to form the third part of the measure, which uses e minor and a minor six-four chords, again in a tritone relationship. The only tritone not found in these chords in section A is C-F[#].

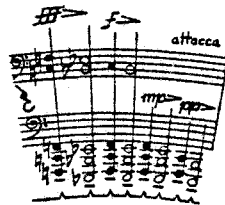
In the last measure of section A the thirds are omitted from the chords, so that only an open fifth sound, similar to that found in the second circle of II/4, "Twin Suns," is heard. These open fifths are on

Example 129. Fourth measure of section A, II/8, page 15



F and C and down a whole step on E^b and B^b . Doublings of notes are dropped from the chords as a gradual diminuendo is effected until only the single perfect fifths remain. The outer notes of these two chords, E^b - F - B^b - C , form a P_3NS_2 sonority.

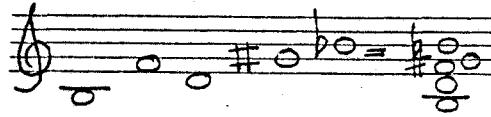
Example 130. Last measure of section A, II/8, page 15



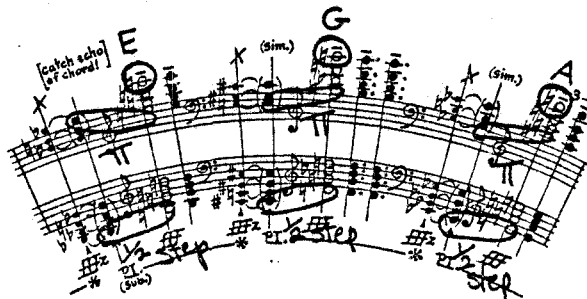
The roots of the first five chords in this section, B - F - D - $G^\sharp$ - B^b , form the notes of the chord type of motive 6, II/7 (minor third, minor third, minor third, major second). This could be seen as a motivic link between the two pieces.

The three top notes of the chords in six-four position in measure 4, E - G - A , form a PNS sonority (see example 132). The bottom notes of the chords with roots a tritone apart in measure 4 are all in a chromatic half-step relationship (B^b - B ; $C^\sharp$ - D ; E^b - E).

Example 131. Same chord type as motive 6, II/7, found in the first five chord roots of section A, II/8, page 15



Example 132. PNS, tritone, and half-step relationships between chords of measure 4, section A, page 15



E-G-A=PNS

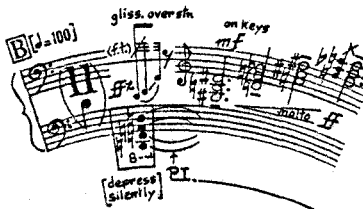
The A' section of "A Prophecy of Nostradamus" (labeled in the music as $\overline{F}$) is structured in exactly the same manner as the A section. The relationship between A and A' is that of a tritone: the first five chord roots in the A section were B-F-D-G[#]-B^b, while the first five chord roots in the A' section are a tritone away, F-B-G[#]-D-E, etc. The last measure of A' is the opposite of the last measure of A. Here a gradual crescendo to the fine conclusion is intensified by the addition of notes to the chords.

B and B' (E) Sections

The B section consists of three measures; the first two are of the same structure while the third measure is similar to the last measure of section A. The time signature is changed from 13/ to 11/.

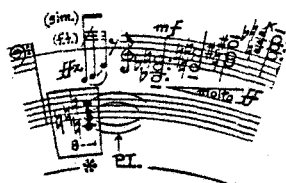
but the basic beat remains the same. In the first measure a full d minor chord is depressed silently and strummed inside the piano with the fingertip. The chords of g[#] minor, g minor six-four, f[#] minor six, and f minor are then played on the keys.

Example 133. Measure 1 of section B, II/8, page 15



A tritone is found between the strummed d minor chord and the first chord of the group of four: g[#] minor. The four chords all have descending roots a half-step apart: G[#]-G-F[#]-F. However, the bottom notes of these chords, G[#]-D-A-F, which ascend, expand the interval between each successive chord by one half-step: G[#]-D=tritone; D-A=perfect fifth; A-F=minor sixth. The second measure of section B is a transportation of the first measure up a whole step.

Example 134. Measure 2, section B, II/8, page 15



As in the last measure of section A, the third measure of section B omits the thirds from the chords, so that only open fifths and octaves sound. The fifths here are E^b-B^b and down a step to C[#]-G[#], forming, again as in the last measure of section A, a P₃NS₂ sonority. These chords are depressed silently at the keyboard and strummed first with

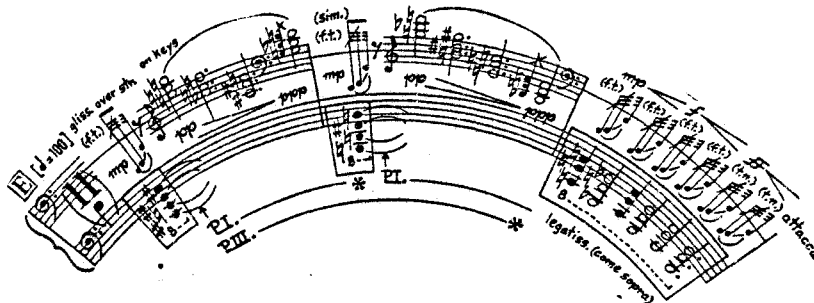
the fingertip and then with the fingernail.

Example 135. Measure 3, section B, II/8, page 15



The first two measures of the B' section ($\overline{E}$) are a type of inversion of the first two measures of the B section. A $c^\sharp$ minor chord is depressed silently then strummed inside the piano with the fingertip, as in section B. The four chords which ascend in B, ascend in B': e minor, f minor six, $f^\sharp$ minor six-four, and g minor. The chromatic roots of E-F- $F^\sharp$ -G ascend while the intervals between the bottom notes expand by one half-step each time: E-A b =major third; A b -C $^\sharp$ =perfect fourth; C $^\sharp$ -G=tritone. These relationships are opposite of those found in the B section. In addition the dynamics in B were mezzo-forte to fortissimo, while the dynamics in B' are pianissimo to triple piano. The second measure of B' is a transposition of the first down a whole step. Unlike the B section where a tritone was found between the strummed chord and the first chord of the ascending chord series, a major third is found between these two chords in the B' section. The third measure of B' is exactly like the third measure of B, but on the fifths C-G and B b -F.

Example 136. B' section, II/8, page 15



C and C' ($\overline{D}$) Sections

The time signature for the C section is changed to 7/8. A white key cluster spanning an eleventh is to be depressed silently with the forearms and caught with pedal II after playing a chromatic glissando inside the instrument with the fingernail. This is to be allowed to vibrate for seven seconds. A quotation from the Dies Irae is then heard. Crumb calls it "Tema enigmatico" and instructs that it should be played "Fatefully." To play this quotation the right hand silently depresses the boxed notes while the left hand plays the same notes, fortissimo and staccato, an octave lower, causing the upper strings to vibrate sympathetically. The quote is in the "key" of B.

Example 137. C section, Dies Irae quote, II/8, page 15, and C' ($\overline{D}$) section, II/8, page 15

The image contains two musical staves, labeled C and C', for a piece titled "Tema enigmatico". Both staves are in 7/8 time. The top staff (C) includes instructions such as "gliss. over str (f.n.)", "depress white keys silently (f.a.) after playing gliss.", "Fatefully [d=50]", "depress silently (legatiss.)", "Like an echo [d=50]", and "Secure with PII.". The bottom staff (C') includes instructions such as "gliss. over str (f.t.)", "depress black keys silently (f.a.) after playing gliss.", "Like an echo [d=50]", "depress silently (legatiss.)", "Fatefully [d=50]", and "Secure with PII.". Both staves show a chromatic glissando followed by a series of boxed notes.

To realize the C' section the music is simply turned upside down. This section is, in many ways, the exact opposite of the C section: the glissando is played pianissimo with the fingertip rather than the fingernail; the depressed cluster is to be played on the black keys rather than on the white keys; the boxed notes are silently depressed with the left hand and played staccato, but pianissimo, "like an echo" by the right hand an octave higher; and this time the quote is in the "key" of F.

The interval of the tritone is central to "A Prophecy of Nostradamus," especially the tritone B-F. It is found as the relationship between the first two minor chords of section A, and as the relationship between the A and A' sections. It is also found at the very core of the piece as the relationship between the two statements of the Dies Irae quote. This piece makes almost no use of the germinal sonorities of PDT, MST, or PNS, but is based on the tritone and on minor triads.

The musical form of "A Prophecy of Nostradamus" reflects its physical shape, with the Dies Irae quotation acting as the pivot around which the other sections are reflected. The symbolic numbers of thirteen, eleven, and seven are important not only as the number of beats per measure, but also internally in the number of chord repetitions per measure, or the number of measures per section. The Fine at the end of section A' closes the second part of the Makrokosmos Volume II.

Part Three:
Fantasy-Piece II/9
"Cosmic Wind"

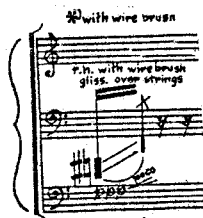
Fantasy-piece II/9, "Cosmic Wind," opens the third group of four pieces. Like II/1 and II/5 it uses a surface preparation, here a percussionist's wire brush, to realize its unusual sonorities. "Cosmic Wind" also calls for the performer to produce a wind sound by whispering ("unvoiced singing") the syllables a-o-i-u-sh. The piece is played entirely inside the piano and for this reason the performer is instructed to stand to play it. The interest in "Cosmic Wind," as it was in II/5, "Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II)," is focused on sonority and delicate timbres rather than on complicated motivic constructions. Crumb describes the effect of the piece as "ghostly, shadowy, [and] tremulous."

Exploration of Motivic Structures

Motive 1

The first motive is a very soft glissando over the bass strings with the wire brush. This motive occurs three times in the piece: at the very beginning; in system 2 (third figure); and at the very end. It serves, therefore, to frame "Cosmic Wind."

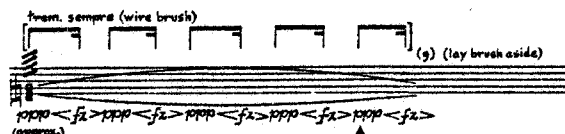
Example 138. Motive 1, II/9, system 1, page 16



Motive 2

Motive 2 consists of a tremolo on the strings with the wire brush. An eighth-plus-sixteenth-note rhythmic figure is repeated five times; each time the dynamic marking is a crescendo from triple piano to a sforzando on the sixteenth note. A timbre not unlike a rustling sound results. This motive is found twice, the second time being at the end of system 2.

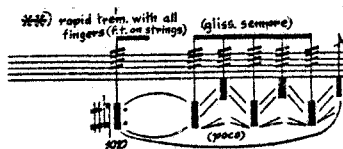
Example 139. Motive 2, II/9, system 1, page 16



Motive 3

With the last repetition of motive 2 a third motive is heard in the bass. This consists of, first, a rapid tremolo with the fingertips on the strings. This tremolo is then incorporated into a glissando with the same range as motive 1. The glissando rises and falls three times. Fragments of this motive are found throughout the remainder of the piece: two more times (in the bottom staff) in system 2; and twice in system 3.

Example 140. Motive 3, II/9, system 1, bottom staff, page 16



In the first three motives Crumb has introduced four slightly different timbres which all use some variation of tremolo and glissando. Motives 1 and 2 use the wire brush to glissando and tremolo, while motive 3 uses the fingertips on the strings to tremolo, and then combines the fingertip tremolo with a glissando.

Motivic Complex 4, 5, and 3

The voice is called for to realize motive 5. "Unvoiced singing," like whispering, but sustained, is used to produce a "wind sound" on the syllables o-a and u-sh. The motive is found four times: twice in system 1 and twice in system 3. The first two occurrences use the syllables a-i-u and o-i-u with the sh sound being sustained at the end. The last two occurrences sustain the sh sound at the beginning of the motive.

Motive 5 is found in conjunction with motive 4. Motive 4 consists of three chromatic tones all played with the fingertips on the strings and encompassing a crescendo and diminuendo. This is in a four-sixty-fourth note pattern which is repeated seven times in its first appearance, five times in its second and third appearances, and three times in its last appearance. The three-note chromatic cells it uses are A-B^b-C^b and D[#]-E-F (tritone relationship--system 1) and G-G[#]-A and C[#]-D-E^b (again a tritone relationship--system 3).

Closing this motivic complex is a fragment of motive three, the tremolo plus glissando on the strings with the fingertips.

Example 141. Motives 4, 5, 3, II/9, system 1, page 16

Motive 6

A new timbre is heard in motive 6. Here the fingernails are used to scrape over the metal winding of the bass strings. Crumb directs that a single, very rapid stroke should be made over one-half inch of string near the pins and that the motion of the stroke should be away from the player. This motive is similar to motive 5 in that it consists simply of a three-note chromatic cell encompassing a crescendo and diminuendo, here on $F^{\#}-G-A^b$.

Example 142. Motive 6, II/9, system 2, page 16

Motive 7

Motive 7 is related to motive 2 in that the wire brush is used for a tremolo on the strings. The register of this motive is the highest used in the piece and the forte called for is the loudest dynamic in an otherwise basically soft piece.

Example 143. Motives 3, 1, and 7, II/9, system 2, page 16

The image shows a musical score for three motives. Motive 7 is at the top, marked 'trem. (wire brush)' and 'f'. Motive 1 is in the middle, marked 'f'. Motive 3 is at the bottom, marked 'f' and 'trem. ft. (dim.)'. The notation includes various musical symbols such as notes, rests, and dynamic markings.

Motive 7

Motive 1

Motive 3,
fragment

Motive 8

Motive 8 only occurs once in the piece. While the right hand continues to tremolo with the wire brush (motive 7) the left hand plays chromatic half-steps pizzicato with the fingertips and then immediately dampens these pizzicato notes to create yet another timbre. These chromatic diads are marked forzando on the notes F-G^b, down a major third to C[#]-D, and down a tritone to G-A^b. After a fragment of motive 3 is heard the G-A^b diad is repeated.

Example 144. Motives 7 and 8, II/9, system 2, page 16

Motive 9

Underneath the second appearance of motive 2 (end system 2, page 16) another slightly different timbre is introduced. It is like motive 6 in that the fingernails are used to scrape over the strings, but here the nails scrape over a chromatic cluster instead of a single note.

Example 145. Motive 9, II/9, system 2, page 16

Larger Formal Structure

The form of "Cosmic Wind," like many of the fantasy-pieces, could be said to be A-B-A'. As was stated earlier, the interest in this piece is not on intricate motivic relationships but is on subtle and delicate variations in timbre. The piece is based on chromatic

clusters (played all on the strings, as in motives 1, 2, 3, 7, and 9) and on two-and three-note chromatic cells (motives 5, 6, and 8).

The A section consists of motives 1, 2, 3, 4, 5, 3, and 4, 5, 3. This technique of establishing small motivic cells then changing the sequence of their appearance has been noted in several of the fantasy-pieces. The B section begins with motive 6 and includes motives (3, 1) 7 and 8. Motives 6, 7, and 8 are found only in this middle section. They are derived from motives found in the A section, but utilize different timbres. The B section contains the loudest dynamic (forte) and also the highest (motive 7) and lowest (motive 6) registers used. The A' section includes the repetition of motives 2, (9), 3; 5, 4, 3; 5, 4, 3, and 1.

Fantasy-piece II/9 is similar to II/5, "Ghost Nocturne: for the Druids of Stonehenge (Night-Spell II)" in many respects. Both pieces open a group of four fantasy-pieces; they are both relatively short, use surface preparations, and use the voice to obtain a contrasting texture by intoning syllables. Neither piece is concerned with motivic development and each is based solely on chromatic cells. Variations in timbre and texture are of utmost importance in these two pieces, and therefore they both are played almost always inside the piano. Even the language used by Crumb to describe the pieces is similar: II/5, "Ghost Nocturne: for the Druids of Stonehenge (Night-Spell II)" is marked "dark, fantasmic, subliminal," while II/9, "Cosmic Wind," is marked "ghostly, shadowy, tremulous."

Fantasy-Piece II/10
"Voices From 'Corona Borealis'"

The tenth fantasy-piece, "Voices from 'Corona Borealis,'" is the second of three consecutive pieces in Volume II with a cosmic theme. Fantasy-piece II/9 was entitled "Cosmic Wind," and fantasy-piece II/11 is entitled "Litany of the Galactic Bells." Corona Borealis is the name of a northern constellation between Hercules and Boötes.

The piece is in the form of a passacaglia, and is marked "very slow, with majestic calm." Each of the five statements of the passacaglia theme is whistled in one of three manners: the first and fifth statements are whistled "flautando, senza vibrato"; the second and fourth statements are whistled "molto vibrato, quasi Theremin"; the whistling in the third statement is described as "warbling." The pedal I is to be depressed throughout and the whistling is directed into the piano thereby creating sympathetic vibrations inside the instrument. Crumb further directs that each whistled tone should be approximately one eighth note shorter than its notated value, the echo of the tones providing the intended legato effect.

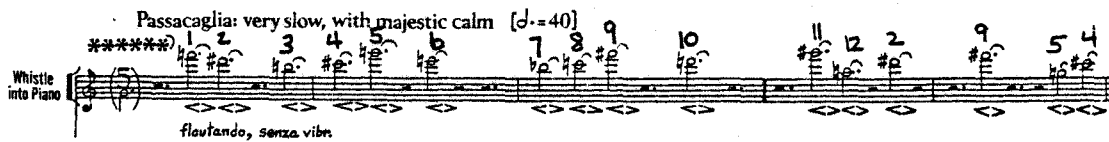
Exploration of Passacaglia Theme
and Each Variation

Passacaglia Theme

The passacaglia theme is in 5/d time. The theme, which is always in the upper voice, is first whistled unaccompanied "flautando, senza

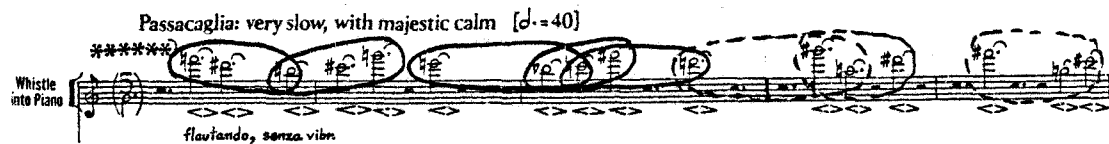
vibrato." It consists of all twelve chromatic tones heard first without repetition, plus the notes D[#]-F[#]-G-C[#] (numbers 2, 9, 5, and 4 in the twelve tone chromatic sequence).

Example 146. Passacaglia theme, II/10, system 3, page 16, and system 1, page 17



The theme consists of a series of overlapping linear MST and PDT sonorities. In the following example the heavy circles indicate MST sonorities, while the dotted circles indicate PDT sonorities.

Example 147. MST and PDT sonorities found linearly in the passacaglia theme, II/10



The first ten notes all form MST sonorities while the note D serves as a link between the MST and PDT sonorities (see Table XVIII). Thus, this theme uses two of the germinal sonorities of Makrokosmos Volume II: MST and PDT.

Table XVIII. MST and PDT sonorities of
passacaglia theme, II/10

	1	2	3	4	5	6	7	8	9	10	11	12	2	9	5	4
NOTES:	F	D [#]	B	C [#]	G	E	B ^b	C	F [#]	D	G [#]	A	D [#]	F [#]	G	C [#]
(MST)	F	D [#]	B													
(MST)				B	C [#]	G										
(MST)							E	B ^b	C							
(MST)							B ^b	C	F [#]							
(MST)									C	F [#]	D					
(PDT)											D	G [#]	A			
(PDT)												D	G [#]	A	D [#]	
(PDT)															F [#]	G C

First Variation

In the first variation the theme is whistled "molto vibrato (quasi Theremin)" (see footnote #32, page 22 for information on the Theremin). It is accompanied by fifth partial harmonics (which sound two octaves plus a major third higher than the written pitch) played pizzicato with the fingertip. The combination of whistling and harmonics produced in this manner results in a timbre which sounds remarkably like electronically generated music.

The rhythm of the harmonics is the same rhythm as the passacaglia theme but delayed by one beat (■•). In place of the four final notes (the repeated ones in the theme) is substituted a percussive sound obtained, as described in Chapter I, by hitting the metal crossbeams of the piano with the knuckles. This percussive sound is sustained by trilling with two fingertips on a crossbeam.

Example 148. Second statement of passacaglia theme with first counterpoint, II/10, system 1, page 17

The percussive motive, found at the end of the first counterpoint, occurs several more times in the fantasy-piece. The first part of the figure separates the three note cells in the second counterpoint and is also found at the beginning of the final statement of the passacaglia theme, system 3, page 17. The entire percussive figure is used to connect the statements of the theme (variations one to two; variations two to three; and variation three to the final passacaglia statement).

Twelve notes are used in the first counterpoint, but they are not twelve different chromatic notes as are found in the theme. Here several notes are repeated internally. Like the theme, the first counterpoint consists of a series of overlapping MST and PDT sonorities.

Example 149. MST and PDT sonorities found linearly in the first counterpoint, II/10 (heavy circles indicate MST sonorities, broken circles indicate PDT sonorities)

The following table may help to make the relationships of MST and PDT more easily seen.

Table XIX. MST and PDT sonorities in first counterpoint, II/10

NOTES:	D	C	F [#]	A ^b	A	B	F	C [#]	F [#]	C	D
(MST)	D	C	F [#]								
(MST)		C	F [#]	A ^b							
(MST)					A	B	F				
(MST)						B	F	C [#]			
(PDT)							F	C [#]	F [#]		
(PDT)								C [#]	F [#]	C	
(MST)									F [#]	C	D

Second Variation

The counterpoint to the third statement of the passacaglia theme, which is whistled like "warbling," consists of fifth partial harmonics as in variation one. Here however the strings are scraped with the fingernail creating a different timbre. This is alternated with the percussive effects obtained by hitting the metal crossbeams. Twelve notes, here divided into four groups of three notes each, are again used in this counterpoint. The first, third, and fourth of these groups are an MST sonority, while the third group is a PNS sonority. This is the only use of a linear PNS sonority in "Voices from 'Corona Borealis'."

Example 150. Third statement of passacaglia theme with second counterpoint, II/10, systems 1 and 2, page 17

Third Variation

The whistling in the fourth statement of the passacaglia returns to the "molto vibrato (quasi Theremin)" effect of the second statement. The counterpoint again uses fifth partial harmonics but here alternates on the keys playing with pizzicato with the fingertip and with tremolo on the strings with the fingernail. As in the previous counterpoint the twelve notes are divided into four groups of three each. Each of these four groups is an MST sonority.

Example 151. Fourth statement of passacaglia theme with third counterpoint, II/10, systems 2 and 3, page 17

Final Statement of Theme

The final statement of the theme is unaccompanied (with the exception of the percussive motive which connects it to the third counterpoint). It returns to the "flautando, senza vibrato" whistling of the opening statement.

Larger Formal Structure

The form of "Voices from 'Corona Borealis'" is that of a passacaglia, with five statements of the theme plus three different counterpoints. The five statements of the theme are in an arch form as far as timbre is concerned. Each of the three counterpoints uses a different combination of timbres.

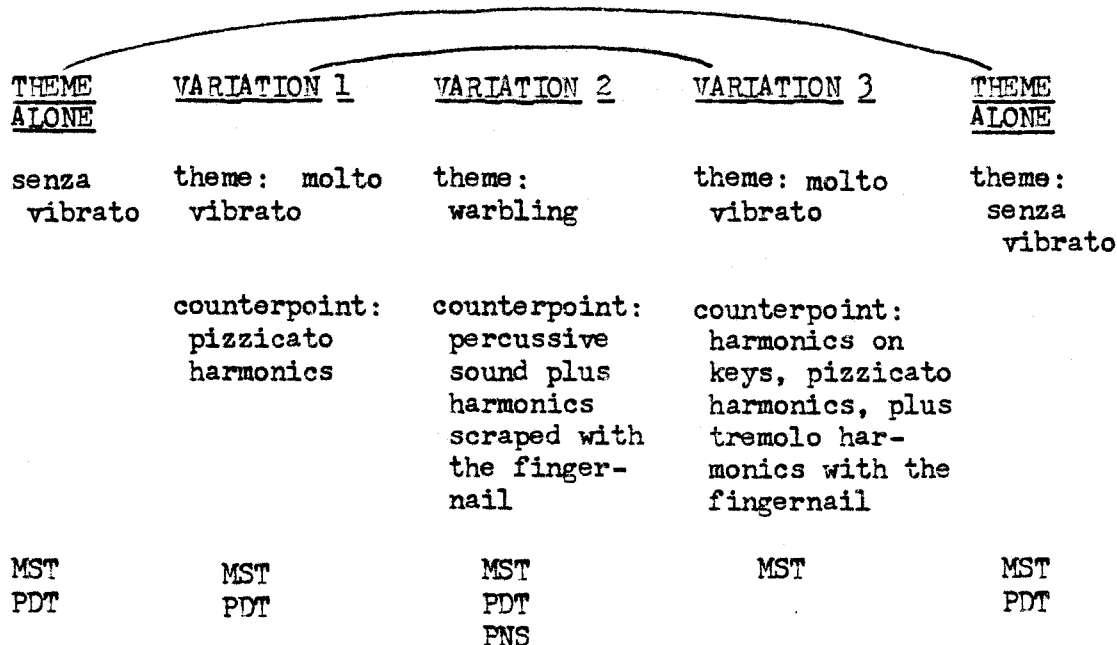


Figure 4. Arch form of II/10, "Voices from 'Corona Borealis'"

The theme consists of a series of overlapping linear MST and PDT sonorities. The first counterpoint also consists of MST and PDT sonorities, while the second counterpoint uses MST and PNS. This is the only occurrence of the third germinal sonority of the volume as a whole,

or PNS. The final counterpoint uses only the MST sonority. The three germinal sonorities of the Makrokosmos Volume II then are found linearly in this fantasy-piece: MST, PDT, and PNS. "Voices from 'Corona Borealis'" compliments II/9, "Cosmic Wind": whereas "Cosmis Wind" was based entirely on chromatic cells and contained no MST, PDT, or PNS sonorities, "Voices from 'Corona Borealis'" is based solely on these germinal musical materials and does not use chromatic cells.

Fantasy-Piece II/11
"Litany of the Galactic Bells"

The eleventh fantasy-piece is entitled "Litany of the Galactic Bells." The musical motive for the Galactic Bells--six-note whole tone simultaneities a perfect fifth apart--is also found in the other two volumes of the Makrokosmos and serves as a thematic link between all three volumes. The opening motive of II/11 is a direct quotation from the beginning section of I/8, "The Magic Circle of Infinity (Moto Perpetuo) /SYMBOL/" This motive is also heard in III/5, "Music of the Starry Night."

The "Litany of the Galactic Bells" includes the use of two musical quotations. A fragment of Beethoven's Hammerklavier Sonata is incorporated into the middle of the piece. In addition, a section marked "Descant" appears three times. This "Descant" is actually the Appalachian valley acoustic first found in I/6, "Night Spell I," although it is not specifically identified as such.

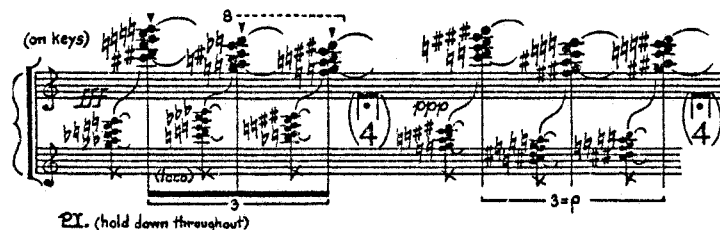
Exploration of Motivic Structures

Motive 1

The opening motive consists of twelve six-note whole tone simultaneities. These simultaneities, motive 1, are divided into two groups of six separated by a four-second rest. Within each group of six the first, third, and fifth are embellishing simultaneities for the simultaneities which follow them. The first six simultaneities are performed "fff," rapidly, followed by the second six played slower and

at a dynamic of triple piano. The realizes musically the litany idea of the title and also the verbal description of "... echoing."

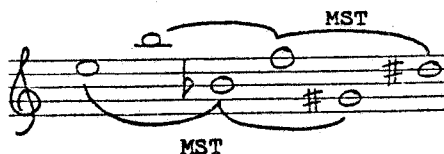
Example 152. Motive 1, II/11, system 4, page 17



Each of these six-note simultaneities contains a whole tone scale. The two chords of each pair, the embellishment and the main simultaneity, lie a perfect fifth apart and their pitches include the entire chromatic scale. This motive of two whole tone scales a fifth or a half-step apart has appeared three times before in Volume II: in II/4, "Twin Suns" (motive 4), in II/6, "Gargoyles" (motive 10), and in II/7, "Tora! Tora! Tora!" (motive 7).

The three germinal sonorities of the Makrokosmos--MST, PDT, and PNS--may be found in the relationships of these six chords to one another. The MST sonority is found between the top three notes of the embellishing chords and also between the top three notes of the main chords.

Example 153. MST sonorities found between top notes (or any other linear notes) of the embellishing chords and between the top notes of the main chords of motive 1, II/11



A PDT may be found between the top notes of the first three of each group of six simultaneities.

Example 154. PDT sonority found between the top notes of the first three chords of each group of six simultaneities of motive 1, II/11



And a PNS sonority occurs between the last three top notes of each group of six simultaneities.

Example 155. PNS sonority found between the top notes of the last three simultaneities of each group of six simultaneities, motive 1, II/11



Because of the parallel construction these linear relationships will hold true between any three parallel members of the three simultaneities. The perfect fifth relationship found between the two hands is also reflected in the relationship between the last main chord of the first group of six simultaneities and the first main chord of the second group: F-C, or a perfect fifth.

This motive contains elements which have been in almost constant use throughout the fantasy-pieces. The entire chromatic scale is featured here, divided by the perfect fifth and by the use of whole tones. The three germinal sonorities of MST, PDT, and PNS are also found

in the relationships between the simultaneities. This underscores the often subliminal unity of the entire work. The motivic material used is not extensive but appears in the various fantasy-pieces in such a myriad of disguises and with such ingenious combinations of timbre, dynamics, and imaginative sonorities that the listener is often unaware of the reshaped motivic configurations.

Motivic complex 2, 3, and 4

The second motive is found in the right hand following the second group of Galactic Bells and is separated from them by a four second rest. The motive consists of a pattern of four notes, $A^b-E^b-G^b-C$, repeated over and over. It is marked "fff quasi xylophone" and is placed in a high register of the instrument. The motive may be divided into three parts: the first part is accompanied by motives 3 and 4 in the left hand; the second part contains internal repetitions but is unaccompanied; and the third part, accompanied again by motive 3, is a new descending note pattern and encompasses a ritard and a decrescendo. This is shown in example 156.

Example 156. Motives 2, 3, and 4, II/11, and the division of motive 2 into three parts, system 4, page 17

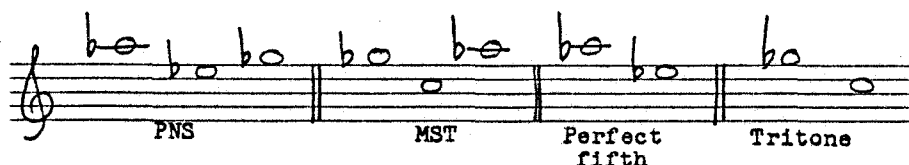
Motive 2

PART 1 PART 2 PART 3

Motive 3 Motive 4 Motive 3

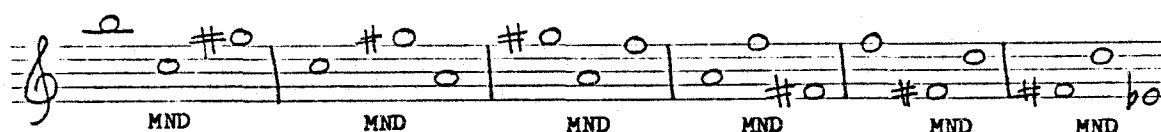
Motive 2, which is actually an A^b six-four chord ($C-E^b-G^b-A^b$) contains a linear PNS sonority ($A^b-E^b-G^b$) and a linear MST sonority (G^b-C-A^b). It also contains two important intervals in the division of the total chromatic: the tritone and the perfect fifth.

Example 157. Linear PNS and MST sonorities in motive 2, II/11 and use of the tritone and the perfect fifth



The third part of the motive consists of a pattern of notes which descends by a major seventh, then rises by a minor sixth, descends by a major seventh, rises by a minor sixth, etc. Any combination of three notes of this pattern results in a sonority with the chemistry of MND.

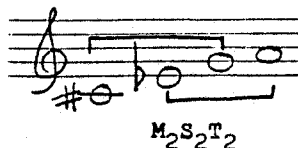
Example 158. Interlocking MND sonorities formed by any three notes of the third part of motive 2, II/11



Motive 3, which occurs twice underneath motive 2, is a chromatic glissando with the range of an octave plus a tritone. The first time it is heard it encompasses the notes $A-E^b$; the second time it is heard, at the beginning of part three of motive 2, it is transposed down a whole step and encompasses the notes $G-C^\sharp$. The relationship of the two occurrences of this motive is that of an $M_2S_2T_2$ sonority: $A-E^b$ plus

G-C[#].

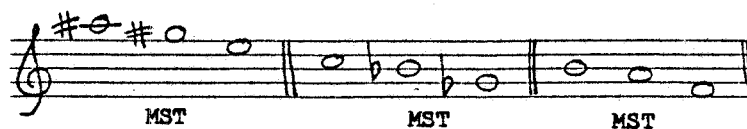
Example 159. $M_2 S_2 T_2$ sonority formed from the two occurrences of motive 3, II/11, system 4, page 17



This motive has been heard before, in II/4, "Twin Suns," where it also encompassed the notes A-E^b and was called motive 3.

With motive 4 a basic musical material of the Makrokosmos not yet found in II/11 is heard: three-note chromatic cells. Any of the three linear notes of these cells form an MST sonority.

Example 160. MST sonorities formed by any three linear notes of the three-note chromatic cells of motive 4, II/11



This motivic complex of 2, 3, and 4 is found repeated at the end of system 2 and beginning of system 3, page 18. After a five-second rest the motivic complex is heard again. Here however the first part of motive 2 is elaborated and elongated, while the second and third parts remain the same.

The first part of this appearance of motive 2 may be divided into four segments (see example 161). This section seems to combine fragments of the two whole tone simultaneities a perfect fifth apart of motive 1, and the repeated note pattern A^b-E^b-G^b-C of motive 2, with

Example 161. Third appearance of motivic complex 2 and 3 (motive 4 is omitted), plus fragments of motive 1 and new motive 7, II/11, systems 3 and 4, page 18

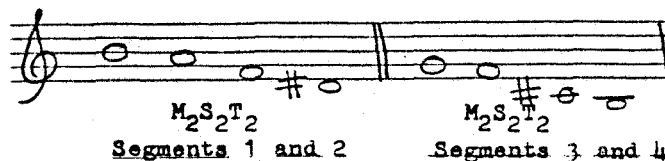
The musical score is divided into two systems. The first system, labeled 'PART 1', contains four segments of music. Segment 1 begins with a 'a tempo' marking and includes a 'semore' marking. Segment 2 and Segment 3 are also marked. Segment 4 is the final segment in the first system. The second system, labeled 'PART 2' and 'PART 3', continues the music. It includes markings for 'mp' (mezzo-piano), 'poco rit.' (poco ritardando), 'mp sub.' (mezzo-piano subito), and 'gliss. over str. (f.n.)' (glissando over strings, fortissimo). Motive 3 is identified in the first system, and Motive 7 is identified in the second system.

motive 3 and a new motive, motive 7 (see example 161).

The first segment begins with two six-note whole tone embellishing simultaneities a perfect fifth apart which arrive on the whole tone notes B and A. The right hand then continues the motive 2 pattern which is repeated three times for a total of twelve notes. The whole tone simultaneities are played again, down a tritone from the first segment, and arrive on the whole tone notes D[#] and F. The relationship of the two whole tones, A-B and D[#]-F is that of an M₂S₂T₂ sonority (see example 162). The motive 2 pattern in segment two is repeated only one and a half times for a total of six notes. The whole tone simultaneities which begin segment three are down a perfect fifth from segment two.

They arrive on the whole tones F and G; only three notes of the motive 2 pattern are then heard. The fourth segment whole tone simultaneities are down a tritone and arrive on B and C[#], forming another M₂S₂T₂ sonority with the segment three whole tones F and G. The series of whole steps form a complete whole tone scale: F-G-A-B-C[#]-D[#].

Example 162. M₂S₂T₂ sonorities formed by whole tone arrival notes of segments one and two, and three and four of motive 2, part 1, system 3, page 18



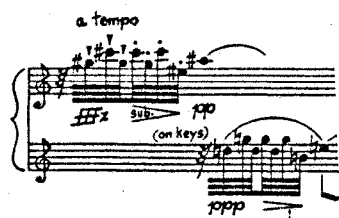
Each segment of motive 2 is shortened by one-half: the first segment contained twelve notes; the second segment contained six notes; the third segment contained only three notes, while the whole tone simultaneities of segment four lead directly into part two.

The new motive 7, found under the first segment of motive 2, is a white key cluster played with the palm with the range of a minor seventh: A-G. The whole tone of G-A reflects the whole tone relationships of the fragments of motive 1 heard above it. This motive, like motive 3, has been heard before in Volume II: it occurs at the end of the whole tone descending glissandi of motive 3, II/7, "Tora! Tora! Tora!"

Motive 5 and Beethoven Hammerklavier quote

Motive 5 is first found at the beginning of system 1, page 18. It occurs two other times: at the end of system 1, page 18 and immediately before the Beethoven quotation in system 2, page 18.

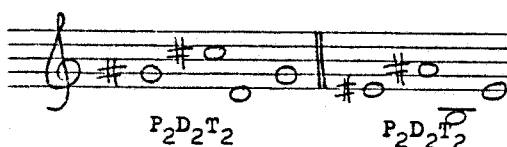
Example 163. Motive 5, II/11, system 1, page 18



The interval of a perfect fifth is characteristic of this motive; the inversion of the perfect fourth (or perfect fifth) was found as the interval between the two whole tone simultaneities of motive 1. This interval was also found in motive 2 (see example 157). It will be seen that this motive seems to dissolve directly into the Beethoven quotation which follows the third statement of motive 5, and that in fact the intervallic construction of motive 5 anticipates the intervallic construction of the quotation itself. Motive 5 could be said to be a paraphrase of the Beethoven quotation.

After repeating the perfect fourth $G^\#-C^\#$ three times, motive 5 descends by a minor sixth before ascending by another perfect fourth. The minor sixth was found as the ascending interval in the third part of motive 2. This pattern is then repeated down a tritone on D and G. The relationship between the first two notes of each of the two patterns, $G^\#-C^\#$ and D-G, forms a $P_2D_2T_2$ sonority. The relationship of the last two notes of each of the two patterns, $E^\#-A^\#$ and B-E, also forms a $P_2D_2T_2$ sonority.

Example 164. $P_2D_2T_2$ sonorities formed by the first two notes of the two patterns of motive 5, and also by the last two notes of the two patterns, II/11



The litany idea first seen in motive 1 may also be found here. The first pattern of notes is marked staccato and "fffz" with a subito crescendo, while the second pattern of notes is legato and "ppp" with a decrescendo.

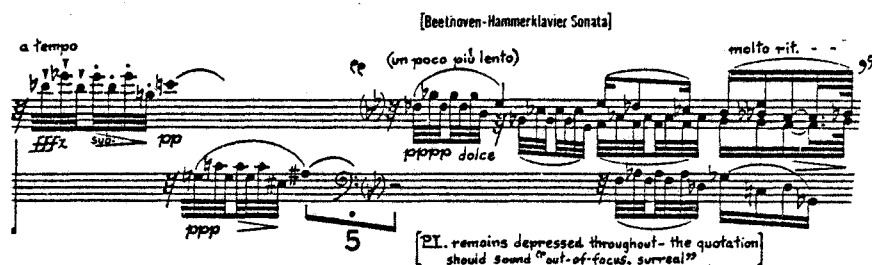
The second appearance of motive 5 is a minor third lower.

Example 165. Second appearance of motive 5, system 1, II/11, page 18



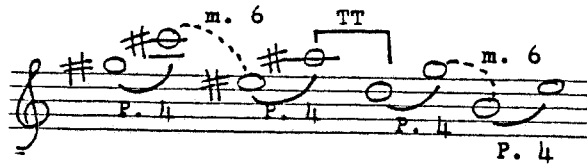
The third appearance of motive 5 leads, after a five second rest, into the Beethoven quotation.

Example 166. Third appearance of motive 5 and Beethoven quotation, II/11, system 2, page 18

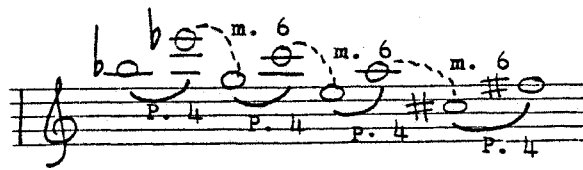


The intervallic pattern is here changed somewhat. Instead of the perfect fourth, minor sixth, perfect fourth pattern being transposed down a tritone for the second half of the motive, the pattern of down a minor sixth and up a perfect fourth is continued. This may be seen in examples 167 and 168.

Example 167. Pattern of the first and second appearances of motive 5, II/11

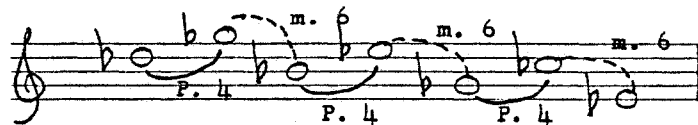


Example 168. Pattern of the third appearance of motive 5, II/11



This is the same intervallic construction found at the beginning of the Beethoven quotation.

Example 169. Intervallic pattern of beginning of Beethoven Hammerklavier quotation



The pattern found in the second appearance of motive 5 may be viewed as a series of interlocking major and minor triads which descend by minor thirds. This pattern is continued in the Beethoven quotation. The interlocking triads of motive 5 are E^b-G-B^b ; $C-E^b-G$; $C-E-G$; $A-C-E$; $A-C^\sharp-E$; $F^\sharp-A-C^\sharp$; the Beethoven quotation finishes the pattern with a G^b

major chord, $G^b - B^b - D^b$ (enharmonic $F^\#$ major). This pattern is clarified in example 170, page 160.

The music which immediately precedes the quotation, then, has become more and more tonally oriented. The quotation emerges spontaneously out of the texture and fabric of the piece. It is marked "ppp," and "out-of-focus, surreal" and is followed immediately by the motivic complex of 2, 3, and 4.

Example 170. Descending interlocking major and minor triads of the third appearance of motive 5 and connecting into the Beethoven quotation

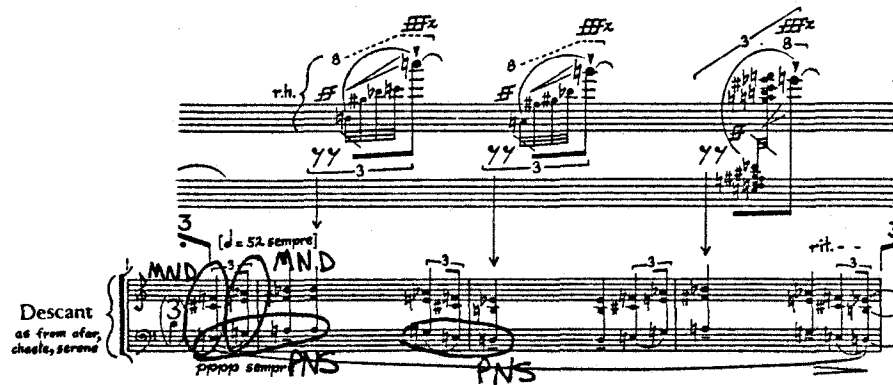


Descant and motive 6

A section marked "Descant" is found three times in "Litany of the Galactic Bells": in system 1, page 18; in system 2, page 18; and at the very end, system 4, page 18. As mentioned above this is actually a quotation from the Appalachian valley acoustic found in I/6, "Night-Spell I." Each time it occurs it is marked "pppp" as was the Beethoven quotation, and bears the verbal description "as from afar, chaste, serene."

The term English Descant has been used to describe a fifteenth-century style of three part writing characterized by the extensive use

Example 171. Descant, II/11, system 1, page 18



of parallel sixth chords and by the use of a cantus firmus in the lowest part. Like English Descant, this Descant is in three parts and is based on a cantus firmus--the Appalachian valley acoustic--in the bass. Its parallel chord construction uses a major sixth between the bottom and middle notes and a diminished fourth (major third) between the middle and top notes. The rhythm is in a strict repeated pattern of $\overline{\text{J}^3\text{J}} \mid \text{J} \text{J} \overline{\text{J}^3\text{J}} \mid \text{J} \text{J}$ etc.

The cantus firmus forms linear PNS sonorities. This is illustrated in example 172.

Example 172. PNS sonorities formed by the cantus firmus (or the other linear notes of each chord) in the Descant, II/11

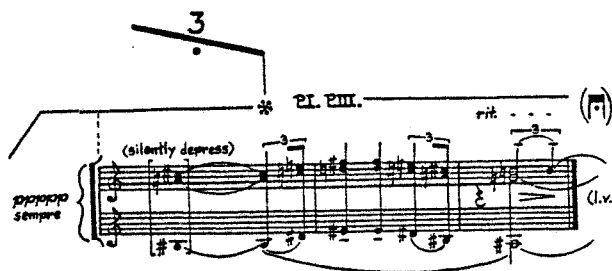


Vertically each chord is an MND sonority. This sonority was also found, linearly, in the third part of motive 2 (see example 158).

The second appearance of the Descant is transposed a whole tone

lower. In its third appearance, at the very end, it is transposed down another whole tone and the rhythm is changed slightly. It is marked "ppppp sempre"; the first chord is silently depressed and the quoted fragment emerges subtly out of this chord.

Example 173. Third appearance of Descant, II/11, system 4, page 18



The first Descant is accompanied by an explosive pattern, motive 6 (see example 171). The first two figures are a five-note chromatic sound, an expansion of motive 4. The third figure is similar to motive 1 in that it consists of two six-note whole tone simultaneities a perfect fifth apart. These three figures arrive on the notes A-G-E, which are a PNS sonority. This re-emphasizes the PNS E-G-A in the cantus firmus of the Descant underneath. This specific A-G-E, PNS sonority, has been heard in several previous fantasy-pieces in Volume II. In II/1, "Morning Music," it is found in the motivic complex 6, 7, and 8 (see example 26, page 42). It is also heard prominently in II/8, "A Prophecy of Nostradamus" (see example 132, page 129).

The second Descant is accompanied by two six-note whole tone simultaneities a perfect fifth apart which arrive on the tritone notes B-F. This specific tritone may serve as another link with II/8, where the B-F tritone was central to the fantasy-piece. The third Descant is unaccompanied.

Larger Formal Structure

The form of II/11, "Litany of the Galactic Bells," is introduction-A-B-A'-coda. Motive 1, the Galactic Bells, serves as the introduction to the fantasy-piece. This motive contains the three germinal sonorities of MST, PDT, and PNS, as well as the use of the total chromatic scale. The two occurrences of the Galactic Bells are separated by four second rests, and a four second rest divides the introduction from the A section.

The A section consists of motives 2, 3, and 4. This section uses the MST and PNS sonorities, as well as the three-note chromatic sound and a new sonority, MND. The A' section begins immediately following the Beethoven quotation at the end of system 2, page 18, and ends with the third appearance of the Descant in system 4, page 18. In the A' section the motivic complex of 2, 3, and 4 is repeated exactly. After a five second rest, the elaborated and elongated motivic complex of 2, 3, and 7 is heard.

The B section is the longest section in this fantasy-piece. It begins at the top of page 18 and ends with the Beethoven quotation. The section is interrupted once by the Galactic Bells motive (end system 1, page 18) and contains the two Appalachian valley acoustic quotations, as well as the Beethoven quotation and the new motive 5. This section is more tonally oriented than section A, and is dominated by the interval of the perfect fourth. A new sonority, that of MND, which was first heard at the end of motive 2, is characteristic of the Descant sections.

The coda consists of the Descant fragment heard "ppppp." This form of introduction-A-B-A'-coda (heard as an echo) has been

noted before in several of the fantasy-pieces. Unusual in this fantasy-piece, however, is the fact that rests serve a structural purpose: each motive or motivic grouping is separated by several seconds of rests.

Fantasy-Piece II/12
"Agnus Dei [SYMBOL]"

The final fantasy-piece of Volume II is also the last of the pieces in the Makrokosmos to be notated in symbol form. "Agnus Dei" is in the shape of the peace symbol, and the slow chanting and whispering of the phrase "Dona nobis pacem" close this volume of fantasy-pieces.

The composition is divided into three musical sections, all of which are to be played extremely softly and slowly. The first section (marked [A] and [B] in the score) consists of two parts separated by a four second rest. In this section the performer is instructed to sing, "like chanting," the first line of the Agnus Dei prayer while strumming bass register chords inside the piano. The middle section (marked [C] in the score) is in the treble register, and consists of several short phrases which are separated by four second rests. The outer circle of the peace symbol constitutes section C. This section, called "Prayer-wheel," is marked "Very slow; like a vision; as if suspended in endless time." It consists of a four-fold repetition of the same musical material; as in the previous two sections each repetition is separated by a four-second rest. Here the phrase "Dona nobis pacem" is to be whispered softly but distinctly.

"Agnus Dei" utilizes all the germinal sonorities found in the Makrokosmos. In addition, it contains references to previous motivic constructions found in the other symbol pieces of Volume I and II.

Exploration of the Three Sections

Section A

In the first part of section A, glissandi inside the piano sound two chords which have been silently depressed by the left hand.

Example 174. First part of section A, II/12, page 19

A
Very slow, like chanting [$\text{♩} = 40$]
[Pianist sings] *mp*

A - gnus De - i, qui tol lis pec ca - ta mun - di. (1.v.) 4

gliss. over strings (f.t.) *mp*

depress keys silently and hold

EL. — * EL. —

The first chord consists of a perfect fifth plus a perfect fourth (F-C-F) while the second chord is a half-step higher and is inverted to a perfect fourth plus a perfect fifth ($F^\sharp$ -B- $F^\sharp$). Above these chords the voice chants the first phrase of the Agnus Dei prayer on F.

The second part of section A is a transposition of the first part a whole step lower and slightly softer.

Example 175. Second part of section A, II/12, page 19

B
Come sopra [$\text{♩} = 40$]
[sim.] *ppd* *pp*

mi - se - re - re ne - dis. (1.v.) 4

(sim.) *ppp*

depress keys silently and hold

EL. — * EL. —

Open chords, such as those found in the left hand here have been seen also in the other two symbol pieces of Volume II. In II/4, "Twin Suns," the second circle (called "Hymn for the Advent of the Star-

Child") consists of open chords which are silently depressed and played glissando on the strings. As in "Agnus Dei," the phrases in "Twin Suns" are separated by four second rests. In II/8, "A Prophecy of Nostradamus," open chords are found at the end of sections A, B, E, and F. These chords are also silently depressed and played as glissandi inside the instrument.

Section B

Section B, marked "Very slow; tender, wistful," is very similar to the "Adagio molto" section of the vertical staff in the first symbol piece of Volume I, "Crucifixus" (I/4, page 10). This section is permeated by linear MST and vertical PDT sonorities, as well as by the use of chromatic cells.

Example 176. Section B, II/12, page 19

Very slow; tender,
wistful ($\text{♩} = 40$)
r.h. on keys (sempre)

pizz. (f.t.)
(sempre)
PI. P.M.
(hold down
throughout)

Section B consists basically of a right hand melody, accompanied by left hand pizzicato chords, which gradually descend throughout the section. In the first phrase, the three grace notes F-G-B^b form a PDT sonority. When these three notes are combined with the C in the right hand a $P_2D_2T_2$ sonority is heard. This is the same $P_2D_2T_2$ sonority found in the two chords at the beginning of the piece and is also the same specific $P_2D_2T_2$ found in the very beginning of Volume II

in "Morning Music."

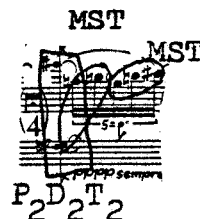
Example 177. Two transformations of the germinal B-C-F-F[#]; P₂D₂T₂
sonority: (1) the sonority is found in "Morning Music"
(motive 2, II/1, system 2, page 6); (2) the beginning of
section B (II/12, page 19)



The first part of section B, in addition, contains an MST sonority. It is formed by the two notes of the right hand, C-D, plus the G^b grace note.

In the second phrase a PDT sonority is again formed by the grace notes D-E^b-G[#]. When the first note of the right hand melody is added to these notes a P₂D₂T₂ results: D-E^b-G[#]-A. As in the first phrase, the first two melody notes A-B plus the grace note E^b form an MST sonority. The second phrase, which is a transposition of the first down a minor third, is elongated by the notes G-B-C[#], another MST sonority.

Example 178. Second phrase, section B, II/12, page 19



The grace notes in the third phrase consist of three whole tones F-G-A; when combined with the right hand notes, a five-note chromatic cell results: F-G^b-G-A^b-A.

Example 179. Five-note chromatic cell of the third phrase, section B, II/12, page 19



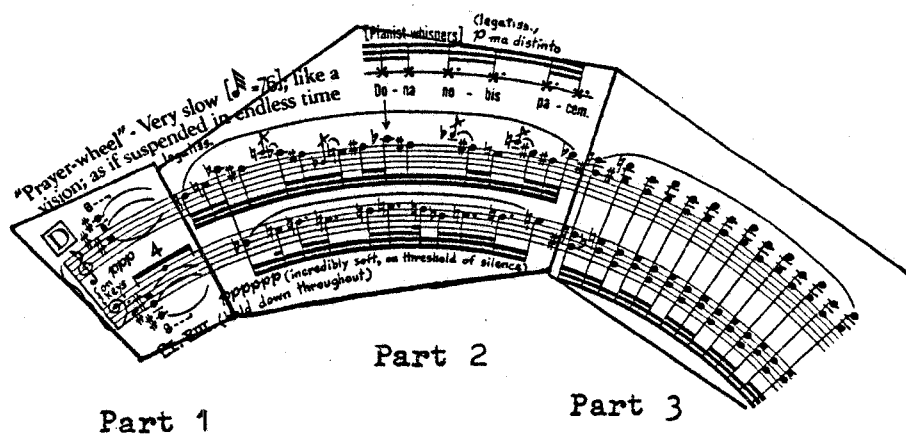
The remaining four phrases in section B show the same relationships of PDT, MST, and three and five-note chromatic cells.

Section C

The final section consists of four statements of the same material, each of which is a minor third lower. It is marked "ppppppp (incredibly soft, on threshold of silence)" and pedals I and III are depressed throughout. This could be said to be related to the circle of the second symbol piece in Volume I, "The Magic Circle of Infinity (Moto Perpetuo)" (I/8). Not only are both these sections in the shape of a circle but they are also permeated by the MST sonority.

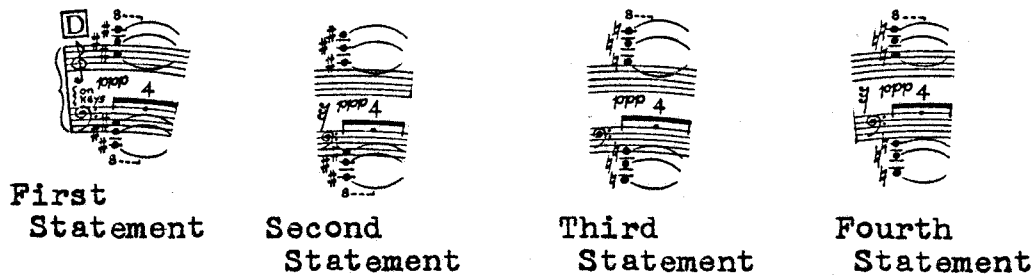
Each repeated statement in the "Prayer Wheel" has three parts.

Example 180. Three parts of section C, II/12, page 19



The first part consists of an open chord, perfect fifth plus perfect fourth, like the chords found at the beginning of the composition. These chords are spaced in the top and bottom registers of the piano and are played on the keys. In each statement this chord is a minor third lower: $C^\sharp-G^\sharp$; $A^\sharp-E^\sharp$; $G-D$; $E-B$.

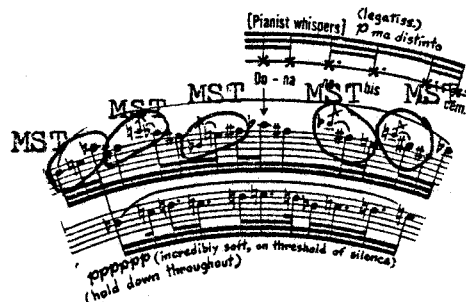
Example 181. Four statements of part 1, section C, II/12, page 19



First Statement Second Statement Third Statement Fourth Statement

A linear whole tone scale built on C is presented in the second part of section C. The left hand plays the notes $B^b-E-D-E$, which have the span of a tritone, B^b-E , while the right hand plays the complete scale. The right hand presents the scale in such a way that linear MST sonorities result. Above this the pianist is to whisper the phrase "Dona nobis pacem."

Example 182. Linear MST sonorities in the right hand, second part of section C, II/12, page 19



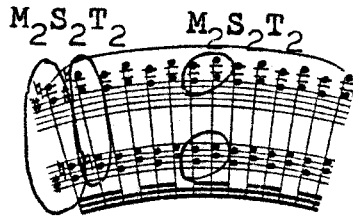
MST MST MST MST MST

pppppp (incredibly soft, on threshold of silence) (hold down throughout)

[Pianist whispers] (legatissimo) p ma distinto

The same whole tone scale is heard in part three. Here however each hand plays the interval of a tritone. These tritones are a whole step apart: $F^{\#}-C$, $G^{\#}-D$, and $G^{\#}-D$, B^b-E . This results in both horizontal and vertical $M_2S_2T_2$ sonorities.

Example 183. $M_2S_2T_2$ sonority in part 3, section C, II/12, page 19



The part repeats these tritones seven times.

The second statement is like the first but a minor third lower. Thus, the six chromatic tones not heard in the second and third parts are found in the second statement: the whole tone scale here is built on A.

"Agnus Dei" ends on a double tritone, or $M_2S_2T_2$ sonority. Internally, a link exists between the first and last pieces in the second volume, in that the first piece ("Morning Music") begins with the $M_2S_2T_2$ sonority, and the last piece ends with this sonority.

Example 184. $M_2S_2T_2$ sonority at the beginning of II/1, "Morning Music" and at the end of II/12, "Agnus Dei"



This fantasy-piece is built on the two germinal sonorities of MST and PDT plus some incidental use of chromatic cells. It progresses from the use of the PDT sonority in section A to the combination of the two sonorities of PDT and MST plus chromatic cells in section B, to the exclusive use of MST in section C. As in the rest of the volume the total chromatic is divided both by perfect fifths (as in section A and the first part of section C) and by tritones (section C). Like II/11, "Litany of the Galactic Bells," rests are used to separate motives and sections; the rests in "Agnus Dei," however, are consistently of four seconds duration. The form is simply A-B-C, with internal sequence.

Conclusion to
Chapter II

The preceding analysis of Geroge Crumb's Makrokosmos, Volume II has focused on large-and small-scale methods of organization and has placed particular emphasis on motivic structures within each fantasy-piece. The following paragraphs will attempt to summarize the findings of this analysis.

Basic Musical Materials

Crumb's musical vocabulary encompasses the use of all twelve chromatic tones, but there is no ordering of the total chromatic according to any serial procedures. Instead, several germinal sonorities provide the basic musical material which Crumb uses in various transformations throughout the work.

Two key intervals are the tritone and the perfect fifth. The tritone is especially important, as it serves not only to divide chromatic constructions but is also common to the two germinal sonorities of MST and PDT. In fact, the MST sonority may be said to be derived from the filling-in of whole tones to the interval of a tritone.

The perfect fifth, like the tritone, also functions as a divisor of chromatic constructions and is the basis of the PDT sonority. The division of the chromatic by perfect fifths leads to pentatonic configurations as well as to the secondary germinal sonority of PNS. The combination of the two key intervals of the tritone and the perfect fifth is found in the PDT sonority.

Whole tone collections, which are related to the MST sonority, provide another structural device for ordering the total chromatic. Finally, chromatic cells, ranging from two to six notes, also serve as a basis for motivic structures and embellishment throughout the work.

Formal Organization: Motivic Structures

The musical fabric of the Makrokosmos, Volume II results largely from the elaboration of small motives into a mosaic design. Individual motivic units, each with its own timbral and dynamic character, are ordered and reordered for the purpose of dramatic tension and release. Formal development within a piece is generally achieved by the recapitulation of a modular group of motives, frequently with minor variations. The isolated, one-time occurrence of a motive helps to define the form and serves as a marker amidst material which is essentially a series of varied repetitions.

Motives from all the fantasy-pieces relate to each other through their mutual relationship to the germinal sonorities of MST, PDT, and PNS. The motivic material of the work is not extensive, but Crumb disguises the motives with such imaginative use of timbres, dynamics, sonorities, and textures that the listener is often aware only of a subliminal unity between the fantasy-pieces.

Formal Structure of the Fantasy-Pieces

The composer works in small-scale forms which achieve their coherence largely through the principle of repetition rather than of motivic development. Forms such as A-B-A or A-A' predominate, frequently with a brief introduction. Typically a coda, heard as an echo, will refer in retrospect to the key motives of the piece. The

recurring formal characteristic of the fantasy-pieces is the recapitulation of the opening motives of the piece in the last part.

CHAPTER III

COMPARISON OF MAKROKOSMOS, VOLUMES I, II, AND III

The three volumes of the Makrokosmos are closely related in style and in compositional technique. Crumb thinks of the three volumes as forming a trilogy,³⁵ since they share important thematic elements. Volume III, in fact, evolved out of two epilogues which were originally intended for the first two volumes, while the fifth piece of Volume III, "Music of the Starry Night," was first sketched out for inclusion in Volume II. The following discussion will focus on unity of musical material, shared thematic connections, and subtle similarities between all three volumes.

Unity of Basic Musical Material

The basic musical vocabulary of all three volumes is the same. The two key intervals of the tritone and the perfect fifth permeate each volume; indeed, the relationship of the tritone is heard immediately at the beginning of the first two volumes, while the third volume closes with repeated perfect fifths. Internally the total chromatic is frequently divided and organized by both the perfect fifth and the tritone.

³⁵From a telephone conversation with George Crumb, December 17, 1978.

A great deal of unity is provided throughout the Makrokosmos by the use of the germinal sonorities of MST, PDT, and PNS as a basis for motivic constructions. Additionally, specific MST or PDT sonorities may be found relating a motive from one fantasy-piece directly to another. (For example, the F-A-B MST sonority first seen in I/1, system 2, appears again in II/2, system 1, measure 3, as the basic generative unit for elaboration and expansion later in that piece. In the same manner the B-D[#]-F MST found at the opening of III/1 was first seen as the top notes of the Galactic Bells of II/11 and in the vertical staff of I/8.)

Whole tone structures provide another method of musical organization. Whole tone scales a minor second apart are found in each volume, and a motive which builds clusters by adding whole tones in both directions is seen in II/7 (page 13, systems 4 and 5) and in III/1 (pages 7 and 8). An important shared musical motive consisting of two whole tone simultaneities a perfect fifth apart, the Galactic Bells, will be discussed below.

Chromatic collections of all kinds are utilized as yet another method of organization. The three-note chromatic conceived as a whole tone with the immediate semi-tone displaced by an octave is heard especially frequently throughout the work.

Formally, the pieces in all three volumes are constructed of small motivic units which are elaborated into a mosaic design. Often these small units are set off by rests (see the opening of III/1). Motivic units from one fantasy-piece relate to those from another piece in another volume through their mutual relationship to the germinal sonorities of MST, PDT, and PNS. The musical material of the complete

Example 185. Three-note chromatic sound conceived as a whole tone with the immediate semi-tone displaced by an octave, III/1, system 1, page 4

Makrokosmos is not extensive but reappears in the various fantasy-pieces with such imaginative combinations of timbres, dynamics, and sonorities that the organic unity is often only subliminally perceived.

Shared Thematic Connections

The three volumes share several important thematic connections. The most obvious of these is found in III/3, "The Advent," which is actually an expansion of the fourth piece in Volume II, "Twin Suns (Doppelgänger aus der Ewigkeit)." The second circle of "Twin Suns," subtitled "Hymn for the Advent of the Star-Child," is transposed up a major third in Volume III (from "d" to "f#") and is subtitled "Hymn for the Nativity of the Star-Child." Some singing in parallel fourths is added and the Hymn is considerably longer due to the echoing and ricocheting of the two pianos.

In a few places a section from one piece is heard slightly altered or transposed in a later piece. The first example of this

occurs when the "Adagio molto" or vertical staff of I/4, "Crucifixus," reappears, although somewhat changed, as the vertical staff of II/12, "Agnus Dei," where it is marked "Very slow; tender, wistful."

Example 186. Vertical staff, I/4, page 10 and vertical staff, II/12,
page 19

I/4, "Crucifixus"

Adagio molto [$\text{♩} = 40$]; serene, transcendental

Chri-ste!

(on keys) ff

pizz. ($f.t.$)

7

on keys

pppp (5)

pppp 5=p (5)

pppp 3 (5)

pppp 3 (5)

pppp 3 (5)

pppp 3 (7)

pppp 3 (5)

pppp 3 (5)

P.III. (sempre)

P.I. sempre
(senza P.III.)

Very slow; tender,
wistful [$\text{♩} = 40$]
r.h. on keys (sempre)

K pppp

pizz. ($f.t.$)
(sempre)

P.I. P.III. (hold down throughout)

(l.v.)

II/12, "Agnus Dei"

The Descant section of II/11, "Litany of the Galactic Bells," is actually the "Appalachian Valley Acoustic" of I/6, "Night-Spell I," transposed up one half step and accompanied by parallel major sixths and diminished fourths (or major thirds).

The structure of the parallel chords which accompany the Descant of II/11 is the same structure as the parallel chords found in the second system of I/1, "Primeval Sounds (Genesis I)."

Example 187. "Appalachian Valley Acoustic," I/6, page 13, system 1, and Descant, II/11, page 18, system 1

Will There Be Any Stars In My Crown?

Serene, hauntingly; echoing [like an Appalachian valley acoustic]

[♩ = ca. 50] sempre

Whistle

p languidly, as from afar

r.h. on the keys *pppp*

l.h. *pppp*

(PI. III. sempre) *pppp*

This musical score is for a piece titled "Will There Be Any Stars In My Crown?". It is marked "Serene, hauntingly; echoing [like an Appalachian valley acoustic]" and has a tempo of "♩ = ca. 50". The score is in 6/8 time and features a whistle melody in the upper staff. The piano accompaniment is divided into right-hand (r.h.) and left-hand (l.h.) parts. The right-hand part is marked "on the keys" and "pppp". The left-hand part is marked "pppp". The score includes a "sempre" marking and a "PI. III. sempre" marking. The piece is in the key of D major and has a tempo of approximately 50 beats per minute.

I/6, "Night-Spell I"

a. tempo

r.h. *ff*

pp (on keys)

(PI. sempre)

[♩ = 52 sempre]

Descant
as from afar,
cheerful, serene

ppppp sempre

rit. - -

This musical score is for a piece titled "Night-Spell I". It is marked "a. tempo" and features a right-hand (r.h.) melody in the upper staff. The piano accompaniment is divided into right-hand (r.h.) and left-hand (l.h.) parts. The right-hand part is marked "ff" and "pp". The left-hand part is marked "ppppp". The score includes a "sempre" marking and a "PI. sempre" marking. The piece is in the key of D major and has a tempo of approximately 52 beats per minute. A descant section is marked "as from afar, cheerful, serene" and "ppppp sempre". The piece ends with a "rit." marking.

II/11, "Litany of the Galactic Bells"

Example 188. Parallel chords of I/1, system 2, page 6: MND sonority

[VIBR. ~~~~~] sempre

[♩ = ca. 54]

l.h. gliss. over strings (fingertip)

r.h. on keys (*molto ritmico*)

l.h. gliss. over strings (*come sopra*)

r.h. *ppp*

(on keys) *ppp*

PI. (sempre)

This musical score is for a piece titled "Litany of the Galactic Bells". It is marked "[VIBR. ~~~~~] sempre" and has a tempo of "♩ = ca. 54". The score is in 4/4 time and features a right-hand (r.h.) melody in the upper staff. The piano accompaniment is divided into right-hand (r.h.) and left-hand (l.h.) parts. The right-hand part is marked "on keys" and "ppp". The left-hand part is marked "ppp". The score includes a "sempre" marking and a "PI. (sempre)" marking. The piece is in the key of D major and has a tempo of approximately 54 beats per minute. The right-hand part is marked "r.h. on keys (molto ritmico)" and "ppp". The left-hand part is marked "l.h. gliss. over strings (come sopra)" and "ppp".

The "Galactic Bells" motive is found in all three volumes. This motive consists of two whole tone simultaneities a perfect fifth apart; the first simultaneity appears as an embellishment to the simultaneity which follows it, and is first found in the horizontal staff of I/8, "The Magic Circle of Infinity."

Example 189. Motive of The Galactic Bells, I/8, horizontal staff, page 14

Luminous [$\text{♩} = 156$]

The musical score for Example 189 is written on a horizontal staff with two staves. It begins with a key signature of one sharp (F#) and a time signature of 4/4. The tempo is marked 'Luminous' with a quarter note equal to 156 beats. The score contains several measures of complex simultaneities, with some measures marked with 'A' and '4'. There are also markings for 'ppp' (pianissimo), '(loco)', and '(l.v.)'.

It is found again, exactly as in I/8 at the beginning of II/11, which is entitled "Litany of the Galactic Bells."

Example 190. The Galactic Bells, II/11, system 4, page 17

II. Litany of the Galactic Bells [Leo]
Jubilant; metallic, incisive, echoing [$\text{♩} = 52$]

The musical score for Example 190 is written on a horizontal staff with two staves. It begins with a key signature of one sharp (F#) and a time signature of 4/4. The tempo is marked 'Jubilant; metallic, incisive, echoing' with a quarter note equal to 52 beats. The score contains several measures of complex simultaneities, with some measures marked with '(on keys)', '8', '4', 'ppp', '(loco)', and '3=p'.

This motive occurs in two places in Volume III; it is found first in III/1, "Nocturnal Sounds (The Awakening)." The same motive is also heard several times in the last piece of the trilogy, III/5, "Music of the Starry Night" (Volume III, pages 19, 20, 23).

Example 191. Motive of The Galactic Bells, III/1, system 1, page 7

a tempo [sempre più agitato]

pp sempre (velociss.)

(sempre sim.)

(sempre senza PI.)

Piano I

Piano II

Perc. I

Perc. II

Vibph.

Perc. I walks to Xylophone!

(Perc. I) Xyloph. [very hard mallets] sempre

pp sempre (hold pedal down throughout)

In contrast to these longer thematic connections a shorter motivic cell appears throughout the work. A glissando covering the range of an augmented eleventh, A-D[#], is found in many places in all three volumes, and although the dynamics, tessiture, and methods of performance are changed, the motive remains the same. It is first heard as the second item in I/1, "Primeval Sounds (Genesis I)" where it functions, as it does in several other pieces, to separate longer motives. It is found again in Volume I in I/5, "The Phantom Gondolier," and in Volume II in II/4, "Twin Suns, and II/11, "Litany of the Galactic Bells." It is heard several times in two pieces in Volume III: in III/3, "The Advent," and in III/5, "Music of the Starry Night."

Example 192. Glissando motive, I/1, system 1, page 6

Other Points of Comparison

In addition to the thematic connections discussed above several other less obvious similarities between pieces and volumes may be found. The series of rising minor triads which open Volume I is found again in two other fantasy-pieces in Volume I: in I/4, "Crucifixus," and in I/9, "The Abyss of Time."

Example 193. Series of rising minor triads, I/1, system 1, page 6

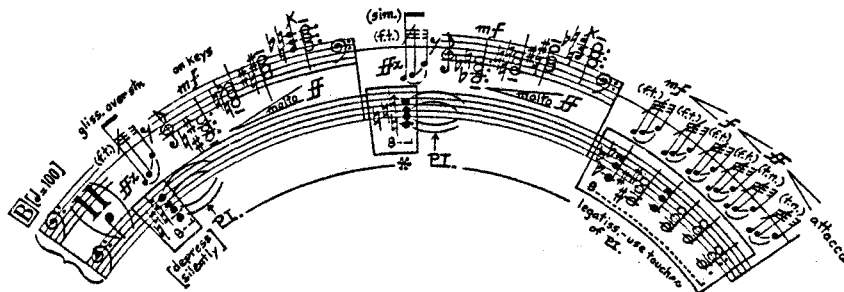
I. Primeval Sounds (Genesis I) Cancer

Darkly mysterious (♩ = ca. 3 sec.)

The relationships found in these triads are seen in Volume II in the eighth fantasy-piece, "A Prophecy of Nostradamus," which uses minor triads throughout. Here the B-F tritone relationship of the first and second series of triads in I/1 is kept in II/8 in the relationship of the sections marked A and F and in the sections marked C and

D (the "Tema enigmático," which is two presentations of the "Dies Irae" theme a tritone apart, B-F). Further, the motive of rising minor triads with chromatically descending roots found in the opening triads of I/1 is kept in the B section of II/8.

Example 194. Series of rising minor triads with chromatically descending roots, II/8, section B, page 15

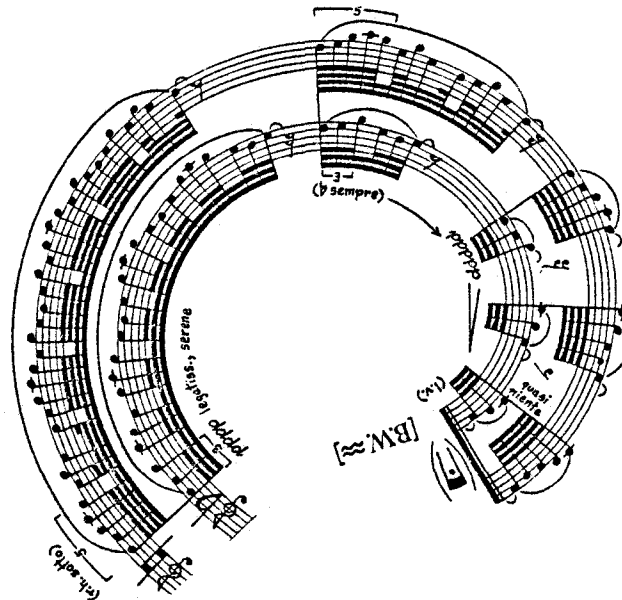


It seems to be no coincidence that the relationships of the powerful opening statement of the Makrokosmos should be found again at the climax of the second volume. Indeed, each motive or relationship in the first fantasy-piece of the Makrokosmos may be found integrated in some way in the fantasy-pieces of Volume II and III.

A link exists between the last fantasy-piece of Volume I, "Spiral Galaxy," and the first piece of Volume II, "Morning Music (Genesis II)," in the white key/black key pentatonic juxtaposition which is based on overlapping PNS sonorities (as D-E-G=PNS, E-G-A=PNS). This white key/black key pentatonic juxtaposition is found particularly often in Volumes II and III, and especially links these two volumes.

Additional similarities between volumes would include cadenza-like figures, particularly those based on chromatic cells

Example 195. White key/black key pentatonic juxtaposition found at the end of I/12, page 19, and at the beginning of II/1, page 6



I/12, "Spiral Galaxy"

1. Morning Music (Genesis II) Cancer
 Exuberantly, with primitive energy [♩ = 66]

ff Paper on strings [VIBR. *sempre*]

ff *sempre* (molto ritmico)

PI. (hold down throughout)

plus the PDT sonority (vide I/1, I/2, II/7, III/1).

Chromatic clusters played with the palm of the hand and covering the interval of a tritone or a perfect fifth are also found in all three volumes (vide I/1, II/6, II/7, III/1).

Silently depressed chromatic tones with the same range are seen at the beginnings of pieces I/2, II/3, and III/1.

Example 196. Cadenza-like figure based on chromatic cells and the PDT sonority, III/1, system 1, page 5, and I/2, system 4, page 7

a piacere
(accel. . . .) ppp sempre
III / (nervously) (stacc.)
I/2
fz K

Example 197. Chromatic cluster played with the palm and covering the interval of a tritone, I/1, system 1, page 7

r.h. on keys
l.h. gliss-over strings (thumb nail)
r.h. on keys (molto ritmico)
l.h. on strings (fingertip)
r.h. on keys
l.h. come sopra
Touch string lightly at center to produce 2nd partial harmonic (actual sound Bva↑)
(on keys)
mf

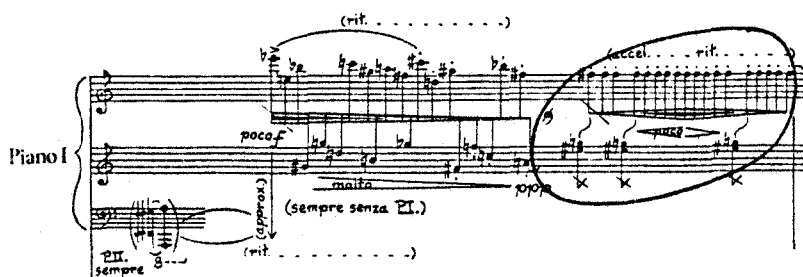
Example 198. Silently depressed chromatic notes with a two octave range, beginning of II/3, page 9

3. Rain-Death Variations [Pisces]
Crystalline, with elegance [Tempo metronomico, ♩ = 128]
(on keys) ppp delicatiss.
staccatiss. sempre
depress silently with forearms, then secure with R.H.
[senza R.H.]

It is interesting to note that each volume contains one identified musical quotation: Volume I/11, "Dream Images (Love-Death Music)" quotes Chopin's Fantasia Impromptu; Volume II/11, "Litany of the Galactic Bells" quotes Beethoven's Hammerklavier Sonata; and Volume III/5, "Music of the Starry Night," quotes from the Well Tempered Clavier of J. S. Bach. In each case the music preceding these quotations becomes more tonally oriented so that the quotations seem to grow organically out of the musical fabric surrounding them.

Finally, many traits characteristic of Crumb's music in general may be exemplified in these three volumes. A repeated-note figure is typical of Crumb and is found throughout the Makrokosmos (vide I/1, II/2, II/6, III/1).

Example 199. Repeated-note figure, III/1, system 1, page 5



The echo is used by Crumb as a structural device and occurs especially in coda-like sections; it is also found internally (see almost every piece). The echo is particularly important in Volume III, where a figure sounded by one piano will be repeated, as an echo, by the other piano. Other traits include the use of trills (vide I/1, I/5, II/1, II/5, II/7), glissandi, ostinato-like melodies (vide I/4, I/10, II/1, II/12, III/3), and grace note figures.

CODA

From the detailed analysis of Makrokosmos, Volume II and the discussion of the relationships between the three volumes of the Makrokosmos aspects of Crumb's musical style may be discerned. Most obvious is the fact that Crumb is fascinated by sonority. Formal structures, at least from an intellectual/academic standpoint, are minimal. Concerning this apparent indifference to structure Crumb has commented:

I think we're living in a time that maybe over-emphasizes the intellectual aspect of music. I couldn't really care whether a work was totally serial, or was 12 tone or completely intuitive, as long as it makes a powerful statement. There are pretensions, you know, to this or that system. There are biases, certainly, as to what the structure of music should be. But Chopin and Debussy have survived, and I don't think anybody has accused them of being overly concerned with structure. Beethoven was no structural slouch, but I find him incredibly simple, even in his polyphonic movements. I think he had a vision of every movement in every work. And he found the simplest means he needed to realize this vision.³⁶

Crumb's handling of tonal elements is unique. He subordinates his use of tonality to the basics of rhythm, timbre, and dynamics. Using these as reference points he has created a very flexible style which can accommodate both tonal and atonal sounds.

Although Crumb has broken certain ties with an historical line of development in his avoidance of counterpoint, twelve-tone rows, and of classical formal organization, the influence of many traditional

³⁶Terry, 50.

composers may be found in his work. In the Makrokosmos, especially, the influence of several composers who were particularly important in the development of keyboard music may be seen: Bach, Chopin, Schumann, Bartok, and Debussy. The occasional influence of Anton Webern is also found in the Makrokosmos in Crumb's use of spacing, texture, and timbre.

Crumb's particular gift is that he possesses an unusually sensitive ear for timbre and beauty of sound. He has at his disposal an extensive arsenal of effects and has developed an ingenious approach to the piano. His art is a highly personal one, standing apart from the acerbic, academic, and intensely organized music which has dominated the avant-garde since World War II. It may be that the haunting and extraordinary beauty of Crumb's music will eventually lead the way to a synthesis of avant-garde techniques.

APPENDIX A

GEORGE CRUMB:

BIOGRAPHICAL INFORMATION

George Crumb was born in Charleston, West Virginia on the day of the Great Stock Market Crash, October 24, 1929. He attended Mason College in Charleston and received his Bachelor of Music degree from that institution in 1950. His Master's degree was earned at the University of Illinois in 1952. In 1954 he entered the University of Michigan where he studied composition with Ross Lee Finney. During the summer of 1955 he studied with Boris Blacher at the Berkshire Music Festival and continued with him at the Berlin Hochschule fur Musik until 1956. After receiving a Doctor of Musical Arts degree from Michigan (1959) he began teaching at the University of Colorado. In 1964-65 he was a Creative Associate at the Center of the Creative and Performing Arts in Buffalo, New York, and in 1965 he moved to the University of Pennsylvania where he is composer-in-residence. He currently resides in Media with his wife Elizabeth, their daughter Ann, and two sons David and Peter.

Crumb has received many commissions, fellowships, and grants, including Fromm, Guggenheim (1967), Koussevitzky (1965), and Rockefeller (1964) Foundations; a Fulbright Fellowship (1955); and an International Rostrum of Composers (UNESCO) Award (1971). In 1968 he won the Pulitzer Prize for his composition Echoes of Time and the River. Crumb is a member of the National Institute of Arts and Letters.

APPENDIX B

GEORGE CRUMB:

PRINCIPAL COMPOSITIONS

(Works are listed chronologically)

STRING QUARTET (1954). New York: Mills Music Inc.

SONATA (1955) for violoncello solo. New York: C. F. Peters, #P6056.

VARIAZIONI (1959) for orchestra. New York: Mills Music Inc.

FIVE PIECES FOR PIANO (1962). New York: C. F. Peters, #P66464.

NIGHT MUSIC I (1963) for soprano, piano, celesta, percussion. New York:
Mills Music Inc.

FOUR NOCTURNES (NIGHT MUSIC II) (1964) for violin and piano. New York:
C. F. Peters, #P66465.

MADRIGALS, BOOK I (1965) for soprano, contrabass, vibraphone. New
York: C. F. Peters, #P66458.

MADRIGALS, BOOK II (1965) for soprano, flute (also piccolo and alto
flute), percussion; text: poems by Federico García Lorca.
New York: C. F. Peters, #P66459.

ECHOES I, ELEVEN ECHOES OF AUTUMN, 1965 (1966) for violin, alto flute,
clarinet, piano. New York: C. F. Peters, #P66457.

ECHOES II, ECHOES OF TIME AND THE RIVER, Four Processionals for
Orchestra (1967). New York: Mills Music Inc.

SONGS, DRONES AND REFRAINS OF DEATH (1968) for baritone, electric
guitar, electric contrabass, electric piano (and electric
harpsichord), two percussionists; text: poems by Federico
García Lorca. New York: C. F. Peters, #P66463.

MADRIGALS, BOOK III (1969) for soprano, harp, percussion; text: poems
by Federico García Lorca. New York: C. F. Peters, #P66460.

- MADRIGALS, BOOK IV (1969) for soprano, flute (also piccolo and alto flute), harp, contrabass, percussion; text: poems by Federico García Lorca. New York: C. F. Peters, #P66461.
- NIGHT OF THE FOUR MOONS (1969) for alto, alto flute (also piccolo), banjo, electric cello, percussion; text: poems by Federico García Lorca. New York: C. F. Peters, #P66462.
- BLACK ANGELS (Thirteen Images from the Dark Land) (Images I) (1970) for electric string quartet. New York: C. F. Peters, #P66304.
- ANCIENT VOICES OF CHILDREN (1970) for soprano, boy soprano, oboe, mandolin, harp, electric piano (and toy piano), percussion (three players); text: poems by Federico García Lorca. New York: C. F. Peters, #P66303.
- LUX AETERNA FOR FIVE MASKED MUSICIANS (1971) for Soprano, bass flute (and soprano recorder), sitar, percussion (two players). New York: C. F. Peters, #P66495.
- VOX BALAENAE FOR THREE MASKED PLAYERS (1971) for electric flute, electric cello, electric piano. New York: C. F. Peters, #P66466.
- MAKROKOSMOS, VOLUME I (Twelve Fantasy-Pieces After the Zodiac for Amplified Piano) (1972). New York: C. F. Peters, #P66539a.
- MAKROKOSMOS, VOLUME II (Twelve Fantasy-Pieces After the Zodiac for Amplified Piano) (1973). New York: C. F. Peters, #P66539b.
- MUSIC FOR A SUMMER EVENING (MAKROKOSMOS III) (1974) for two amplified pianos and percussion (two players). New York: C. F. Peters, #P66590.
- DREAM-SEQUENCE (Images II) (1976) for violin, cello, piano, and percussion. New York: C. F. Peters.
- STAR-CHILD (1977) for large orchestra, soprano solo, children's chorus, and four conductors. As yet unpublished.

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