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GEORGE CRUMB'S MAKROKOSMOS VOLUMES I AND II:
CONSIDERATIONS FOR PERFORMANCE, INCLUDING OBSERVATIONS
BY DAVID BURGE, ROBERT MILLER AND LAMBERT ORKIS

The University of Oklahoma

D.M.A. 1981

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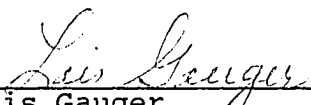
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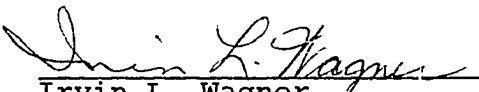
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ABSTRACT

The purpose of this paper is to present a compilation of information for the pianist interested in performing George Crumb's Makrokosmos Volumes I and II. Characteristics of the music are discussed and unusual playing techniques are examined. Data from interviews with three distinguished pianists, David Burge, Robert Miller and Lambert Orkis, provide much of the information for the description of unconventional playing techniques.

Background information includes a discussion of musical influences on Crumb. Among these are sounds influenced by electronic music, Debussy's interest in timbre and handling of the damper pedal, Webern's condensation of musical gestures, and Bartok's use of "night music" and symmetrical organization.

Particular characteristics of Crumb's music are discussed in Chapter II. These consist of Crumb's exploitation of unusual timbral effects; his use of time-suspension and prime number divisions; and his concern with three particular formal considerations: the germinal idea, the hierarchy of musical elements and symmetrical relationships.

The third chapter examines the unusual playing techniques involved in performing Makrokosmos Volumes I and II. Much of the information in this section is taken from recorded interviews with David Burge, Robert Miller and Lambert Orkis who, in several instances, differ in the way they execute these techniques. Subjects discussed include the following: producing unconventional sounds with the hands, such as pizzicatos, harmonics, muted strings, glissandos on strings, striking the soundboard; manipulating objects on the strings, such as a chain, thimbles, tumblers, and plectra; and producing vocal and whistled effects. Certain practical considerations are also described: choosing a piano on which these works can be performed, deciding on a method of marking dampers and strings, selecting the right type of clothing, determining the best amplification equipment, considering whether or not to stand, and deciding if lighting effects are desired.

An Appendix contains selections from reviews of performances of Makrokosmos Volumes I and II.

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I would like to extend my warmest thanks to the distinguished pianists who contributed much of the information used in this paper. The three men were most gracious in giving their time for interviews and expressing their continued encouragement and interest in this project.

David Burge is the Chairman of the Piano Department at the Eastman School of Music, Rochester, New York. He has been a close friend of George Crumb for many years, the Five Pieces for Piano, completed in 1962, as well as Makrokosmos Volume I, completed in 1972, being dedicated to him. Burge premiered Makrokosmos Volume I at Colorado Springs, Colorado, on February 8, 1973, and has recorded it for Nonesuch Recordings, label H-71293.

Robert Miller, who lives in New York City, is both a practicing lawyer and a pianist who specializes in contemporary music. Makrokosmos Volume II is dedicated to him. Miller premiered this work at Alice Tully Hall, New York City, on November 12, 1974, during one of a series of three recitals dedicated to twentieth-century piano music. He recorded it for Columbia Records in 1976, Odyssey label Y-34135.

Lambert Orkis is a Professor of Piano at Temple University, Philadelphia, Pennsylvania. He is also a member of the Penn Contemporary Players and the 20th Century Consort, the latter under the auspices of the Smithsonian Institution in Washington, D.C. Crumb's Little Suite for Christmas, A.D. 1979 was written for and dedicated to him. Orkis will be heard in a recording of Celestial Mechanics, Makrokosmos IV, to be released in late 1981 or early 1982 by Smithsonian Recordings.

I wish to gratefully acknowledge the assistance of my doctoral committee members, Professors Lois Gauger, Digby Bell, Michael Hennagin and Irvin Wagner. From the earliest outlines to the completed project, they have offered thoughtful support, patient guidance and invaluable advice. Their help was essential to the completion of this document.

Special thanks go to Bob Scheer, Oklahoma City piano technician, who offered practical information about the mechanical operation of various pianos.

I gratefully acknowledge that excerpts from Makrokosmos Volumes I and II as well as an excerpt from the Five Pieces for Piano, are reprinted by permission of the publisher, C.F. Peters Corporation, 373 Park Avenue South, New York, New York, 10016.

I also wish to acknowledge the generous assistance and patient endurance of my family, husband and children,

as well as mother and brother. Finally, I wish to record my indebtedness to my father, Dr. A.B. Caldwell, who until his death furnished unfailing support and expressed his continuing interest in my academic progress. With gratitude and affection, this document is dedicated to him.

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CHAPTER I

GEORGE CRUMB: BACKGROUND AND INFLUENCES

George Crumb is a highly original and innovative American composer whose work reflects the convergence of a wide range of influences. His experience and orientation illuminate the expressive effects that he intends to achieve through his individual notation and compositional style. Most of his training took place in American institutions of higher learning. At the same time, his musical background transcends geographical and historical boundaries. He is well acquainted both with the standard western literature and the musical literatures of other cultures and epochs.

Within his personal background the other aspects of his life have always been subordinated to his need to compose. He was composing piano music by age nine and notating his works by age eleven,¹ despite the fact that he

¹ Robert Shuffett, "The Music, 1971-1975, of George Crumb: A Style Analysis" (unpublished D.M.A. dissertation, Peabody Institute, 1979), p. 411. (Hereinafter referred to as "Music of Crumb.")

did not receive formal piano instruction until age fourteen.¹ To the distress of his English teachers, he was writing music in his high school English classes.² From childhood it was his avowed intention to become a musician. "I really didn't decide to make music my career; I always just assumed this would be the case."³

Crumb studied at three American colleges and universities. His undergraduate degree was granted by Mason College in Charleston, West Virginia, where he was born. He completed a Master of Music degree in 1952 at the University of Illinois and followed this with a Doctor of Musical Arts degree in 1959 at the University of Michigan.⁴

In discussing his evolution as a composer, Crumb described 1962 as a particularly important year.⁵ During that year he completed the Five Pieces for Piano, his first work requiring the use of the piano interior. This work is regarded by Crumb as representing a shift toward a different

1

R.G. Freeman, "Making Music: A Modern Composer Finds Fame, Fortune are Hard to Attain," Wall Street Journal, August 15, 1974.

2

Ibid.

3

Robert Shuffett, "Music of Crumb," p. 411.

4

Richard Wernick, "George Crumb," in Dictionary of Contemporary Music, ed. by J. Vinton (New York: E.P. Dutton and Co., 1974), p. 156.

5

Kenneth Terry, "George Crumb, Makrokosmic Cartographer," Downbeat, Vol. 43 (October 21, 1976), p. 18.

and more personal style of writing.¹ Concerning the compositions written since 1962, Crumb feels he has achieved stylistic consistency. "For better or worse, it seems to be my own music."²

The composer has stated that generally his process of creation is very slow.³ "Sometimes I don't produce anything that I want to save."⁴ As a work begins to materialize, he finds himself spending more hours per day working on it:

Like most composers, I do not feel that I have even come close to the music that I really would like to write. There is always a music that seems unreachable; there are ideas at the beginning of every piece that are never quite realized.⁵

During the compositional process Crumb has always been very self-critical and obsessed with the need to be sure that all aspects of the music reflect his intended effect.⁶ As an example, the fifth movement of Makrokosmos III was completed in April, 1974. At that time the composer debated

¹
Terry, "George Crumb, Makrokosmic Cartographer,"
p. 18.

²
Ibid.

³
Shuffett, "Music of Crumb," p. 429-430.

⁴
Ibid.

⁵
Ibid.

⁶
David Burge, interview held in Rochester, New York,
March 31, 1979.

whether or not to add a sixth movement. He struggled with this possibility for several months, and during this time he wrote no other works. By August he confessed:

The question is whether the work stands as it is: I can't put my finger on what's wrong. In a way, it needs that extra movement, and I hope I come to that decision fairly soon because it's been driving me nuts for five months.¹

Crumb also wrote an Epilogue to Makrokosmos I, but then decided this created a superabundance of slow music, unbalancing the work.²

One musical aspect that particularly concerns Crumb when starting a new work is the development of formal structure, and questions of form may remain a problem for him until the work is finished. Aspects he considers include the pacing, variety and economy of material, whether to combine small ideas to make larger ones, whether to include an introduction and/or coda, and how to relate a given section to the whole work.³ According to Crumb, the larger formal shapes in his music evolve from the elaboration and expansion of minute pitch and rhythmic elements.⁴ In this method of writing, small events are combined to make larger ones, and

1

Freeman, "Making Music: A Modern Composer Finds Fame, Fortune are Hard to Attain," Wall Street Journal, August 15, 1974.

2

David Burge, letter to the author, June 13, 1981.

3

Shuffett, "Music of Crumb," p. 498.

4

Ibid., p. 459.

subsequently they are repeated in an altered order. "Such a method of working is distinct from the traditional practice of building around longer themes."¹ Writing about Makrokosmos III he said, "As in several of my other works, the musical fabric of Summer Evening results largely from the elaboration of tiny cells into a mosaic design."²

Suzanne Harkins examined the sketches remaining after Makrokosmos I was completed and wrote, "Perhaps as many as ten different designs for the order of the fantasy-pieces appear in the sketches before the final version emerges."³

The notation of a score is a time-consuming process for Crumb, illustrating his intense drive to achieve perfection. In the early stages of the compositional process he works with pencil and is less concerned with perfection.⁴ But in preparing the final score for the publisher he works

1
Shuffett, "Music of Crumb," p. 459.

2
George Crumb, Makrokosmos III, Music for a Summer Evening, perf. by Gilbert Kalish, James Freeman, Raymond DesRoches and Richard Fitz, record jacket notes by Crumb. (Nonesuch H-71311, 1975). Note: The word "mosaic" frequently appears in descriptions of Crumb's compositional style.

3
Suzanne Harkins, "A Study of Constructional Principles in George Crumb's Makrokosmos, Volume I" (unpublished M.A. thesis, American University, 1974), p. 6.

4
Paul Hume and George Crumb, videotaped interview held and recorded at Wichita State University, February 3, 1975.

with ink and sometimes spends as many hours preparing the score as he spent during the original act of composition.¹ Notating scores by hand allows Crumb to include his remarkable curved and circled staves. Sometime after completing Makrokosmos I and II, however, he began to use stick-on notes in the final copy sent to the printer, in an effort to accelerate the notational process.²

Two reasons for this concern with appearance can be cited. For one, Crumb believes that beautiful music should look beautiful on the printed page:

It is difficult to quantify--or even to separate--the relationship between the aural and the visual aspects of a composition. When I think of a work that I know very well, I somehow see the visual format of the page, the style of notation. . .³

In addition, the curves and circles of Makrokosmos I and II force the pianist to memorize the works as well as to disregard vertical relationships.⁴ Crumb once showed a copy

¹
Shuffett, "Music of Crumb," p. 40.

²
Lambert Orkis, telephone conversation with the author, July 7, 1981.

³
Shuffett, "Music of Crumb," P. 458. Note: This concept could easily be oversimplified: Crumb is not really separating the visual and aural aspects of the music.

⁴
Terry, "George Crumb, Makrokosmic Cartographer," p. 18.

of Makrokosmos I, Piece No. 12¹ to a group of students, saying, "That was a hard one to draw. The little notes look like stars, you know."²

When the first ink drawing is sent to the publisher, ozalid copies are made and sold. These initial scores usually have no written explanations, creating problems for performers unaccustomed to the required playing techniques. It may take as long as four years before a final offset printing replaces the ozalid copies. Performance notes and often a few corrections are made before these last plates are prepared.³

Some of Crumb's concern with calligraphy can be traced to his years in Michigan, where he studied composition with Ross Lee Finney. Finney allowed freedom in the choice of style, but required exactness in notation. In Crumb's words, the creative process was one in which students were expected to "write, rewrite, and then revise."⁴

With respect to the influence of other composers Crumb believes that in hearing the music of others his own

¹
Hereinafter individual pieces in Makrokosmos I and II will be referred to as in "Makrokosmos I - 12" rather than "Makrokosmos I, Piece No. 12."

²
Terry, "George Crumb, Makrokosmic Cartographer,"
p. 51.

³
Shuffett, "Music of Crumb," p. 465.

⁴
Ibid., p. 403.

imagination is stimulated.

The music a composer writes is largely a sum of all the music he has heard and liked, like a source to be drawn from. I can imagine a composer--say like Schubert--one of whose works might still stimulate a composer today; somehow it is possible to find a point of contact in what would seemingly be a remote style.¹

The composer says that he does not believe he has been influenced by the native music of West Virginia, although he has used both sounds and a few instruments indigenous to that region, such as the Jew's harp and musical saw. In addition, the mountains produce acoustic phenomena which have found their way into much of Crumb's music. As he explains:

Echoes are a phenomenon associated with hills and river valleys. It is strange how river valleys can produce curious acoustics. Sometimes you hear sounds--very distant sounds--and you can't imagine where they are coming from.²

Another influence derives from the development of electronic music. The new and different timbres of electronic music have made audiences aware of a wide spectrum of tone colors. Crumb has never wished to write electronic music himself, but some of these sounds have challenged him to produce similar colors in live performances.³

¹
Shuffett, "Music of Crumb," p. 465.

²
Ibid., p. 432.

³
Terry, "George Crumb, Makrokosmic Cartographer,"
p. 51.

In discussing influences on his own music from other composers Crumb most frequently refers to Mahler, Debussy and Bartok. He also mentions Schoenberg, Berg and Webern, but less frequently. He describes the compositions he wrote prior to 1962 as representing a "continuing search for a personal mode of expression."¹ Earlier works represented "a synthesis, strongly derivative of Bartok, Berg, Webern and Schoenberg, the principal composers of the twentieth century."²

Crumb's exposure to Mahler occurred in the late 1950's when he undertook a study of the Mahler symphonies. In this music he found characteristics which he regarded as currently relevant:

Among these are his /Mahler's/ sense of and handling of time, his curious Ives-like mixture of musics, the cosmic gesture, the beautiful and very modern instrumentation, and his use of quotation--both from himself and from the music of others.³

I think Das Lied /von der Erde/ has had a strong influence, especially the last pages of Der Abschied, with that very beautiful dying gesture. I suppose other Mahler movements show a similar use of this kind of repeating idea, but the conclusion of Das Lied is especially eloquent and elegant.⁴

The main influence from the music of Debussy is in the

¹
Shuffett, "Music of Crumb," p. 4.

²
Ibid.

³
Ibid., p. 433.

⁴
Ibid., p. 482-483.

area of timbre, including the extended use of the sustaining pedal. According to Crumb, it was Debussy who first emphasized timbral qualities as an independent musical element. In addition, Crumb has suggested that Debussy's interest in the whole-tone scale and the resulting symmetrical chord structures are continued in his music.¹

A particularly prominent influence from Webern is reflected in Crumb's use of brief and condensed musical gestures. In spite of frequent brevity, the music of Webern is regarded as distinctive and significant. As an example, the fourth of the Five Orchestral Pieces, Op. 10 which contains only six measures is regarded as a complete work needing no expansion. Crumb described a need for clarity in twentieth-century musical compositions, explaining this as a "projection of all aspects of a work with economy of means--without anything extraneous: every note should have its place and sound as if it belonged there."²

Crumb has credited Webern with contributing additional advancements in the areas of timbre,³ spacing and texture.⁴ In mentioning timbre, Crumb may have been thinking about

¹
Shuffett, "Music of Crumb," p. 502.

²
Ibid., p. 549.

³
Ibid., p. 500.

⁴
Terry, "George Crumb, Makrokosmic Cartographer,"
p. 51.

Webern's interest in Klangfarbenmelodie (melody of tone colors), or the Five Movements, Op. 5 and Bagatelles, Op. 9 in which the strings use a variety of technics and devices, such as: col legno, sul ponticello, sul tasto, harmonics, pizzicatos and mutes. In terms of texture he was undoubtedly influenced by the sparse and careful scoring of Webern's works, in which the placement and weight of each note in the total texture is carefully calculated.

The influence of Bartok is found in relation to formal organization and timbre. Bartok's use of cyclical and arch forms as well as various small-scale symmetrical relationships were described by Crumb as "a primary influence."¹ "Rhythmic, pitch and formal symmetries abound in Bartok's music; sometimes the construction of an entire work will be in some kind of an arch design."² Again, Crumb has credited Bartok with an expansion of the element of timbre, saying, "Bartok played an important role in getting other composers interested in various sound possibilities, some of which are beautifully exploited in the string quartets."³ An example of timbral exploration in both Bartok's and Crumb's music is found in the frequent use of the sounds of nature, in particular the use of nocturnal sounds.

¹
Shuffett, "Music of Crumb," p. 415.

²
Ibid.

³
Ibid., p. 500.

Crumb has mentioned Bartok's piano writing involving one hand on white keys with the other on black,¹ an example of which is found in "From the Diary of a Fly," Mikrokosmos Volume VI. Crumb explains that there are times when certain figurations can be played in this black/white position which might not be possible if transposed so that both hands would have to use black and white keys.²

The influence of Bartok's Mikrokosmos on Crumb's Makrokosmos is apparent. As explained by Crumb:

The title and format of my Makrokosmos reflect my admiration for two great twentieth-century composers of piano music--Bela Bartok and Claude Debussy. I was thinking, of course, of Bartok's Mikrokosmos and Debussy's 24 Preludes (Makrokosmos Volume II, a second zodiacal set, was completed in 1973, thus forming a sequence of 24 'fantasy-pieces').³

In addition, the use of two pianos and percussion in Makrokosmos

1
Shuffett, "Music of Crumb," p. 532.

2
Ibid.

3
George Crumb, Makrokosmos I, perf. by David Burge, record jacket notes by Crumb. (Nonesuch H-71293. 1974). Crumb's original intention was to write twelve pieces in each volume which could be performed individually as well as collectively, directly modeled on Debussy's Preludes. As he wrote the pieces, however, he decided that many of them would be too short to be performed individually; thus he opted for groupings of four pieces each. Once the volumes were completed, Crumb further decided that some of the groupings would be more successful than others if extracted from the whole. Specifically, he preferred Part II of Makrokosmos I and Part I of Makrokosmos II. (Robert Shuffett, "Music of Crumb," p. 144.)

III parallels Bartok's Sonata for Two Pianos and Percussion.

Crumb has described himself as continuing some traditions that are characteristic of the music of many past composers, for example, his use of repetition and restatement. He has also suggested that many composers of the past experimented with sound qualities by experimenting with the possibilities of different instruments. Beethoven has been cited by Crumb as an example of a composer who experimented with sound possibilities, exemplified in his use of pedal innovations, unusual spacing and doublings and exploitation of registers.¹

¹ Shuffett, "Music of Crumb," p. 467.

CHAPTER II

SELECTED CHARACTERISTICS OF CRUMB'S MUSIC

Timbre and Pedal

Crumb's compositional style is characterized by the consistent exploitation of unique timbral effects. Burge, Miller and Orkis all stressed Crumb's amazing ability to conceive and notate unusual sounds and effects.¹ In addition, Burge and Orkis observed that Crumb's ability was all the more astonishing because his personal pianos were less than adequate, making it impossible for Crumb to know what his compositions would actually sound like on satisfactory instruments.²

Crumb is convinced that unconventional timbres command attention and that unusual sounds--whether from conventional or unconventional instruments--will hold the attention

1

David Burge, interview held in Rochester, New York, March 31, 1979; Lambert Orkis, interview held in Philadelphia, Pennsylvania, June 8, 1979 and Robert Miller, interview held in New York, New York, June 9, 1979.

2

Orkis, June 8, 1979 and David Burge, "George Crumb and I," Contemporary Keyboard (August, 1976), p. 42.

of the listener because he/she will not be able to anticipate sounds before hearing them.¹ Thus, from Crumb's viewpoint, a melody played on an African thumb piano would generate more interest than the same melody played on a conventional piano.

Two of the most striking timbral features in the piano music of Crumb are his use of amplification and extensive use of pedal effects. Electronic amplification is requested in the performance notes for the Five Pieces for Piano and is required in all four of the Makrokosmos volumes. When long pedals are combined with amplification, soft and delicate sonorities can be projected and their reverberations sustained. Thus, essential changes in timbre are effected.

Although Crumb's music is original and unique, some influences in the area of timbre can be identified, including sounds from electronically produced music, sounds from nature, and the music of composers of the past. Crumb reports having consciously been influenced by the possibilities of electronically produced sounds, even though his own compositions are always written for live performances.² He believes that electronic music has made the listener more aware of manipulations of tone color. ". . . glissandi . . . microtones

¹ Terry, "George Crumb, Makrokosmic Cartographer," p. 18.

² Ibid., p. 50.

You hear some of these sounds and you'd like to get the same thing with instruments."¹

Some timbres in Crumb's music are related to the sounds of nature and the outdoors. Unmistakable examples of this in the Makrokosmos volumes are found in the imitation of nocturnal sounds including whistled birdcalls in Makrokosmos I - 6, the imitation of nocturnal sounds in Makrokosmos II - 5 and numerous echo effects.

Example 1. Makrokosmos I - 6: p. 12, s. 1 and 2²

(NIGHTBIRD'S SONG)

Whistle
fz
3
(incisive, clear)
mp
(approx. pitch arco)
fz
3
a rapid tremolo on strings with all fingers (ft.)

Whistle
fz
3
(working)
fz
3
(PI. sempre)

1

Terry, "George Crumb, Makrokosmic Cartographer,"
p. 18.

2

Examples from Makrokosmos I and II in this document will be represented by a Roman numeral indicating the volume number and Arabic numeral representing the piece number, followed by the page number indicated with "p." and the system number indicated with "s."

Example 3, continued

b)

c)

Crumb's use of nocturnal sounds continues and extends the innovations of Bartok. In discussing "The Night's Music" ("Musiques Nocturnes") from Bartok's Out of Doors, Halsey Stevens stated that, "nocturnal music . . . played so large a part in his writing during the last two decades of his life."¹ Donal Henahan noted this similarity between Bartok and Crumb in a review of Crumb's Apparition:

The first vocalise, for instance, suggesting nocturnal insects and other forest twitters and buzzes, seems a direct allusion to Bartok's night music, one of the constantly recurring motives in Mr. Crumb's music.²

¹ Halsey Stevens, The Life and Music of Bela Bartok (London: Oxford University Press, 1953), p. 135.

² Donal Henahan, "Music Reviews," New York Times, January 14, 1981.

Makrokosmos I - 6 ("Night-Spell I") presents one example of night music characterized by a wide variety of sounds, most of them written in a soft dynamic range. Some of the more distinctive timbres include the "Nightbird's Song" which is played on the keyboard as well as whistled, the use of harmonics, various types of pizzicatos, and rhythmic knocking on the crossbeams and soundboard. Some of these can be seen in Example 4. The illusion of night-time tranquility is suggested by the use of the following: amplification, birdcalls, echo effects, thin texture, the continuous depression of the damper pedal, vibrations fading during long pauses, and unexpected and abbreviated ideas lying in a high pitch range.

Example 4. Makrokosmos I - 6: p. 12, s. 1 and 2

The musical score for Example 4 from *Makrokosmos I - 6* is presented across two systems. The notation includes staves for the Soundboard (SB), Crossbeam (CB), and Left Hand (Lh.).

System 1 (p. 12, s. 1):

- SB:** Features a "Whistle" section and a "NIGHTBIRD'S SONG" section. Dynamics include *f* and *ppp*. Markings include "(acc.)", "3rd", "5th", and "fz".
- CB:** Includes a section labeled "(approx. pitch area)".
- Lh.:** Includes a section labeled "ppp ma. distorto a rapid tremolo on strings with all fingers (f.f.)".

System 2 (p. 12, s. 2):

- SB:** Includes a "Whistle" section and a section labeled "(whirling)". Dynamics include *f* and *ppp*. Markings include "ff ferioso".
- CB:** Includes a section labeled "(PI. sempre)".
- Lh.:** Includes a section labeled "on the keys". Dynamics include *ppp* and *ffz*. Markings include "sub. r.h.", "l.h.", and "ppp sub.".

Makrokosmos II - 5 ("Ghost-Nocturne. . . Night-Spell II") illustrates another example of night music, suggesting the supernatural rather than the out-of-doors. Enhanced by amplification and a depressed damper pedal, two timbral effects dominate the entire piece. "Night-Spell II" opens with sounds that are greatly altered by a glass tumbler silently placed on the strings. The performer holds the tumbler against the strings in the left hand and moves it first away from and then towards the keyboard in a series of motions, while the right hand plays a trill in the range covered by the tumbler. The movement of the tumbler alters and bends the pitches, creating a very unusual sound. This effect is contrasted with a sonority created by a simultaneous fingernail pizzicato and incantatory vocalization.

Example 5. Makrokosmos II - 5: p. 11, s. 1

5. Ghost-Nocturne: for the Druids of Stonehenge (Night-Spell II) [Virgo]

Dark, fantasmic, subliminal [♩=40]

on keys

5

gliss. sempre next to dampers

(Pianist sings)

nasal, metallic (like the Indian Tom-bora)

pizz. f.n. (end of string, near pins)

dampen string (f.t.) immediately after plucking

on keys

pizz. f.n. (center of string)

PI. (hold down throughout)

center of string

mf

gliss.

As previously mentioned, Crumb has been influenced by Debussy's fertile imagination in the area of timbre. He admires Debussy's "incredible sense for nuance and coloring,"¹ and believes that "with his imaginative use of the damper pedal, he completely transformed the sonic character of the piano."²

Crumb's extensive use of the damper and sostenuto pedals can be regarded as a continuation of Debussy's interest in experimentation with sustained sound. In most of Crumb's piano music one of these pedals is depressed, often for the entire length of a piece. This extended use of pedal affects timbre by altering texture, dynamics and harmony. When the damper pedal remains unchanged for long periods of time, a slow harmonic rhythm may be necessary in order to avoid a build-up of incompatible sounds. Lengthy pauses may also be used in order to allow previous sounds to decay before presenting new ones.

Makrokosmos II - 9 is one of twelve pieces in Makrokosmos I and II in which the pianist is instructed to hold down the damper pedal throughout the entire piece, adding a continual shimmer to the sound quality. Timbre is created by a variety of effects being combined in the depressed pedal.

¹ Shuffett, "Music of Crumb," p. 456.

² Ibid., p. 467.

A wire brush is vibrated against the strings in undulating dynamic patterns of PPP to Fz to PPP. Sustained whispering in combinations of "ah," "ee," "oo," "oh," and "sh" are heard. In addition, sounds are produced by the fingers being in contact with the strings--pizzicatos, finger tremolos and fingernail scrapes. The finger tremolos are very soft and low, and serve to separate other patterns in the piece, giving previous sounds time to decay and therefore allowing subsequent patterns an opportunity to be heard. These tremolos are circled in Example 6, page 23.

9. Cosmic Wind Libra
 Ghostly, shadowy, tremulous [$\text{♩} = 88$]

23

Another piece with a thunderous impact is Number 7, "Tora! Tora! Tora!" from Makrokosmos II. In this composition the depressed damper pedal combined with the amplification creates blurred sounds and accumulated volume. A number of effects are presented in quick succession, all of them marked F, FF, FFF or FFFz. Included are palm clusters played on the keys, sweeping glissandos simultaneously played on black and white keys, clusters played with the fingernails on the strings, and low-pitched grace-note aggregations.

Example 8. Makrokosmos II - 7: p. 13, s. 1 and 2

7. Tora! Tora! Tora! (Cadenza Apocalittica) Scorpio

Dramatic, with great intensity; violent, relentless

[♩=108, ♪♩ sempre]

#) with points [♩ = 108, ♩♩ sempre]
 mf molto
 3
 5 = p
 explosively!
 P.I. (hold down throughout)

Handwritten musical score for "The Great American Trailer" by John Cage. The score is for a piano and features complex notation including multiple staves, various accidentals, and performance instructions. Key annotations include "gliss. (white keys)", "gliss. (black keys)", "marf. on strings (f.n.)", and "allorg. - -". The piece is marked "(Pl. sempre)" and "(palm)". The notation includes many accidentals and dynamic markings, suggesting a highly textured and expressive performance.

[illegible]

Special timbral effects are created in Makrokosmos I and II by two particular uses of the sostenuto pedal. In some instances specific notes are depressed silently and secured with the sostenuto pedal, while at other times forearm clusters in the lowest range of the instrument are depressed silently and secured with the sostenuto pedal. An example of a group of notes held in this way can be found in Makrokosmos II - 2, the "Mystic Chord." In this piece the pitches of the notes held with the sostenuto pedal are activated by fingertip glissandos played on the strings as well as by being played on the keys in the normal manner. The "Mystic Chord" and its overtones sound continuously, becoming the basic sound of the piece. In addition, there are second partial harmonics and fingertip pizzicatos, along with two short passages in which pitches are muted by one hand pressing the strings near the pins while the other hand plays the same pitches on the keys.

Example 9. Makrokosmos II - 2: p. 8, s. 1

2: The Mystic Chord Sagittarius

Adagio molto (♩ = 34); serene, desireless, like a Nirvana-trance

Depress silently and secure with R.S.

The sostenuto pedal in Makrokosmos I - 7 changes texture and dynamics in the middle of the piece. Four low pitches are silently depressed and secured with the sostenuto pedal. A fingertip glissando over the corresponding strings activates the four pitches. The sostenuto pedal allows the sounds to continue and before they can fade the glissando is repeated. Because the glissandos are in a low pitch range and marked Fz, the middle section of the piece is more intense than the preceding and following sections. Most of the sounds in this piece are created by the strummed glissando effect: a chord is silently depressed with one hand while the other hand plays a glissando on the strings in the corresponding range. When first strummed, all the pitches in the glissando resonate, but almost immediately the silently depressed chord can be heard above the rest of the chromatic blur. The impression is one of slipping from a vague mass of sound to a delicate sonority. Pizzicatos and the chords held with the sostenuto pedal decorate the basic sound, but the strummed glissandos dominate.

Example 11. Makrokosmos I - 2: p. 7, s. 1, m. 1 - 5

2. Proteus **Pisces**
 Very fast; whimsical, volatile (♩ = 152)

depress silently with forearms, then release P.I. and depress P.II.
 P.II. (attacca)
 P.II. (hold down throughout) [senza P.I.]
 pp leggiero
 f
 ff

The lowest dampers are also raised with the sostenuto pedal and allowed to vibrate throughout the third piece of Makrokosmos II. The entire piece is played above the range of the open strings and much of the articulation is staccato. The crisp staccato notes create an unusual effect when heard against the sustained ambience created by the open strings. Some muted strings and harmonics enhance the distinctive timbre. The total effect is enhanced and enlarged by the presence of amplification.

Example 12. Makrokosmos II - 3: p. 9, s. 1

3. Rain-Death Variations **Pisces**
 Crystalline, with elegance [Tempo metronomico, ♩ = 128]

(on keys)
 ppp delicatiss.
 pp
 staccatiss. sempre
 depress silently with forearms, then secure with P.II.
 P.II. (attacca)
 P.II. (hold down throughout) [senza P.I.]

This discussion represents an introduction to the imaginative sound world of George Crumb. His original combinations of sound events create endless variation; the progression of sounds is ever-changing, like the shifting patterns in a kaleidoscope.

Time-Suspension

Time-suspension is a descriptive term used by Crumb to explain a particular rhythmic characteristic found in some of his compositions written in the last decade. He has said, "A kind of suspended sense of rhythm seems to me to be the greatest difference between my current style and my earliest music."¹ In an interview with Shuffett in 1977 he also said:

I think that this /time-suspension/ can be found in much of today's serious music. In my music, it occurs frequently. It includes the elimination of a sense of metrics and tactus, but it is more complicated than that. It has to do with erasing the sense of strong progression that exists in many traditional types of music. An example of this suspension, or stretching out of time is the ending of Music of a Starry Night, Makrokosmos III.²

Salzman discusses this characteristic:

The real subject of Crumb's music is time--more specifically, the attempt to suspend the passage of time in the endless flow of floating bits of sound and color that constitute his expressive vocabulary.³

¹ Shuffett, "Music of Crumb," p. 437.

² Ibid., p. 423.

³ Eric Salzman, "Classical Discs and Tapes," Stereo Review (April 1974), p. 110.

The absence of strong rhythmic progression is common in much contemporary music, but not all contemporary music could be described as having this characteristic. In Crumb's music the quality of suspended time exhibits an absence of progression and arrival, but it also includes some or all of the following characteristics:

1) An Emphasis on Timbre. The suspension of time usually occurs in conjunction with an emphasis on timbre. In an effort to give the listener time to hear and absorb new and different sounds the sense of rhythmic progression is relinquished.

2) Slow Harmonic Movement. Harmonic changes are less frequent in this music than in the standard literature of the past. System "C" of Makrokosmos I - 4 illustrates a line based on a particular whole-tone scale. The scale provides the harmonic background for the entire line, and the resulting lack of change contributes to a sense of stasis.

Example 13. Makrokosmos I - 4: p. 10, system "C"

Example 13. Makrokosmos I - 4: p. 10, system "C"

Adagio molto [♩ = 40]; serene, transcendental

Chri-ste!

ff

pizz. (ff.)

on keys

P.III. (sempre)

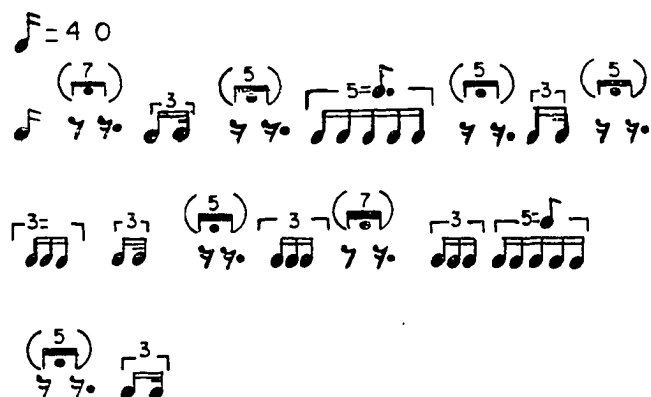
[R.L.F. v.]

d.v.

3) Isolated, Recurrent Gestures. Materials may be presented in short statements which are often separated from each other by substantial pauses. The musical ideas in these statements may be very similar, although some variation will be present. The isolation of the gestures and the lack of contrast contribute to an impression of inactivity.

4) Slow Tempos. A slow tempo allows time for timbral effects to be absorbed by the listener and allows time for sounds to decay. When individual beats occur in a variety of rhythmic patterns, the sense of progression is further weakened. In System "C" of Makrokosmos I - 4 the metronome marking is ♩ = 40, with frequent pauses lasting five or seven seconds. If the rhythm is isolated and the pauses incorporated in the tempo marking, the use of slow tempos, long pauses and variation in rhythmic patterns can be seen.

Figure 1. Rhythm of Makrokosmos I - 4: p. 10,
system "C"



5) Long Pauses. The duration of Crumb's squared (■) fermatas is always specified, often lasting three, five or seven seconds.¹ These pauses contribute to the dissolution of continuity, in part because of their length and in part because the listener is unable to predict the next entrance of the music.

6) Soft Dynamic Levels. Extremely soft dynamics are usually a part of time-suspension. Dynamic ranges of PPPP, PPPPP and even PPPPPP are found in Crumb's music. In addition, decrescendos often occur before pauses or fermatas, so that sounds seem to fade into nothingness.

7) Mood. A quasi-religious or meditative mood may be a part of time-suspension. In a review of several contemporary works that included Makrokosmos II, Salzman suggested that much new music exhibited these psychological states.²

Time-suspension, therefore, includes quite a number of possible characteristics in addition to the absence of rhythmic progression and points of arrival: an emphasis on timbre, slow harmonic movement, isolated gestures, slow tempos, long pauses, soft dynamic levels and a quasi-religious or meditative mood.

1

Pauses of three, five and seven seconds duration in Makrokosmos I and II account for 70.3 percent of all the squared fermatas.

2

Eric Salzman, "The Avant-Garde: In Love with Easeful Death," Stereo Review (February 1977), p. 124.

Crumb cites Debussy's Afternoon of a Faun as an early example of "suspension music."¹ Discussing this work, he suggests that an emphasis on timbre and a slow harmonic rhythm are particularly important elements in creating this effect. "There are moments when the music just seems to sit there, so that one is conscious only of timbral beauty, or of the voicing of a chord."²

Crumb's use of time-suspension occurs most frequently at the end of long compositions. According to him, the endings of both Vox Balaenae and Makrokosmos III illustrate the effect of suspended time.³ As a result, the closing moments of these works retain a quality of ambiguity--the gradual dying of movement and sound implying the limitless expanse of infinity.

Crumb has not specified particular pieces from Makrokosmos I or II as involving time-suspension; however, this quality is conveyed in several of these pieces. In both volumes Pieces 4 and 12 particularly illustrate this characteristic. In each volume Piece 4 closes Part One and Piece 12 concludes the entire work.

The score of Makrokosmos I - 4 is divided into three

¹ Shuffett, "Music of Crumb," p. 498-499.

² Ibid., p. 499.

³ Ibid., p. 444 and 423.

sections, systems "A" and "B" ("darkly mysterious") are horizontal, and system "C" ("serene, transcendental") is vertical. Systems "A" and "B" do not illustrate the isolated ideas or slow harmonic rhythm of time-suspension, but a sense of suspended time is created in system "C." This line is divided by long fermatas seven times, two of these lasting seven seconds, the others lasting five. The mood is described as "serene and transcendental," and the dynamic range is very soft, *p* to *ppppp*, with decrescendos. The slow metronome marking and harmonic movement are described on page 32. Throughout system "C" the isolated whole-tone statements come and go as the sounds of the first chord and its accompanying shout gradually fade to nothing.

Example 14. Makrokosmos I - 4: p. 10, system "C"

Christe!

Adagio molto [♩ = 40]; serene, transcendental

Pizz. (f+)

P.III. (sempre)

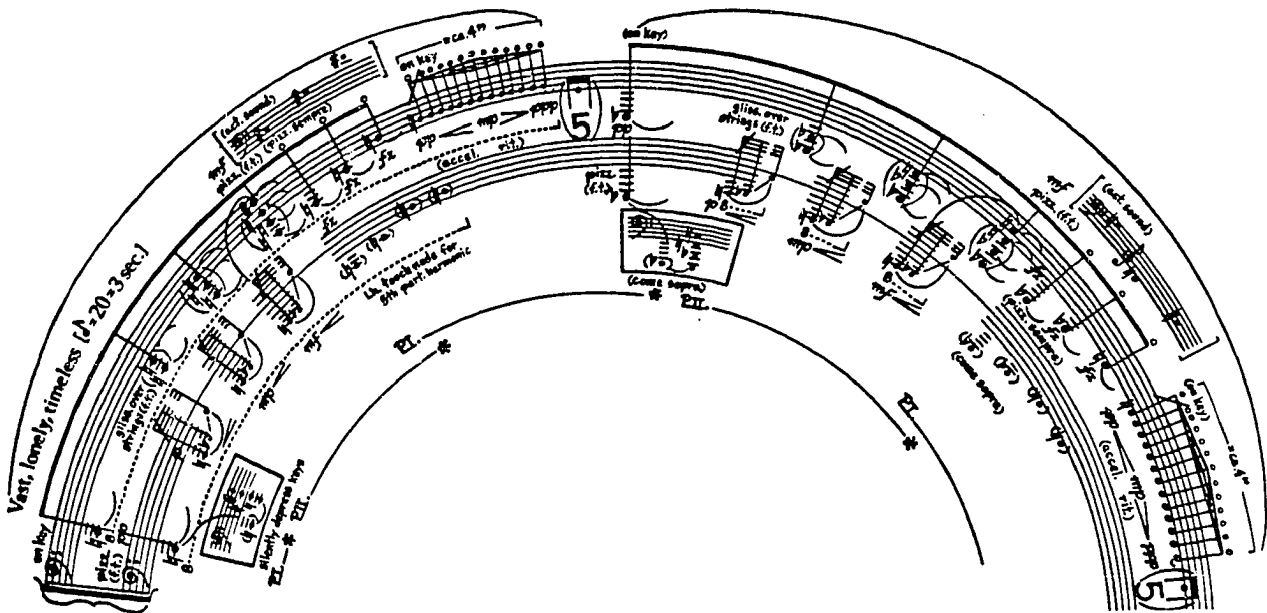
[R.L.F. v]

In reviewing Makrokosmos I Robert Morgan might have been describing this particular line when he wrote, "Tension arises from having to wait over such long spans of time for interrupted ideas to be taken up again and continued. Larger

patterns emerge from the accumulation of the fragments."¹

"Spiral Galaxy," Makrokosmos I - 12 has two fermatas of five seconds duration and very slow tempos: ♩ = 20 = 3 seconds, and ♩ = 40. The material preceding the five second fermatas includes seven eighth-note counts followed by thirteen repeated notes which are marked *accelerando* and *ritardando*. The series is repeated after the first fermata, transposed up a tritone. Because the rhythmic groupings are slow and contain groups of seven and thirteen counts followed by a five-second fermata, the listener discerns no intelligible pulse.

Example 15. Makrokosmos I - 12: p. 19, opening portion of spiral

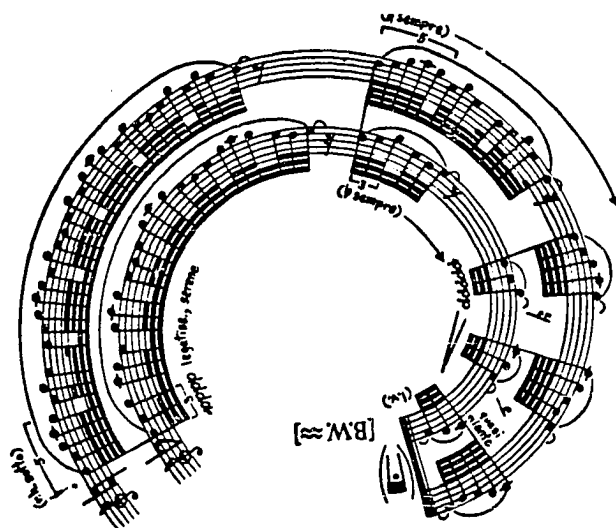


1

Robert Morgan, "Classical Reviews," High Fidelity/Musical America (June 1974), p. 49.

As the "Spiral Galaxy" comes to a close, each hand plays four pitches in a pentatonic formation, the right hand on white keys, the left hand on black. Each hand is limited to four patterns, the right hand patterns divided in five notes per count and the left hand divided in three. These ideas are separated by sixteenth rests. The first of these patterns lasts for eight counts and the subsequent patterns appear as fragments of the original, lasting for three and then one count each. The static harmonic movement, isolation of events, soft dynamic levels and very slow tempo are designed by the composer to convey the impression of vastness and timelessness.

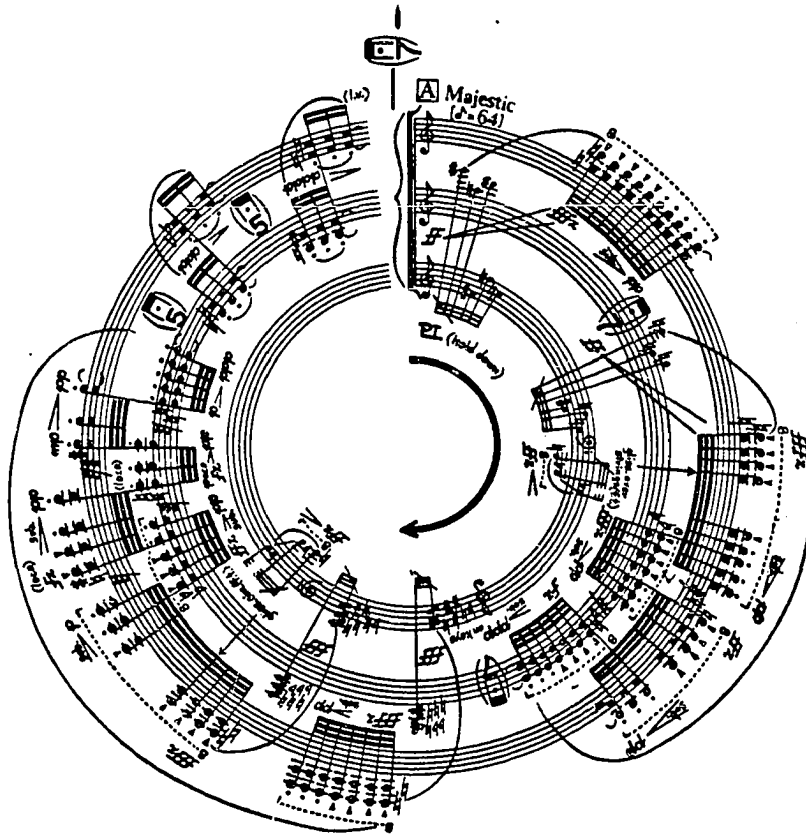
Example 16. Makrokosmos I - 12: p. 19, ending
portion of spiral



Time-suspension in Makrokosmos II - 4, "Twin Suns," is characterized by slow tempos and long pauses. Each circle is concluded with two isolated fragments of the preceding material. Although the dynamic levels are not soft, as has been described as a characteristic of time-suspension, each gesture or idea ends in decrescendo. Upon repetition, the decrescendos create an atmosphere of continuous decay.

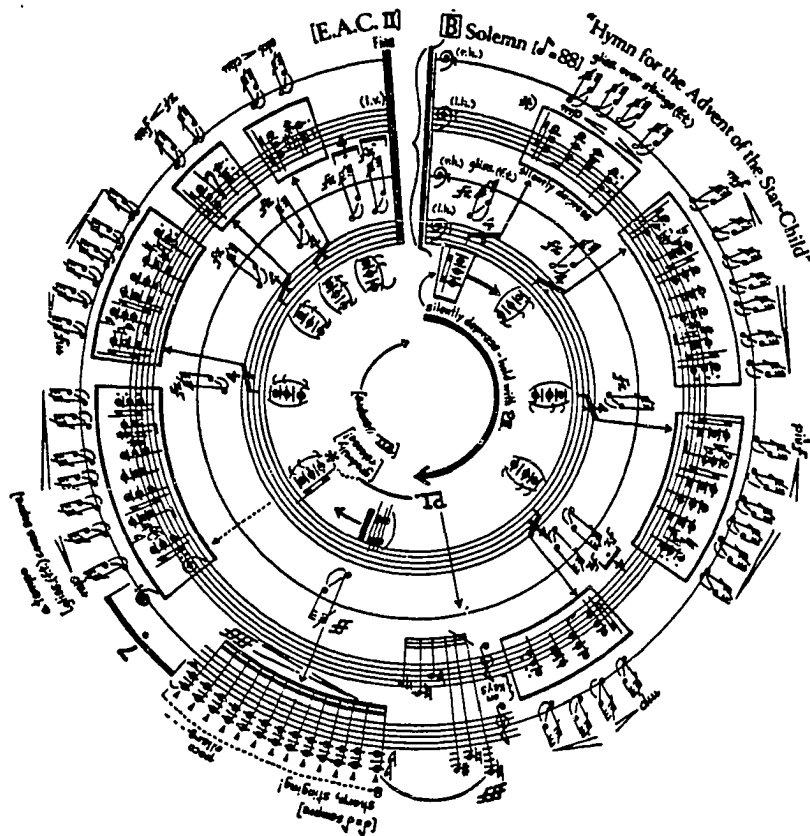
Example 17. a) Makrokosmos II - 4: p. 10, circle "A"
 b) Makrokosmos II - 4: p. 10, circle "B"

a)



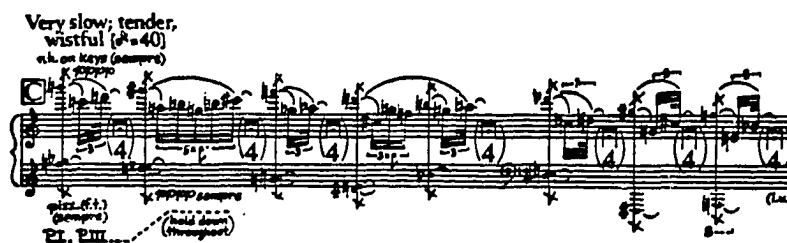
Example 17, continued

b)



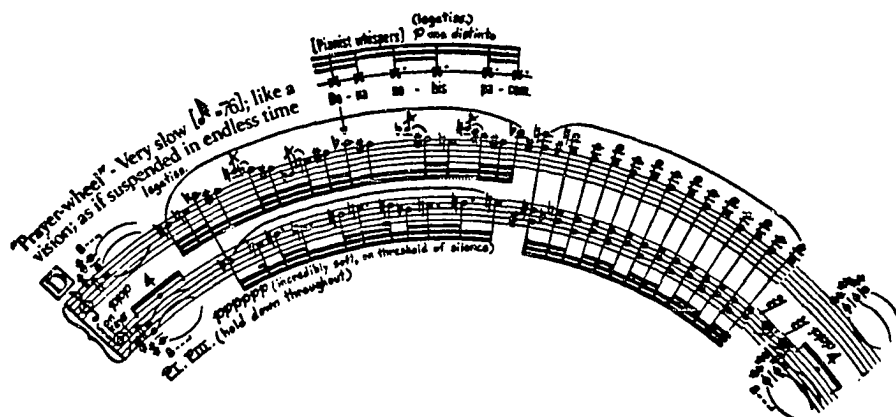
Crumb's instructions to the performer in Makrokosmos II - 12 include the words, "very slow, like chanting," "tender, wistful," and "like a vision; as if suspended in endless time." The piece is divided into three systems, "A," "B" and "C" in addition to a circle labeled "D." A total of thirteen pauses of four seconds each interrupt the progression of the piece. System "C" recalls system "C" in Makrokosmos I - 4. The fermatas in this example, however, are of four seconds duration.

Example 18. Makrokosmos II - 12: p. 19, system "C"



The circle, "D," is divided into four parts, each separated by four second fermatas and transposed upon repetition. Complex rhythmic patterns based on a whole-tone scale and marked "incredibly soft, on threshold of silence" are combined with a whispered chant, then followed by a gesture oscillating between two chords. These two chords are composed of a tritone in each hand. The illusion of "endless time" is created through the whole-tone harmonic background, the long pauses, the extremely soft dynamic levels (pppppp), the monotony of the oscillating tritone chords and the meditative mood created by the chanting of the "Agnus Dei."

Example 19. Makrokosmos II - 12: p. 19, opening of circle "D"



Prime Numbers

A prime number is one that can be divided only by itself or by the number one. Divisions of three, five and seven permeate much of Crumb's music, along with occasional groupings of eleven and thirteen. Although prime number divisions can be found in all of Crumb's music, numerology is the principal organizing factor in only one of his compositions, the string quartet, Black Angels. This work is divided in three parts and these are further divided into thirteen sections. The full quartet is heard only in sections 1, 7 and 13. The numbers seven and thirteen are also used in other divisions, among them harmony, phrase lengths, number of beats per measure and length of fermatas.¹

Historically, dividing music in prime number groups can be traced to the music of the Far East, especially Hindu music. Crumb's interest in non-Western music, particularly that of India, has been documented.²

Makrokosmos I - 1 begins with a succession of seven minor triads. Following a glissando and seven second fermata, the opening succession is answered with another group of seven triads, creating a grouping of three parts, each

1

Lejaren Hiller, record jacket notes for Black Angels (Images I), Thirteen Images from the Dark Land, perf. by the Concord String Quartet (Turnabout of Vox Productions, TV-S 34610, 1973).

2

Shuffett, "Music of Crumb," p. 485.

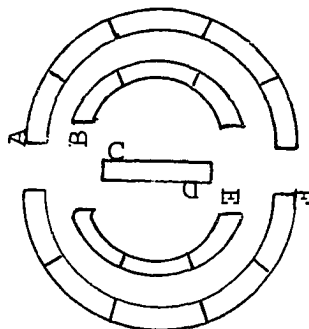
composed of seven counts. The opening triads of Piece 1 are also repeated at the beginning of Makrokosmos I - 4 and 9.

Example 20. Makrokosmos I - 1: p. 6, s. 1

(Part One)
1. Primeval Sounds (Genesis I) Cancer
Darkly mysterious (δ = ca. 3 sec.)

The score of Makrokosmos II - 8 is notated in five systems. In addition to this, systems "A" and "F" are five measures long, systems "B" and "E" three measures, and system "C" (which is turned over and played as "D") is notated in one measure.

Figure 2. Makrokosmos II - 8: Prime Number Divisions, systems and measures



The number thirteen is represented in the fermatas of Makrokosmos II - 12. A total of thirteen fermatas, each of which is four seconds in length, interrupt and divide the piece.

Example 21. Makrokosmos II - 12: p. 19, complete

Agnus Dei [SYMBOL]

Capricorn

Time signatures are given in seven of the twenty-four pieces of Makrokosmos I and II. The number of beats per measure is represented by a prime number in all of these with the exception of the second piece of the first volume, which is given four sixteenth-notes per measure. Makrokosmos II - 2 has three counts per measure. Four pieces have time signatures with five counts per measure: Makrokosmos I - 3 and Makrokosmos II - 5, 6 and 10. Three time signatures are included in Makrokosmos II - 8, each representing a different prime number: systems "A" and "F" have thirteen counts per measure; systems "B" and "E" have eleven and system "C" (repeated as "D") has seven. Thus, as each system in this piece diminishes in number of measures, it simultaneously diminishes in number of counts per measure.

Figure 3. Prime Number Time Signatures in Makrokosmos I and II

Piece	Time Signature
<u>I</u> - 3	5 P
<u>II</u> - 2	3 P
<u>II</u> - 5	5 P
<u>II</u> - 6	5 P
<u>II</u> - 8	13 11 7 P P P
<u>II</u> - 10	5 P

Examples of repeated notes or groups of notes in prime numbers are frequently found. This can be illustrated in the

first piece of the first volume; a series of whole-tone groups is sounded five times and is followed by a tremolo of seven seconds duration. The same type of whole-tone pattern is repeated, followed this time by a tremolo of thirteen seconds.

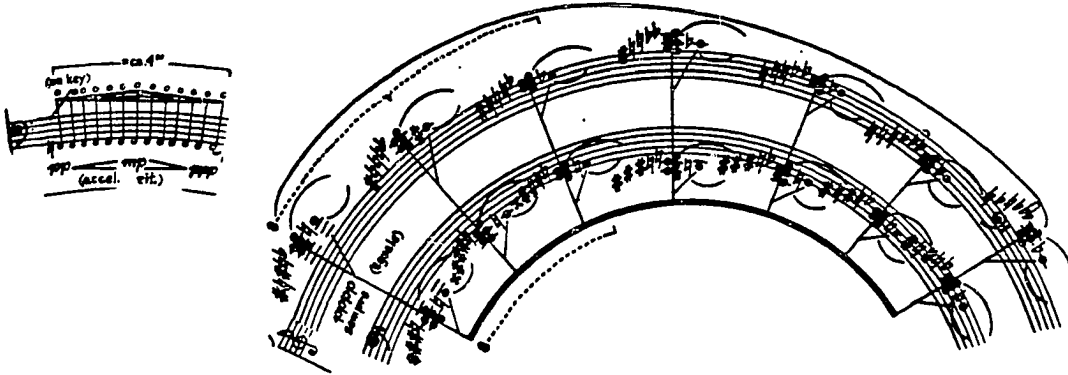
Example 22. a) Makrokosmos I - 1: p. 6, s. 4
Makrokosmos I - 1: p. 7, s. 2 and 3

a)

b)

Two groups of thirteen repeated notes each are found in Makrokosmos I - 12. In addition, a sequence of seven chromatic clusters moves in contrary motion to the center of the piano.

Example 23. Makrokosmos I - 12: p. 19



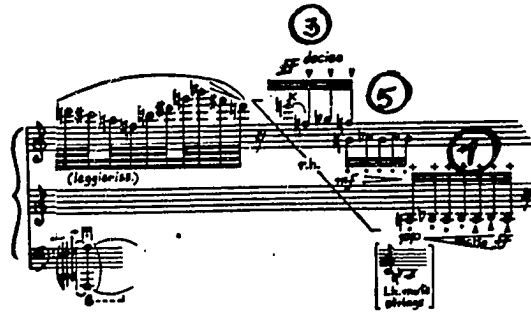
A repeated pattern in Makrokosmos II - 1 occurs a total of three times. In the first occurrence the pattern is repeated seven times. Later it is repeated five times, and still later three times.

Example 24. Makrokosmos II - 1: p. 6 and 7, s. 1, 2, 5 and 6



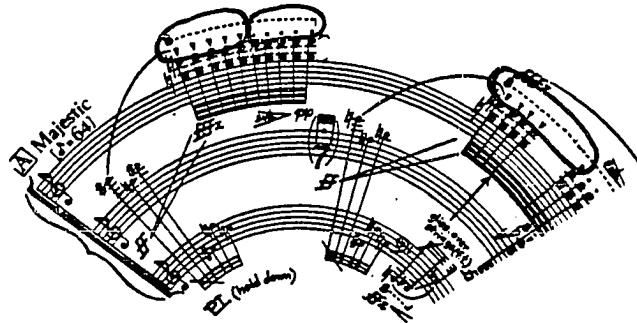
A repeated note pattern closes the first and second variations of Makrokosmos II - 3. The pattern involves three groups of oscillating half-steps. The first group involves three notes, the second involves five, and the third group involves seven notes.

Example 25. Makrokosmos II - 3: p. 9, s. 2



Ten open fifths are played in the opening of Makrokosmos II - 4. A division of two groups of five is suggested by the articulation marks, five accented notes followed by five staccato notes. The same fifths are repeated with five accented notes following the seven second fermata.

Example 26. Makrokosmos II - 4: p. 10, opening of circle "A"



Groups of five repeated notes are heard in Makrokosmos II - 6. Five repeated notes representing a single eighth-note count are heard at various points in the piece, for a total of seven statements. In addition, these groups of five repeated notes are, on three occasions, heard in a five-count repetition. Example 27 illustrates two of the shorter groups

and one of the five-count groups.

Example 27. Makrokosmos II - 6: p. 12, s. 2

The basic count of an eighth-note in Makrokosmos I - 1 is found in a variety of prime number divisions, including groups of three, five and seven notes. In addition, sixteenth and quarter notes are found divided into groups of seven.

Example 28. Makrokosmos I - 1: p. 7, s. 2 and p. 6, s. 3

A diversity of prime number divisions is found in Makrokosmos II - 2. Quarter-note counts are divided in units of three, five and seven. In some instances eighth-notes and the final note in a triplet division are also divided in units of three. (See Example 29 a.) In four instances half-note values are divided into five counts, and in two instances divided in three counts. (See Example 29 b.) There are also quarter-note counts divided in five groups of triplets. Crumb shows the first of these as a quarter note divided in fifteen, although the beaming shows that this also is a group of five triplets. (See Example 29 c.)

Example 29. a) Makrokosmos II - 2: p. 8, s. 1 and 3
 b) Makrokosmos II - 2: p. 8, s. 3
 c) Makrokosmos II - 2: p. 8, s. 2

a)

The musical score for Example 29a consists of two staves. The top staff is in treble clef and contains a series of notes with various markings: *pppp*, *gliss. over strings (f.t.)*, *pp pizz. sempre (f.t.)*, and *pppp (echo)*. Above the staff, there are time signatures: $5 = \text{quarter}$, $3 = \text{quarter}$, and $3 = \text{quarter}$. The bottom staff is in bass clef and contains notes with markings: *PI.*, *[PI. sempre]*, and *depress silently and secure with EXT.*. Below the bottom staff, there are time signatures: $5 = \text{quarter}$ and $7 = \text{quarter}$. The score is divided into two systems by a double bar line. The second system includes the instruction *Echo [muffled, distant]* and continues with notes and markings: *pppp*, *gliss. over strings (f.t.)*, *(mute strings near ping)*, and *gliss. (f.t.)*.

Example 29, continued

b)

c)

Makrokosmos II - 1 is counted in dotted eighth-notes, and this count is divided into groups of five as well as five groups of triplets. In addition, a dotted quarter-note value is divided into seven triplets.

Example 30. Makrokosmos II - 1: p. 6, s. 1, 2 and 3

Formal Aspects

Three concepts related to the formal aspects of music are of paramount importance to Crumb as a composer, i.e., the germinal idea as the impelling force of a composition, the hierarchy of musical elements and symmetrical arrangements.

Germinal Idea

In his interviews with Shuffett, Crumb described his concept of the germinal idea as a single musical thought which serves as the first inspiration for a composition. In Crumb's words this is:

. . . an idea, sometimes very faint, which develops into a piece. It could be anything--a timbre, a texture, a gesture (for example, a rhythmic gesture), an abstract conception of some kind, a formal conception, etc. I think any piece has to begin with a tiny idea of some kind, although I can't always remember the initial impulse for my completed compositions. In some cases, it is an idea that has occurred some years earlier, which acts as a kind of springboard when the composition finally takes shape.¹

In an earlier interview, Crumb said, "Generally, my original idea tends to be the expressive idea."² Crumb cites an example of a germinal idea in writing about Ancient Voices of Children:

In the case of Ancient Voices I felt this impulse to be the climactic final words of the last song:
' . . . and I will go very far. . . to ask Christ

¹
Shuffett, "Music of Crumb," p. 410-411.

²
Ibid., p. 406.

the Lord to Give me back my ancient soul of a child.'¹

While Crumb has not specified any examples of his concept of the germinal idea in discussing Makrokosmos I and II, it may be illustrated in several ways. Germinal ideas of four types are described; that contained in a small rhythmic motive, that resulting from a particular pitch motive, that found in an individual timbre and that resulting from a combination of texture and dynamics.

Makrokosmos II - 1 appears to be constructed around a small rhythmic motive in which a single embellished note, suspended for an unpredictable amount of time, is completed by a group of rapid triplets. This pattern usually follows a sixteenth rest, creating an initial moment of ambiguity. The piece begins with this idea. It is found in the following system, with an additional thirty-second note triplet.

Example 31. Makrokosmos II - 1: p. 6, s. 1 and 2

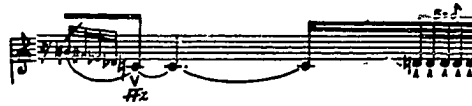


The embellished C introduced in the fourth system seems to be closely related to the above motives, since the C is embellished, held for several beats and followed by a group of rapid notes.

1

George Crumb, record jacket notes for Ancient Voices of Children, perf. by Jan DeGaetani, Michael Dash and the Contemporary Chamber Ensemble, Arthur Weisberg conductor (Nonesuch Records, H-71255, 1971).

Example 32. Makrokosmos II - 1: p. 6, s. 4



This germinal idea is repeated on the following page in the first, third and fifth systems. In system 5 the final appearance of the gesture is written as an echo effect.

A three-note chromatic cell is the originating thought in Makrokosmos I - 2. Chromatic tones are stated in the beginning of the piece and as it unfolds three-note chromatic cells are found in a variety of guises. In some instances, one or two of the chromatic notes are written an octave higher or lower than the other pitch(es). The chromatic sequences culminate in a cadenza-like passage which is an extended restatement of the first measure.

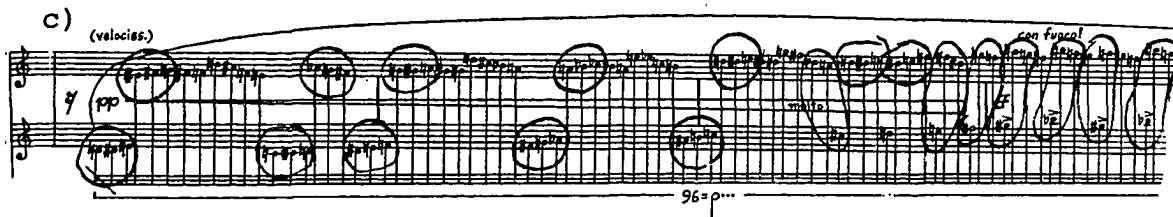
Example 33. a) Makrokosmos I - 2: p. 7, s. 1
 b) Makrokosmos I - 2: p. 8, s. 1 and 2
 c) Makrokosmos I - 2: p. 8, s. 3

a) **2. Proteus** Pisces
 Very fast; whimsical, volatile (♩ = 152)

b)

P.I. — *

Example 33, continued



An example of a germinal idea growing out of a specific timbral pattern can be found in Makrokosmos I - 7. A five or six note chord silently depressed with the left hand sounds because the right hand plays a glissando on the strings in that range. As the adjacent tones start to fade, the tones of the chord continue to resonate. This entire piece develops from this specific timbral effect. Although pizzicatos and low pitches held by the sostenuto pedal decorate the basic sound, the strummed chords dominate.

Example 34. Makrokosmos I - 7: p. 13, s. 1

7. Music of Shadows (for Aeolian Harp) **Libra**
Gracefully, with elastic rhythm [♩ = ca. 54]

The initiating gesture in the first circle of Makrokosmos II - 4 demonstrates a germinal idea based on a particular texture and dynamic pattern. Texture is created

At one moment the rhythmic impulse is the strongest, or it might be the melodic ideas, timbral quality, a gesture of suspension; it always changes, and could be any element.¹

Crumb's concern with this concept is illustrated in the following statement:

Music needs to have a properly handled hierarchy of ideas, so that the expressive intent of the composition is clear. In terms of Bach, many of his compositions are of a high order of complexity in terms of construction, and yet expressively his works nearly always are very clear and direct. . .²

On more than one occasion Crumb has berated the lack of clarity in contemporary musical compositions, clarity in this context implying a proper handling of a hierarchy of musical elements:

. . . there are many unsuccessful contemporary works which I have heard that fail largely as a result of trying to pull in everything, and you are left--upon hearing them--with an impression of disorganization. Maybe there are too many timbres, or maybe too many thematic ideas, or maybe the rhythms are muddled through complexity and overabundance; in such cases the proper hierarchy of musical ideas would be obscured, perhaps lost. It has always interested me that the hierarchy of musical ideas in impressive music is always very clear. Though such music would no doubt be very complex psychologically (it would have to be, for the music to continue holding its interest), the composer is able to make the primary ideas sound primary, and the secondary ideas sound secondary.³

¹
Shuffett, "Music of Crumb," p. 438.

²
Ibid., p. 465.

³
Ibid.

. . . the ideas all have to have the right weight and density to make the piece come off as a whole.¹

Crumb's response was negative when he was asked if pitch could be labeled the most important of the musical elements:

There have been some pieces without pitch, but I can't conceive of the possibility of a piece without rhythm--even a piece consisting of a single long tone would embody a rhythmic gesture. I think that pitch is important, but there has been unwarranted analytical bias toward it. There has been a fixation on pitch in the abstract, as if it existed separately from the other parameters. I don't think it can very often be meaningfully separated; its role is qualified by the total musical context in which it appears. The analytical approach which advocates the breaking down and isolation of musical parameters has caused much confusion. All elements of music are intimately interconnected and interdependent.²

Following are some examples that demonstrate musical hierarchies, according to the author. Makrokosmos II - 5 is one of many pieces in the Makrokosmos volumes dominated by the element of timbre. Two glass tumblers are placed on the strings, and as a tumbler in the middle range of the piano is moved back and forth, the pianist trills softly in the pitch range covered by the tumbler. The resulting sound is greatly altered by the presence and movement of the tumbler,

¹
Shuffett, "Music of Crumb," p. 525.

²
Ibid., p. 515.

resulting in a singular, rather strident blend of pitches and overtones. In addition to this, Crumb adds other unusual sounds: nasal singing; pizzicatos damped after plucking; low clusters with timbre altered by the second tumbler; high pizzicato clusters and clusters produced by striking a tumbler with flat fingers. The entire piece employs altered sounds, i.e., there are no pitches produced by notes sounded on the keyboard in the ordinary manner. Rhythm and pitch remain subordinate, reinforcing the emphasis on timbre.

Example 36. Makrokosmos II - 5: p. 11, s. 1

The musical score for Example 36, Makrokosmos II - 5: p. 11, s. 1, is presented in two systems. The first system includes a piano part with a large number '5' in a circle, indicating a specific technique. The piano part has a right-hand (r.h.) and left-hand (l.h.) staff. The right-hand staff has a '3' above it, indicating a triplet. The left-hand staff has a '5' in a circle, indicating a specific technique. The piano part includes instructions such as 'on keys', 'center of string', 'gliss. sempre', 'next to dampers', and 'Slowly move the tumbler along the strings while pressing it firmly against the strings. A bending of the pitch will thereby result.' The piano part also includes a section labeled 'PI. (hold down throughout)'. The second system includes a section labeled '[Pianist sings]' with a vocal line. The vocal line includes instructions such as 'nasal, metallic [like the Indian Tom-tom]', 'pizz. (f.n., end of string, near pins)', and 'dampen string (f.t.) immediately after plucking'. The piano part also includes a section labeled 'pizz. (f.n.)' with a cluster of notes. The piano part also includes a section labeled 'on keys' with a cluster of notes. The piano part also includes a section labeled 'poco f' with a cluster of notes. The piano part also includes a section labeled 'Striking this cluster will produce a metallic timbre (as the tumbler reverberates)'.

"The Magic Circle of Infinity," the eighth piece of Volume I, is a powerful composition which, in the author's estimation, illustrates rhythmic movement as the most important element. Crumb instructs the performer to play the piece like "a cosmic clock-work; with mechanically precise rhythm." Although timbre and dynamics are highly significant, the

instructions of the composer, the striking patterns and the extremely fast tempo allow the rhythmic motion to dominate. In the initial hearing one may wonder if the work is improvisatory, however, after three repetitions of the circle most of this doubt is dispelled. The basic count is that of a sixteenth note, but the insertion of thirty-second and dotted sixteenth counts negates the possibility of hearing sixteenth notes with any degree of regularity. The rhythm of the first third of the circle is illustrated in Figure 4, showing the complexities involved.

Example 37. Makrokosmos I - 8: first third of circle

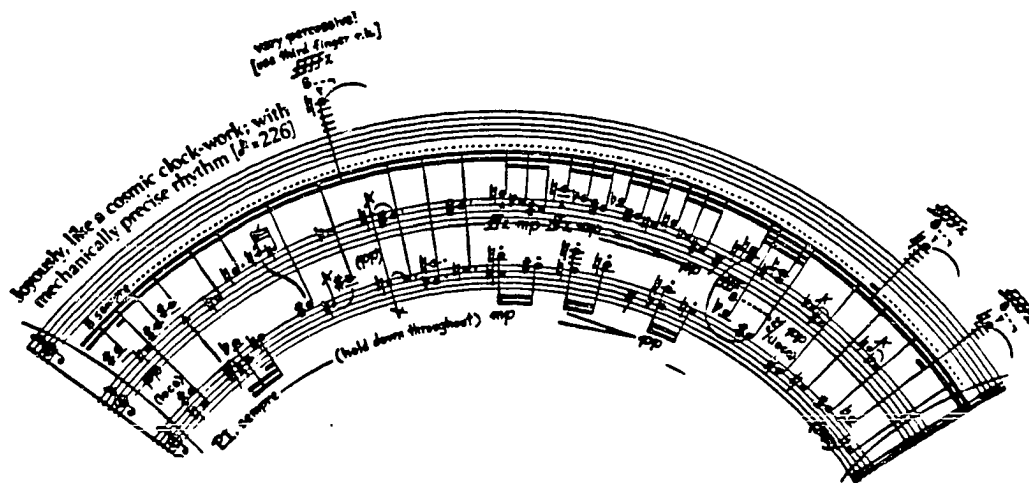
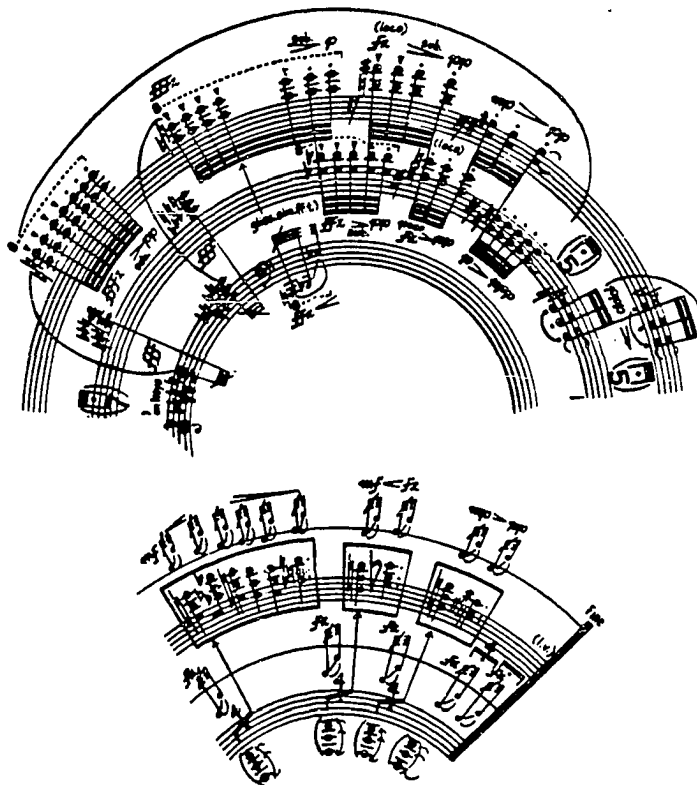


Figure 4. Rhythm of Example 37.



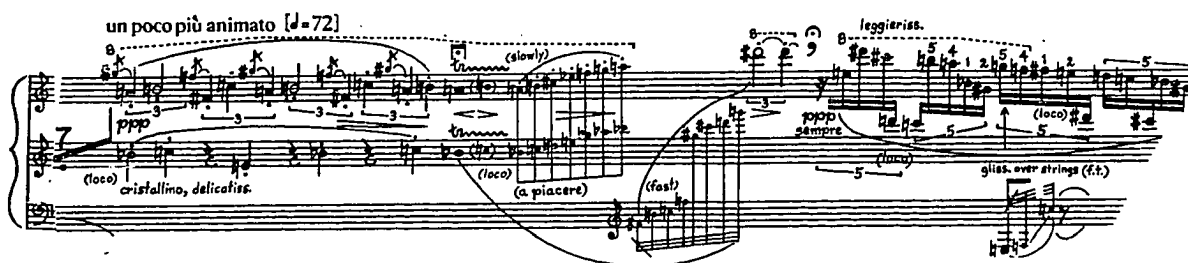
Although three distinct and contrasting timbres are prominent in Makrokosmos II - 4, a rhythmic gesture gradually emerges as the more significant element. Frequent statements, each of which progresses from a loud level of dynamics through a diminuendo to a very soft level of dynamics and ends in a lengthy pause, give an overall impression of activity followed by decay and repose. Other elements are of great importance, particularly timbre but also time-suspension and harmony. However, in retrospect one senses these elements were secondary in importance to the undulating gestures characterized by rhythmic motion and decay.

Example 38. Makrokosmos II - 4: p. 10, center section of circle "A" and closing section of circle "B"



The piece continues to alternate between these two ideas with the exception of system 3, page 18, where a cadenza-like passage develops timbral and harmonic interest, only to subside, returning to the languorous mood of the opening idea.

Example 41. Makrokosmos I - 11: p. 18, s. 3



Symmetrical Arrangements

Symmetrical relationships are found in all of Crumb's music. His interest in this has come "through the influence of Bartok's music, which is rich in symmetry of many kinds."¹

I believe that symmetrical ideas often possess structural potential--a factor which, when properly utilized, can aid in the shaping of music. Symmetry may, of course, be incorporated on both the macro and micro levels. Certain of my pieces contain more symmetry than others, but in general, all of them contain a rather high level. I feel that symmetrical ideas have the potential of increasing coherence in music. . . . When you think about it, symmetry is something that pervades almost everything in nature--one thinks of crystal formations, snowflakes, and living organisms: it seems like a natural process to consciously employ symmetrical ideas in music.²

¹ Shuffett, "Music of Crumb," p. 487.

² Ibid., p. 501.

I don't think there was any composer that was so strongly involved with symmetries as was Bartok. I'm not sure what Bartok's sources for this were. He had a very logical mind, and it is interesting that Bartok--like the Viennese--was a Central European. Although he didn't go in the direction of twelve-tone music, his music gives the impression of having the same rigorous organization. The Music for Strings, Percussion, and Celesta is an outstanding example of Bartok's predilection for symmetry; there is the tri-tonal polarity, the inversion of the theme for the second half, the contrary motion involved with the entrances of the theme, and the chromatic symmetry of the theme itself.¹

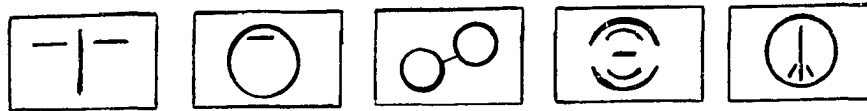
Numerous large-scale symmetrical relationships can be identified in Makrokosmos I and II. Both volumes contain twelve pieces, divided into three parts, the parts composed of four pieces each. All are marked attacca except the last piece of each part. A number of symmetrical relationships can be identified between the two volumes as well as within each one. The relationships will be described, then illustrated, Figure 6 showing symmetrical relationships between Makrokosmos I and II, and Figures 7 and 8 showing symmetrical relationships within each volume.

The first piece in each part is distinguished by an unusual timbral feature: in each of these pieces an external device applied to the strings alters the sound.

The final piece in each part is written in symbolic notation. In all but Makrokosmos I - 12 the layout of the notation itself is symmetrical.

¹ Shuffett, "Music of Crumb," p. 501.

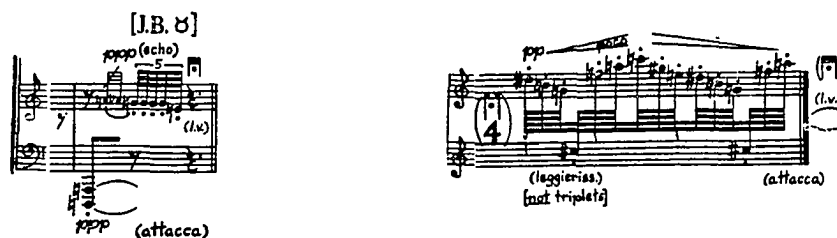
Figure 5. Symmetry in Notational Design of Makrokosmos I - 4 and 8, and Makrokosmos II - 4, 8 and 12



Other relationships between Makrokosmos I and II can be described. In the second and third pieces in both volumes timbre is affected by notes silently depressed and held in the sostenuto pedal, creating an unusual background ambience.

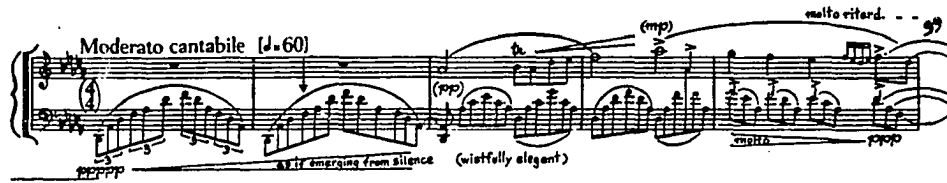
Pieces 1, 2, 3, 10, 11 and 12 of both volumes conclude with a short restatement implying an "echo" of one of the gestures from that piece. Example 42 illustrates the final echo from the conclusion of the third piece in each volume.

Example 42. Makrokosmos I - 3: p. 9, s. 5 and Makrokosmos II - 3: p. 9, s. 5



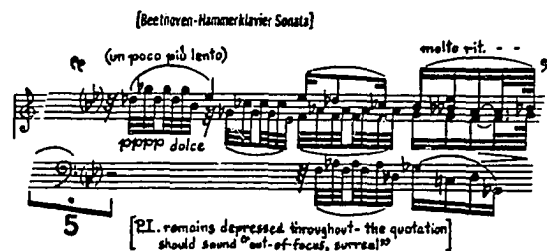
The eleventh piece in both volumes includes quotations from composers other than Crumb. Three portions of Chopin's Fantasy-Impromptu, Op. 66 are quoted in Makrokosmos I - 11. The first is illustrated.

Example 43. Makrokosmos I - 11: p. 18, s. 1



A portion of the introduction to the last movement of Beethoven's Sonata in B-Flat Major, Op. 106 is included in Makrokosmos II - 11.

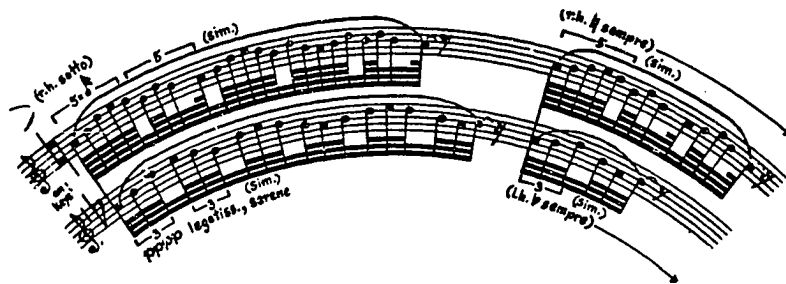
Example 44. Makrokosmos II - 11: p. 18, s. 2



Materials in the final piece in each volume are related. Each of these pieces contains sections in which the right and left hands move in soft, hypnotically repeated patterns. The pattern in Makrokosmos I - 12 uses pentatonic scales; the related pattern in Makrokosmos II - 12 uses whole-tone scales. In both instances the psychological mood is similar and, in addition, the staves are curved.

- Example 45. a) Makrokosmos I - 12: p. 19,
interior of spiral
b) Makrokosmos II - 12: p. 19,
portion of circle "D"

a)



b)

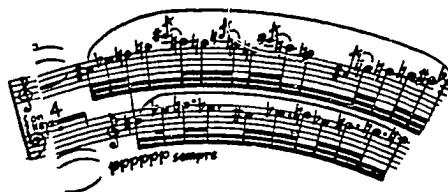


Figure 6. Symmetrical Arrangements Shared by Makrokosmos I and II

Makrokosmos I

Part One

1. chain	echo ending
2. sos.ped.	echo ending
3. sos.ped.	echo ending
4.	notation

Part Two

5. thimbles	
6.	
7.	
8.	notation

Part Three

9. plectrum	
10.	echo ending
11.	echo ending
12. related	echo ending
materials	notation

Makrokosmos II

Part One

1. paper	echo ending
2. sos.ped.	echo ending
3. sos.ped.	echo ending
4.	notation

Part Two

5. tumblers	
6.	
7.	
8.	notation

Part Three

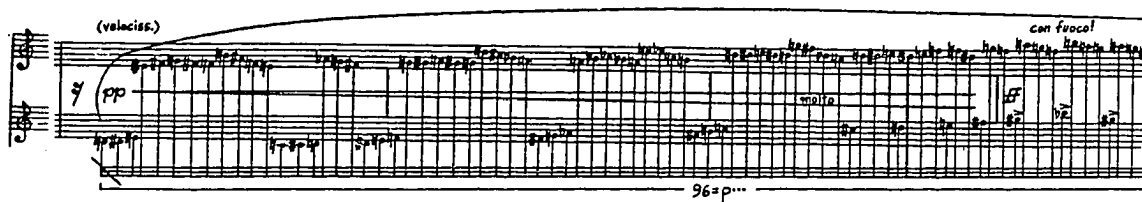
9. brush	
10.	echo ending
11.	echo ending
12. related	echo ending
materials	notation

Symmetrical Relationships within Makrokosmos I

Within Makrokosmos I several symmetrical relationships can be identified, including the use of external devices and unusual notation mentioned in the preceding discussion. Parts One and Three open and close with pieces described by Harkins and Shuffett as basically written in two-part form, A - A' or A ' B.¹

Pieces 2 and 10 are developed out of similar chromatic patterns. Both works exhibit numerous three-note chromatic cells.

Example 46. Makrokosmos I - 2: p. 8, s. 3



Example 47. Makrokosmos I - 10: p. 15, s. 1



1

For the form of Piece 1, see Shuffett, "Music of Crumb," p. 152 and Harkins, "A Study of Constructional Principles in George Crumb's Makrokosmos, Volume I" (unpublished M.A. thesis, American University, 1974), p. 34. For the form of Piece 4, see Shuffett, p. 183 and Harkins, p. 86. For the form of Piece 9, see Shuffett, p. 215 and Harkins, p. 160. For the form of Piece 12, see Shuffett, p. 234 and Harkins, p. 207.

Similarities also exist in the first and last pieces of Parts One and Three in terms of range. Each of these pieces opens in an unusually low range. In Pieces 1, 4 and 9 the same chords open each of the pieces. Piece 12 begins with the lowest note on the standard piano keyboard.

- Example 48.
- a) Makrokosmos I - 1: p. 6, s. 1
 - b) Makrokosmos I - 4: p. 10, s. "A"
 - c) Makrokosmos I - 9: p. 15, s. 1
 - d) Makrokosmos I - 12: p. 19, beginning of spiral

a) **1. Primeval Sounds (Genesis I)** Cancer
 Darkly mysterious [δ ca. 3 sec.]

pppp sempre
Pm.
Pi. (hold down throughout)

b) **4. Crucifixus [SYMBOL]** Capricorn
 Darkly mysterious [δ ca. 3 sec.]

pppp sempre
Pm.
Pi. (hold down throughout)

c) **9. The Abyss of Time** Virgo
 Dark, with a sense of profound mystery

pppp sempre
Pm.
Pi. (hold down throughout)

Example 48,,continued

d) 12. Spiral Galaxy [SYMBOL] Aquarius

Vast, lonely, timeless ($\Delta = 20 \times 3 \text{ sec.}$)

[act. sound]
387 Hz
mix. (6.6) (Pica. 20msec)

on key
K-
mix. (6.6)
K-

pliss. over strings (6.6)

up up

U.S. tonal scale for 9th part harmonic

PL. #

slightly depress keys
PL. - # III.

Pieces 1 and 12 include groups of repeated notes which are distinguished by number of repetitions (thirteen or fourteen notes), crescendo and decrescendo, accelerando and ritardando. Although these sounds are at the outer extremities of the work, their relationship is noticeable because the effects are highly unusual.

Example. 49. Makrokosmos I - 1: p. 6, s. 2 and
 Makrokosmos I - 12: p. 19, portion
 of spiral

Handwritten musical score for a guitar piece, featuring a complex rhythmic pattern and various performance instructions. The score is written on three staves. The first staff has a tempo marking "[♩ = ca. 54]" and a performance instruction "l.h. gliss. over strings (fingertip)". The second staff has a performance instruction "r.h. on keys (molto ritmico)" and a tempo marking "♩ = 66". The third staff has a performance instruction "l.h. gliss. over strings (come sopra)" and a tempo marking "♩ = 66". The score includes various musical notations such as notes, rests, and dynamic markings like "pp", "p", "f", and "ff". There are also handwritten annotations like "(on keys)" and "gliss.".

Figure 7. Symmetrical Arrangements within Makrokosmos I

Part One

1. chain	opens in	two-part		
2.	low range	form		repeated notes
3.			chromatic harmony	
4.	opens in	two-part		notation
	low range	form		

Part Two

5. thimbles				
6.				
7.				
8.				notation

Part Three

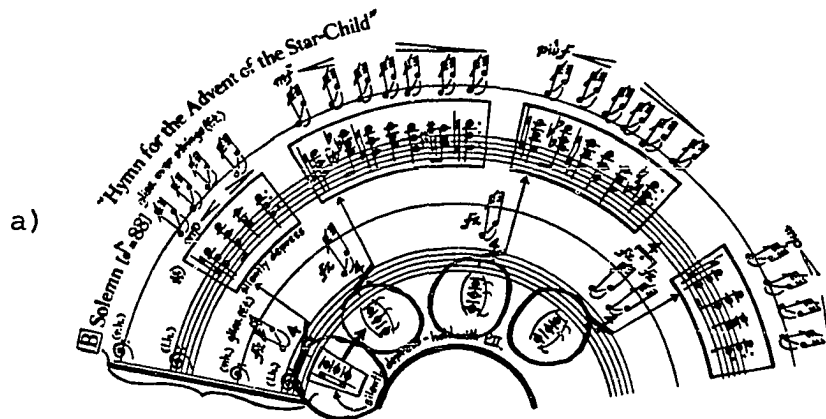
9. plectrum	opens in	two-part		
10.	low range	form		chromatic harmony
11.				
12.	opens in	two-part		notation repeated notes
	low range	form		

Symmetrical Relationships within Makrokosmos II

A close relationship exists in six pieces in Makrokosmos II, Nos. 3, 5, 6, 7, 8 and 10. The forms of these pieces are described by Shuffett as using variation procedures.¹ Pieces 3 and 10 include the words "Variations" and "Passacaglia" in their titles, respectively.

In addition to the use of symbolic notation, the piece which closes each Part of the second volume utilizes low-range strums. Keys are depressed with one hand while the other hand plays a glissando over the strings, activating the open strings. Also noteworthy is the fact that these low strums involve octaves and fifths, and in the case of Piece 8, full triads plus doubled octave.

- Example 50. a) Makrokosmos II - 4: p. 10, beginning of "B"
 b) Makrokosmos II - 8: p. 15, s. "B"
 c) Makrokosmos II - 12: p. 19, s. "A" and "B"

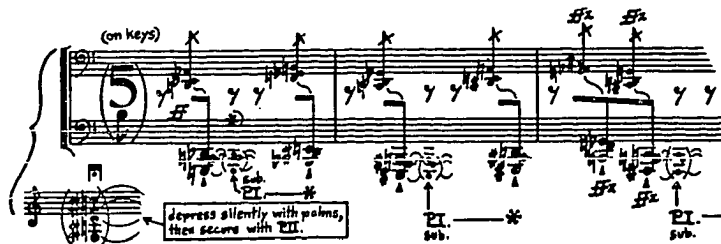


¹

For the form of Piece 5, see Shuffett, "Music of Crumb," p. 272; Piece 6, see p. 279; Piece 7, see p. 288 and Piece 8, see p. 290.

Piece No. 6 opens with these chords, except that the hands are now a minor second apart. Thus the intervals are: perfect 4th, minor 2nd, minor 2nd, minor 2nd and perfect 4th.

Example 52. Makrokosmos II - 6: p. 12, s. 1



Piece 11 includes a broken-chord passage, a bell effect recalling the Coronation Scene from Mussorgsky's Boris Godunov.¹ The first occurrence of this is illustrated. If considered as a chord of C - E-flat - G-flat - A-flat the intervals are: minor 3rd, minor 3rd, minor 3rd and major 2nd.

Example 53. Makrokosmos II - 11: p. 17, s. 1



¹

Robert Miller, record jacket notes for Makrokosmos II by George Crumb, perf. by Robert Miller. (Columbia Records, Modern American Music Series, Y 34135, 1976).

This set of intervals was also used in Piece 7. In its first appearance in this piece it is a five-note chord, counting intervals from bottom to top: minor 3rd, minor 3rd, minor 3rd and major 2nd.

Example 54. Makrokosmos II-7: p. 13, s. 3



Later the lower third is dropped and the intervallic relationship and pitches are identical to those found in Piece 11.

Example 55. Makrokosmos II - 7: p. 14, s. 4



The following chart illustrates these symmetrical arrangements in Makrokosmos II. The use of external devices in Pieces 1, 5 and 9 is again included as a symmetrical relationship within the volume.

Figure 8. Symmetrical Arrangements within Makrokosmos II

Part One

1. paper
- 2.
3. variation form
4. notation use of strums

Part Two

5. tumblers variation form
6. variation form
7. variation form
8. notation use of strums

Part Three

9. brush
10. variation form
- 11.
12. notation use of strums

related chords



related chords
related chords



related chords

CHAPTER III

THE PERFORMANCE OF MAKROKOSMOS I AND IISpecial Effects

The scores of Makrokosmos I and II may appear formidable, especially if a performer is not acquainted with similar contemporary compositions. However, this music is not as difficult as it first appears, and the problems in reading Crumb's notation disappear with familiarity.¹ The following discussion of special effects and unusual playing techniques is viewed as a supplement to a patient study of the score.

Producing Unconventional Sounds
With the Hands

A large number of the unusual sounds required in these volumes are to be produced in the interior of the piano. Most of these involve the manipulation of the strings. In addition to effects produced on the strings, the cross-beams and soundboard are used to yield distinctive sound effects.

1

David Burge, interview held in Rochester, New York, March 31, 1979 and Robert Miller, interview held in New York, New York, June 9, 1979.

Pizzicatos

Three types of pizzicatos are used in Makrokosmos I and II: strings plucked with fingertip, strings plucked with fingernail, and strings plucked with fingernail and also depressed in order to produce a harmonic--creating a pitch an octave or two octaves and a major third higher.

Pizzicatos produced by a fingertip are indicated "pizz. (f.t.)." The sound is delicate but warm, and resonates well when done correctly. One should pluck the center of the vibrating portion of the string, using the softest part of the fingertip and making sure the nail does not touch the string.¹ Burge goes so far as to suggest using the third and fourth fingers of the right hand and the fourth finger of the left, "in order to get as mellow a sound as possible."² The center of the vibrating portion of the string produces the best sound, since this negates the high partials.

Example 56. Makrokosmos I - 7: p. 13, s. 3

¹ David Burge, "Performing the Piano Music of George Crumb," Contemporary Keyboard II/4 (August 1976), p. 20. (Hereinafter referred to as "Piano Music of Crumb.")

² Ibid.

The sound of fingertip pizzicatos is particularly beautiful, but delicate. It is possible that the pianist will have to use more force than would be anticipated, especially with very soft pizzicatos, in order for the sounds to project.¹ Prior to a performance one might need to ask someone to judge the carrying power of these sounds while practicing in the auditorium to be used in the performance.

Fingernail pizzicatos are indicated "pizz. (f.n.)." The string is plucked with the fingernail as close to the end of the vibrating string as possible, near the pins. The sound is distinct: there is a ring and shimmer, especially in the higher ranges of the instrument.

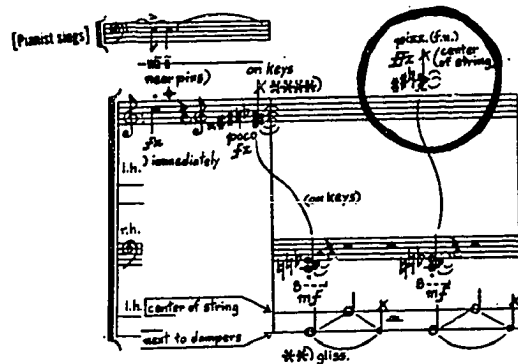
Example 57. Makrokosmos I - 5: p. 11, s. 2

1

George Crumb, Performance Notes to Five Pieces for Piano, (New York: C.F. Peters Corp., 1973), David Burge, "Piano Music of Crumb," p. 20, and Lambert Orkis, interview held June 8, 1979 support this statement. Robert Miller, interview held in Norman, Oklahoma, February 17, 1980, thinks that amplification cancels the possibility of this problem.

Throughout both works there is a single fingernail pizzicato which is played in the center of the string. This is a cluster marked sforzando, a dynamic level that would not be possible unless the centers of the strings were used.

Example 58. Makrokosmos II - 5: p. 11, s. 1



In the following examples one must take into consideration the fact that Crumb indicates specific locations for fingertip and fingernail pizzicatos on the strings. In the opening of Makrokosmos I - 6 a fingertip pizzicato is followed by a fingernail pizzicato, necessitating movement from the end to the center of the string. The opposite adjustment is necessary in Makrokosmos I - 5 because the pianist moves from a fingernail pizzicato to a fingertip pizzicato, or from the center to the end of the string.

- Example 59. a) Makrokosmos I - 6: p. 12, s. 1
 b) Makrokosmos I - 5: p. 11, s. 2

The musical score for Example 59 consists of three staves. The top staff features a piano part with a circled section containing the instruction "pizz. (f.t.)" and a handwritten note "on the keys (legatissimo)" above it. The middle staff includes a circled section with "pizz. (f.t.)" and "mp. sibil." (mp sempre) written below it. The bottom staff has a circled section with "pizz. (f.t.)" and "mp. sibil." (mp sempre) written below it, followed by a section with the instruction "on key" and a circled section with "pizz. (f.t.)" and "mp. sibil." (mp sempre) written below it. The score concludes with the notes "I - ri - mi - ru!" and the instruction "(half-sung, like an incantation) (spookily)".

Burge wrote that in the case of high-pitched pizzicatos one may prefer to reach to the far end of the string.¹ In the range of approximately a' and above,² the correct pitch may be easier to locate if one reaches for the far end of the string, because in this range one does not have a straight line of vision from the dampers to the string. Burge might

1

Burge, "Piano Music of Crumb," p. 20.

2

The designation of pitch locations is taken from the scale below. For further information see Willi Apel, "Pitch Names," Harvard Dictionary of Music. Cambridge: Harvard University Press, 1969, p. 679.

The diagram shows a musical scale with pitch locations designated by letters and numbers. The notes are C₁, C, c, c', c', c'', c''', and c'''. The notes are placed on a staff with a treble clef. The notes c' and c'' are marked with a dot and a line, indicating a specific pitch location. The notes c' and c'' are also marked with a dot and a line, indicating a specific pitch location. The notes c' and c'' are also marked with a dot and a line, indicating a specific pitch location.

Fingertip pizzicatos combined with a harmonic sounding an octave higher are found in five pieces in Makrokosmos I and II.¹ This is notated with a circle over the note and an instruction, "act. sound 8va," and/or, "touch string at 2nd part. node."

Example 62. Makrokosmos I - 7: p. 13, s. 2



Fingertip pizzicatos combined with fifth partial harmonics are also found in Makrokosmos I - 12 and II - 10. They are produced by touching a string at one of the fifth partial nodes with one hand, while the other hand strikes the key or otherwise activates the pitch. Crumb notates this with circles over notes, a written instruction, and a realization of the actual sounding pitch.

¹

The five pieces are Makrokosmos I - 1: p. 7, s. 3; Makrokosmos I - 6: p. 12, s. 1 and 3; Makrokosmos I - 7: p. 13, s. 2 and 3; Makrokosmos II - 2: p. 8, s. 2 and 3; and Makrokosmos II - 3: p. 9, s. 4 and 5.

Example 63. Makrokosmos II - 10: p. 17, s. 2



In Ancient Voices of Children, Crumb instructs, "touch strings with left hand at proper node (just beyond dampers) and strike corresponding keys with right hand."¹ The words "just beyond dampers" are not repeated in the performance notes of either Makrokosmos I or II. The location of this node is usually about one inch behind the dampers because it is employed on the longer bass range strings. If one were to use the next fifth partial away from the performer it would require a longer reach and the pianist would have to stand.²

Sound quality in the execution of the pizzicatos is

1

George Crumb, Ancient Voices of Children (New York: C.F. Peters Corp., 1970), p. 6. The author will continue to use the terms "behind" or "in front of" the dampers. "Behind" will always imply a location on the far side of the dampers, away from the performer. "In front of" will always imply a location between the dampers and the performer.

2

This created problems for Miller, who was given a score for Makrokosmos II without performance notes. A composer-friend showed him the fifth partial node located immediately behind the dampers. (Interview held June 9, 1979.)

important, and should be a primary consideration as the work is learned. Orkis discovered that students with no background in these techniques often failed to concern themselves with sound quality. As a result, they played pizzicatos with "dull" or "thumping" sounds, advancing to the following notes without hearing the need for improvement.¹

Practicing numerous pizzicatos can cause problems with the flesh and nails of the involved fingers. The author found that the fingers gradually developed calluses, a desirable change. This process is less painful if a number of pizzicatos are played daily, thus gradually toughening the skin. Nails may crack or break after repeated fingernail pizzicatos. This problem can be alleviated in part by using the currently available polishes designed to strengthen nails. Clear and dull, they can be used by men as well as women.

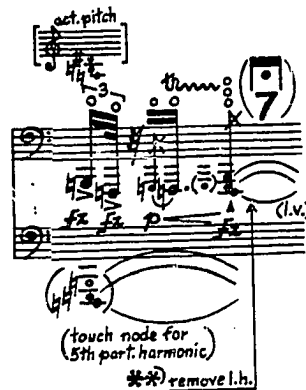
Fifth Partial Harmonics

In addition to fifth partial harmonics sounded with fingernail or fingertip pizzicatos, the sound of this harmonic is activated by one hand touching the harmonic while the other hand plays the corresponding key or scrapes the string with fingernails or plectrum. Burge described the proper execution of the fifth partials found in Makrokosmos I - 4:

¹
Orkis, June 8, 1979.

I suggest using the thumb of the left hand to touch the fifth partial node of the B string . . . and the second and third fingers for the G and F strings, respectively. Strike the designated keys sharply and accurately with the right hand (this is a bit awkward; some pianists may wish to switch hands). Accuracy is incredibly important, since a single wrong note will boom out and ruin the entire passage.¹

Example 64. Makrokosmos I - 4: p. 10, s. "A"

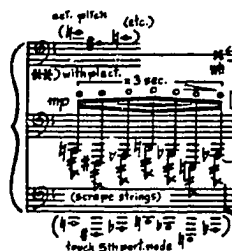


The pitches of a few fifth partial harmonics in Makrokosmos I and II are not initiated by a depressed key. Seven pitches in Piece 9 of the first volume are activated by one hand scraping a string with a plectrum while the other hand touches the fifth partial node. A footnote explains, "Scrape string with plectrum: a single, very rapid stroke over about two inches of string (motion should be away from player)."²

¹
Burge, "Piano Music of Crumb," p. 21.

²
Crumb, Makrokosmos I, p. 15.

Example 65. Makrokosmos I - 9: p. 15, s. 2



In Makrokosmos I - 12 fifth partial harmonics are sounded as one hand plays fingertip pizzicatos, and the other hand touches the fifth partial node.

Example 66. Makrokosmos I - 12: p. 19, portion of spiral



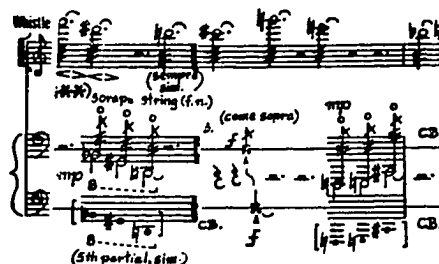
Fifth partial harmonics are initiated in three ways in Makrokosmos II - 10: fingertip pizzicatos, single fingernail scrapes, and fingernail scrapes producing a tremolo effect. The fingertip pizzicatos are notated as are those in Makrokosmos I - 9, except that a footnote includes a directive to scrape over "2 - 3 inches of string . . ."¹ The tremolo effect is described in a footnote:

1

Crumb, Makrokosmos I, p. 15.

Scrape fingernail very rapidly back and forth over about $\frac{1}{2}$ inch of string to produce a tremolo effect. The harmonic should be heard (and not the fundamental pitch!).¹

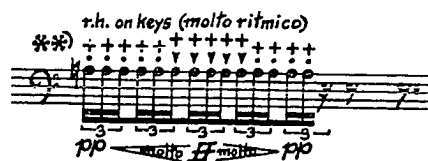
Example 67. Makrokosmos II - 10: p. 17, s. 1 and 2



Finger-Damped Tones or Muted Strings

Makrokosmos I - 1 and 9 use notes which are muted an inch from the tuning pins, between hammers and tuning pins, while the other hand plays on the keyboard. The first instance of this and its accompanying footnote is illustrated.

Example 68. Makrokosmos I - 1: p. 6, s. 2



**) + = mute string with finger (l.h.) approximately one inch from end.

Each of the occurrences of muted tones in Makrokosmos I is preceded by sufficient time to enable the pianist to find the key without marking or labeling the damper. The key can

¹

Crumb, Makrokosmos I, p. 15.

be partially depressed to locate the correct damper; then with the damper sighted, the muting finger damps the string and the note is ready to be played. This type of muting is discussed by Marjory Irvin, who mentions two problems:

1) the need for adequate preparation time, and 2) the frequent lack of direction from the composer concerning the amount of pressure to be applied to the strings.¹ This latter consideration alters sound and dynamics: the harder the pressure on the strings, the less the tones can resonate and the more percussive the sound becomes. The pianist performing this music will need to experiment with controlling this particular effect. The author believes the crescendo is more effective if the muting finger gradually releases pressure as the louder tones are played, allowing these to generate more resonance, then gradually increasing pressure to reinforce the decrescendo.

Example 69. Makrokosmos I - 1: p. 6, s. 2

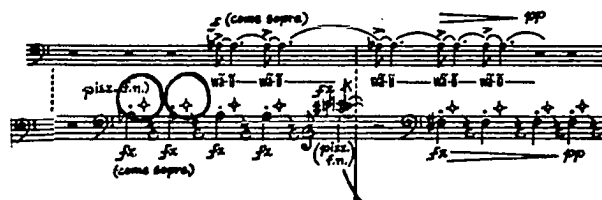
The musical score is for a piano piece. It features a treble and bass staff. The treble staff has a wavy line above it labeled "[VIBR. ~~~~~ Sempres]". Below the treble staff, there are several performance instructions: "[♩ = ca. 54]", "l.h. gliss. over strings (finger tip)", "r.h. on keys (molto ritmico)", and "r.h. on keys (molto ritmico)". The bass staff has a performance instruction: "(on keys)". The score includes various musical notations such as notes, rests, and dynamic markings like "pp" and "p".

1

Marjory Irvin, "A New Look for New Sounds," Clavier (April 1973), p. 16.

Another type of muting used by Crumb in Makrokosmos I and II involves stopping the sound of a vibrating tone by pressing on the string about an inch from the end near the tuning pins. This is indicated by a sign of ✦. A written directive is included, "Dampen string (f.t.) immediately after plucking."¹

Example 70. Makrokosmos II - 5: p. 11, s. 2



Martellato

Martellato is defined by Crumb in the performance notes to both Makrokosmos I and II, although the instruction is more complete in the second volume. Volume I states "Mart. (f.n.) = strike string sharply with fingertip."² The second volume is expanded to say, "Mart. (f.n.) = strike strings sharply with curved fingers so that the fingernails contact the strings, thereby producing a rather metallic timbre."³

¹
Crumb, Makrokosmos II, p. 11.

²
Crumb, Makrokosmos I, p. 5.

³
Crumb, Makrokosmos II, p. 4.

Burge discusses an example of martellato from the fifth piece of Crumb's Five Pieces for Piano, saying:

The motion is not dissimilar to that of a conga drum player who 'pulls' the most beautiful, resonant sounds from his instrument, except that the latter will use flat rather than curved fingers.¹

Burge's concept of "pulling" out the best sound correlates with a comment by Miller, who approached martellato with the concept of bouncing off, as opposed to bouncing on or hitting the strings.² Miller also suggested that the hand should bounce within no more than a half-inch of space above the strings.³

Glissandos

Glissandos are frequently found in both Makrokosmos volumes. They are played on the keys or the strings. In some cases keys are silently depressed by one hand while the other hand plays a glissando on the strings, so that the sound of the depressed notes eventually overcomes the chromatic blend created by the glissando. These held notes may be silently depressed keys or the notes can be held with the sostenuto pedal.

In the performance notes to Makrokosmos I Crumb writes,

¹
Burge, "Piano Music of Crumb," p. 21.

²
Miller, June 9, 1979.

³
Ibid.

"Glissandos over the strings are to be played with either the fingertip (f.t.) or thumbnail (t.n.)."¹ The performance notes to Makrokosmos II are more descriptive:

Glissandos over the strings are to be played with the fingertip (f.t.), fingernail (f.n.), or thumbnail (t.n.), as indicated in the score. The strings may be strummed in front of the dampers (i.e., between the front crossbeam and the pins) or behind the dampers; the choice, depending on considerations of timbre and ease of performance, is left to the discretion of the pianist. The approximate range of the glissando is always given in the score.²

Two pieces in Makrokosmos I - 1 and 5, and two in Makrokosmos II - 4 and 11, have glissandos using the same pitch range. This is notated in Makrokosmos I - 1 and 5, as A₂ to D-sharp. In Makrokosmos II - 4 and 11, this is notated as A₂ to E-flat. Asked about the importance of this particular tritone, Crumb said, "The pitches aren't important except to show the terminal points of the glissando. I don't think one hears the outer tritone, but rather. . . . non-pitched, tam-tam-like sound."³

¹
Crumb, Makrokosmos I, p. 5.

²
Crumb, Makrokosmos II, p. 4.

³
Shuffett, "Music of Crumb," p. 426.

Example 73. Makrokosmos I - 1: p. 7, s. 1 and
Makrokosmos I - 5: p. 12, s. 1

Example 73 shows two systems of musical notation. The top system is a piano part with a circled section labeled '7' and 'gliss. over strings (finger tip)'. The bottom system includes multiple staves with various performance instructions such as 'sfz', 'smp', 'gliss. sim.', 'on keys (sf)', and 'piano trill (smp)'.

Example 74. Makrokosmos II - 4: p. 10, circle "A" and
Makrokosmos II - 11: p. 17, s. 1

Example 74 shows two systems of musical notation. The top system includes a section labeled 'A) Majestic' and 'PF (loud down)'. The bottom system includes a section labeled 'quasi xylophone' and 'poco rit.'.

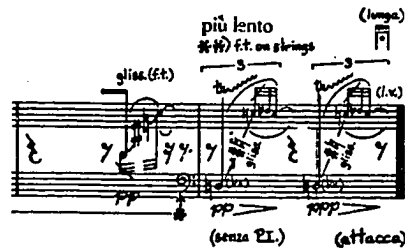
The closing pair of glissandos in Makrokosmos

II - 2 seemed to resist a satisfactory solution for Miller.

Crumb says in a footnote:

. . . this is to be played as a continuous $\frac{1}{2}$ step trill (f.t. on strings) while moving slowly over the strings (approx. within indicated range). The tones secured by P II /sostenuto pedal/ will be 'activated' and will ring through.¹

Example. 75. Makrokosmos II - 2: p. 8, s. 3



Miller found that if he played the glissando behind the dampers it was easily accomplished, but the sound seemed unsatisfactory. If he played the glissando in front of the dampers, the upward progress of the glissando was interrupted by the presence of a crossbar. After consulting with Crumb, Miller decided to play the trill with the second fingers of each hand.² At the crossbar the left hand would continue to play while the right hand moved over the bar. The left hand then moved over the crossbar to join the right. The end result was continuous sound and the timbre projected well.³

¹
Crumb, Makrokosmos II, p. 8.

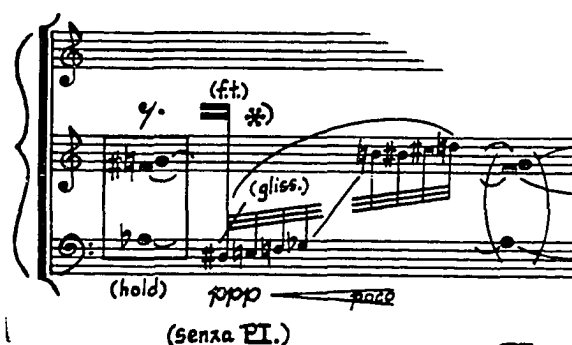
²
Miller, June 9, 1979.

³
Ibid.

A glissando in Piece V of the Five Pieces for Piano was discussed by Burge:

The first sound is easy: silently press down the three keys indicated (A-flat, F-sharp, G) with the left hand; then, without pedal, make a quick fingertip glissando on the strings from low D-sharp in the bass clef to high D in the treble. If the frame of the piano does not allow this, be sure at least that the strings corresponding to the notes held down by the left hand are strummed. With some pianos this requires considerable ingenuity!¹

Example 76. Five Pieces for Piano, Piece V, p. 9, s. 1

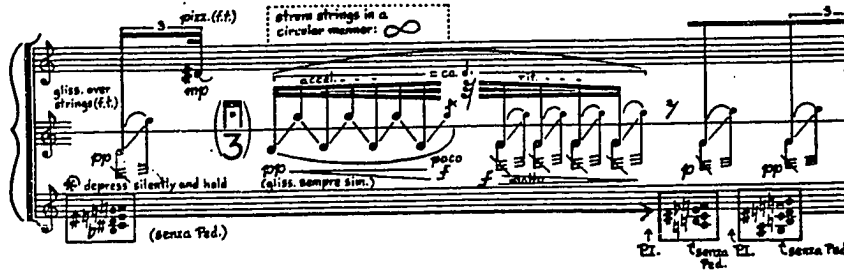


Problems of this type can also arise in Makrokosmos I - 7. On some pianos the chords to be strummed may be divided by a crossbar. If there is sufficient time, the depressed notes of the chord can be caught in the sostenuto pedal before the glissando is played. This allows the pianist to divide the glissando between the hands, one hand on each side of the crossbar. After strumming first with the left hand and immediately continuing with the right, resonance would have

¹
Burge, "Piano Music of Crumb," p. 21.

to be continued by depressing the damper pedal.

Example 77. Makrokosmos I - 7: p. 13, s. 1



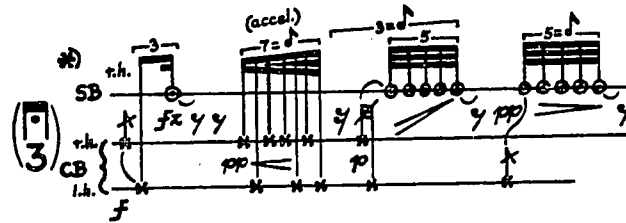
The author has found an additional problem when the highest pitch of a strummed glissando chord lies adjacent to a crossbar. Care must be taken in making sure the last string actually sounds. At the same time, one must not let a fingernail turn the highest pitch into a pizzicato.

Overtones through Silently Depressed Keys

In the scores of Makrokosmos I and II notes placed inside boxes are intended to be silently depressed with the strings maintained in an open position. (See Example 77 above.) With one exception, pitches of the silently depressed notes are initiated by glissandos played on the strings. The exception occurs in Makrokosmos II - 8 when the silent notes are depressed simultaneously with notes sounded in the normal manner, either an octave below or an octave above. In this instance held notes resonate as a result of overtones. Miller suggested that the coordination between silent and struck keys is more easily achieved on a concert grand piano than on a smaller instrument. Pianos with improperly regulated

is contained in an explanatory footnote.

Example 79. Makrokosmos I - 6: p. 12, s. 1



*Sb = soundboard; strike soundboard with 3rd finger (f.t.) through circular opening in metal frame.
CB = metal crossbeam of piano frame (use the 2 middle beams); strike beams either with knuckles or side of thumb.

Most pianists will find they can reach only the closest opening in the metal frame to strike the soundboard. This is a rather long reach on a Steinway Model D piano.

A footnote describing the striking of the crossbeam in Makrokosmos II - 10 gives the most definitive description of this technique: "Strike sharply with the knuckles to produce a ringing percussive sound."¹ In 1965 Crumb included the following instruction in Eleven Echoes of Autumn:

The preferred manner of striking the beams is with the knuckles; however, if the pianist finds this uncomfortable he may substitute the side of the thumb or even percussion beaters.²

Crumb appears apologetic in this earlier work, and one should accept the Makrokosmos II footnote as his real preference. The differences in timbre between thumbs, knuckles and percussion beaters is most distinctive.

¹
Crumb, Makrokosmos II, p. 17.

²
George Crumb, Eleven Echoes of Autumn (New York: C.F. Peters Corp., 1972), p. 12.

Objects Used on Strings

External objects are applied to the strings in Pieces 1, 5 and 9 of both Makrokosmos I and II, creating special timbres. These include: a chain, paper and tumblers placed on the strings; plectra or thimbles placed on the performer's fingers and applied to the strings; and a wire brush vibrated against and between the strings. The specialized notation and the technical aspects associated with each object as well as the potential performance problems are examined in the following discussion.

Chain

Makrokosmos I - 1 requires that a chain be placed on the lowest one and one-half octaves of the piano. It is not removed until the conclusion of the piece and its metallic vibrations greatly alter the timbre of the passage. Crumb suggests "a very light metal chain (e.g., aluminum). . ."¹ Burge uses a chain weighing two ounces, fastened to the frame of the piano with masking tape.²

At the time he described this technique for Contemporary Keyboard, Burge advised fastening both ends of the chain to the frame of the piano with masking tape, hooking it over a tuning pin to get it out of the way when it was no longer needed.³

¹
Crumb, Makrokosmos I, p. 5.

²
Burge, March 31, 1979.

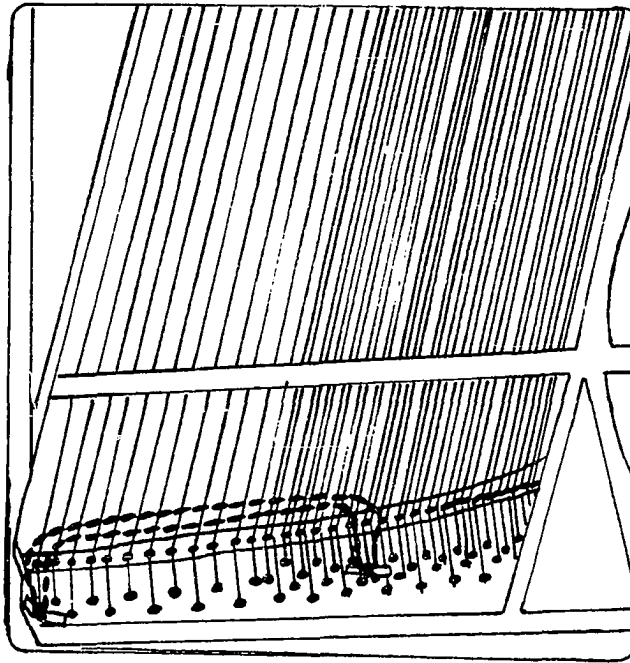
³
Burge, "Piano Music of Crumb," p. 36.

During the interview with the author, Burge suggested it was even safer to get the chain out of the piano after it is used, removing the right end and hanging it over the side of the piano. There it remains until the entire work is completed.¹

Personal experience leads the author to agree that these precautions are necessary. Without tape at each end, the chain vibrates until it eventually falls between the strings, creating terrible sounds, and possibly damaging the strings. The drawing in Figure 8 shows the location of the chain during Makrokosmos I - 1. When the piece is concluded, the end of the chain nearest the performer, with its masking tape, is removed. The end of the chain is hung over and taped to the side of the piano. The other end is left as is, taped to the first tuning pin.

¹
Burge, March 31, 1979.

Figure 9. Makrokosmos I - 1: Chain Placed on Strings

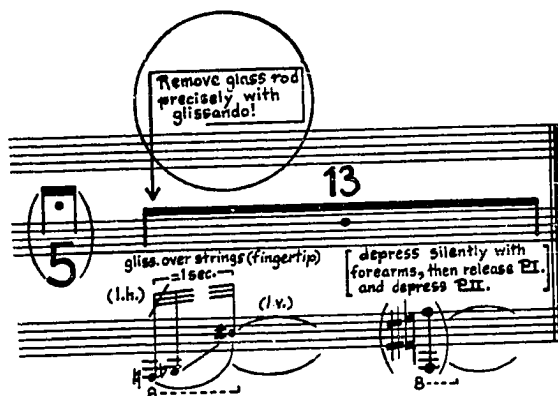


Crumb's original specification in this piece was that a glass mixing rod be placed on the strings. Burge's piano was newer and larger than Crumb's, and the size and tension of the bass strings on his instrument projected the glass rod into the air. It would have broken had Burge continued to use it.¹ Therefore, the "glass rod" became the "light metal chain." However, the final printing was left to read, "remove the glass rod."²

¹
Burge, March 31, 1979.

²
Crumb, Makrokosmos I, p. 7. In a letter to the author, June 13, 1981, Burge wrote, "I believe that 'remove the glass rod' is no longer in the score being sent out by Peters, but it took a while to correct it."

Example 80. Makrokosmos I - 1: p. 7, s. 3



Thimbles

Makrokosmos I - 5 requires thimble-capped fingers.

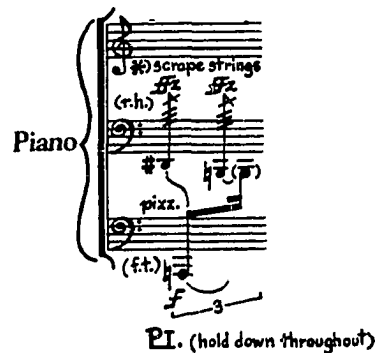
Crumb suggests the second and third fingers of the right hand be fitted with metal thimbles. These are used in three ways:

1) in low register, scraped along the metal winding of a string for about an inch, creating a single harsh, rasping sound;

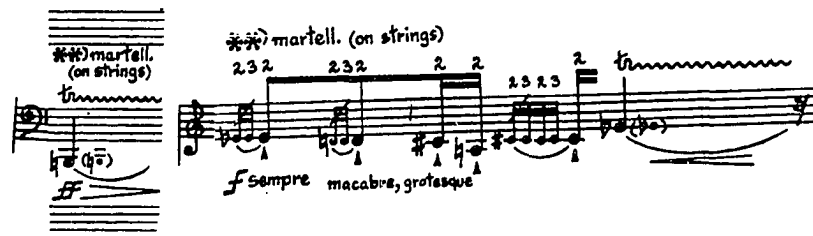
2) hammering one pitch with both thimbles, creating a very percussive but pitched sound; and

3) trilling back and forth from middle of string, away from the pianist and back to the starting position, producing a series of unusual glissandos colored by numerous harmonics. Crumb explains these effects in footnotes.

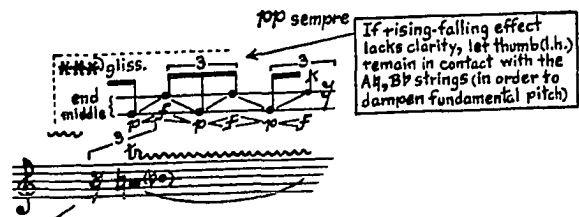
Example 81. Makrokosmos I - 5: p. 11, s. 1 and 2



*) Scrape one thimble over metal winding of string. Make a very rapid stroke over about one inch of string. The stroke should be away from the player.



*) A very percussive hammering of string with thimble. Use a very high finger action in order not to choke fundamental pitch of string. N.B. Differentiate between unison trill and $\frac{1}{2}$ step trill (on 2 strings)!



*) Use a very low finger action (barely lifting fingers) in order to choke fundamental pitch and emphasize harmonics. Move from middle to end of string to produce rising-falling glissando.

Both Crumb and Burge mention the possibility of adding a third thimble on the right hand thumb. Crumb suggests that this would "facilitate execution of the trills."¹ Burge further suggests that the thimbles be taped on, in order to

¹ Crumb, Makrokosmos I, p. 5, and Burge, "Piano Music of Crumb," p. 37.

avoid losing them during the progress of the piece.¹ In the experience of the author, two thimbles have been sufficient, on the second and third fingers. If the thimbles are quite snug, they may not be comfortable, but they remain in place without tape. The use of tape slows the removal of the thimbles at the conclusion of the piece.

Several difficulties are encountered in "The Phantom Gondolier;" indeed, it seems to be the most difficult piece in the first two Makrokosmos volumes in terms of coordinating unusual techniques. Crumb, Burge and Orkis mentioned the special difficulties involved.² Most of the problems are created by the need for speed and accuracy as one moves in and out of the piano interior.

Tumblers

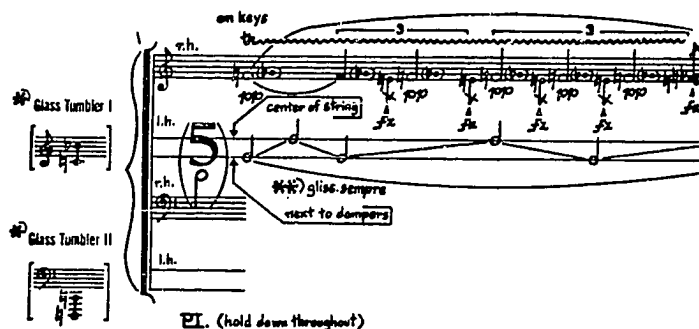
Makrokosmos II - 5 involves two glass tumblers placed on their sides on the strings. The tumblers should be tall enough to cover the span of a minor 7th when turned on their sides, if this is possible on the particular instrument being used. The tumblers are silently placed behind the dampers and moved from the pianist to the center of the strings and back, repeatedly. As the tumblers are moved back and forth with one hand, the other hand plays a soft trill on the keys. The resulting sound is a combination of overtones with very

¹
Burge, "Piano Music of Crumb," p. 37.

²
Shuffett, "Music of Crumb," p. 532; Burge, March 31, 1979; and Orkis, June 8, 1979.

little fundamental, a continually changing, strange sound. An explanatory footnote reads, "Slowly move the tumbler along the strings while pressing it firmly against the strings. A 'bending' of the pitch will thereby result."¹

Example 82. Makrokosmos II - 5: p. 11, s. 1



Crumb suggests that the tumblers should be "neither convex nor concave but rather perfectly straight, so that pressure is exerted equally on all of the strings."² The surface must not be painted or rough. Finding the right tumblers was difficult enough to convince Miller he should carry a pair with him. This he did, even when traveling to Europe.³

Burge originally used tumblers.⁴ However, by the time of his interview with the author he had decided to use a

¹
Crumb, Makrokosmos II, p. 11.

²
Ibid.

³
Miller, discussion with music students at University of Oklahoma, February 16, 1980.

⁴
Burge, "Piano Music of Crumb," p. 36.

plastic tube instead of a tumbler in the higher (c' - b-flat') range.¹ He described this as a thick but hollow tube of plastic, seven or eight inches long. Instead of the tumbler in the lower range (D₁ - C), he had decided to use a thick dessert glass, about three inches in diameter, "the kind of thing you make a popover in."² This he held in the normal upright position, rather than turning it on its side, thereby covering a range of about a fifth. These changes were made in the interest of safety. Although he had not done so, Burge feared breaking a glass during a performance because of the pressure applied against the sides of the glasses.

Two problems sometimes occur in connection with the tumblers, involving the condition of the strings. If the strings are rusty, the tumblers squeak as they are moved back and forth on the strings. The rust must therefore be removed prior to performance, with a clean rag,³ an ink eraser,⁴ or steel wool.⁵ The author fears using an ink eraser would allow eraser particles to drop on the soundboard.

¹
Burge, March 31, 1979.

²
Ibid.

³
Miller, February 17, 1980.

⁴
Burge, "Piano Music of Crumb," p. 21.

⁵
Bob Scheer of Bob Scheer's Piano Service, Oklahoma City, Oklahoma, prefers 0000 steel wool to remove rust from strings.

If the strings are not level with each other, a different problem is created. One of the pitches may not sound if its strings are lower than the strings of the other pitch. This did happen when Miller recorded Makrokosmos II. The trilled notes of the first measure had to be changed in order to get sound from both strings. Miller lowered the trill a half step in order to get sound from both strings.¹ This solution appears to have met with Crumb's approval, since the composer was present at the recording session.²

Plectra: Guitar Picks or Paper Clips

A "metal plectrum" is requested in Makrokosmos I - 9. One can use a guitar pick or, as suggested by Crumb, a medium-size paper clip.³ The plectrum is used in three ways:

- 1) pulled very slowly over the string, toward the player, making a rough, rasping sound;
- 2) rapidly scraped on the string, away from the player, making a short, crisp, grating sound; and
- 3) moved back and forth over one half-inch of string for a grinding tremolo effect.

These techniques are not difficult. Perhaps the only potential trouble arises if one uses the type of guitar

¹ Miller, June 9, 1979.

² Ibid.

³ Crumb, Makrokosmos I, p. 5.

pick that wraps around the finger. Since the plectrum must be set aside and picked up three times during the piece, a guitar pick wrapped tightly around the finger may be difficult to quickly put on or remove.¹

Sounds from the Performer

In addition to the manipulation of strings and the use of external objects on strings, Makrokosmos I and II require vocalizations and whistling from the performer. A wide variety of effects are included, some pitched, some not. Included are whispering, groaning, shouting, chanting, singing, whistling and creating wind sounds.

Vocalizations

The notation for the vocal effects is consistently in the bass clef, encompassing the vocal range of the men to whom Makrokosmos I and II are dedicated, Burge and Miller. An immediate question arises as to whether females can perform these works. Burge said, "I have been asked literally hundreds of times if a woman can do this music. . . . In fact, several women have performed Volume I, and each sings in whatever octave seems to work best."² Crumb advises females to sing an octave higher in Makrokosmos I - 5 and Makrokosmos

¹ Miller, June 9, 1979, and experience of author.

² Burge, "Piano Music of Crumb," p. 37.

II - 5 and 12.¹ The author adjusted the singing in the fifth piece of the first volume in a slightly different manner. System 4 in this piece involves repeated three-note chromatic cells to be sung in a "macabre, obscene" manner. The female pianist may arrive at a more "obscene" sound if chest voice can be used throughout this passage.²

Example 83. Makrokosmos I - 5: p. 1, s. 4



Figure 10. Makrokosmos I - 5: p. 11, s. 4



In like manner, the author transposes only three of the four sung pitches in Makrokosmos II - 5. Measures 2, 4, 8, 9 and 12 require singing in a "nasal, metallic" voice. Figure 11 illustrates the actual pitches sung by the author.

1

Crumb, Makrokosmos I, p. 5 and Makrokosmos II, p. 5.

2

See explanation of chest voice under "Register," Willi Apel, Harvard Dictionary of Music. Cambridge: Harvard University Press, 1969, p. 722.

Example 84. Makrokosmos II - 5: p. 11, s. 1, 2 and 3, measures 2, 4, 8, 9 and 12

nasal, metallic (like the Indian Tambora)

(Pianist sings)

pizz. (f.n.) end of string, near pizz.

fz fz fz fz poco fz

(sempre sim.)

pizz. (f.n.)

(come sopra)

fz pp

(come sopra)

pizz. (f.n.)

fz fz fz fz

(come sopra)

fz pp

Lh. strike Glass Tumbler II lightly with flat fingers

(l.v.)

Figure 11. Makrokosmos II - 5: p. 11, s. 1, 2 and 3, measures 2, 4, 8, 9 and 12

[Pianist sings] nasal, metallic

pizz. (f.n.)

fz fz fz fz

fz pp

pizz. (f.n.)

fz fz fz fz

pizz. (f.n.)

fz pp

pizz. (f.n.)

fz pp

Undoubtedly the primary consideration in performing these vocalizations lies less with gender and more with dramatic conviction. An illuminating comment is included in the Makrokosmos II performance notes:

The shouting (in 7. Tora! Tora! Tora!), the unvoiced singing (in 9. Cosmic Wind) and the legato whispering (in 12. Agnus Dei) should be carefully studied to ensure a clear projection and a convincing dramatic effect.¹

Miller had heard a performance in which the shouts of the seventh piece were spoken rather than shouted, and spoken in an apologetic manner.² It was obvious to the author that the lack of conviction behind these shouts altered Miller's reaction not only to the piece in question, but to the entire performance.

The first vocal effect in Makrokosmos I occurs in the fourth piece. The shouted "Christe!" is not only a complete surprise to the audience but during the long (seven seconds) fermata that immediately follows, the surprise from the shout remains uppermost in the listener's ear and mind. If done well, the pause creates as much tension and drama as does the shout. If it is done without drama or conviction, the audience has seven seconds to giggle and squirm in their chairs. The author found that some movement on the part of pianist, albeit slow, enhances the tension. For example, looking up and away from the piano during the shout can imply

¹
Crumb, Makrokosmos II, p. 5.

²
Miller, June 9, 1979.

an attitude of veneration. If the head is then very gradually bowed, an attitude of reverence is implied. This slow deliberate motion intensifies the drama of the moment.

A background which includes some stage experience would be helpful to the pianist performing Crumb's works. Burge suggested that one must be willing and able to "ham it up."¹ Miller said the same, but added that one must not overact and therefore lose the quality of sincerity. "It shouldn't be an act. It should not come on as unnatural. . . don't be self-conscious."²

It is the author's opinion that instruction with a drama coach in the delivery of vocal effects, from projecting whispers to dramatic shouts, can be helpful. The author's delivery of these effects noticeably improved following such a session. Orkis was in agreement, and said that a lesson in the proper use of the diaphragm was highly beneficial to him.³

Makrokosmos II - 5 requires careful handling of the "wǎ-ǝ" singing. The best sound is a very nasal, closed one which almost matches the timbre of the plucked string. Miller said, "It's almost identical with the sound created by the

¹
Burge, March 31, 1979.

²
Miller, June 9, 1979.

³
Orkis, June 8, 1979.

pizzicato. If you do it right, it becomes absolutely inhuman."¹ Because the "wǎ-ŏ" sounds are the first vocalizations in the second volume, one must proceed thoughtfully and carefully. The subsequent vocal effects are jeopardized if these initial sounds meet with laughter from the audience.

An additional problem in Makrokosmos II - 5 lies in finding the pitch for the first and last sung pitches. One must concentrate on the final pitch of D in the preceding piece, retaining it through the first measure of the fifth piece, so that the e can be sung correctly. The difficulty is a result of the unpredictable and fluctuating pitches created by the glass tumbler, making pitch retention difficult. Miller said that if the first sung pitch is initially incorrect, an immediate adjustment can be made.² The second entrance of singing, the c in measure 12, he finds less difficult.³

¹
Miller, June 9, 1979.

²
Miller, letter to the author, June 11, 1981.

³
Ibid.

Example 85. Makrokosmos II - 4: p. 10, ending and
Makrokosmos II - 5: p. 11, s. 1

The image displays a musical score for a piano and voice performance. The piano part is written for right and left hands on a grand staff. It includes various performance instructions such as "on keys", "center of string", "gliss. sempre next to dampers", and "dampen string (l.h.) immediately after picking". The vocal part is written on a single staff and includes the instruction "[Pianist sings]". Above the piano part, there is a diagram of a piano keyboard with arrows indicating specific fingerings and techniques. The score is divided into two sections, labeled "II." and "III.", with a "hold down throughout" instruction for the piano part.

In a performance at the University of Oklahoma, Miller turned his head slightly to his left at the beginning of the "a - i - u - sh" sounds in Makrokosmos II - 9.¹ As a result, the microphone projected the sounds, but the audience, unable to detect facial movements, did not recognize the source of the sounds. Instead of having individual dramatic impact, the vocal effects became a part of the whole.

¹

Robert Miller, piano recital given at University of Oklahoma, Norman, Oklahoma, February 16, 1980.

Example 86. Makrokosmos II - 9: p. 16, s. 1

"Wind sound" is called for in Makrokosmos I - 9. The pianist is given the directive of "wh," with glissando and crescendo-decrescendo. A footnote specifies that this is a "pure air sound (not whistling!)."¹

Example 87. Makrokosmos I - 9: p. 15, s. 2

A performance note included in the score to Crumb's Songs, Drones and Refrains of Death is relevant to this vocalization:

Two types of pure (unvoiced) wind sound are required: 'sh' and 'wh.' These sounds should be carefully differentiated. It might be necessary

¹

Crumb, Makrokosmos I - 9, p. 15.

to add a slight whistling effect to ensure projection of these sounds. It is critically important that the instrumentalists clearly project their numerous spoken, shouted and whispered passages! These effects may have to be exaggerated dynamically, depending on the acoustics of the hall.¹

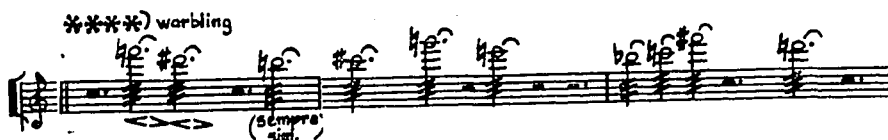
Whistling

Whistling is heard in Makrokosmos I - 6 and II - 10. The whistling in the second volume is more extended and varied, as the repetitions of the passacaglia theme are whistled in different ways. These include using a slow (molto) vibrato, a rapid series of staccato ejections and whistling without vibrato.

Example 88. Makrokosmos II - 10: p. 16 and 17,
s. 1 and 2



*) "Molto vibr." indicates a rather slow vibrato.



****) The warbling effect is produced by a rapid series of staccato ejections of breath (like the Monteverdi trill).

¹

George Crumb, Songs, Drones and Refrains of Death (New York: C.F. Peters Corp., 1971), p. 3.

Example 88, continued



***** The whistling should produce strong sympathetic vibrations in the piano. Each whistled tone should be approx. one eighth note shorter than its notated value (e.g. $d = d \cdot \frac{1}{8}$; $d = d \cdot \frac{1}{8}$). The echo of the tones will provide the intended legato effect. The dynamic for each whistled tone throughout the piece should be $pp < f > ppp$.

The lowest whistled pitch in Makrokosmos I - 6, f'' , occurs during a quotation of "Will There Be Any Stars in My Crown?" Orkis found that the low pitch was unpredictable; on occasion there was no sound at all. He was tempted to transpose it up an octave, but Crumb objected, preferring no sound at all to sound produced an octave higher. Orkis concurred, "If it doesn't quite sound, that's kind of like the mountains. You hear things come, you hear things go, but they're not always quite in focus."¹ As time progressed, Orkis found that practice expanded his whistling range sufficiently to make his whistled f'' reliable.²

Example 89. Makrokosmos I - 6: p. 13, s. 1



¹
Orkis, June 8, 1979.

²
Ibid.

The question of substituting a tape-recorded whistle met with unanimous disapproval from the three men interviewed. This they regarded as cheating¹ and creating unnecessary and additional mechanical problems.² Burge thought that any pianist should be able to develop the requisite whistling ability with practice.³

If a tape-recorded whistle were used, one would also have difficulty reproducing the same acoustical effects as in a live performance. Pitch reproduction would also be hazardous. Crumb intends for the whistling to bounce off the soundboard, producing "strong sympathetic vibrations."⁴ These vibrations are created by both the whistling and the notes played on the keyboard. Producing the same effect on a tape without playing the keys would be difficult, probably not possible.

A problem in stamina occurs with the whistling in Makrokosmos II, 10, because this piece is near the end of a very long work. At this point the pianist has been performing for some time, is probably standing and the tempo is very slow. With practice, stamina should improve, although

¹
Miller, June 9, 1979.

²
Miller, June 9, 1979; Orkis, June 8, 1979 and Burge, March 31, 1979.

³
Burge, "Piano Music of Crumb," p. 36.

⁴
Crumb, Makrokosmos II, p. 16.

endurance may remain a potential problem at this point in a performance.¹

Practical Considerations

Makes and Sizes of Pianos

Some pianos cannot be used in performing Makrokosmos I and II. In some cases the location of metal bracing and cross-stringing prevents the pianist from reaching the correct nodes on strings. In other cases, the distance between the keyboard and the centers of the strings is expanded, making some of the reaches impractical or impossible.

The piano Crumb had at his disposal while writing these volumes was a Model L Steinway.² This remains the easiest instrument on which to play these works, from a purely physical standpoint. The reaches into the inside of the piano are close and convenient. If these works are learned on a Model L Steinway, the performer will need more practice than usual in transferring to a concert grand.

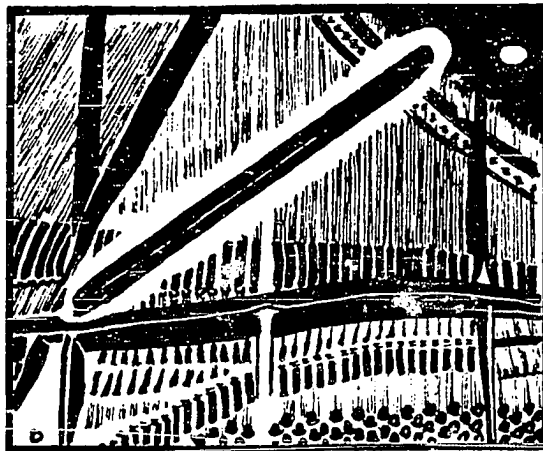
In terms of sound quality and projection, as well as physical convenience in a larger instrument, the most satisfactory piano for a performance of Makrokosmos I or II

¹
Miller, June 9, 1979.

²
Miller, June 9, 1979. Note: Steinway grand pianos will be referred to by their Model designations. The Model D Steinway is 8' 11-3/4" long; the Model B is 6' 10-1/2"; Model L is 5' 10 1/2"; Model M is 5' 7" and Model S is 5' 1".

is the Model D. Steinway.¹ Illustrations of the interior of this piano and a Model L Steinway can be seen on the following pages. Performances can be facilitated by removing the center brace on the nine-foot model. This brace is necessary when the instrument is turned on its side and moved, but is not necessary when the piano is standing in its normal position.² In Figure 12 this brace is outlined in white.

Figure 12. Crossbar in center of Model D Steinway



One adjustment may be needed on a Model D Steinway. The closest fifth partial on the F string is covered by a brace and is very difficult to reach. A possible substitution is a sixth partial on the D string. This can be found

¹
Burge, March 31, 1979; Orkis, June 8, 1979 and Miller, June 9, 1979.

²
Orkis, June 8, 1979.

immediately behind the damper.¹

Makrokosmos I and II can be played on the Model B Steinway, although a piano of this length contributes to a certain compromise in sound quality.

1

Thomas Warburton, "New Piano Techniques for Crumb's Piano Music," Piano Quarterly (Fall 1974), p. 16.

Figure 13. Interior of Model D Steinway Piano,
Area from Tuning Pins to Hammers, and
Outline of Crossbars

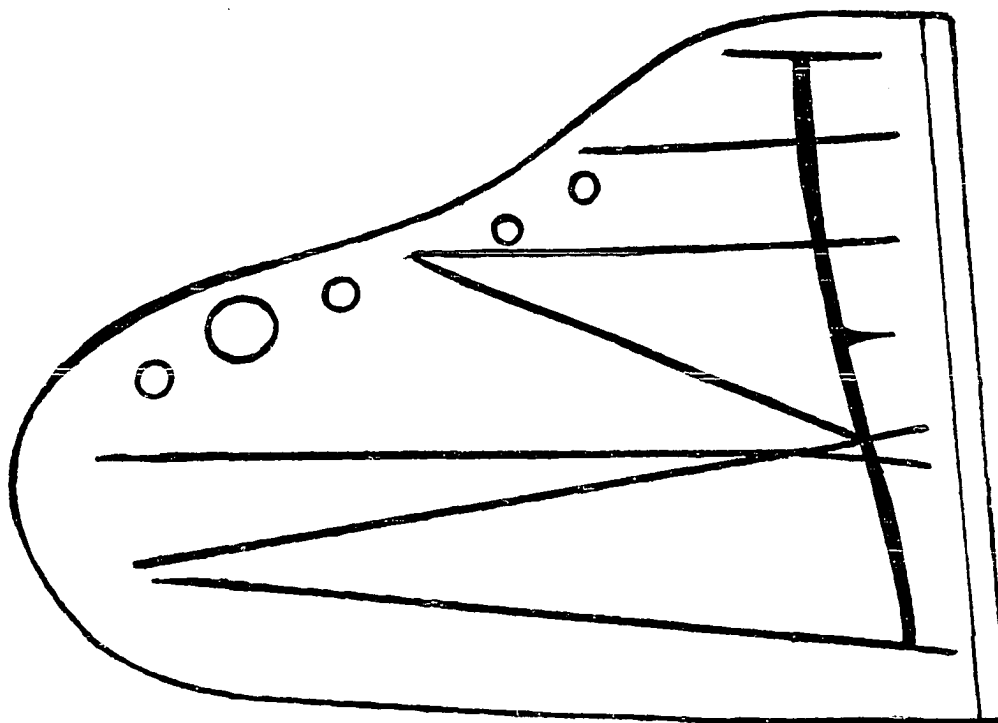
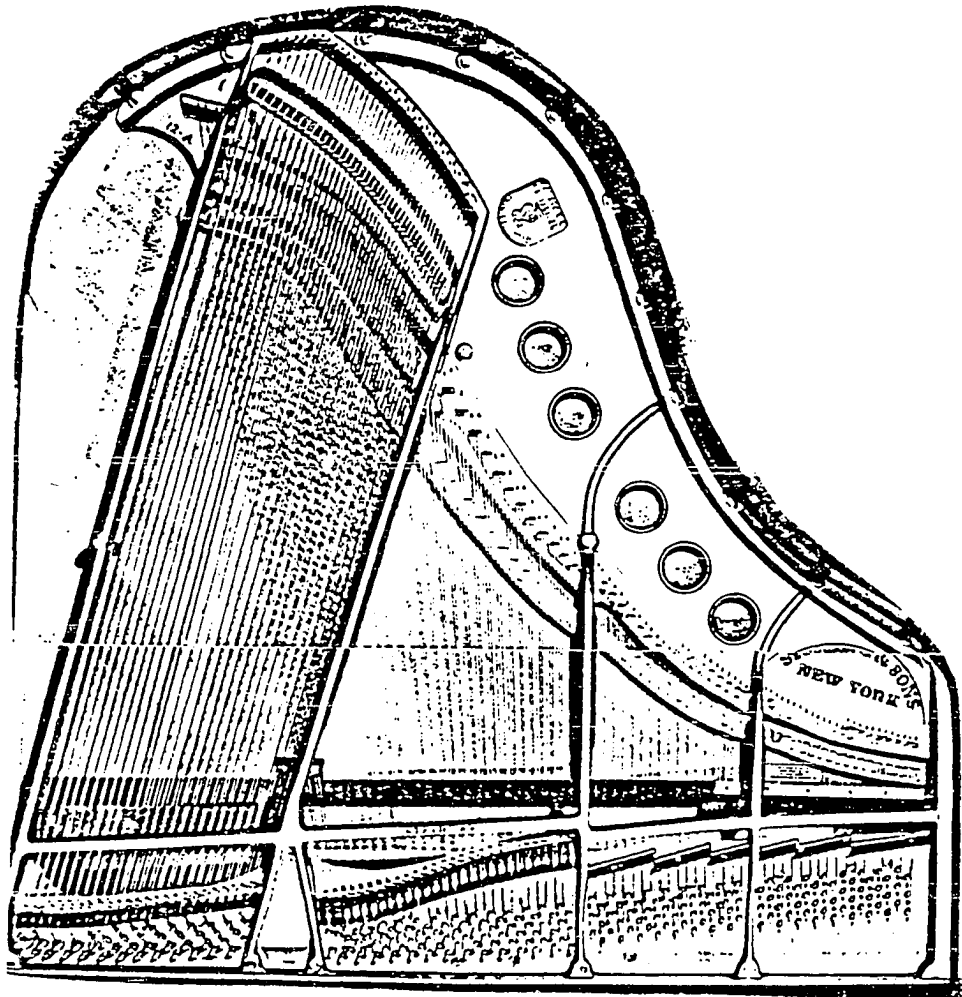
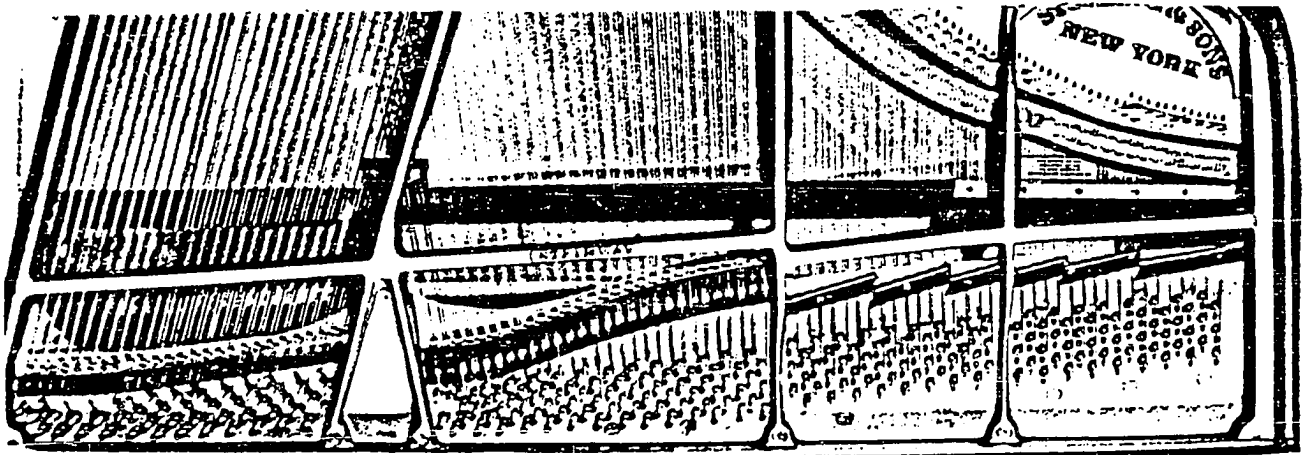


Figure 14. Interior of Model L Steinway Piano,
Area from Tuning Pins to Hammers, and
Entirety of Interior



The Model SD Baldwin¹ piano is a feasible instrument on which to perform these works, with the exception of Makrokosmos I - 7 and II - 4. The middle section of the former requires strumming on the middle-range strings. The SD Baldwin has a cross-brace which intersects these strummed chords. At this particular point, the sostenuto pedal is in use and therefore cannot be employed in resolving the problem. The same problem exists in Makrokosmos II - 4, circle "B." Strummed chords are divided by a crossbar and the sostenuto pedal is in use. The bracing on this piano is shown on the following page.

Yamaha grand pianos are made in nine-foot lengths, although they are not commonly found. An illustration of a Yamaha C7 piano² can be seen on page 109. An illustration of a nine-foot instrument was not available; however, the bracing is reportedly identical on the larger instruments, indicating that Makrokosmos I and II could be played on this piano.

¹

The SD Baldwin piano is nine feet long.

²

The C7 Yamaha piano is seven feet long; the CF Yamaha is nine feet long.

Figure 15. Interior of SD Model Baldwin Piano,
Area from Tuning Pins to Hammers, and
Outline of Crossbars

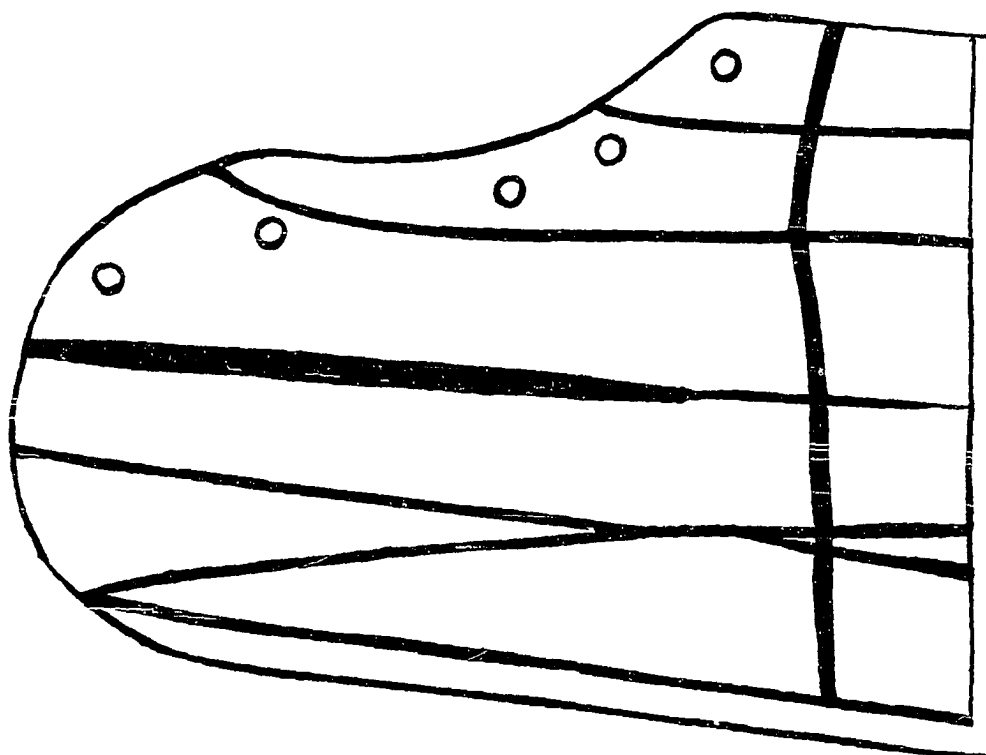
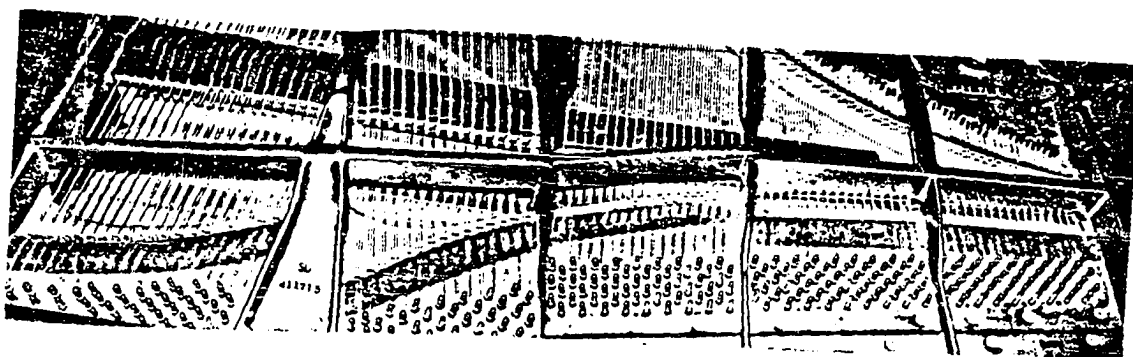
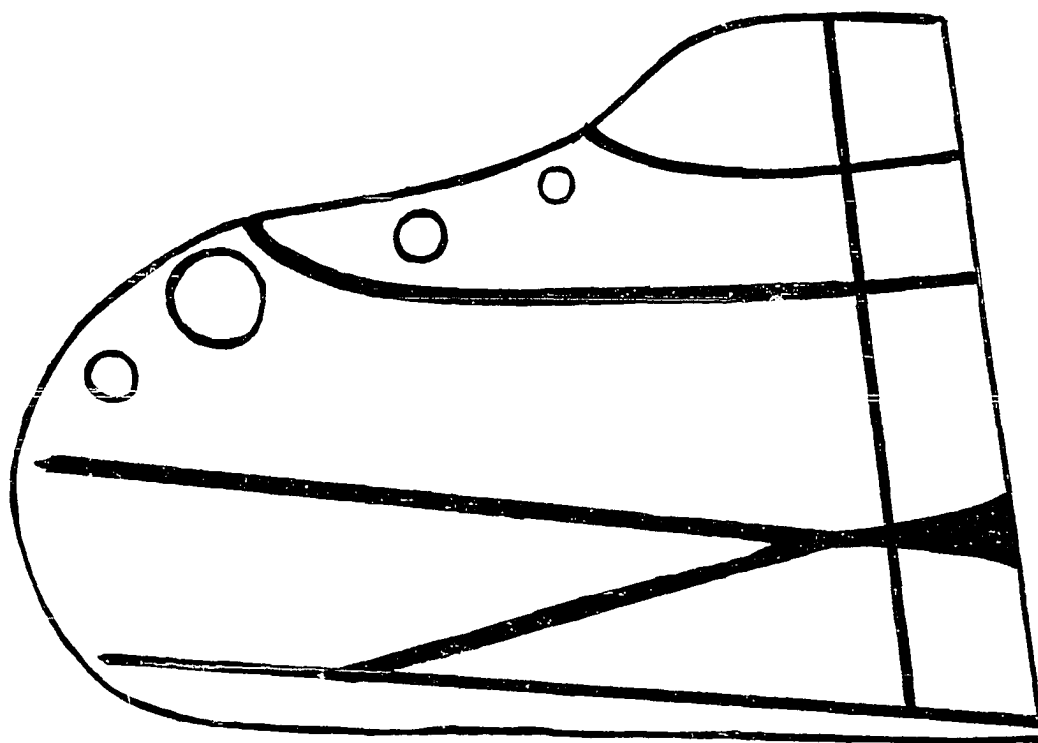
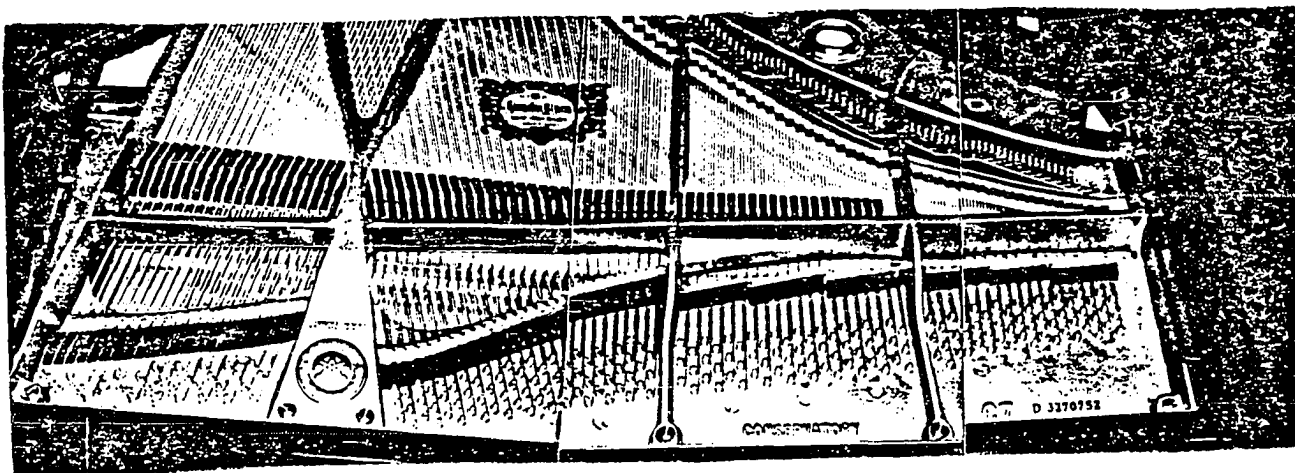


Figure 16. Interior of C7 Model Yamaha Piano,
Area from Tuning Pins to Hammers and
Outline of Crossbars



Models 200, 225, 275 and 290 of the Bösendorfer pianos are not suitable for these works.¹ The interior of the six-foot seven-inch Kimball grand piano is identical to the interior of the Bösendorfer piano of the same length (see Figure 18, page 131), making it also unsuitable. The primary problem with these pianos is the placement and number of crossbars. The 290 and 275 Bösendorfer models, however, have an additional problem: the distance from the keyboard to the dampers is unusually great. Pianos with a considerable distance between the keyboard and strings create enormous difficulties when the pianist attempts to reach a center nodal point on a long string.

Miller encountered a number of pianos in Mexico which were built in this way--with a long distance between keyboard and dampers.² The author also discovered that this was the case with the Bechstein concert grand piano. In addition, the Bechstein is sometimes constructed without a sostenuto pedal, as are many of the European pianos.

1

Bösendorfer grand pianos will be referred to by their model numbers. The Model 290 piano is 9' 6" long; the 275 is 9'; the 225 is 7' 4" and the 200 is 6' 7" long.

2

Miller, June 9, 1979. Located in Mexico, the pianos had actually been constructed in Poland.

Figure 17. Interior of Model 275 Bösendorfer Piano,
Area from Tuning Pins to Hammers, and
Outline of Crossbars

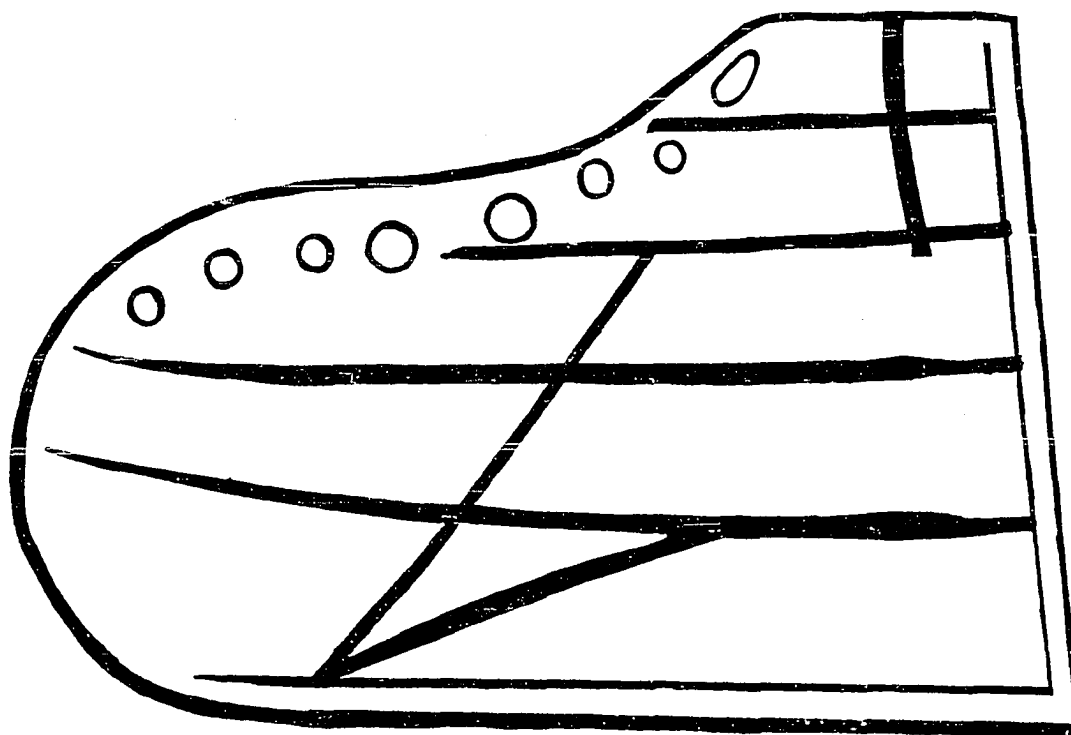
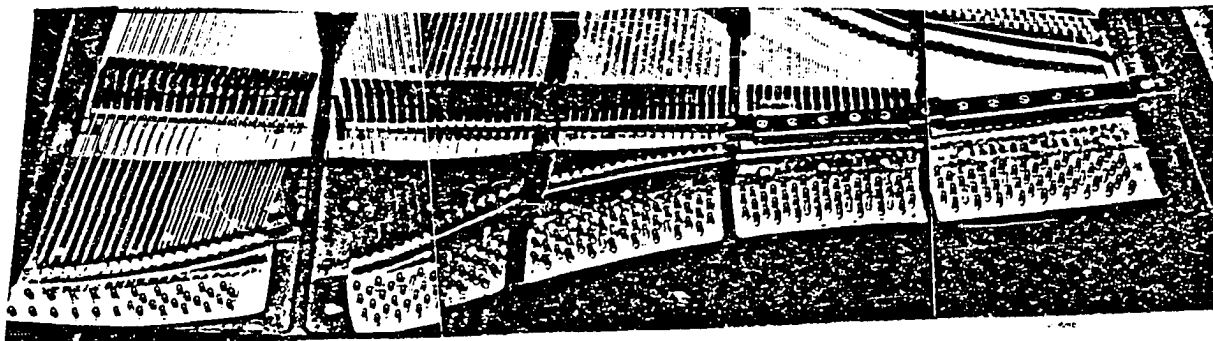
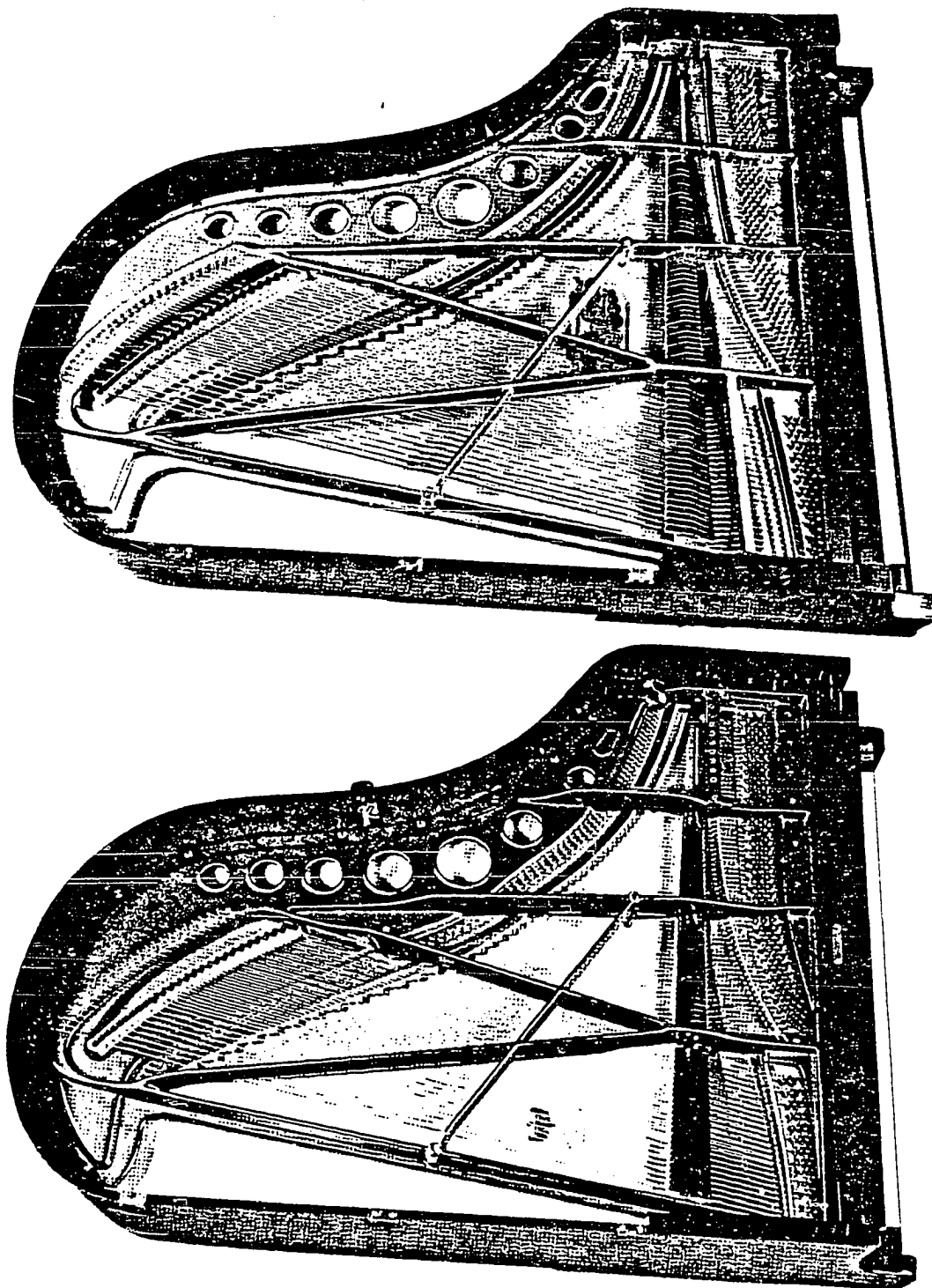


Figure 18. Interior of Six-foot seven-inch Kimball Piano (top illustration) and Interior of Model 200 Bösendorfer Grand Piano (lower illustration)



Any performance of Makrokosmos I or II must be executed on a piano built with a sostenuto pedal. One would be wise to request that a piano technician examine this pedal in advance of the performance date. The interviewees and the author had experienced technical problems with malfunctioning sostenuto pedals, in particular sostenuto rails out of adjustment. Last minute repairs were necessary, in some cases lasting right up to concert time, or interrupting a concert.¹ In 1973 Burge performed at the New York White Mountain Arts Festival, and the concert was delayed while the sostenuto pedal was repaired. Donal Henahan described the situation:

There was an unplanned intermission after a pedal broke on David Burge's piano, but the gifted member of the University of Colorado faculty calmly waited half an hour while the pedal was soldered back into place. . .²

Burge related an unique experience when he was confronted with a four-foot seven-inch grand piano, illustrating an adroit solution to a difficult problem. This particular instrument was in a television studio and, due to Burge's performing schedule, a different date and piano could not be scheduled. The instrument had no sostenuto pedal. Burge, however, created the effect of it for the second and third

¹
Burge, March 31, 1979; Miller, June 9, 1979 and Orkis, June 8, 1979.

²
Donal Henahan, "Music: White Mountains Arts Fete," New York Times, August 21, 1973.

One must be able to mark the dampers and strings quickly, and the markings must be easily removed after the performance.¹

Markings are needed on both hammers and strings. The markings on hammers identify pitches, while markings on strings identify notes or partials.

The three men interviewed each marked the hammers with different materials. Burge recommended using tiny pieces of masking tape (1/4" x 1/8"), "carefully placed on the proper dampers in such a way that they can easily be seen while playing."² He also advocated lifting the dampers with the damper pedal while applying and removing the tape pieces to the dampers to lessen the possibility of dislocating them through careless handling.³

Orkis originally used colored labels marked with the note name and placed on the dampers, using labels of different colors if performing more than one work that used piano interior.⁴ Later he decided to use yellow labeling tape by Dymo, placed on the dampers and also at the bridge and

¹
Burge, March 31, 1979.

²
David Burge, "Repertoire, Part III: George Crumb," Contemporary Keyboard II/3 (May-June 1976), p. 48.

³
Burge, March 31, 1979.

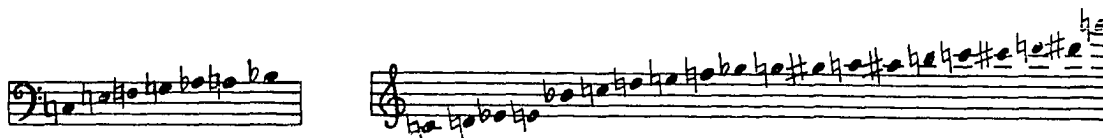
⁴
Orkis, June 8, 1979.

agraffes. None of his labels were marked with letter names.¹

Miller advocated small removable labels of rectangular shape.² He suggested writing the note name on each label before application and leaving one corner free to facilitate its removal. According to him, removable labels, or possibly drafting tape, were less difficult to remove than masking tape.³

Once the performer decides how to mark the hammers he/she must also decide which hammers are to be marked. Crumb specifies the pitches which need to be identified in the performance notes to both volumes. Fifty-seven pitches are given in Volume I; forty-eight in Volume II. However, this chart includes both pitches to be marked on dampers as well as notes to be marked on strings. The following illustrations show the pitches which need to be labeled on the dampers:

Figure 19. Makrokosmos I, Dampers to be Marked

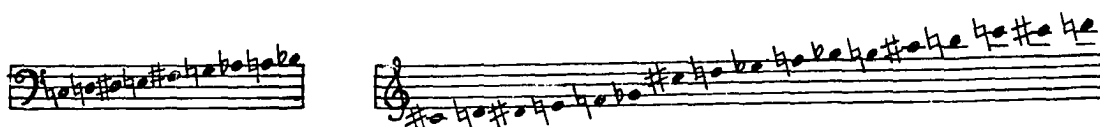


¹ Orkis, telephone conversation with the author, July 7, 1981.

² Miller, June 9, 1979. /Removable labels such as Pres-a-ply by Dennison Manufacturing Company./

³ Miller, June 9, 1979. Note: Drafting tape is suggested in the performance notes to Makrokosmos II.

Figure 20. Makrokosmos II, Dampers to be Marked



None of the three men marked the dampers as specified in the preceding figures. Working within the same pitch range, Burge and Orkis simply marked the hammers that corresponded to black keys.¹ Miller marked the hammers in the same manner, but labeled each one that corresponded to a white key, in order to create a black-white visualization corresponding to the actual keyboard.² With practice, all three men found it unnecessary to write the note names on the tape pieces.

Pitches in the lower range of the piano may be identified by the changes from single to double, and double to triple stringing. For example, on the Model D Steinway the change from single to double stringing occurs between E_1 and F_1 . Double stringing continues to A_1 , triple stringing beginning at $B\text{-flat}_1$. Another point of reference is the location of the crossbars, especially in the bass range. On the Model D Steinway the first pitch to the left of the

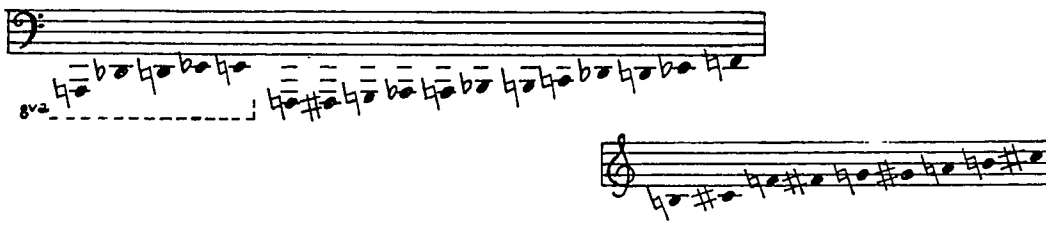
¹
Burge, March 31, 1979, Orkis, June 8, 1979.

²
Miller, June 9, 1979.

lowest crossbar is E. Counting half-steps from the above indicators is regarded as more reliable than marking the hammers, because the strings do not lie at an angle parallel to the pianist's line of vision. Therefore, identifying a string by a label on the hammer might lead the pianist to a close but incorrect pitch.¹ The location of the dividing point between single, double and triple stringing is in different locations on different makes and sizes of instruments. According to Burge, "this is the sort of thing one must ascertain well in advance of a performance in order to arrange for sufficient practice time to adapt."²

Individual strings often must be marked to indicate nodal points for harmonics. In middle and high pitch ranges the second partial, or center of the string, is the nodal point called for. In lower pitch ranges the fifth partial is used, and is found about one inch behind the dampers. The following figures show the nodal points that need to be marked on the strings:

Figure 21. Partial to be Marked in Makrokosmos I



¹

Burge, March 31, 1979 and Orkis, June 8, 1979.

²

Burge, "Repertoire, Part III: George Crumb," p. 48.

markings and found they lasted indefinitely.¹ Through the influence of Miller, Crumb added the suggestion of crayon in the performance notes to the second volume.² Orkis used white nail polish for the middle-range strings, which could be removed by rubbing with a fine grade of steel wool. This was applied only in the middle range of the instrument, polish on the large bass strings being virtually impossible to remove.³ When a tiny drop of nail polish had been applied to nodal points, Orkis realized an additional benefit in being able to locate the precise point by feeling the polish. He described it as serving "like a little fret on the string."⁴ He added a note of caution, however, stressing that the polish must be handled with great care and must not spill or drip on the soundboard. He stated that he would never allow a "clumsy student" to apply polish to a piano string.⁵ The author suggests using chalk when performing as a guest artist, but crayon or nail polish on a practice instrument which is to be used over and over again.

In the actual marking of the nodal point, Miller and Orkis marked the exact location that would be touched in

¹ Miller, June 9, 1979.

² Ibid.

³ Orkis, telephone conversation with the author, July 7, 1981.

⁴ Ibid.

⁵ Ibid.

performance.¹ In the May-June 1976 issue of Contemporary Keyboard, Burge suggested that by placing the chalk mark "slightly behind the nodal point. . . it will not be wiped off in performance."² In the following issue, however, Burge advocated marking the string which lies immediately to the right of the one to be used. He described preparing an F-natural as follows:

To be always sure of the exact spot, find it first by moving the thumbnail back and forth, meanwhile playing the key with the right hand, until the clearest sound is obtained; then make a single chalk stroke on the F# string(s) directly to the right of the thumbnail. Touch the string as lightly as possible, giving just enough pressure so that no fundamental sounds.³

In the 1979 interview Burge suggested moving a tuning wedge back and forth to find the correct harmonic, rather than the thumbnail.⁴ The advantage of Burge's system is that the chalk does not disappear when the string is touched, and the performer can see the chalk mark easily as the damping finger gets close to the string.

The fifth partial harmonics, used exclusively in the bass range, actually do not require marking. Whereas the middle-range harmonics must be completely accurate, the bass

¹ Miller, June 9, 1979 and Orkis, June 10, 1979.

² Burge, "Repertoire, Part III: George Crumb," p. 48.

³ Burge, "Piano Music of Crumb," p. 21.

⁴ Burge, March 31, 1979.

range fifth partials can be sounded over about a half-inch of string length on a nine-foot piano. This partial is a short distance behind the dampers, except for the lowest octave, where it is about an inch behind the damper.

As one becomes more familiar with Crumb's music and develops expertise in moving about in the interior of the instrument, one acquires an ability to judge distances similar to distance judgment on the keyboard itself. The landmarks remain necessary, but reaches become more automatic. Eventually one can sense if a marking or two has been applied incorrectly and, if necessary, adjustments can even be made during a performance.¹

Deciding When, and If, to Stand

In Makrokosmos II Crumb directs the pianist to stand for the ninth and tenth pieces.² The ninth piece requires the use of a wire brush on the strings and unvoiced singing. The following piece requires whistling and a number of second partial harmonics. The wire brush is more easily controlled and the harmonics more easily reached from the standing position. In addition, the singing and whistling bounce off the

1

Orkis discovered during a performance that some labels, applied in haste, were in incorrect places. He was able to adjust to the mistakes and played the correct notes in spite of the markings. (Interview of June 8, 1979.)

2

Crumb, Makrokosmos II, p. 16.

soundboard when the performer is standing, and the microphone more readily picks up these sounds.

Small or short performers may have to stand in other sections of these works. An example of a piece in which the performer may elect to stand is found in the sixth piece of the first volume. This piece requires whistling, and if the performer stands, more of the whistling bounces back from the soundboard. In this example the decision to stand would be based on aural rather than physical considerations.

One of the interviewees objected to the pianist standing at any time. Burge viewed standing as esthetically unappealing, and very distracting to the audience. He also noted the possibility of the pianist losing his or her balance and accidentally hitting the dampers. This could dislocate them, a problem that can be difficult to rectify.¹ Burge had given Crumb's Five Pieces for Piano to a student who stood five-feet two-inches tall. He insisted that with the aid of a very high bench this student was able to reach everything necessary without standing at any time.²

Makrokosmos II - 10 requires careful consideration

¹ Burge, March 31, 1979. According to Bob Scheer of Bob Scheer's Piano Tuning Service, Oklahoma City, Oklahoma, trichord dampers are harder to relocate than the bichord or unichord dampers. On the Model D Steinway, trichord dampers are found on the hammers from b-flat through g'.

² Burge, March 31, 1979.

if the pianist elects to stand. The constant whistling may produce problems in breathing because the pianist must bend over in order to reach the piano interior. In addition, there may be a general problem of fatigue, since this piece is near the end of the work.¹ Standing should be choreographed carefully and gracefully, so that it is less noticable and is as esthetically appealing as possible. Orkis believes that standing is not distracting, if movements are made within the mood of the music. "Graceful movements can actually add rather than distract."²

Clothing

Clothing worn by the performer of these works needs to be carefully considered. Among others, two prime considerations are allowing freedom of movement and protecting the piano from nicks and scratches. Male performers need to avoid buttons, buckles and ties.³ Turtleneck shirts are a practical solution, and give the male performer the chance to avoid wearing a jacket.⁴ Females can follow the same guidelines.

¹ Miller, June 9, 1979.

² Orkis, June 8, 1979.

³ Burge, March 31, 1979; Miller, June 9, 1979 and Orkis, June 8, 1979.

⁴ Orkis, June 8, 1979.

If wearing dresses with sleeves, one should make sure they are not restrictive in any way. Anything fancy, especially if it gets in the way of the performer, should be rejected as unsuitable. Orkis felt no qualms about appearing in black turtleneck and trousers, even if other performers were wearing tuxedos.¹

Clothing should be tried well in advance of a performance, and should be tried at a piano of the same size as the performance piano. Once the preferred clothing has been determined it should not be changed.²

Amplification

The request for amplification is included in the full titles of these works, as in Makrokosmos, Volume I, Twelve Fantasy-Pieces after the Zodiac for Amplified Piano. When Crumb wrote the Five Pieces for Piano in 1962 he included only a request for amplification in the performance notes:

If Five Pieces is to be performed in other than a very small hall, it is most strongly recommended that the piano be amplified so that the many delicate sounds will project. . .³

¹
Orkis, June 8, 1979.

²
Ibid.

³
George Crumb, Five Pieces for Piano (C.F. Peters Corporation, 1973), p. 3.

Crumb has explained that at first his interest in amplification came from a desire to project delicate timbres:

I then became interested in the 'larger than life' sound that you can get from amplification. . . . When an instrument is amplified, there is a curious ambience; it is more than just a larger real or natural sound--another dimension has been added.¹

Miller compared the glissando sounds Crumb induces from the piano to the sounds that are possible from a harp, saying: "This is a nine-foot soundboard and it's bigger than a harp. You can get a much better sound--that's why this kind of writing is so valid."²

The use of amplification gives more presence to the sounds produced inside the piano as well as the whistled and vocalized sounds. The microphone not only receives and intensifies these sounds, but also receives and intensifies the delicate ambience created by sympathetic vibrations resulting from these effects.³

An important aspect of Makrokosmos I and II is the wide range in dynamic levels.⁴ Many very soft moments are

¹ Shuffett, "Music of Crumb," p. 142.

² Miller, June 9, 1979.

³ Burge, March 31, 1979.

⁴ Miller, February 16, 1980.

included, as well as long pauses. These help establish the delicate and intimate atmosphere that pervades much of the works. Without amplification, these moments would not be heard, or the sound would die too quickly. With amplification, some sound continues to resonate, even through the longest pauses.

In order to amplify the sounds, the pianist needs the following: a microphone suspended from a boom, an amplifier, and two speakers connected to the amplifier with shielded cables.¹

The lid to the piano should not be removed, since the lid helps project the sounds toward the audience.² The microphone should be suspended between the bass strings and the lid, and the speakers placed on each side of the piano. Burge suggested the speakers be on either side of the stage, or halfway between the piano and the wings, depending on the size of the stage.³ The sounds coming from the piano and the speakers should create a blend that seems to emanate from the entire width of the stage.⁴ If the amplification

1

Orkis, June 8, 1979, urged shielded cables to protect the system from radio waves.

2

Miller, February 16, 1980.

3

Burge, "Piano Music of Crumb," p. 37.

4

Burge, "Piano Music of Crumb," p. 37, and Miller, June 9, 1979.

system is a good one, the pianist will not be aware of being amplified during the performance,¹ nor will the audience be aware of the amplification per se.²

The level of amplification should be adjusted to avoid distortion in the louder passages. Once the correct level is obtained, no further adjustments are needed or should be allowed. Both Miller and Burge urged the pianist to check the dynamic level in Makrokosmos II - 6.³ Pieces 6 and 7 build to the climax of the work, the opening of Piece 8.⁴ Miller suggested that if the dynamic level in Piece 6 was too loud, the following pieces would "be so loud that the relationships in the dynamics would not be heard."⁵

As one checks the loud dynamic levels, one should also check the very soft sounds. The softer pizzicatos, harmonics and vocalizations may need to be executed more loudly than anticipated, even with amplification.⁶ In the

¹ Orkis, June 8, 1979.

² Burge, "Piano Music of Crumb," p. 37.

³ Burge, lecture to students at University of Oklahoma, March 24, 1976, and Miller, June 9, 1979.

⁴ Ibid.

⁵ Miller, June 9, 1979.

⁶ See footnote 1, page 80.

performance notes to Ancient Voices of Children, Crumb requests a "cardboard speaking tube (unamplified megaphone)" for the soprano and boy soprano,¹ and suggests that the whispering through the speaking tube in Song No. 11 "can be slightly voiced if required by the acoustics of the hall."²

Lighting

Crumb has requested some casual lighting effects in a few works, and he has not been opposed to the addition of some lighting, if on a small scale.³ However, he would disfavor anything elaborate, as this would detract from the audience's aural impressions, and Crumb regards these as of primary importance.⁴ Miller felt that only the most minimal lighting effects would be acceptable, "My feeling is that the piece has a lot built into it the way it is, and the main thing is for the audience to concentrate on the performance."⁵

On several occasions the author has performed the

¹ George Crumb, Ancient Voices of Children (New York: Peters Corp., 1970), p. 4.

² Ibid.

³ Orkis, June 8, 1979.

⁴ Shuffett, "Music of Crumb," p. 472.

⁵ Miller, February 17, 1980.

first Makrokosmos volume with a simple lighting effect: beginning the work in darkness and gradually bringing up the lights, as well as dimming the lights slowly near the end of the last piece, concluding the work in darkness. Each time this was done the audience was forewarned during preliminary remarks. The purpose of this was to emphasize the mood of "beginning" associated with "Genesis I," as well as to compel the audience to focus on the aural impressions from the very first chord. Dimming the lights slowly near the end of the work created a symmetrical balance with the opening effect.

Orkis performed Makrokosmos I in Kennedy Center in a rather dark deep green setting. The lighting was beamed in a way that threw large shadows on a backdrop.¹ Paul Hume reviewed the concert and suggested:

. . . playing in almost total darkness. . . . the unusually theatrical dark and shadow seemed appropriate. Nevertheless, it added a note that Crumb does not suggest, which at times made it easy for some in the audience to snicker and giggle.²

There are two scores in which Crumb requests lighting effects, Eleven Echoes of Autumn and Lux Aeterna. In the

¹
Orkis, June 8, 1979. Note: Orkis was not pleased with the lighting, but was not given time to make alterations.

²
Paul Hume, "20th Century Consort," Washington Post, February 5, 1979.

former Crumb wrote:

A special stage lighting may be used with Eleven Echoes, if desired. The composer envisages two possibilities: a) a deep green or deep blue lighting throughout, or b) a deep blue lighting at the beginning; then very gradually (almost imperceptibly) brightening until reaching a fiery red at the beginning of eco 8; then very gradually dimming until reaching total darkness at the beginning of eco 11.¹

In Lux Aeterna, Crumb suggests the performers wear black masks and robes. The stage lighting should be, "as dark as possible, with a single candle burning at stage center."²

When the 20th Century Consort, of which Orkis is a member, performed Ancient Voices of Children in Kennedy Center, the work was started in darkness and gradually changed to a "misty luminosity."³ Three "diaphanous streamers" were hung above and behind the performers and patterns of light projected on them.⁴

These examples of lighting effects are included to suggest that there is room for some experimentation, although

¹
George Crumb, Eleven Echoes of Autumn (Echoes I), (New York: C.F. Peters Corp., 1965), p. 12.

²
David Burge, record jacket notes for Four Nocturnes, perf. by Eric Rosenblith and David Hagen, Lux Aeterna, perf. by Jan DeGaetani and the Penn Contemporary Players, and Dream Sequence, perf. by the Aeolian Chamber Players (Odyssey for Columbia, Modern American Music Series Y35201).

³
Alan Kriegsman, "Varied Music: Theatrical, Fervent and Bubbly," Washington Post, March 12, 1977.

⁴
Ibid.

one would not wish to go to extremes, knowing that Crumb would object to elaborate lighting schemes.

Conclusion

The preceding discussion has illustrated areas in which Burge, Miller and Orkis were in agreement as well as areas of disagreement. Throughout the interviews the three men were in constant accord in their enthusiastic endorsement of Crumb's music, in particular his manipulation of timbres. That they enjoyed learning and performing these works was most obvious. As a further endorsement of the music, the author wishes to add that she has found audience reaction invariably one of rapt silence and attention, a rare phenomenon for a contemporary work of thirty to thirty-five minutes duration. The three men also repeatedly admonished pianists to give thoughtful and cautious consideration to the problems involved in marking and playing inside the piano. Their desire to leave an instrument exactly as they found it was a recurrent theme, in spite of the fact that they expressed markedly different opinions on other matters, such as labeling hammers and strings, or sitting versus standing.

Regardless of what the future holds for Crumb's music and his unusual techniques, and whether or not his musical language becomes a part of the mainstream of compositional procedure, familiarity with this music is most important.

Pianists must accept experimental manipulations of their instrument, foregoing a final evaluation of the music until sufficient time has elapsed. If one hopes to remain abreast of future developments one must willingly study, interpret and perform the music of the present. By achieving familiarity with today's music, the music of the future will also be accessible.

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APPENDIX

REVIEWS OF PERFORMANCES OF MAKROKOSMOS VOLUMES I AND II

During 1973 and 1974 Makrokosmos I was frequently performed by David Burge¹ and was greeted with a remarkable number of complimentary reviews. The first performance took place at Colorado College, Colorado Springs, on February 8, 1973. Thomas MacCluskey described the premiere as a "meeting of the minds,"² as the two men, Crumb and Burge, "linked psyches, and brought forth a work of art for the twenty-first century."³ Equally laudatory, Carlton Gamer suggested that Makrokosmos I, and the second volume when completed, would probably become "classics of the twentieth-century pianistic repertoire."⁴

¹ Joseph McLellan, "Music of the Spheres," New York Times, March 10, 1974.

² Thomas MacCluskey, "Two Titans of Music Display Their Abilities," Rocky Mountain News, February 10, 1973.

³ Ibid.

⁴ Carlton Gamer, "Current Chronicle: Colorado Springs," Musical Quarterly, No. 59/3 (1973), p. 464.

Burge introduced Makrokosmos I to the Washington D.C. area in August of 1973 when he appeared at the University of Maryland Piano Festival. Paul Hume found the music ". . . a thing set apart. . ." ¹ and wrote:

It is, with all its striking originality of thought, somehow marvelously accessible.

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It is too soon for judgments that are at this moment unnecessary. But it is easy to think of this music in the line from Liszt through Ravel. With its play of the pedals, its dynamics that range from extremes in pianissimo to towering fortissimo, in its total use of the instrument as we know it today, it stands by itself. Not since Aaron Copland's Fantasy in 1957 has a new work for piano made so profound a first impression, or one that seems more likely to last. ²

Concerning Burge's performance, Hume wrote:

Every composer of our time should be so blessed as to be played by a David Burge. His genuine pleasure in new music, much of which he gives in premieres, shows not merely in the manner of his playing but in his whole appearance, even the smile with which he rises at its close. Somehow he avoids every suggestion of either grim duty or overtaxing demands. ³

During the summer of 1973, at the New York White Mountains Arts and Music Festival, Burge performed Makrokosmos I

¹ Paul Hume, "Contemporary Mix," Washington Post, August 15, 1973.

² Ibid.

³ Ibid.

in a tent, but the concert was nevertheless described as "one of the most gripping performances that one has ever come across at any music festival."¹

At the New York premiere of the same work, Raymond Ericson wrote:

George Crumb's 'Makrokosmos' Volume I (1972) was given its New York premiere on Monday night, and it strengthened the composer's reputation as one of the most imaginative and mesmerizing creators around. The work was performed by David Burge, the University of Colorado pianist to whom it is dedicated, in his program in Carnegie Recital Hall.²

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Mr. Crumb's materials are not really new; some of them might even be considered naive or corny. But no one puts sounds together quite the way he does, with such an acute ear, so that the result rivets the listener's attention and builds up an emotional response. The precision with which the collage has been assembled becomes poetic and mystical.³

Altogether, Burge performed the work for what may have been a record, thirty-six performances during the 1973-1974 concert season.⁴

When Burge recorded Makrokosmos I, McLellan reviewed the disc with special praise for the composer's ability to

¹ Donal Henahan, "Music: White Mountains Arts Fete," New York Times, August 21, 1973.

² Raymond Ericson, "Burge Conjures Up a Mystical Collage of Music by Crumb," New York Times, November 7, 1973.

³ Ibid.

⁴ "Composers in Focus," Broadcast Music, Inc., Winter, 1976.

communicate with the listener:

The problem with most contemporary music--even good contemporary music--is that it is interesting, inventive and nothing more. It engages the analytic faculties and holds off feelings at arm's length; it is easy to talk about, because it uses striking techniques unheard of in past centuries, but if it is expressive one usually has trouble saying just what it expresses beyond the chaos and emptiness of modern life.

Fortunately, there are exceptions, and one of these has just been recorded: George Crumb's "Makrokosmos, Volume I," played, spoken and occasionally whistled by pianist David Burge on Nonesuch H-71293. Welcomed with great enthusiasm by Paul Hume on its Washington premiere last August, it has been performed frequently by Burge in the year since its introduction (Feb. 8, 1973) and has garnered a remarkable array of critical acclaim. Personally, I think it should win Crumb his second Pulitzer Prize (his first was awarded in 1968 for his "Echoes of Time and the River").

There are at least two ways to approach "Makrokosmos," though they may boil down to variations on a single theme. For the average listener, the most important point about the music is that it is written with great skill, overtones of deep meaning and a strong emotional impact; it communicates powerfully. For those with a more theoretical interest in contemporary music, "Makrokosmos" is important because it makes musical sense out of some of the things that have been happening to the piano in recent generations.

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An incredible richness of impressionistic detail and artfully deployed techniques pervades the whole work, and yet it can be enjoyed thoroughly as a simple listening experience without attention to all the special apparatus and levels of meaning--without, for example, noting that the score in one section is notated in the form of a cross, another in a circular and a third in a spiral shape.¹

¹ Joseph McLellan, "Music of the Spheres," New York Times, March 10, 1974.

Robert P. Morgan also reviewed the recording, suggesting a number of ties with music of the past:

The over-all sense of Makrokosmos reminds me of Schumann in that the larger form evolves gradually out of a series of short pieces, which taken together nevertheless create an impression of a single musical progression. There are other aspects of the score that form strong ties with past music, a characteristic of Crumb's work in general. The piano writing frequently contains, in addition to all of the composer's usual "special effects," the sort of elaborate figuration associated with nineteenth-century virtuoso piano music (the second and tenth pieces are good examples). Also, the whole-tone scale, so prominent in music composed around the turn of the century, plays a central role throughout most of the piece, although it is "dissolved" to a sort of distorted echo in the essentially diatonic final piece. (It is, incidentally, an indication of Crumb's skill that he is able to use this scale without making the music sound banal.) Perhaps most impressive, however, is Crumb's extremely sensitive handling of the slow rhythmic pacing. I know of no composer writing today who is able to present such a sparse and attenuated sonorous image without producing a corresponding sense of formal disruption. By various means--most particularly, I think, by the spanning and connecting of temporally dislocated segments through very simple, even obvious timbral and registral associations so as to point the ear to the larger relationships--he is able to keep the motion of the piece under control.¹

Makrokosmos II met with a mixture of reviews, most of them favorable but some mildly disparaging. Two critics voiced divergent opinions in the February 1975 issue of High Fidelity/Musical America. Patrick Smith thought Crumb had improved his grasp of overall structure and had also

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Robert P. Morgan, "Classical Reviews," High Fidelity/Musical America, June 1974, p. 49.

reduced a former tendency to overelaborate:

George Crumb's Makrokosmos II for amplified piano seems to me a more assured and structured whole than the first volume, although the basic vision is the same. Taking his lead from Bartok, he has, however, moved past the exploration of piano techniques to the use of the piano, amplified, in toto (keyboard, strings, etc.) with various coloristic additions (glasses, a piece of paper under the strings, a wire brush, the human voice), in order to reflect (or better, echo) the transcendental, extra-terrestrial and mystic in musical terms. There is no question that the musical language, as opposed to the sonorous one, is simplistic, and now and then mundanely obvious (e.g., the direct quote of the now-tired Dies Irae, or the whispered Dona nobis pacem). But this vulgarity, as with the music of Richard Strauss, is an integral part of Crumb's compositional persona. What is evident in Crumb's later pieces, however, is not only an ever-surer grasp of overall structure and a paring away of overelaboration (which can be devastating in music of this type), but the increasing refinement of Crumb's ear for sonorities. Unlike the music of, say, Karl Orff, which is immediately appealing but which wears badly, Crumb's shifting colors retain their aural hold, and cannot finally be reduced to the type of traditional harmonic or intervallic analysis that is fruitful for Bartok, or Webern, or Schoenberg.

If I have a reservation about the Makrokosmos series it lies not in the musical language, nor in the Messiaenic overviews, but in the fact that the sonoric possibilities of the piano, even as widely explored as Crumb manages, still confines his coloristic abilities. Judging from the first two volumes of the Makrokosmos, Crumb is not primarily a pianistic composer, but one who needs a more varied palet of sound. . . . In any case, Makrokosmos II is a highly listenable work, in the pure Crumb style (as with Makrokosmos I much better heard in performance than on record).¹

Bruce Saylor wrote the dissenting opinion:

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Patrick Smith, "Crumb's Makrokosmos II--New Vision or Dead End?" High Fidelity/Musical America, February, 1975.

The recent works of George Crumb have become, for many who ordinarily find contemporary idioms anathema, music from the avant garde that even they can like.

The enthusiastic attention that the usually conservative public and press continue to heap on each new work is not difficult to explain. Crumb's music sounds pretty. He has refined and made into a basic principle the exploration of delicate vocal and instrumental color. These effects, plus certain quasi-theatrical tricks, he couches in vast stretches of near-silence or endless repetition.

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Makrokosmos, Volume II, for amplified piano is the composer's most recently premiered work. It was expertly played at Tully Hall on November 12 by Robert Miller, that otherwise exceptionally discriminating champion of the twentieth-century repertory.¹

John Rockwell suggested that the inordinate amount of praise recently given to Crumb had produced a counter-reaction from those who viewed him as "a purveyor of . . . simple-minded mumbo-jumbo."² He went on to say that although both sides offered valid arguments, "Crumb's ear for exotic sonorities seems so imaginative that it is easy to forgive him a lot."³ Joseph Horowitz wrote a similar review of a performance of the second volume:

¹
Bruce Saylor, "Crumb's Makrokosmos II--New Vision or Dead End?" High Fidelity/Musical America, February, 1975.

²
John Rockwell, "Recital By David Burge," New York Times, March 23, 1976.

³
Ibid.

George Crumb, whose incantatory music enjoys a considerable following, is sometimes taken to task for proposing more effect than substance. If that is a fair assessment, at least he is very good at what he does. Mr. Crumb's methods, however unorthodox, are ingeniously calculated to yield beautiful or imposing sounds, and the sounds in turn trigger distinct physical or metaphysical associations.¹

A description of Makrokosmos II by Douglas A. Lee was written after a performance given by Burge:

Makrokosmos entails a psychological element as part of the total musical event, and apparently the quotations from other composers (Beethoven) and other tongues (Latin) represent a synthesis of Crumb's own musical experiences, thus a true musical macrocosm for this composer. Whatever the personal element, the work expands the spectrum of piano sounds far beyond that associated with the traditional literature for this instrument. The music in itself may not answer definitively those questions raised about the future of the piano, but it clearly belies the suggestions of some that the piano is an instrument of the past.²

Harold Schonberg attended Miller's premiere performance of Makrokosmos II and reflected:

In recent years, Mr. Crumb has forged to the front as one of the most important American composers. He marks, among other things, the point where the stranglehold exerted by the post-serialists of the nineteen-fifties and sixties was broken. Mr. Crumb was one of the new crop of avant-gardists to move freely in an eclectic idiom. Fascinated more by sounds than by strict structure, he started composing

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Joseph Horowitz, "Jeffrey Jacobs Performs Crumb's Makrokosmos," New York Times, February 3, 1980.

2

Douglas A. Lee, "Current Chronicle: Penderecki and Crumb at Wichita State," Musical Quarterly, 61/3 (1975), p. 588.

music that drew upon many techniques. Only he did so with more personality than almost anybody around.¹

Miller's performance and Crumb's music were described by Andrew Porter after he attended Miller's performance:

He is a pianist of uncommon distinction, technically adept, intellectually cogent, persuasive in all he does. His recital--the first of three devoted to American piano music, a series that promises to be a major event of the season--embraced many manners, entered many musical worlds, in each of which he proved to be a sure and committed interpreter.

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What can one usefully add? Any detailed description of the extraneous technical devices--the strip of paper or thin metal chain laid on the strings, the glass tumblers gently pressed against and slid along them, the occasional phrases sung, shouted, chanted, or whispered by the pianist--would merely confirm the fears of anyone who thinks that "Makrokosmos" may be no more than a bag of clever tricks, an assemblage of artful sounds. Many children have played with the strange, attractive, fascinating noises that can be drawn from the complicated mechanism of a piano by placing foreign objects on the strings, twanging them, thumping them, whistling, singing, or screaming into them with the pedal down. Crumb has carried such experiments much further, and from the happier results has assembled a personal repertory of precise, picturesque, and captivating sounds His music is at once exuberantly adventurous and yet fastidious in facture, very bold and yet reticent, not emphatic. Without raising his voice but in tones of quiet intensity, where timbres and inflections are so nicely graded that a tiny shift of emphasis can be of mighty import, he makes profound, un pompous statements in little room.²

¹ Harold Schonberg, "Music: Crumb Makrokosmos II Bows," New York Times, November 13, 1974.

² Andrew Porter, "Music Reviews," New Yorker, November 25, 1974.