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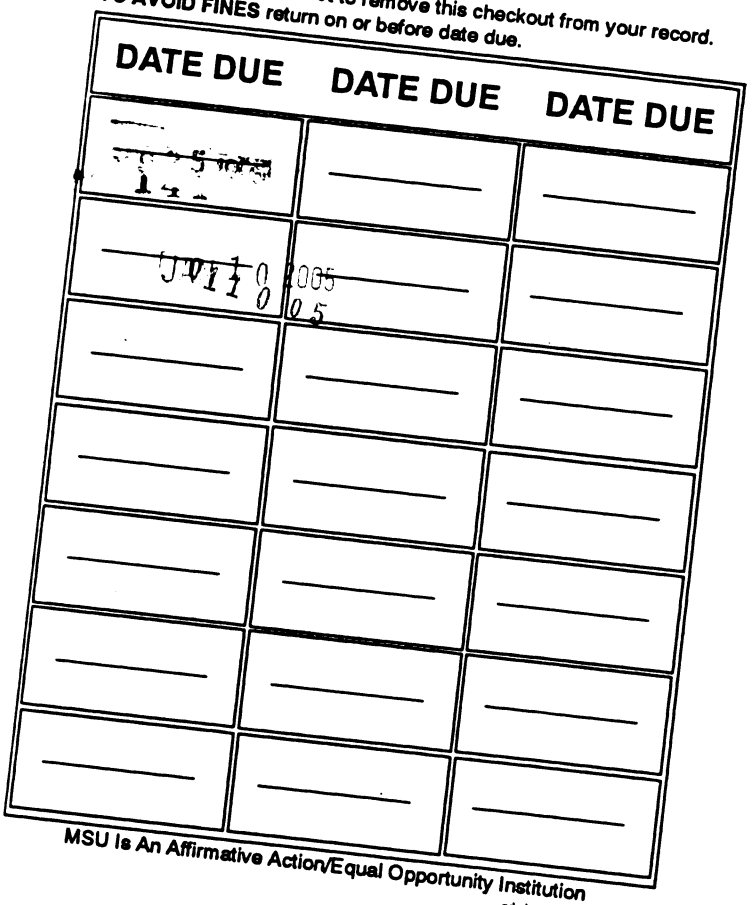

# THE EARLY PERCUSSION MUSIC OF JOHN CAGE

1935 - 1943

By

Barry Michael Williams

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

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1990

ABSTRACT

THE EARLY PERCUSSION MUSIC OF JOHN CAGE

1935 - 1943

By

Barry Michael Williams

From 1935 to 1943, John Cage composed fifteen works for percussion. Many of these works were written for and performed by percussion ensembles which the composer organized on the West Coast and later in Chicago and New York. This document addresses the historical significance of Cage's early work in percussion and provides detailed analysis of two compositions for percussion, First Construction (In Metal), and Amores. The analyses discuss Cage's primary compositional techniques, including the "square-root" formula, fixed rhythmic patterns, and "icti-controls." Information obtained from the analyses of the works cited above is used to aid in the presentation of the other works for percussion which Cage composed during the same time period.

Some of Cage's later works for percussion are discussed in order to show the relationships between the compositional procedures employed in the early percussion works and the composer's later experiments with chance operations, indeterminacy and "music of contingency."

A summary is provided and conclusions are drawn with regard to the composer's primary influences, his

compositional styles and procedures employed in the early percussion works, and the impact of his activity in percussion on later developments in his own music and on the art form in general.

Appendices include a chronological survey of John Cage's career through 1943, a chronological list of the fifteen early works for percussion with instrumentation, and a 1940 list of percussion instruments owned by the composer. An extensive bibliography of primary and secondary sources, along with general reference materials, is included. Much of the primary source material was obtained from the John Cage Archive, housed at the Northwestern University music library, and from interviews with the composer. Copyrighted musical examples are used by permission of C.F. Peters Corporation.

## ACKNOWLEDGMENTS

I would like to acknowledge the assistance of the following individuals: the members of my committee, Professors Dale Bartlett, Dale Bonge, Mark Johnson (principal reader), and Theodore Johnson for their support and helpful suggestions; Deborah Campana and the Northwestern University Music Library for graciously allowing me access to the John Cage Archive; Stuart Saunders Smith for putting me in touch with John Cage; Terry Applebaum for believing in my potential; John Cage for his interest in this project and for graciously allowing me to interview and correspond with him; and my wife, Catherine, for her constant and unwavering encouragement.

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# INTRODUCTION

The early percussion music of John Cage, those works composed between 1935 and 1943, form an important part of the repertoire for the percussion medium. During this early period, the young composer organized the first known performing percussion ensemble in America. The success of his first percussion concert, given in Seattle, Washington in December, 1939, encouraged Cage to seek the composition of works for percussion by composers throughout North America, including Henry Cowell, Lou Harrison, Johanna M. Beyer and William Russell. It is partially due to Cage's efforts within the percussion medium that the repertoire for percussion ensembles has expanded and the percussion medium itself has gained acceptance as a genuine musical art form.

Cage, in collaboration with Lou Harrison and others, experimented with percussion instruments of both conventional and unconventional nature. He produced music with traditional orchestral percussion instruments and with those of non-Western origin. Through the employment of "found" objects as percussion instruments (automobile brake drums, thundersheets, bottles, etc.) and electrical devices (phonographs, buzzers, and audio-frequency oscillators),

Cage expanded the tonal spectrum of the percussion ensemble and influenced a generation of percussion composers.

The purpose of this document is to address the percussion compositions of John Cage analytically and the early performances of these works historically with the intention of providing a background from which one could approach their performance. Since many of these works remain staples of the percussion ensemble repertoire and served to influence the compositional techniques of later percussion composers, a compilation of information concerning these pieces and the analysis of certain key works from among the collection is warranted.

Two of Cage's major works for percussion are analyzed in this document, and the collected information is used to aid in the discussion of his other percussion works from the same time period. The analyses discuss Cage's formal compositional procedures and his use of percussive timbral resources.

## Procedures

Procedures followed in this document have been established to investigate Cage's professional career through 1943, his compositions for percussion, and the early performances of these works. The following procedural steps are taken in this investigation:

Procedural Step One. This step develops a historical overview of John Cage's professional career through 1943,

with emphasis on his organization of percussion ensembles on the West Coast, in Chicago and New York City, and the performances given by these ensembles. Materials for this survey have been obtained from articles, reviews, and interviews with the composer.

The most significant biographical information was obtained from the John Cage Archive at the Northwestern University Music Library. Two notebooks in this collection, John Cage: Professor Maestro Percussionist Composer I and II, contain programs, newspaper clippings, correspondence and photographs dating from the late 1930's through 1943. Further information was obtained from two books of interviews with Cage, For the Birds: John Cage in Conversation with Daniel Charles and Conversing with Cage, edited by Richard Kostelanetz. In addition, Cage's first book, Silence, provided vital historical data and information concerning the composer's compositional philosophy. The author's correspondence and interview with the composer provided needed clarification of historical events and personal philosophy.

Procedural Step Two. Two of Cage's compositions, First Construction (in Metal) and Amores, are analyzed in terms of structure, style, motivic relationships and instrumentation. The analyses examine the number and types of instruments, rhythmic and/or melodic motives, meter, dynamics, structure, tempo and timbre. Instruments are described and substitutions recommended where necessary.

Notation is discussed in terms of instrument location, staff order, note arrangement and specific expressive markings. Specific examples are used to illustrate the author's findings.

Procedural Step Three. An overview of Cage's other percussion works written between 1935 and 1943 is given, based upon the procedures established in step two. The compositions investigated include:

| Composition, Date | Number of Players |
|---|---|
| Quartet, 1935 | 4 |
| Trio, 1936 | 3 |
| Imaginary Landscape No. 1, 1939 | 4 |
| First Construction (in Metal), 1939 | 6 + assistant |
| Living Room Music, 1940 | 4 |
| Second Construction, 1940 | 4 |
| Double Music (composed jointly with Lou Harrison), 1941 | 4 |
| Third Construction, 1941 | 4 |
| Imaginary Landscape No. 2 (or March No. 1), 1942 | 5 |
| Imaginary Landscape No. 3, 1942 | 6 |
| Forever and Sunsmell, 1942 | 2 + voice |
| The Wonderful Widow of Eighteen Springs, 1942 | 1 + voice |
| Credo in US, 1942 | 4 |
| Amores, 1943 | 3 + prepared piano |
| She is Asleep (Quartet for 12 Tom Toms), 1943 | 4 |



## Organization

This investigation is organized in six chapters. Chapter One provides an overview of John Cage's career

through 1943. Chapter Two contains a specific analysis of First Construction (in Metal). Chapter Three contains a specific analysis of Amores. Chapter Four applies the information gained in Chapters Two and Three to Cage's other percussion works from the same time period. Chapter Five presents and discusses Cage's percussion works composed after 1943. Chapter Six serves as a summary and draws conclusions based on the information presented in the document.

Appendices include a 1940 list of percussion instruments owned by John Cage, a chronological list of Cage's percussion works (1935-1943) with instrumentation, and a biographical chronology of the composer's career through 1943.

## Chapter One

## An Overview of John Cage's Career Through 1943

John Cage was born in Los Angeles, California in 1912. His earliest experience with music came through piano lessons with his Aunt Phoebe James. Cage recalled,

> She introduced me to Moskowski and what you might call "Piano Music the Whole World Loves to Play." I started taking piano lessons when I was in the fourth grade at school but I became more interested in sight-reading than in running up and down the scales. Being a virtuoso didn't interest me at all.[1]

After graduating as class valedictorian from Los Angeles High School in 1928, Cage entered Pomona College in Claremont, California, where he remained for two years.[2] In 1930, he left for Europe, where he studied architecture,[3] wrote poetry, painted, and first composed music.[4]

Cage returned to California in the fall of 1931 and settled in Santa Monica, where he worked as a gardener in an auto court in exchange for his rent and gave lectures on modern painting and music to local housewives.[5] During this period, Cage began studying composition with pianist Richard Buhlig. According to Cage:

> The week came when I was to speak about Schoenberg. I had learned, some time earlier, that Richard Buhlig had been the first to play Opus 11--Schoenberg's first three piano pieces--and it suddenly occurred to me that he might be living in Los Angeles . . . so I ran to the telephone book. His name was listed! I phoned him, and asked him if he would agree to play Schoenberg's pieces for me. He replied: "Certainly not!" and hung up. Next, I wanted somehow to get him to illustrate my lecture by performing those pieces. So I decided to see him personally, so as to avoid having him abruptly end things by hanging up on me again. Well, I made the trip

> from Santa Monica to Los Angeles in a great hurry to go to see him . . . but when I knocked on his door, there was no answer! I stayed in front of his house for twelve hours waiting! Finally, around midnight, he returned home, and when I explained to him that I had waited at his door for twelve hours, he agreed to see me. I asked him to play the Schoenberg pieces at the next lecture. He again answered, "Certainly not!" So then I asked him to teach me composition. He replied that he did not teach composition, but piano, but that he would, nevertheless, agree to do his best. After several months of work with him, he told me he couldn't help me anymore, and that I should send my compositions to Henry Cowell.[6]

Cowell suggested that Cage study composition with Schoenberg, but added that he should first prepare himself by studying with Adolf Weiss, Schoenberg's first American pupil.[7] Cage moved to New York City in the Spring of 1933 to study harmony and composition with Weiss. At the same time, he attended Cowell's courses in contemporary music, modern harmony, and music of the world's peoples at the New School for Social Research.[8]

In her dissertation, Form and Structure in the Music of John Cage, Deborah Campana makes the following observation:

> Although Cage's interest in pitch ordering was the initial factor prompting Cowell's suggestion that he study with Weiss and then Schoenberg, Cage's compositional style changed while studying in New York to reflect Cowell's influence more than that of the twelve tone school. . . . Because Cowell had recently studied in Europe and Asia (as a Guggenheim Fellow) with Erich von Hornbostel, Professor Sambamoorthy of Madras and Raden Mas Jodjhana of Java, his music as well as the content of his classes reflected newly-cultivated ideas concerning the union of non-Western musical features with his own musical ideas.[9] . . . Perhaps as a result of Cowell's influence, upon Cage's return to California, an interest in new sounds, specifically percussion, began to surface.[10]

Cage studied counterpoint, form and analysis with Schoenberg from 1935 to 1937.[11] It was during this time that Cage's interest in percussion music and the use of noise in musical composition surfaced. Schoenberg had impressed upon his students the importance of the structural function of tonality. Cage recalls a now-famous encounter with the Austrian composer:

> After I had been studying music with him for two years, Schoenberg said, "In order to write music, you must have a feeling for harmony." I explained to him that I had no feeling for harmony. He then said that I would always encounter an obstacle, that it would be as though I came to a wall through which I could not pass. I said, "In that case I will devote my life to beating my head against that wall."[12]

In 1936, Cage became acquainted with Oscar Fischinger, an abstract film-maker who engaged the young composer to write new music for his visual projects. The association with Fischinger would profoundly influence Cage's direction in music:

> When I was introduced to him, he began to talk with me about the spirit which is inside each of the objects in this world. So, he told me, all we need to do to liberate that spirit is to brush past the object, and to draw forth its sound. That's the idea which led me to percussion.[13]

Fischinger had given Cage the means whereby the young composer could overcome his lack of feeling for harmony. Cage began composing music for percussion instruments and, consequently, began questioning Schoenberg's teachings on the structural character of tonality. He explains:

> What struck me all the more was (Schoenberg's) insistence on teaching tonality as structure, as a structural means. When you think about it, composing

> with twelve tones is only a "method." But I found the obligation to continually submit to that theory to be exaggeratedly constraining. . . . I only truly detached myself from Schoenberg's teachings on the structural character of tonality once I began to work with percussion. Only then did I begin to make structures. But structure then became rhythmic; it was no longer a tonal structure in Schoenberg's sense.[14]

Cage became increasingly interested in the possibility of utilizing noise in musical composition. Peter Yates has suggested that Cage's percussion music represents an extension of Schoenberg's philosophy of the emancipation of dissonance; "Cage said that Schoenberg, when he emancipated the dissonance, should have gone farther and emancipated music from its notes."[15]

Cage clarified his philosophy in the 1937 statement, "The future of music: Credo."

> . . . whereas, in the past, the point of disagreement has been between dissonance and consonance, it will be, in the immediate future, between noise and so-called musical sounds. The present methods of writing music, principally those which employ harmony and its reference to particular steps in the field of sound, will be inadequate for the composer, who will be faced with the entire field of sound. New methods will be discovered, bearing a definite relation to Schoenberg's twelve-tone system and present methods of writing percussion music and any other methods which are free from the concept of a fundamental tone. The principle of form will be our only connection with the past . . .[16]

During the summer of 1937, while also working as an accompanist at the Demonstration School of the University of California at Los Angeles, Cage held the position of instructor in percussion at the Virginia Hall Johnson School of Dance in Beverly Hills.[17] In the academic year 1937-38, he served as accompanist in the Santa Monica public

schools. Also, during the spring semester of 1938, Cage and his aunt, Phoebe James, taught an extension course at UCLA entitled, "Musical Accompaniments for Rhythmic Expression."[18]

Cage found a great deal of interest and support for his percussion music within the dance community. He explains:

> I was married, and (my wife) Xenia and I went to live in a house in Santa Monica that was devoted during the day to bookbinding, and in the evening to making music. Some of the people who played in the percussion group had experience as modern dancers. And what we did then was to experiment with pieces of junk and a few rented instruments. I rented a timpani [sic], a gong, some cymbals and so forth. Many of the instruments we used were like brake drums and things from the kitchen.[19] . . . I wrote a few pieces for this dance group at UCLA, which was nearby, and also for the athletic department that had underwater swimmers who swam underwater ballet. That was how I discovered dipping a gong in a tub of water and making a sound that way. Because I found that the swimmers couldn't hear the music when it was above water, but could if it was both in and out. So this connection with the dancers led me to the possibility of getting employment working with dancers. I went one day to San Francisco and got actually four jobs in one day and of the four I chose to work with Bonnie Bird, who had been in the Martha Graham group, and was teaching at the Cornish School in Seattle.[20]

Cage moved to Seattle in late 1938 to join the faculty at the Cornish School. The time he had spent in California in the years 1935-37 had yielded two compositions for percussion; the Quartet (1935) and Trio (1936), each based on fixed rhythmic patterns for unspecified instruments. Cage's compositional output for percussion and his continued interest in the medium increased dramatically in the years following his move to Seattle.

Cage chose to move to Seattle because of a large collection of percussion instruments he found in a closet at the Cornish School.[21] The instruments had been left there by a German dancer who had used them to accompany his choreography.[22] Cage used these instruments as the foundation for his own collection of percussion instruments, which would eventually number over three hundred.[23]

With his newly-found collection of instruments, Cage organized a percussion orchestra comprising faculty members, students and dancers. Cage's wife, Xenia, and dancer Merce Cunningham were among those who played in the ensemble.[24] In addition to providing accompaniment to the dance, the percussion orchestra presented many of the earliest performances of experimental works for percussion. On December 9, 1938, at the Cornish School in Seattle, John Cage presented a concert of percussion music, the first complete concert of its kind in America.[25]

The concert program included five works for percussion ensemble. Those works are listed as follows:

| | |
|---|---|
| William Russell | Waltz and Foxtrot |
| Ray Green | Three Inventories of Casey Jones |
| Gerald Strang | Percussion Music for Three Players |
| John Cage | Trio |
| | Quartet |

A single sentence of explanation appeared in the program: "Percussion music really is the art of noise and that's what it should be called."[26]

The works presented at Cage's first percussion concert required relatively modest forces. No work presented

required more than four percussionists, and the largest number of instruments employed in any given work was twenty-three, compared to Varèse's Ionization, composed in 1931, which requires thirteen players performing on forty percussion instruments. Nonetheless, the program presented at the Cornish School attracted attention and interest. Many more amateur percussionists volunteered to play in Cage's ensemble, and Cage's invitation to composers for the composition of new works was met with enthusiasm.[27]

Cage presented his second percussion concert on Friday, May 19, 1939, at the Cornish School. A list of works performed on that program reveals the apparent success the percussion group enjoyed:

| | |
|---|---|
| William Russell | March Suite |
| Lou Harrison | Counterdance in the Spring |
| Johanna Beyer | Three Movements |
| William Russell | Studies in Cuban Rhythms |
| Lou Harrison | Fifth Simfony |
| Henry Cowell | Pulse |
| John Cage | Trio |
| William Russell | Waltz and Foxtrot |

The works presented on the second concert required as many as nine performers and thirty percussion instruments. Cage's percussion group performed a similar program at Mills College's Bennington School of the Dance on July 27, 1939, and another at the Lial Studio in Monterey, California on August 5, 1939.[28]

Alfred Frankenstein, music critic for the San Francisco Chronicle, made the following observation regarding the Mills College program:

> We are still very far from the subtlety of rhythmic speech the Arabs and Indians get out of their little hand drums or the symphonic grandeur of the Balinese percussion orchestras, but such experiments as that of last night point toward interesting developments.[29]

In the same article, Frankenstein commended modern dance:

> One might almost say that the modern dance discovered the possibilities of the battery for the Western world, wherefore the sponsorship of the concert by the dance organization. The modern percussion movement began with the reduction of dance accompaniment to simple, essential rhythms without melody.

It should be emphasized that the players in Cage's percussion group were not formally trained percussionists; neither was Cage himself. In a personal interview with the author, he explained:

> We could do anything in the way of counting, but we couldn't roll. So, some of the pieces, like those sent to us by (Mexican composer) Chavez, we were unable to play.

Cage also pointed out that while the early percussion performances were well received by the dance community, there was no interest among trained percussionists.[30]

In his review of the Mills College performance, Frankenstein expressed these sentiments regarding the performers' technical skill:

> One suspects the whole thing will take on firmer outlines when dance accompanists acquire a genuine percussion technique.[31]

On December 9, 1939, Cage presented his third concert of percussion music at the Cornish School. The program included:

| | |
|---|---|
| Henry Cowell | Pulse |
| William Russell | Fugue |
| Mildred Couper | Dirge |
| Amadeo Roldan | Ritmicas V and VI |
| John Cage | Construction in Metal |
| Henry Cowell | Return |
| William Russell | Three Dance Movements |

Cage's third percussion concert required the largest ensemble of any previous performance. As many as eleven performers were employed (in Roldan's Ritmicas), and fifty-eight different instruments were used (in Cage's Construction in Metal). The following note by Henry Cowell appeared in the program:

> I honestly believe and formally predict that the immediate future of music lies in the bringing of percussion on one hand, and sliding tones on the other, to as great a state of perfection in construction of composition and flexibility of handling on instruments as older elements are now.[32]

Shortly following the third concert at the Cornish School, Cage and his percussion group traveled to several colleges to present their program. In January and February of 1940, the ensemble performed at the Universities of Idaho and Montana, Whitman College in Washington and Reed College in Oregon.[33] Although the programs received mixed reviews, the overall reception to this experimental percussion music was positive. The program presented at Reed College, Oregon, included lengthy program notes which concluded with the following statement by John Cage:

> Listening to the music of these composers is quite different from listening to the music, say, of Beethoven. In the latter case, we are temporarily protected or transported from the noises of everyday life. In the case of percussion music, however, we find that we have mastered and subjugated noise. We become

triumphant over it and our ears become sensitive to its beauties.[34]

By the summer of 1940, Cage's arsenal of noises had expanded to well over 150 percussion instruments of both conventional and unconventional nature. A July 2, 1940, list of percussion instruments appears in Appendix A.

In the years 1939 - 1940, Cage also expanded his compositional output for percussion. Imaginary Landscape No. 1, for phonograph records of constant and variable frequency, large Chinese cymbal and string piano (a term borrowed from Henry Cowell denoting an instrument played from its interior) is considered to be among the first compositions of electronic music.

In Imaginary Landscape No. 1, Cage first employed a structure which would accommodate both noises and so-called musical sound. He began with a pre-compositional time frame in which appears four sections of three times five measures. Each fifteen-measure section is separated by interludes of one, two, and then three measures. The work concludes with a four-measure coda. By constructing first the time frame, then filling it with musical events (both pitched and non-pitched), Cage began to realize the ideas of non-discrimination between noise and tonality he had predicted in his 1937 statement, "The Future of Music: Credo."

Cage extended his rhythmic structure in First Construction (in Metal) for percussion sextet. This work

consists of sixteen large sections (the macrostructure), each of which comprises sixteen measures based on the durational proportions 4:3:2:3:4 (the microstructure). First Construction is analyzed in detail in Chapter Two. A similar structural process was followed in Second Construction, which also employs a rhythmic structure of sixteen times sixteen measures. The technique of fashioning a rhythmic structure to be filled with musical events became known as the "square-root" formula. Cage would rely on the "square-root" formula of rhythmic structuring in his compositions over the following twelve years.[35]

Cage taught at Mills College during the Summer Session of 1940. He, along with Lou Harrison, served as instructor in a dance accompaniment course which dealt with percussion, techniques and problems of accompaniment and composition for the dance.[36] On July 18, 1940, Cage, Harrison and William Russell presented a concert of percussion music, including three premiere performances; Chicago Sketches by Russell, Canticle by Harrison and Suite by Jose Ardevol.[37] Additional performances included Pulse by Henry Cowell, Second Construction by Cage, and Roldan's Ritmica V and VI.[38] The performance received a favorable, though light-hearted, review in Time magazine:

> With ordered gusto they banged, rattled, beat, blew, stomped and rang their way through Henry Cowell's Pulse, John Cage's Second Construction, William Russell's Chicago Sketches, Lou Harrison's Canticle, Amadeo Roldan's Ritmicas V and VI. When they had finished, the audience gave percussive approval.[39]

Rather than return to Seattle in the fall of 1940, Cage elected instead to remain at Mills College in order to establish a research laboratory of percussion and electrical instruments.[40] Cage's work at Mills was favorably received by columnist Peter Yates, who, in March, 1941, wrote:

> So today in the midst of us in California is being written a new technological and meaningful chapter in the history of the creative organization of sound, out of which comes music.[41]

While at Mills, in the spring and summer of 1941, Cage continued to concentrate on music for the dance. He and Lou Harrison accompanied the Marian Van Tuyl Dance Company in a concert for percussion and dance presented at Mills July 26, 1941. The program appeared as follows:

| | |
|---|---|
| Ritmicas | Amadeo Roldan |
| Dirge | Mildred Couper |
| 3rd Construction | John Cage |
| *Horror Dream | John Cage |
| 13th Simfony | Lou Harrison |
| Rumba | Mildred Couper |
| Three Dance Movements | William Russell |
| *Ritmicas | Amadeo Roldan |

*Marian Van Tuyl and group

Horror Dream is the title of the dance choreographed by Van Tuyl to Cage's Imaginary Landscape No. 1. In a brochure of upcoming events at Mills College, Van Tuyl explained,

> When facing a test situation such as an examination, speech or concert, many people have the most fantastic dreams. This is a choreographer's dream of the hazards of performance.[42]

The brochure went on to describe the music as "the re-recording of constant and variable frequencies, cymbals

and piano-sound effects which Mr. Cage insists are most appropriate."[43]

Although Cage's music at this time was enthusiastically received by the dance community, music critics continued to take it lightly. A program of percussion music by Cage and Lou Harrison, presented May 14, 1941, was announced by the San Francisco Chronicle in the following manner: ". . . the orchestra will be composed of drums, gongs, bells, brake drums and sheet metal--and all selections will be original compositions of Cage and Harrison. . . . You'd think they could at least play 'Old Man River,' ho ho."[44]

Further evidence of Cage's struggle for recognition as a bona fide composer and musician appeared in the summer of 1941, when he applied for a position with the Works Progress Administration. According to Cage:

> When I applied to the W.P.A., they put me not in the music department, but in the recreation department. They didn't consider my work as music.[45]

In the fall of 1941, Cage moved to Chicago to join the faculty of the School of Design. At this institution of related arts, Cage taught a class in improvisation and "sound experiments."[46] He also established a percussion ensemble which performed several concerts worthy of note.

Cage's first percussion concert in Chicago was presented March 1, 1942, under the auspices of the Arts Club of Chicago. The program received much advance publicity, as evidenced by the unusual number of newspaper articles and columns heralding the event. The program included William

Russell's March Suite and Three Dance Movements, Lou Harrison's Counterdance in the Spring and Canticle, and Cage's Construction in Metal and Imaginary Landscape No. 3.

The concert received much public attention, both in Chicago and elsewhere. An unidentified New York critic began his article in the following manner:

> For the first time in the history of the Arts Club of Chicago, a beer bottle was broken in its auditorium last night and called music.[47]

The critic was referring to the last of William Russell's Three Dance Movements, which requires the player to break a glass bottle into a metal washtub. Cecil Smith, of the Chicago Tribune, gave this summary:

> Of the final artistic result, I can only say that we went thru [sic] all this once before in the 1920's, when George Antheil and Edgar Varèse were at work, and I suppose we can go through it again.[48]

On March 18, 1942, Cage's percussion ensemble performed for the first time on a mixed program shared with the University of Chicago Symphony Orchestra, under the direction of Frederick Stock and Charles Buckley. The program featured the music of Holst, Beethoven, Bach, Saint-Saens and Dvořák. Within the program were interspersed two selections of Cage's ensemble, Lou Harrison's Canticle and William Russell's Three Dance Movements.

Again, Cage's performance received a number of public reactions. Most critics reported on the novelty of a percussion orchestra which used such unconventional

"instruments" as flowerpots, automobile brake drums, thundersheets and beer bottles. Cage explained that, although there was some amount of attention given the ensemble's work in Chicago, it never ventured beyond the aspect of novelty. "No one really took my music seriously," he said. "I think they much preferred the Dvořák."[49]

By December of 1942, Cage had moved to New York, where he continued to work with the dance and with music for percussion ensemble. One of his most notable performances was presented at the Museum of Modern Art on February 7, 1943, under the auspices of the League of Composers.[50] The program appeared as follows:

| | |
|---|---|
| Construction in Metal | John Cage |
| Counterdance in the Spring | Lou Harrison |
| Ostinato Pianissimo (first performance) | Henry Cowell |
| Canticle | Lou Harrison |
| Imaginary Landscape No. 3 | John Cage |
| Preludio a 11 (first performance) | Jose Ardevol |
| Amores (first performance) | John Cage |
| Ritmicas V & VI | Amadeo Roldan |

The Museum of Modern Art performance received immediate notoriety among critics, and established Cage as a leading exponent of experimental music. Although initially criticized as unmusical by a number of music journalists, many of the works presented by Cage's ensemble in 1943 remain staples of the percussion repertory today.

Soon after the concert at the Museum of Modern Art, Cage began to move away from percussion in order to focus on his works for prepared piano. Because of logistical problems

with instruments and rehearsal space in New York City, Cage eventually disbanded his percussion ensemble and donated his extensive collection of instruments to Paul Price, then percussion instructor at the University of Illinois.[51]

Between 1940 and 1943, Cage continued to employ the compositional techniques he had developed in his First Construction (in Metal) and Imaginary Landscape No. 1, both composed in 1939. The Construction series eventually numbered three, and was based exclusively on the "square-root" formula. The Imaginary Landscape Series, which eventually numbered five works, continued to use elements of rhythmic structuring, but began to move toward indeterminacy after the third work in the series. Each of the works entitled Imaginary Landscape employed some type of electronic devices in addition to percussion instruments.

Other works from this time period include Living Room Music (1940) for unspecified instruments; Double Music (1941) for percussion quartet, written in collaboration with Lou Harrison; Credo in US (1942) for percussion quartet with electric devices, written for dancers Merce Cunningham and Jean Erdman; Forever and Sunsmell (1942) for voice and percussion duo; The Wonderful Widow of Eighteen Springs (1942) for voice and closed piano; She is Asleep (1943) for voice, prepared piano and quartet of twelve tom-toms; and Amores (1943) for prepared piano and percussion trio. Cage did not write another work for percussion alone until 1956,

when he composed a solo work entitled 27' 10.554" for a Percussionist.

The percussion works of 1935 to 1943 served as a springboard for Cage's ideas on music and art in general, as will become apparent in Chapter Six. Cage's performances with the percussion ensemble fostered works by many other composers interested in promoting experimental music, and in the process paved new ground toward the public acceptance of percussion as a legitimate art form.

## Endnotes - Chapter One

[1]Richard Kostelanetz, ed. Conversing With Cage (New York: Limelight Editions, 1988), 2.

[2]Ellsworth J. Snyder, "Chronological Table of John Cage's Life" in John Cage, edited by Richard Kostelanetz [Documentary Monographs in Modern Art] (NY: Praeger, 1970), 36.

[3]Kostelanetz, Conversing With Cage, 3-4.

[4]Snyder, "Chronological Table" in John Cage, 36.

[5]John Cage, "Indeterminacy" in Silence: Lectures and Writings (Middletown: Wesleyan University Press, 1961), 273.

[6]John Cage, For the Birds: In Conversation With Daniel Charles (London: Marion Boyars, 1981), 70.

[7]Ibid.

[8]Ibid.

[9]Deborah A. Campana, "Form and Structure in the Music of John Cage," Ph.D. dissertation, Northwestern University, 1985, 20.

[10]Ibid, 20-21.

[11]John Cage, "Personal History" in File 1942, John Cage Archive, Northwestern University Music Library, Evanston, Illinois.

[12]Richard Kostelanetz, ed. John Cage, Documentary Monographs in Modern Art (New York: Praeger Publishers, 1970), 53.

[13]Cage, For the Birds, 73.

[14]Ibid, 72-73.

[15]Kostelanetz, Cage, 59.

[16]Cage, Silence, 3-6.

[17]Brochure, "Percussion Course by John Cage," 27 June-30 July, 1937, at Virginia Hall Studio of Dance, Beverly Hills, California, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, John Cage Archive.

[18]Campana, 29.

[19]John Cage, interview with author, 6 June 1988.

[20]Kostelanetz, Conversing With Cage, 9.

[21]Interview, 6 June, 1988.

[22]Ibid.

[23]Ibid.

[24]Programs of Concerts in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[25]Press release, John Cage Percussion Group, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[26]Program, "Percussion Concert," Cornish School Theatre, Seattle, 9 December, 1938 in John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[27]Press release.

[28]Programs of concerts in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[29]Alfred Frankenstein, "A Program of Percussion," San Francisco Chronicle, 28 July, 1939, in Notebook, John

Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[30]Interview, 6 June, 1988.

[31]Frankenstein, "Program of Percussion."

[32]Program, "Third Percussion Concert," Cornish School Theatre, Seattle, 9 December, 1939, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[33]Cage, "Personal History."

[34]Program, "Cage Percussion Players," Reed College, Portland, Oregon, 14 February, 1940, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[35]Paul Griffiths, Cage (London: Oxford University Press, 1981), 8.

[36]Brochure, "Mills College Summer Session," 1940, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[37]Program, "Percussion Concert," Mills College, 18 July 1940, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[38]Ibid.

[39]Magazine article (unsigned), "Fingersnaps and Foot-stomps," Time Magazine, 29 July 1940, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[40]Newspaper article (unsigned), Los Angeles Times, 1 September 1940, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[41]Peter Yates, "Organized Sound: Notes in the History of a New Disagreement Between Sound and Tone." California Arts and Architecture 65, 11 (March 1941), 18.

[42]Brochure of upcoming events, Mills College, 23 July 1941, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. II, J.C.A.

[43]Ibid.

[44]Herb Caen, The San Francisco Chronicle, undated clipping in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. II. J.C.A.

[45]Interview, 6 June, 1988.

[46]Brochure from School of Design in Chicago, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. II, J.C.A.

[47]Newspaper article, "They Break Beer Bottles Now to Make Music in Chicago," New York World-Telegram, 2 March, 1942, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. II, J.C.A.

[48]Cecil Smith, newspaper article, Chicago Daily Tribune, 2 March, 1942, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. II, J.C.A.

[49]Interview, 6 June, 1988.

[50]Program, "Percussion Music Directed by John Cage," presented by the League of Composers in association with the Museum of Modern Art, 7 February 1943: Notes Here and Afield," New York Times, 31 January 1943, in Notebook, John Cage Professor Maestro Percussionist Composer, Vol. I, J.C.A.

[51]Interview, 6 June, 1988.

## Chapter Two

## An Analysis of First Construction (In Metal)

Cage applied his concepts of rhythmic structuring most completely in First Construction (In Metal), composed in 1939. The principles of organization found in First Construction may be applied to other works in the Construction and Landscape series.

### Instrumentation

First Construction is scored for six players performing on a total of fifty-eight metal instruments. A list of instrumentation for the work appears below.

| Part | Instrumentation |
|---|---|
| Player 1 | Thundersheet, orchestral bells |
| Player 2 | String piano with assistant |
| Player 3 | Thundersheet, sleigh bells, 12 graduated oxen bells |
| Player 4 | Thundersheet, 4 graduated muted brake drums, 8 graduated cowbells, 3 graduated Japanese temple gongs |
| Player 5 | Thundersheet, 4 graduated suspended Turkish cymbals, 8 graduated muted anvils[1], 4 graduated suspended Chinese cymbals |
| Player 6 | Thundersheet, 4 graduated muted gongs, water-gong, tam-tam, suspended gong |

Figure 2-1. Instrumentation for First Construction (In Metal)

In First Construction, Cage employed a combination of traditional orchestral instruments, exotic ethnic instruments and non-traditional "found" instruments. The following is an explanation of each instrument or instrument group.

**Thundersheet** - Five graduated lengths of thin sheet metal suspended from a frame. The instruments employed by Cage's ensemble ranged in size from approximately three by twenty-four inches to twelve by forty-eight inches.[2] The score specifies that player one use the smallest thundersheet, with each consecutive player employing a larger instrument.

**Orchestral Bells** - A standard set of orchestral bells, or glockenspiel. The pitches employed range chromatically from written $d^1$ to $f^2$.

**String Piano** - In the explanatory note included in the score, Cage refers to "Henry Cowell's term for an ordinary grand piano, the strings of which are performed upon."[3] Cage offers the following information to the pianist's assistant:

"The assistant applies a metal rod firmly on the strings used, producing harmonics. $\Lambda$ and $V$ indicate slow slides of the rod away from or toward the center of the string's length, producing, respectively, ascending and descending siren-like sounds. Any jangling sound is avoided by increasing the pressure on the strings. If, because of the piano construction, the tones notated do not permit the free use of the rod, use other tones that do. The second player plays at the keyboard, except, as in G, when he sweeps a gong beater across the bass strings."[4]

**Sleigh Bells** - In the score, Cage specifies a "suspended string of small sleigh bells." The conventional

instrument with bells attached to a wooden handle will suffice[5].

**Oxen Bells** - Spherical metal bells without clappers ranging in diameter from approximately two inches to four inches. Cage mentions in the score that Balinese button gongs suspended horizontally may be used as a substitute. Lou Harrison, when employing oxen bells in his works, has specified a "dry" sound from the instruments.[6] When questioned about this delineation, Cage responded, "It's so hard sometimes to tell what is dry and what is wet."[7]

**Brake Drums** - Graduated automobile brake drums placed on a padded table and/or muted with a cloth. If the instruments are placed on thick foam rubber pads, further muting may not be necessary.

**Cowbells** - Graduated Cuban cencerros or German Almglocken may be used. The German Almglocken may require additional muting.

**Japanese Temple Gongs** - Also known as cup bells, or dobachi, these instruments sit on doughnut-shaped cushions or padded table.

**Suspended Turkish Cymbals** - Standard orchestral cymbals suspended on gooseneck or conventional cymbal stands.

**Muted Anvils** - Graduated lengths of cylindrical metal pipe placed on a padded table. In the score, Cage specifies that the anvils be made of non-resonant metal.

**Suspended Chinese Cymbals** - Unlike the standard Turkish cymbals, these instruments have a wide, upturned flange at the edge of the bow. The instruments may be suspended on gooseneck or conventional cymbal stands.

**Muted Gongs** - Balinese-style gongs with raised center placed on a padded table. As with the brake drums, thick foam rubber pads provide the best muting material.

**Water Gong** - A twelve- to sixteen-inch Chinese gong which is raised out of, or lowered into a tub of water during tone production. Cage discovered this unique application of a fairly conventional percussion instrument while working with underwater ballet at UCLA in 1938.[8]

**Tam-Tam** - A flat, gong-like instrument, without raised center and of Turkish or Chinese origin, suspended on a standard gong stand.

**Suspended Gong** - A Balinese-style or Chinese gong with raised center, suspended on a standard gong stand.

The following chart illustrates Cage's combination of orchestral, ethnic and "found" instruments in First Construction by listing each instrument categorically according to its origin. It should be understood that some instruments could logically fit into more than one category.

| Traditional Orchestral Instruments | Ethnic Instruments | Found Instruments |
|---|---|---|
| orchestral bells | oxenbells (12) | thundersheets (5) |
| sleigh bells | cowbells (8) | brake drums (4) |
| Turkish cymbals (4) | Japanese temple gongs (3) | anvils (8) |
| tam-tam | Chinese cymbals (4) | water gong |
| piano | muted gongs (4) | |
| | suspended gong | |

Figure 2-2. Grouping of instruments used in First Construction according to origin.

It was Cage's intention that each player accumulate sixteen sounds during the course of the work. If the thundersheets are not included among the sixteen accumulated sounds, one finds that this intention is indeed realized mathematically in all but one case: Player four utilizes four graduated muted brake drums, eight graduated cowbells and three graduated Japanese temple gongs, thus accumulating only fifteen sounds. Cage explained that he only had three temple gongs and could not obtain the additional instrument.[9]

In organizing the work so as to accumulate sixteen sounds in each part, Cage included such factors as beater choice and playing area on the instruments. The following chart illustrates how the sounds are accumulated in each part.

Pl. 1 orchestral bells - 14 pitches. 2 pitches played with metal and rubber beaters.

Pl. 2 string piano - 13 pitches, slides produced with rod, wavering harmonics, sweep of bass strings with gong beater.

Pl. 3 sleigh bells, 12 graduated oxen bells (rubber beaters), 3 oxen bells played with metal beaters.

Pl. 4 4 graduated muted brake drums, 8 graduated cowbells, 3 graduated Japanese temple bells.

Pl. 5 4 graduated Turkish cymbals, 8 graduated muted anvils, 4 graduated Chinese cymbals.

Pl. 6 4 graduated muted gongs (soft beaters), 4 graduated muted gongs (hard beaters), water gong (2 pitches - raised, lowered; also played at center and edge), tam-tam (played at center and edge), gong (played at center and edge).

Figure 2-3. Distribution of sounds in First Construction.

When these sounds are redistributed according to sustaining and non-sustaining quality, the following configuration occurs:

| | Pl.1 | Pl.2 | Pl.3 | Pl.4 | Pl.5 | Pl.6 | Totals |
|---|---|---|---|---|---|---|---|
| Sustained Quality | 16 | 16 | 1 | 3 | 8 | 8 | 52 |
| Non-sustained Quality | 0 | 0 | 15 | 12 | 8 | 8 | 43 |
| Totals | 16 | 16 | 16 | 15 | 16 | 16 | 95 |

Figure 2-4. Redistribution of sounds according to sustained and non-sustained quality.

NOTATION

The piece is notated on twelve-stave score paper, with two grand staves of six parts appearing on each page.

Appropriate clefs are used for the instruments of definite pitch (orchestral bells and string piano). All other instruments, being of indefinite pitch, are notated with neutral clefs. All instruments are notated on a five-line staff, with note heads being placed on the lines or spaces of the staff. For an example of an instrument layout, see Figure 2-5.

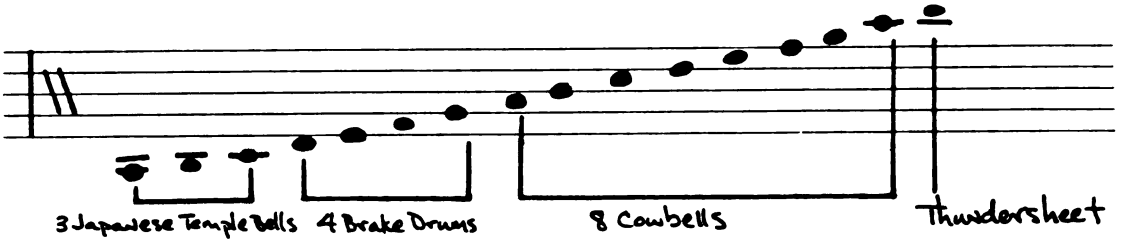



Figure 2-5. Example of instrument notation, Player 4.

The work is notated using conventional notes, rests, dynamic markings, accents and roll indications. Mallet specifications are indicated in respective parts as soft, hard, rubber, metal, leather-covered, hard rubber and gong beater. Rehearsal letters appear with every sixteen-bar section, thus marking significant structural points in the work. The time signature of 4/4 is used throughout the piece.

Notations for glissandi on the water gong are indicated by instructions for the player to lower or raise the instrument into or out of the water, and by arrows indicating the rise or fall of pitch. The pitch rises as the gong is lowered in the water and falls as it is raised out of the water (see Figure 2-6).

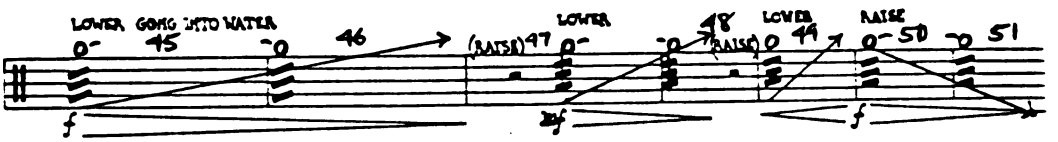



Figure 2-6. Notation for water gong. Player 6, measures 45-51.

A similar notation is used to indicate glissandi produced on the string piano by means of sliding a metal rod away from or toward the center of the string's length. Directional indications mentioned in the composer's introductory note instruct the assistant as to which direction is desired, and arrows are used to indicate the rise and fall of the pitch (see Figure 2-7).

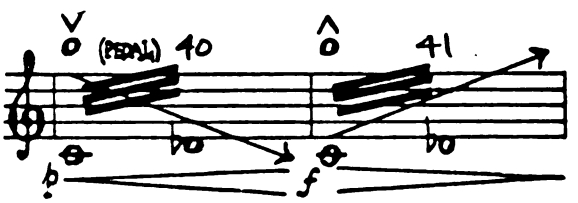



Figure 2-7. Notation for string piano glissandi. Player 2, measures 40-41.

Wavering harmonics from the piano's interior are produced when the assistant applies the metal rod firmly to the string indicated. A wavy line is used to indicate these harmonics (see Figure 2-8).

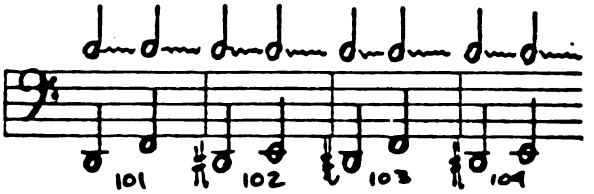



Figure 2-8. Notation for string piano harmonics. Player 2, measures 101-104.

The string pianist is also instructed to sweep the bass strings of the instrument with a gong beater. This effect is notated by conventional roll indications (see Figure 2-9).

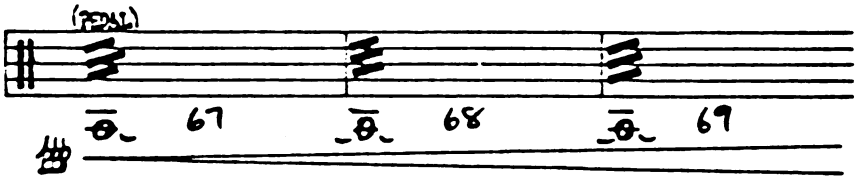



Figure 2-9. Notation for string sweep on piano. Player 2, measures 67-69.

Two types of notation are used to indicate muting instructions for cowbells and cymbals. Specific notes are indicated as muted (+) or open (o), and whole passages are given written instructions (see Figures 2-10 and 2-11).

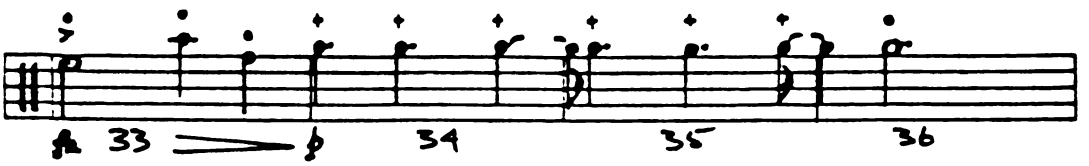



Figure 2-10. Notation for muting instructions. Player 5, measures 33-36.


Figure 2-11. Notation for muting instructions. Player 5, measures 146-149.

Written instructions are also used to indicate the desired playing area on the gong and tam-tam (see Figure 2-12).

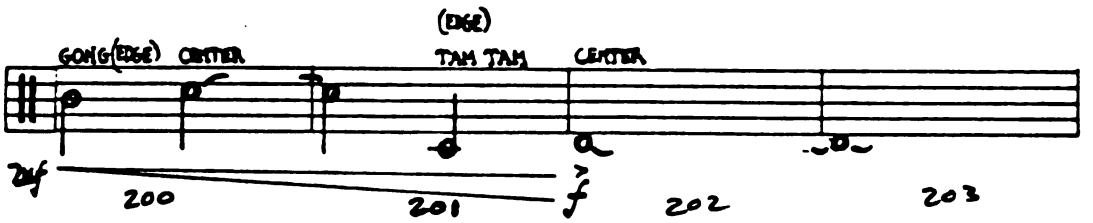



Figure 2-12. Notation of playing area. Player 6, measures 200-203.

Although First Construction employs mostly conventional rhythmic notation, grupetti, or cross rhythms, frequently appear as numbers in brackets indicated above or below the note heads (see Figure 2-13).


Figure 2-13. Notation of grupetti. Player 5, measures 17-20.

In First Construction, Cage employed a system of composition, called the "square-root" formula, which would allow pitched sounds to co-exist along with unpitched sounds, and sound to co-exist with silence. In an effort toward non-discrimination between noise and tone, or sound and silence, Cage constructed a time frame of sixteen sections, each of which was divided into sixteen measures grouped according to the proportional division 4:3:2:3:4. The rhythmic events occurring within the smaller sixteen-measure sections (the microstructure) define the proportional divisions as illustrated in Figure 2-14.

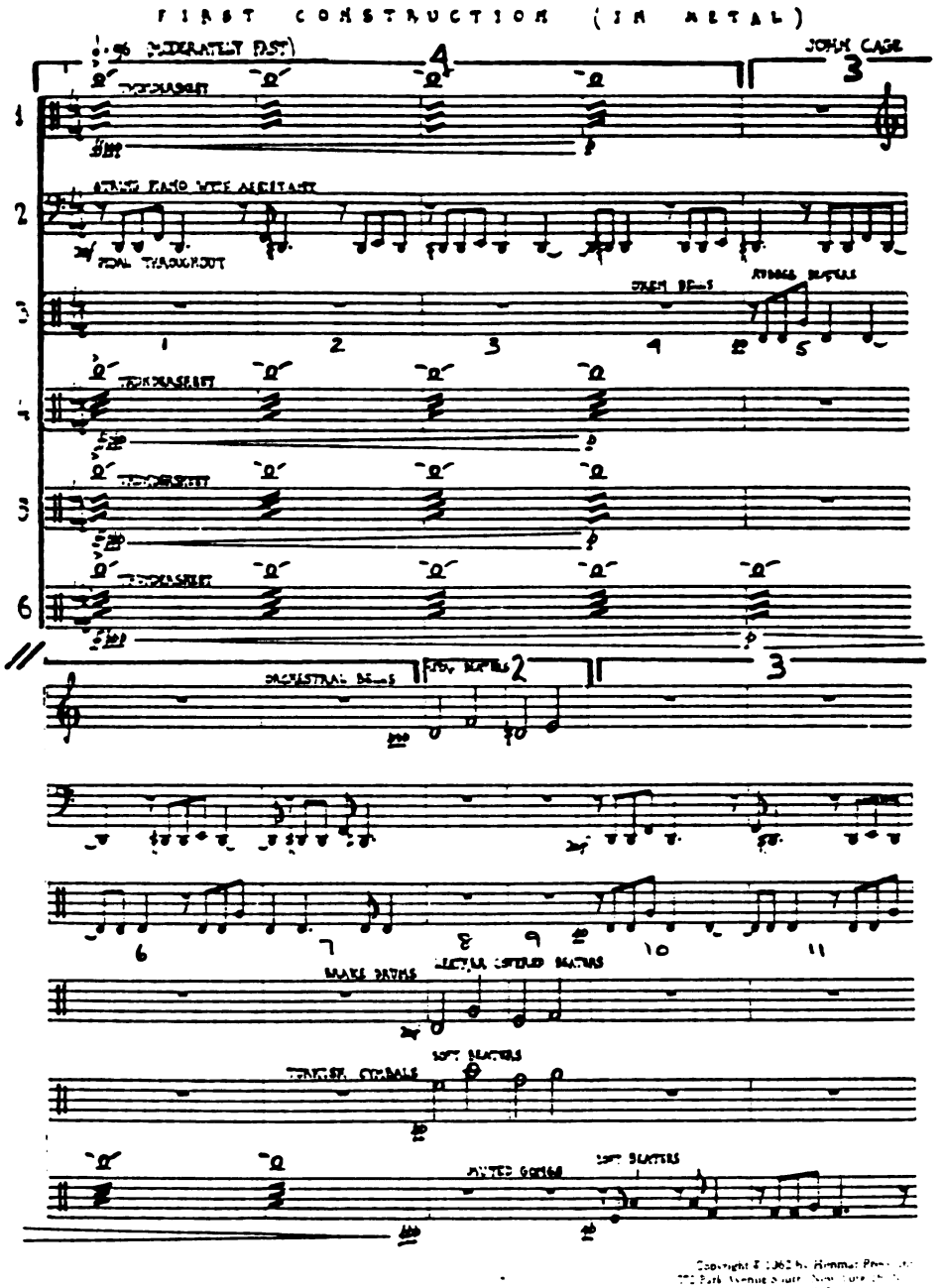



Figure 2-14. Proportional Division 4:3:2:3:4 found in the first sixteen-measure section of First Construction, measures 1-16.

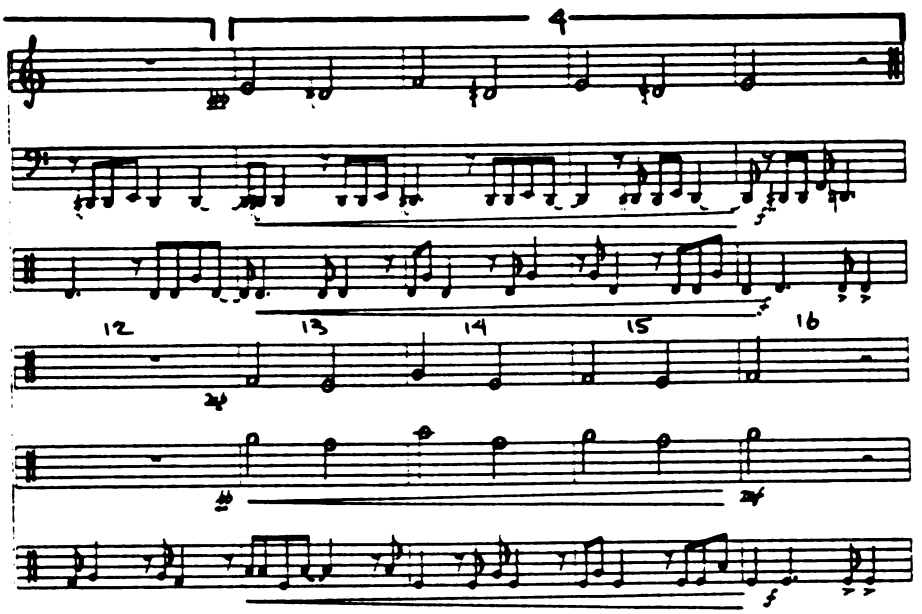



Figure 2-14 (Continued)

The proportional division 4:3:2:3:4 also applies to the grouping of the sixteen large sections (the macrostructure). According to Cage, the first four segments of the macrostructure serve as an exposition (1-1-1-1) followed by a development (3-2-3-4). The work ends with a nine-measure coda or extension, which is grouped 2-3-4.[10] The division of the macrostructure can most easily be observed through the changes in tempo which Cage marked in the score at the major structural points. A chart of these large-scale structural divisions appears in Figure 2-15.

| | 16-Bar Section | Rehearsal Letter | Tempo Marking |
|---|---|---|---|
| | 1 I | | |
| Exposition | 2 II | A | ♩=96 Moderately Fast |
| 4 | 3 III | B | |
| | 4 IV | C | |
| | 5 V | D | A Little Faster |
| Development | 6 VI | E | |
| 3 | 7 VII | F | Slowing Down Very Much |
| | 8 VIII | G | Suddenly As Fast as At D |
| 2 | 9 IX | H | |
| | 10 X | I | A Little Faster |
| 3 | 11 XI | J | |
| | 12 XII | K | |
| | 13 XIII | L | Faster |
| 4 | 14 XIV | M | |
| | 15 XV | N | |
| | 16 XVI | O | |
| Coda | 9 Bars (2:3:4) | P | Slowing Down Very Much To The End |

Figure 2-15. Outline of macrostructure divisions found in First Construction.

First Construction is organized in such a way that each new sixteen-measure section introduces four motives, so the exposition, which takes up the first four sections of the macrostructure, contains a total of sixteen motives. Once the motives are presented, they do not undergo further rhythmic development or manipulation, other than their placement within a given measure of 4/4 time. Cage explains:

> "There is no motivic development in my work. (The motives) are static, unchanging. I used them like building blocks."[11]

By combining these static motives, Cage created a unique rhythmic counterpoint among as many as six voices. Figure 2-16 shows how this procedure unfolds in the first sixteen-measure section. The first four motives are presented in the string piano part during the first four measures of the microstructure and are then taken up by various other instruments.

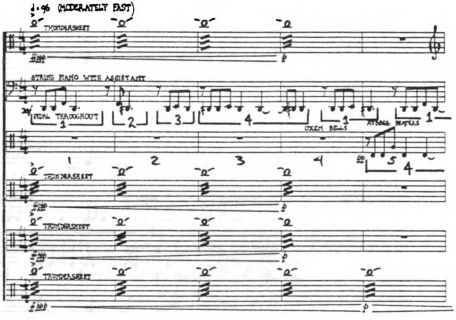



Figure 2-16. Motives found in the first sixteen-measure section of First Construction.

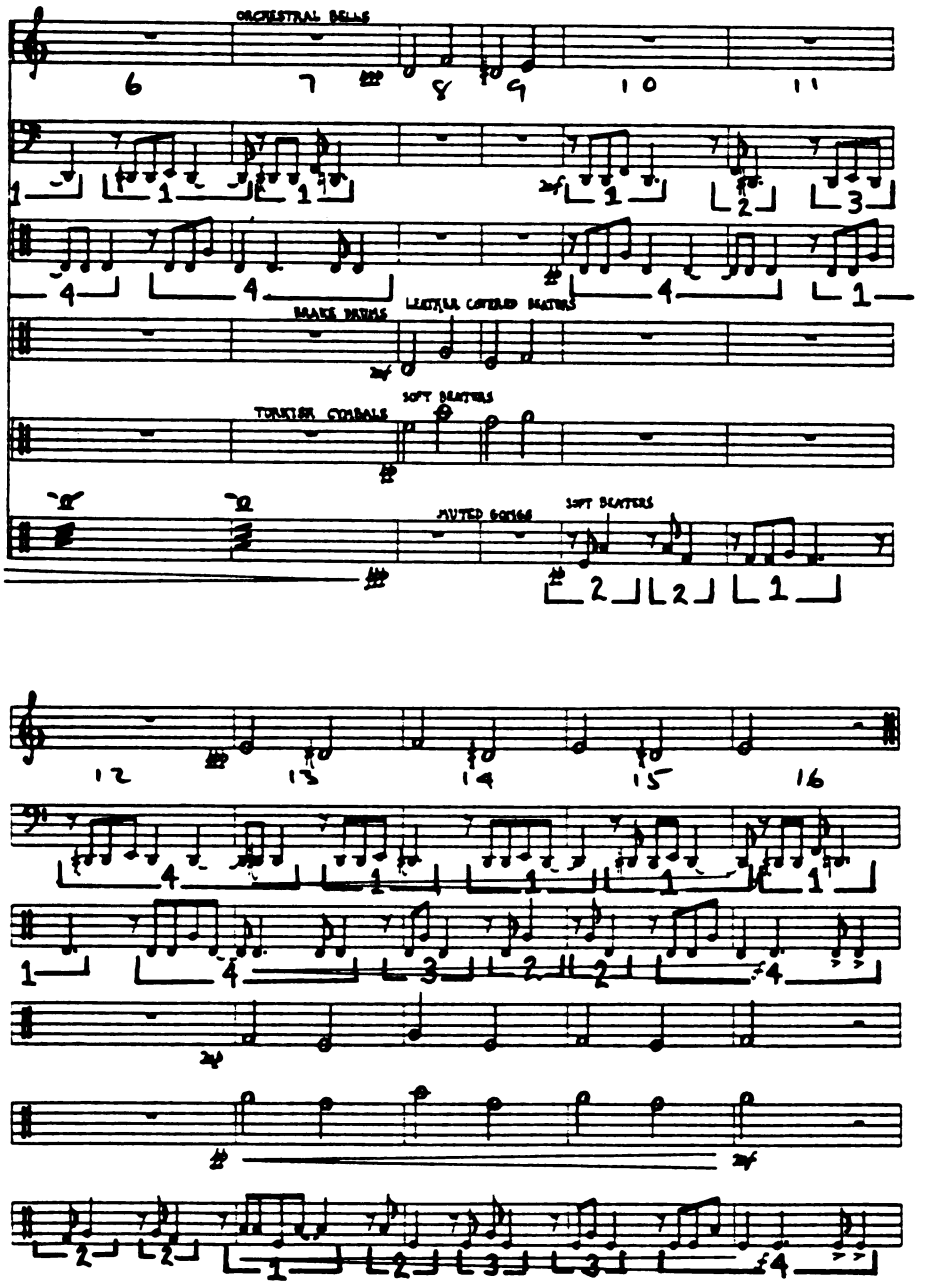



Figure 2-16 (Continued)

The four new motives presented in the second sixteen-measure section of the work are longer and more complex than those presented in the first section. Motive 5, presented in the cowbells at the outset of Section II, contains rhythmic elements suggesting a correlation with motives 1 and 2. At the same time that motive 5 is presented in the cowbells, an elaborated or extended version appears in the anvils. Motives 5a and 5b are lengthened by grupetti of four-against-three and five-against-four, providing an interesting polyrhythmic accompaniment to the original motive (see Figure 2-17).

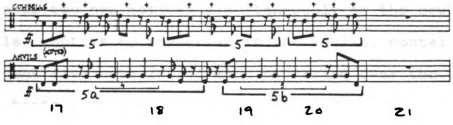



Figure 2-17. Presentation of Motives 5, 5a, and 5b. Players 4 and 5, measures 17-21.

The next three-measure subsection of the microstructure returns to the familiar rhythmic counterpoint of the static motives presented in Section I (see Figure 2-18).

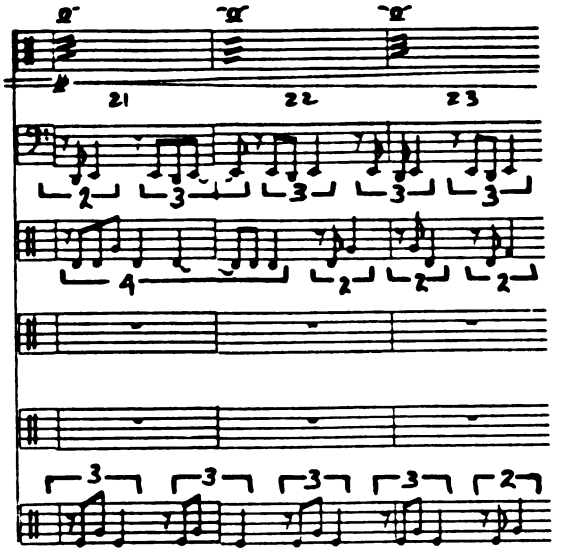



Figure 2-18. Motives presented in the first three-measure subsection of Section II, measures 21-23.

The next subsection of Section II, a two-measure phrase, presents two new motives simultaneously in the cowbells and anvils. Motive 6, presented in the anvils, contains two adjacent five-note ideas, each occurring over the span of four beats. This motive is accompanied in the cowbells by motive 7, a steady off-beat pattern (see Figure 2-19).

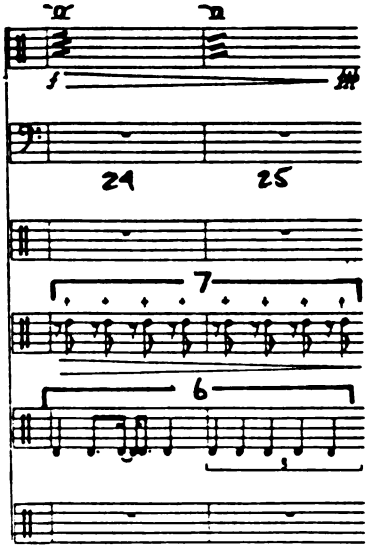



Figure 2-19. Motives presented in the two-measure subsection of Section II, measures 24-25.

The two remaining subsections, respectively three and four measures in length, show a skillful integration of all motives presented in the first two sixteen-measure sections. Motives 6 and 7, which appear initially in the anvils and cowbells in measures 24 and 25, reappear in exchanged voices in measures 27 and 28. Another example of voice exchange occurs in the string piano and oxen bells (players two and three) in measures 26 and 27. The final motive presented in Section II (motive 8) seems to evolve out of motive 5, but its recurrence in Section III warrants its consideration as an independent rhythmic idea. The longer rhythmic passage found in the Turkish cymbals of player five serves an an accompanying figure in this complex contrapuntal fabric.

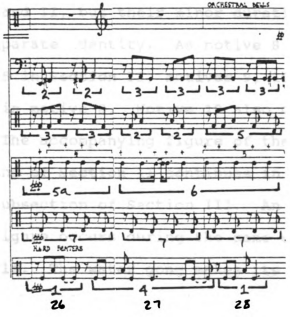



Figure 2-20. Integration of motives found in the final three- and four-measure subsections of Section II, measures 26-32.

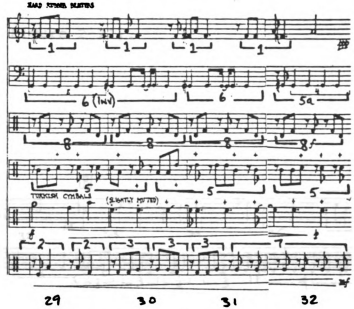



Figure 2-20 (Continued)

Section III, like its predecessors, presents four new motives in its phrase construction of 4:3:2:3:4. The motives presented here bear a striking resemblance to those of Sections I and II, but their minor durational alterations give them a separate identity. As motive 8 seems to grow out of motive 5 in Section II, motives 9, 10 and 11 find their origins in motive 8. Motive 12 also contains elements of motive 6. The accompanying figure of the Turkish cymbals found at the end of Section II continues in the first four-measure subsection of Section III. An additional accompanying figure occurs during the same subsection in the orchestral bells. The water gong makes its first appearance in the second subsection and continues until the end of the sixteen measures of the microstructure. The two-bar subsection found at the center of the microstructure is offset

by the appearance of thundersheet and slides in the string piano (see Figure 2-21).

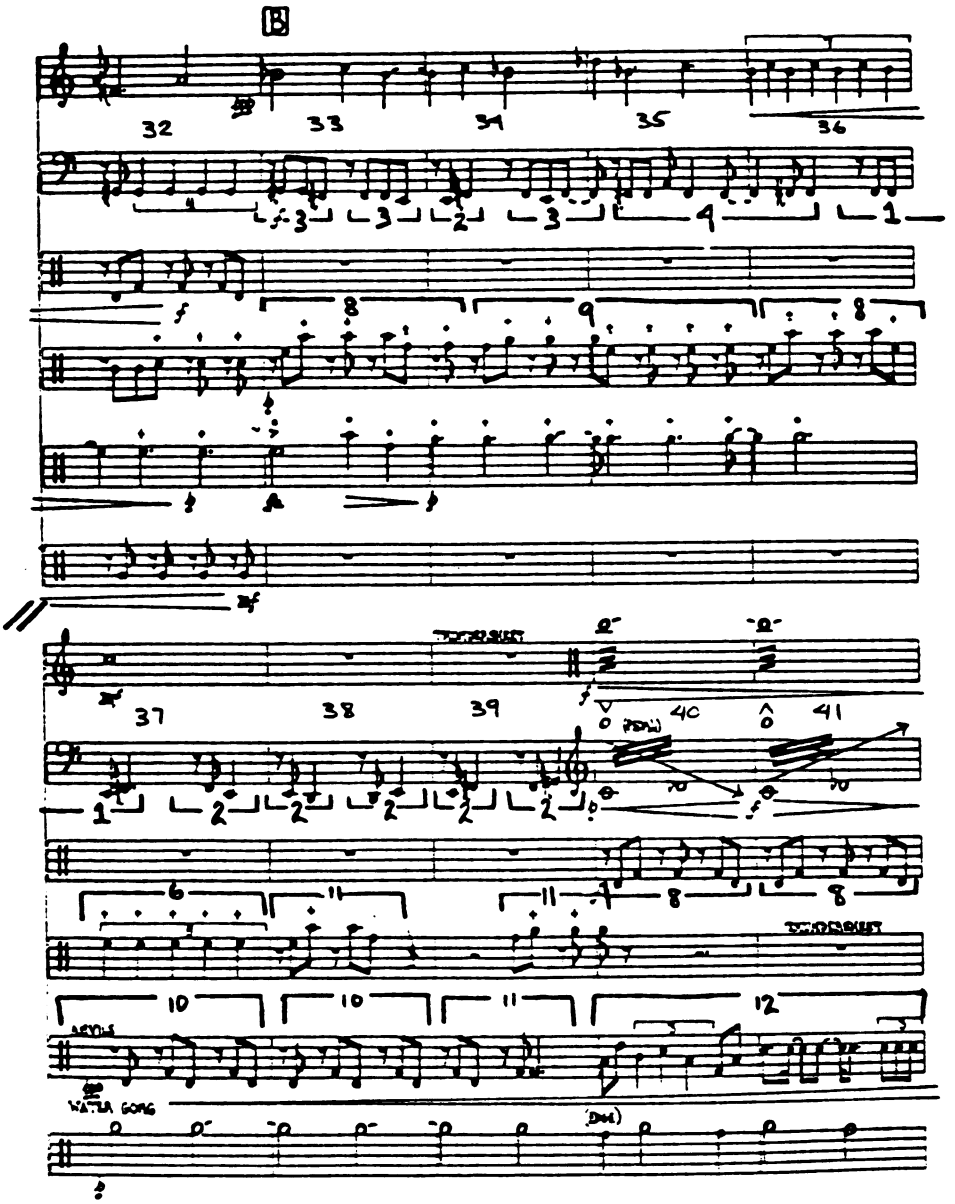
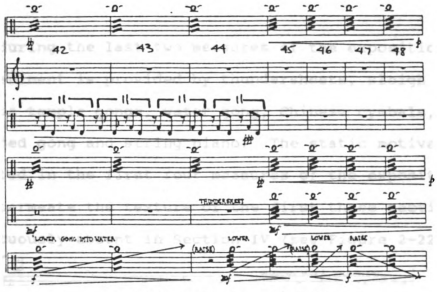



Figure 2-21. Motives found in Section III, measures 32-48.




Section 2-21 (Continued)

Section IV, the final section of the exposition, is the least economical in terms of rhythmic material. The section begins with an ostinato in the oxen bells (player three). Because of its extremely static nature, the ostinato is considered an accompanying figure much in the same character as the sustained rumblings of the thundersheets. The first actual motive is found in the orchestral bells in the second subsection. Motive 13 appears first as a two-bar motive, then appears three more times in fragmented form. Motives 14 and 15 are closely related in their use of steady eighth notes followed by grupetti of five-against-two and nine-against-four, respectively. These grupetti, which also appear in the ostinato pattern of the oxen bells, give the effect of a measured accelerando. Motive 16 appears in the oxen bells as a sequential, quasi-melodic stream of eighth notes. A similar pattern appears in the anvils (player

five) during the last two measures of the exposition. Accompaniment is provided by thundersheets, sleigh bells, Japanese temple gongs, water gong, Chinese cymbals, tam-tam, suspended gong and string piano. The static motives presented in the first four measures of the exposition, which permeate the texture of the first three sections, are conspicuously absent in Section IV (see Figure 2-22).

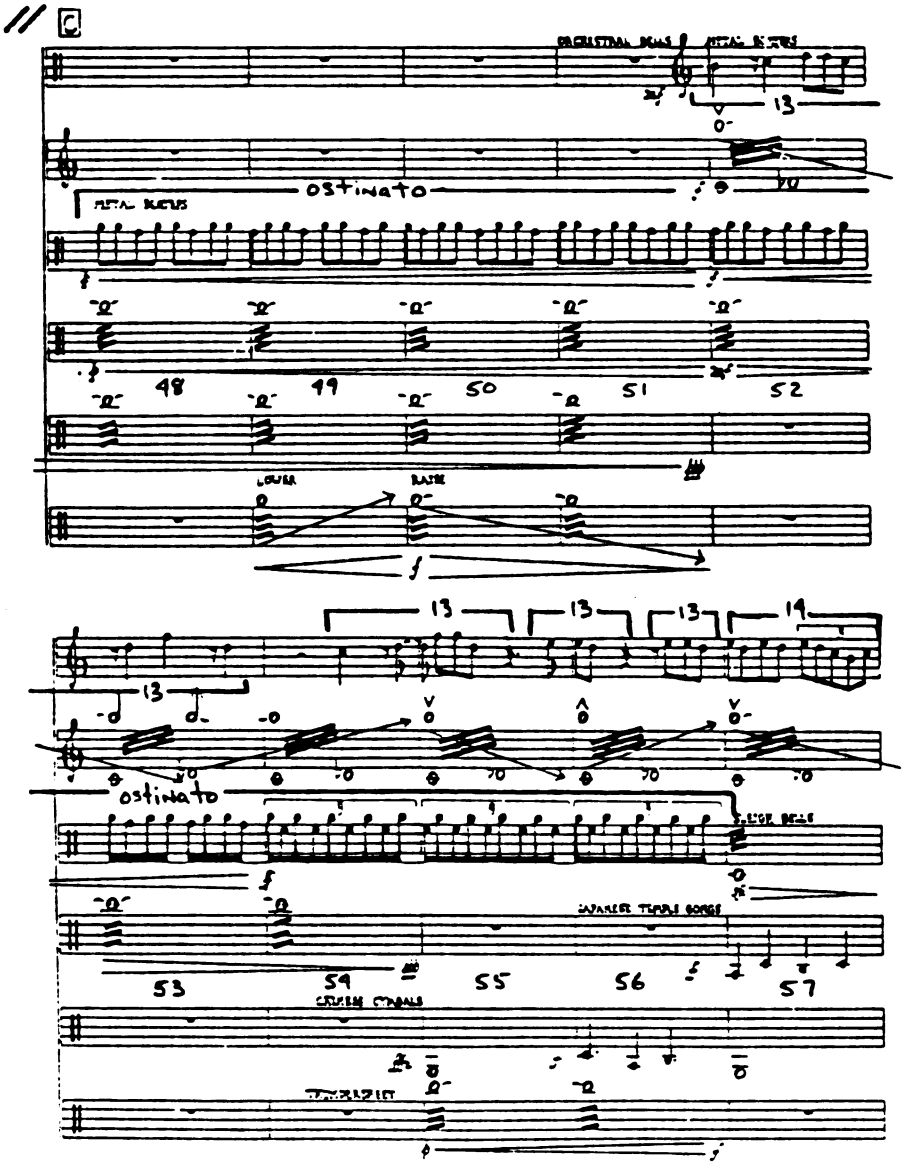



Figure 2-22. Motives found in Section IV, measures 48-63.

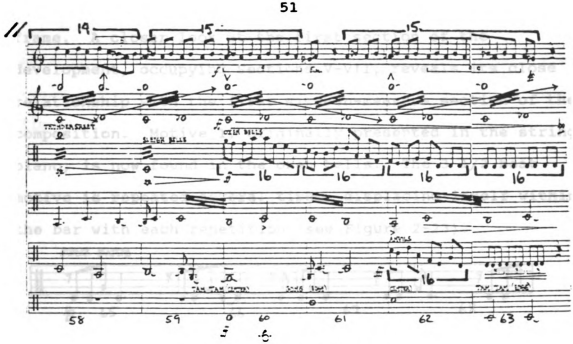



Figure 2-22 (Continued)

In the development, the organization of the macrostructure becomes apparent as the initial sixteen motives of the exposition are presented in the corresponding sections of the proportional division 3:2:3:4. The first four motives presented in Section I reappear in Sections V-VII. Sections VIII and IX contain the motives presented in Section II. Motives 9 through 12, which originally occur in Section III, return in Sections X-XII, while the final four motives found in Section IV of the exposition recur in Sections XIII-XVI. Each sixteen-measure section of development continues to adhere to the durational proportion 4:3:2:3:4. The phrases of the nine-bar coda are grouped 2:3:4. The same procedures of motivic manipulation established in the exposition continue in the development in expanded form in order to accommodate the larger time

frame. A closer look at the first section of the development, occupying Sections V-VII, reveals its close relationship with the first sixteen-measure section of the composition. Motive 1, originally presented in the string piano, is now found in the oxen bells. The 3 1/2 beat motive is repeated several times, displacing itself within the bar with each repetition (see Figure 2-23).

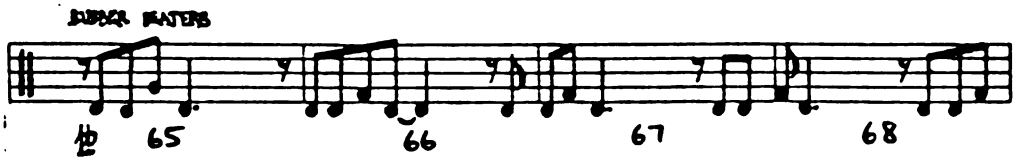



Figure 2-23. Manipulation of motive 1 showing metric displacement, player 3, Section V, measures 65-68.

The following section of the microstructure, occupying three measures, presents motive 2 in the muted gongs as motive 1 continues in the oxen bells. These activities are further accompanied by the thundersheet and the sweep of bass strings on the piano (see Figure 2-24).

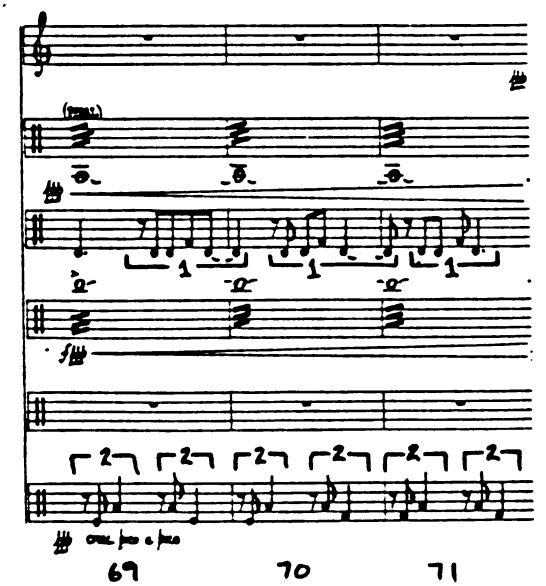



Figure 2-24. Motives found in the first three-measure subsection of Section V, measures 69-71.

This activity continues in the next two-bar subsection as motive 1 is passed to the orchestral bells (player one), while the oxen bells (player three) take up motive 4 (see Figure 2-25).

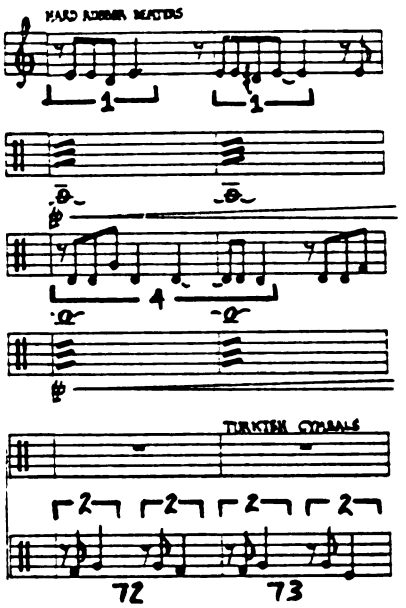



Figure 2-25. Motives found in the two-measure subsection of Section V, measures 72-73.

Motive 3 is reintroduced at the outset of Section VI in the muted gongs (player six). Motive 1 continues in the orchestral bells (player one) and also appears in the oxen bells and brake drums (players three and four). Because of the continuing metric displacement in the orchestral bells, these two appearances of the same motive are displaced by one beat. At the same time, the string piano (player two) presents a verbatim return of its original four motives found in measures 1-4 before joining players three and four in the repetition of motive 1 (see Figure 2-26).

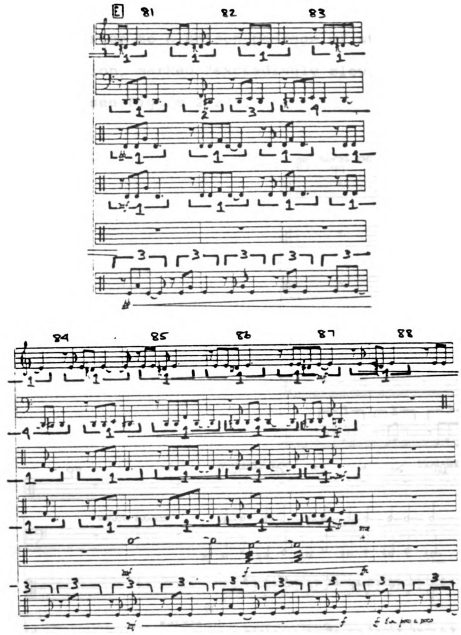



Figure 2-26. Motives found in Section VI, measures 81-88.

Section VII serves to offset the ensuing second part of the development by gradually reducing both tempo and activity. The muted gongs of player six continue the repetition of motive 3, which displaces itself metrically in the same fashion as does motive 1 in the string piano at the

beginning of the development. This activity gradually winds down, giving rise to a unison passage of stark, almost suspended motion, marked "exceedingly slow," in the parts of players 2-6 (see Figure 2-27).

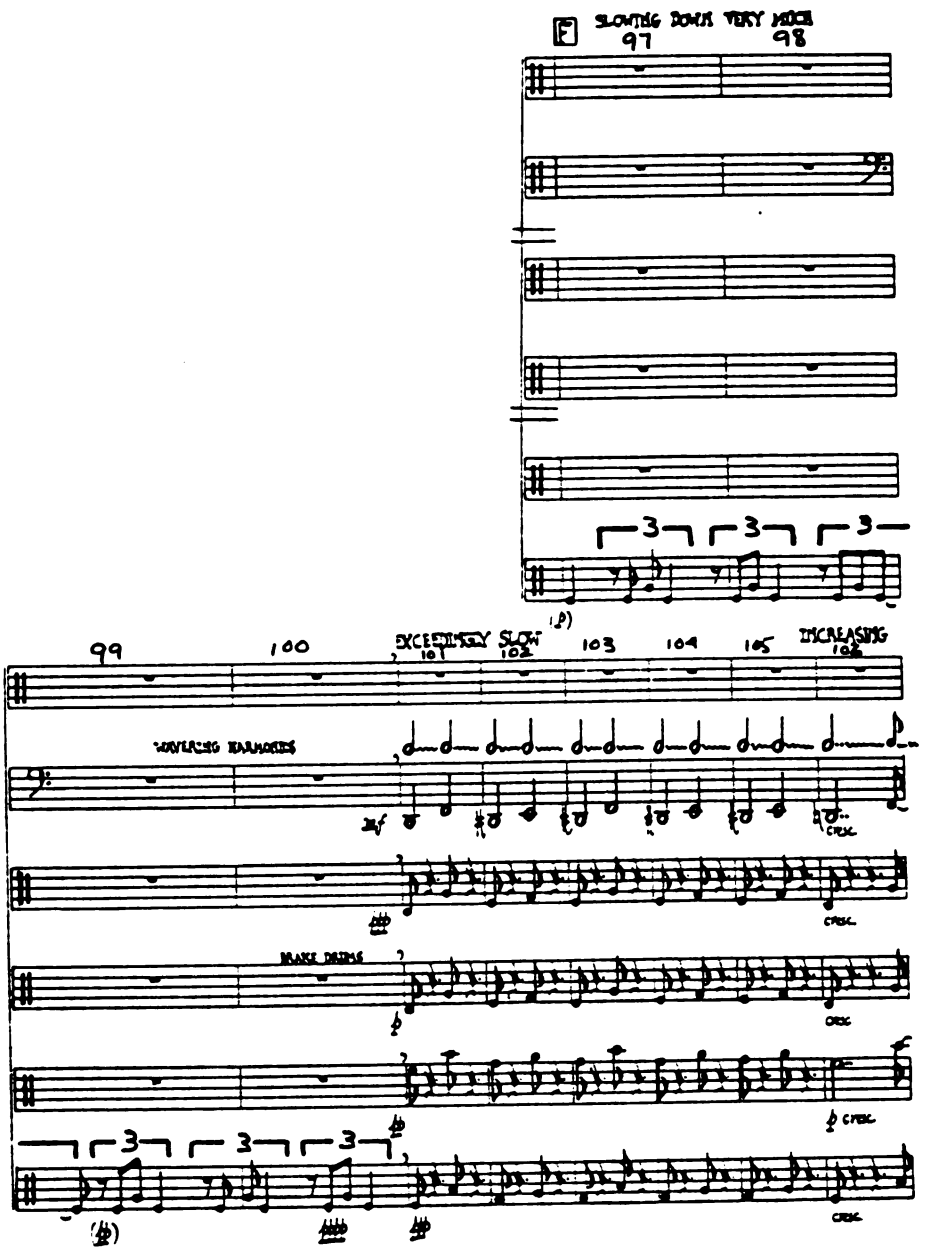



Figure 2-27. Activity found in Section VII, measures 97-106.

The same developmental procedures continue throughout the remaining three large sections (2:3:4), reintroducing and manipulating the motives found in the corresponding sections of the exposition. The resulting effect is one of expansion of structural duration and complexity of rhythmic counterpoint. A closer observation of the last sixteen-measure section (Section XVI) shows its relationship to Section IV of the exposition. The first four measures of Section XVI contain accompaniment figures in the string piano, sleigh bells, thundersheets, temple gongs, Chinese cymbals and tam-tam. This activity corresponds to that of the first four measures of Section IV, which also contain accompaniment figures without motivic activity. In the second subsection, the orchestral bells present a verbatim repetition of motive 13, originally found in the same voice in the corresponding subsection of Section IV. As in Section IV, motive 14 appears at the fourth subsection, the second three-bar phrase of the microstructure. The first half of motive 15 is presented in the third measure of that subsection, but rather than continuing with the grupetto as in Section IV, the part abruptly shifts into motive 16, which originally appears in the oxen bells. Now presented in the orchestral bells, this motive takes on a fully melodic character and undertakes a two and one-half stage sequence. The coda is marked by the repetition of motive 14, interspersed occasionally with the nine-against-four grupetto of the second half of motive 15. This activity

takes place on a single pitch in the orchestral bells and gradually slows to a stop amid the continuing, but fading sustention of tam-tam, Chinese cymbals, Japanese temple gongs, sleigh bells, thundersheets and the siren-like slides of the string piano (see Figure 2-28).

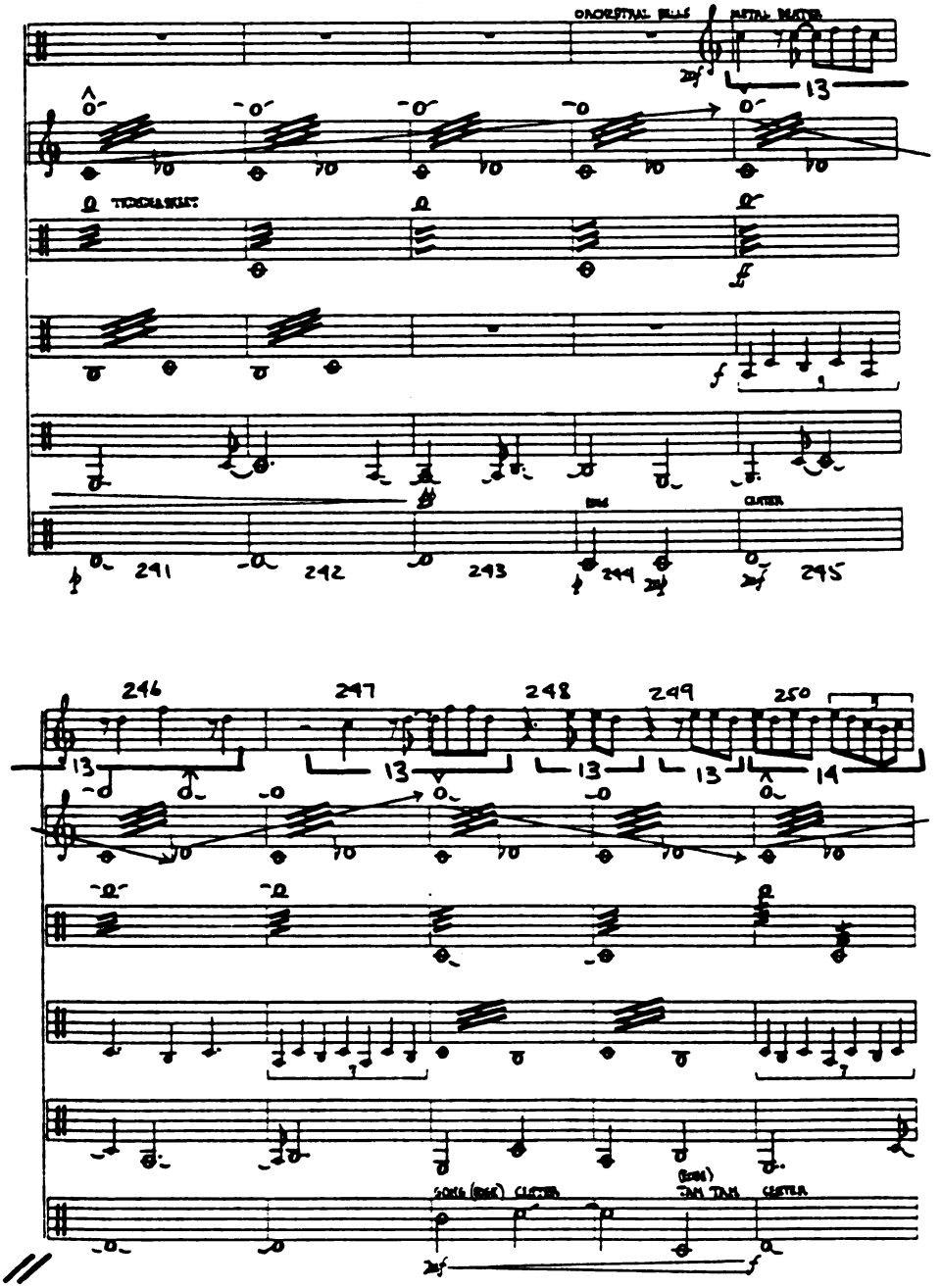



Figure 2-28. Final sixteen-measure section and nine-measure coda, measures 241-265.

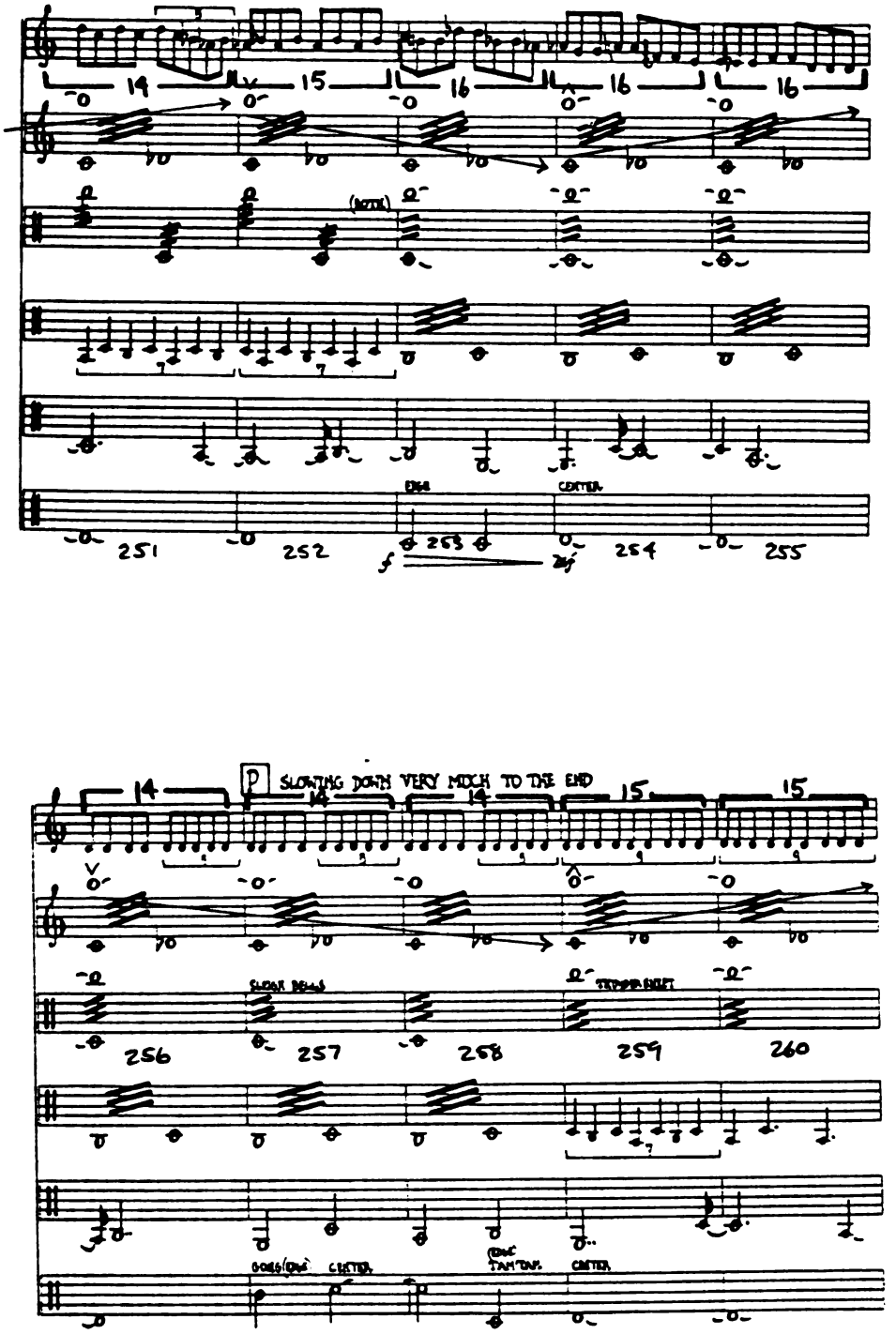



Figure 2-28 (Continued)

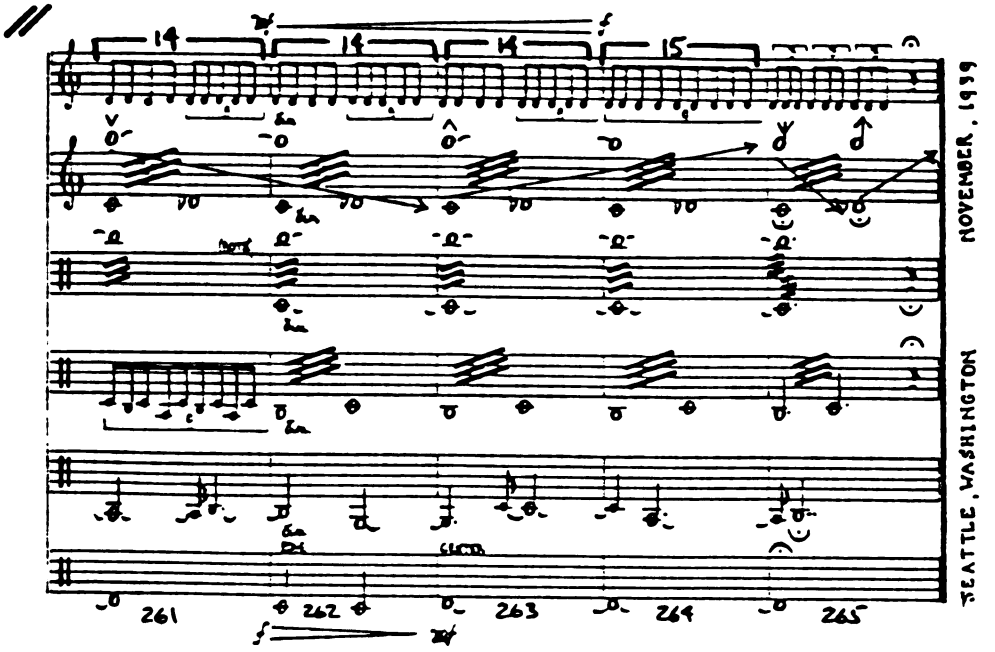



Figure 2-28 (Continued)

In First Construction, Cage devised a technique of composition which was divided into four components--structure, method, material, and form. In his first book, Silence, Cage described these components:

> "By 'structure' was meant the division of a whole into parts; by 'method,' the note-to-note procedure. Both structure and method (and also 'material' - the sounds and silences of a composition) were, it seemed to me then, the proper concern of the mind (as opposed to the heart) (one's idea of order as opposed to one's spontaneous actions); whereas the two last of these, namely method and material, together with 'form' (the morphology of a continuity) were equally the proper concern of the heart. Composition, then, I viewed . . . as an activity integrating the opposites, the rational and the irrational, bringing about, ideally, a freely moving continuity within a strict division of parts, the sounds, their combination and succession being either logically related or arbitrarily chosen."[12]

*First Construction* applies the four components through its structure (the $16^2$ time division), material (the sixteen motives and sixteen sounds found in each part), and method (the construction of a six-voice contrapuntal texture). The form, as Cage suggests, being the "morphology of a continuity," may be found in the integration of all the components perceived as a whole. Thus, the aural perception is one of various rhythmic events occurring within divisions of time which are defined by changes in timbre and rhythmic complexity.

Cage reasoned that of the four parameters of sound (pitch, amplitude, timbre, and duration), the only one shared by both sound and silence was duration.[13] The compositional technique employed in *First Construction*, being based on duration, proved equally hospitable not only to sound and silence, but to noises as well as pitched sounds. Therefore, the "square-root" formula of composition proved an ideal vehicle for the expression of Cage's musical instincts first communicated in his 1937 prophecy, "The Future of Music: Credo."

## Endnotes - Chapter Two

[1]Cage's explanatory note in the score lists only four anvils, but the part is notated for eight instruments of graduated pitch.

[2]Interview, 6 June, 1988. Cage illustrated with his hands the approximate size of the instruments he had in mind. The dimensions mentioned here are based on the author's estimation of Cage's visual illustration.

[3]John Cage, First Construction (In Metal), (New York: Henmar Press, 1962).

[4]Ibid.

[5]Interview, 6 June, 1988.

[6]Don Russell Baker, "The Percussion Ensemble Music of Lou Harrison," D.M.A. dissertation, University of Illinois, 1985, 153.

[7]Interview, 6 June, 1988. Although Cage views his motives as static and therefore non-developmental, one could interpret the fragmentation and displacement of rhythmic motives as developmental procedures.

[8]Kostelanetz, Conversing With Cage, 9.

[9]Interview, 6 June, 1988.

[10]Cage, First Construction.

[11]Interview, 6 June, 1988.

[12]John Cage, "Composition as Process," Silence (Middletown: Wesleyan University Press, 1961), 18.

[13]Cage, For the Birds, 73.

## Chapter Three

## An Analysis of Amores

In Amores, for percussion trio and prepared piano, one may see a representative cross-section of Cage's early compositional styles. Composed in 1943, the work contains four movements:

I. Solo: Prepared Piano

II. Trio: Nine Tom-toms, Pod Rattle

III. Trio: Seven Woodblocks (not Chinese)

IV. Solo: Prepared Piano

In Amores three distinct compositional styles are employed. Movements one and four, for prepared piano, utilize the technique of rhythmic structuring found in First Construction, which relies on the "square-root" formula. This compositional technique represents the majority of Cage's early percussion works, including the entire Construction and Landscape series. The third movement originally appeared as the last movement of Trio (1936) and was entitled "Waltz." The movement is based on the manipulation of fixed rhythmic patterns and is representative of Cage's earliest percussion writing. In the second movement Cage used a method borrowed from Lou Harrison known as "icti-control" in which each player is assigned a certain number of attack points within a given period of time. The "icti-control" method was also employed in Quartet for Twelve Tom-toms, composed in the same year as Amores.

Amores, in addition to being a major representation of Cage's compositional styles, is also a pivotal work in the composer's career. Shortly after the work's premiere (at the famous concert held at New York's Museum of Modern Art on February 7, 1943), Cage disbanded his percussion ensemble and began focusing his attention exclusively on works for prepared piano. He explains:

> In New York it was impossible to get a group of people together to work. It was next to impossible to have rehearsals. There was no place to put the instruments. I finally gave them away.[1]

It is interesting to note that of the only two percussion works Cage composed in 1943, Amores and She Is Asleep, both contain percussion and prepared piano in separate movements. The movements in both works also seem to be optionally autonomous, having been performed as separate works.[2] Cage continued to write for prepared piano until 1948, culminating his compositional activities for this medium with Sonatas and Interludes, composed from 1946 through 1948.

Although the study of Cage's works for prepared piano is beyond the scope of this document, a cursory analysis of the two outer movements of Amores from the standpoint of form and structure is included in this chapter to aid in the study of the work as a whole.

## Movement I

## Solo: Prepared Piano

Although movement I does not adhere completely to the "square-root" formula described in Chapter Two, many of the same compositional procedures are followed. The movement, consisting of fifteen measures of 4/4 time, may be divided into three large sections of five measures each. Each large section is grouped proportionally according to phrase lengths. The divisions of the three large sections appear as follows:

| | | | |
|---|---|---|---|
| Section I | Measures | 1 - 5 | 1:2:2 |
| Section II | Measures | 6 - 10 | 2:3 |
| Section III | Measures | 11 - 15 | 2:1.5:1.5 |

When the work is condensed into its purely rhythmic activity, the three divisions become apparent (see Figure 3-1).

The division of the work into phrase groupings found in Figure 3-1 is further reinforced by the appearance of a dotted rhythmic figure at the end of significant phrases. A figure involving the dotted eighth note followed by a sixteenth note marks the ends of phrases in parts I and II (measures 3, 5 and 7), while its retrograde (the sixteenth-note followed by a dotted eighth) marks phrase endings in part III (measures 12 and 14). In Figure 3-1, these occurrences are marked with an asterisk.

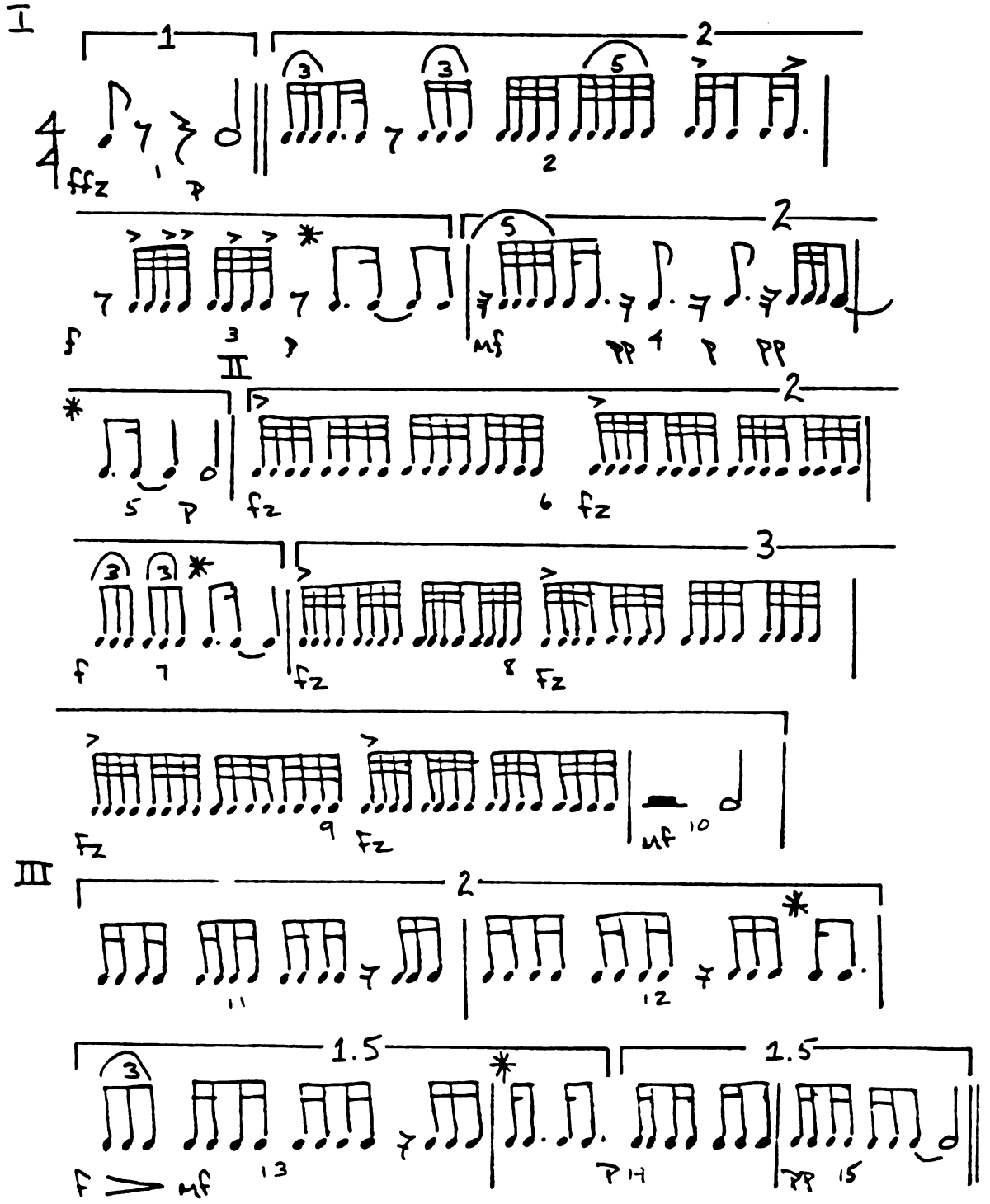



Figure 3-1. Rhythmic reduction of Amores, movement I, showing proportional phrase divisions 1:2:2/2:3/2:1.5:1.5.

The three large sections of the movement are distinctly different from one another in terms of character. Section I may be characterized as erratic, consisting mainly of aperiodic rhythms. Section II is marked by very agitated, machine-like passages of reiterated thirty-second notes sounded on a single pitch, interrupted briefly by an accented triplet figure followed by the recurring dotted rhythmic figure. The contrasting dynamic marking of fortissimo along with the extreme rhythmic regularity found in Section II distinguishes it clearly from the preceding section. Section III is more subdued in character than either of the two preceding sections. Its rhythmic regularity is emphasized by pulsating quarter notes in the left hand over which a flowing pattern of sixteenth notes sounds. The familiar dotted rhythmic figure signals the final cadential motive which begins in the second half of measure 14 and continues to the movement's conclusion. This cadential motive is significant, as it returns in expanded form in the last movement.

One will notice that measures of unusually low rhythmic activity occur at three points during the movement (measures 1, 5 and 10). Because these measures seem to offset the ensuing sections of greater activity, they can be said to function as an anacrusis. When viewed in this manner, the work takes on the proportional division 1:3:1:4:1:5. The single measures of low rhythmic activity tend to mark sections of greater activity which grow progressively

longer with each appearance (see Figure 3-2). A somewhat similar procedure is used in Imaginary Landscape No. 1 (1939), in which interludes of progressively greater length tend to signal the major divisions of the piece. The anacrusis function may account for the double bar which appears following the first measure in Amores.

Either view of the movement's phrase structure indicates a tripartite construction. In terms of rhythmic activity, the movement reveals a symmetrical construction, with the greatest amount of activity found in Section II.

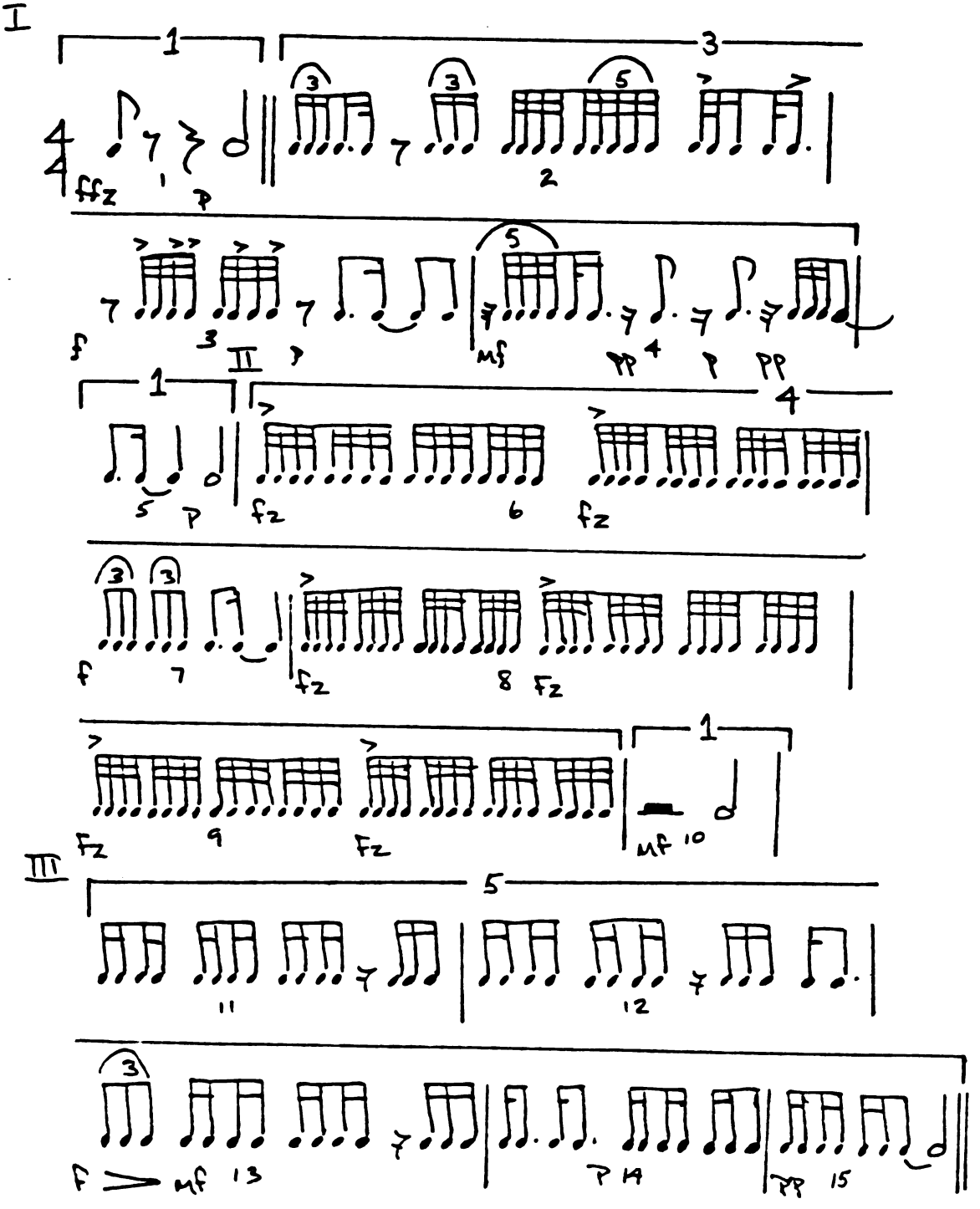



Figure 3-2. Rhythmic reduction of Amores, movement I, showing proportional phrase divisions 1:3:1:4:1:5.

The piano preparations for movements I and IV of Amores create five timbres which vary according to the material placed between the strings. The five timbres are as follows: screw, rubber, bolt, unprepared strings, and two screws, one with loose nut. An analysis of Amores by Thomas Moore is based on density and reveals that variations in timbral density also support a tripartite construction of the opening movement.[3]

## Movement II

### Trio: Nine Tom-toms, Pod Rattle

The second movement of Amores is scored for three percussionists, each playing three tom-toms. Cage specifies in the performance note that the drums be graduated in pitch and size and arranged with the lowest and largest instrument to the player's left, the highest and smallest to the right.[4] Each player strikes the instrument in the center and on the edge of the head, producing low and high pitches, respectively, thus accumulating six sounds.

Each player reads from a full score which is notated conventionally on three five-line staves. Each space indicates a sound produced at the center of the drum head, while each line represents a sound produced at the edge. For an example of an instrument layout, see Figure 3-3.

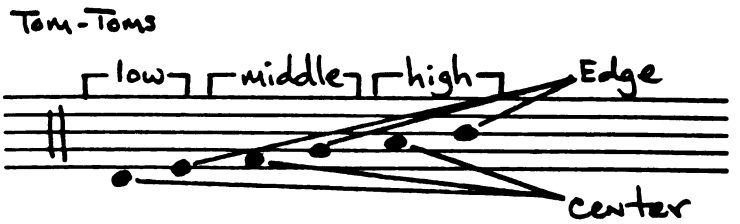



Figure 3.3. Example of instrument notation.

Except for occasions when the third percussionist is instructed to play with a brush, all drums are struck with the fingers, creating a very delicate sonority. In the performance note, Cage makes the following suggestion regarding tone production:

> Since the sound produced is most resonant only if the skin is allowed to vibrate freely, one should be careful to play elastically, the fingers leaving the drum head as soon after hitting it as possible. A "glancing-off" technique is particularly successful when playing at the edges.[5]

The roll (or what Cage refers to as the "tremolo") is to be produced by the rapid alternation of two fingers of the same hand. Rolls are notated with conventional slashes ( ).

In the third player's part, indicates a sound produced by a wire brush on the drum, while indicates a "drag of the brush across the drum head."[6]

On one occasion (measure 31), the first percussionist is instructed to play a "trill," or glissando by "skidding the middle finger across the drum head, a small roar-like sound being produced."[7] This technique, notated , is

fairly common in hand drumming and is particularly associated with conga drumming. The sustained sound, sometimes referred to as a "moose," is produced by friction created when the moistened tip of the middle finger, the skin of which is held taut by the thumb, glides over the surface of the head.

In addition to the three drums, the second percussionist also plays a pod rattle. The notation for this instrument appears on the top space of the staff. In the performance note, Cage gives a detailed explanation of the instrument desired:

> ... the pod rattle contemplated is obtained from tropical poinsettia [sic] trees growing in Mazatlan, Mexico. It is from 12 to 18 inches in length, very thin, and about 2 1/2 inches wide. The sound is dry and like the rattle of a snake. A small maraca (Cuban rattle) held against the knee, or placed lightly on a pad, and then tapped, may be substituted.[8]

The pod rattle is most effectively played by alternating the strokes between the hand and the knee, much in the same way that rapid rhythms are executed on a tambourine.

Movement II, at first glance, seems to be structured according to the "square-root" formula. The piece consists of one hundred measures grouped, in all but one case, into ten-measure sections marked by double bars. (There is no double bar between measures fifty-nine and sixty.) Beyond what appears to be a $10^2$ time division, the similarity to the "square-root" method ends. There can be found neither a

logical grouping of large sections nor a consistent grouping of measures within a given ten-measure subsection.

Cage has said that he used "icti-controls" in the second movement of Amores.[9] This compositional method, which Cage adapted from a similar method used by Lou Harrison, predetermines the number of attacks per player within a given period of time. In order to facilitate a discussion of Cage's use of "icti-controls" in the second movement of Amores, it will be helpful to refer to an analysis by Stuart Saunders Smith of Quartet for Twelve Tom-toms (1943) in which Cage employed the same compositional method.

According to Smith, Quartet for Twelve Tom-Toms is divided into "four, thirty-nine-measure sections . . . each divided into nine smaller sub-divisions."[10] In a manner similar to the process employed in the "square-root" formula of composition, each large section is divided into an identical number of phrase-lengths. Smith explains the process thusly:

> The nine sub-divisions in the 39-measure sections are grouped into 4,7,2,5; 4,7,2,3, and 5 measures. Each sub-division was assigned a certain number of attack-points (icti) per player. The first four measures of Section I has eight tutti attacks. In the next seven measures, player A and player C have 34 attacks while player B has 20 and player D has 14 (the addition of player B and player D is 34 attacks).[11]

One may count the numbers of attack-points in each remaining phrase of the sequence (disregarding duration) and find a mathematical relationship from player to player

throughout the composition. For instance, in each five-measure phrase, player A has 24 attacks while the total number of attacks assigned to players B, C and D comes to 24.[12]

In Quartet for Twelve Tom-Toms, Cage applied the "icti-control" method in a most thorough and consistent manner. In the second movement of Amores, however, the method seems to be used sporadically, interspersed with instances of motivic recursion.

The movement clearly divides into two parts of equal length. Part One, occupying measures 1-50, consists of five ten-measure sections each of which is defined by the appearance of a double bar. Part Two, occupying measures 51-100, consists of one twenty-measure section which is followed by three ten-measure sections (see Figure 3-4).

| Part One | | Part Two | |
|---|---|---|---|
| Section | Measures | Section | Measures |
| I | 1 - 10 | VI | 51 - 70 |
| II | 11 - 20 | VII | 71 - 80 |
| III | 21 - 30 | VIII | 81 - 90 |
| IV | 31 - 40 | IX | 91 - 100 |
| V | 41 - 50 | | |

Figure 3-4. Diagram of large formal divisions found in movement II of Amores.

The first ten-measure section demonstrates Cage's tendency to mix "icti-controls" with motivic recursion. In the first three measures of the work, player B (pod rattle) has twenty-two attacks while player A has nine and player C

has thirteen. The sum of attacks found in the parts of players A and C is twenty-two (the simultaneous attacks of the brush and finger of player C in the first measure count as one attack). Also, in the following measure (measure 4), player A has eight attacks while player B has one, and player C has seven. Beyond these instances, the technique does not seem to be applied. One will note that the method of "icti-control" employed in Quartet for Twelve Tom-Toms depends upon a well-defined and consistently-applied phrase structure. In movement II of Amores, a logical grouping of measures is not discernible beyond the first three (a clearly-defined phrase). Furthermore, no mathematical relationship such as that found in the first three measures appears in the remaining seven measures. There are, however, some interesting numerical occurrences when all three parts in a selected phrase grouping are added together. For instance, all attacks found in measures 4-5 add up to 27, and all attacks found in measures 6-7 total 31. If measures 8-10 are added together, the total is again 27 (rolls are counted as a single attack). The numbers 31 and 27 reappear on several more occasions throughout the movement when the same counting procedure is applied.

Because the rhythmic material found in movement II is often extremely aperiodic, creating complex polyrhythms among the three players, it would be logical for one to assume that some type of mathematical pre-compositional

procedure was applied. Such a procedure would make possible an infinite number of vertically-perceived rhythmic aggregates. While such complex rhythmic combinations do exist in movement II, the work seems to have been conceived linearly, with the vertically-perceived rhythmic aggregates serving either an embellishing function or as a means of motivic generation through the process known as durchbrochene Arbeit.[13] As will be shown in the remainder of this analysis, the recurrence of certain key motives and the manipulation of particular rhythmic events supersedes their integration with the precompositional method of "icti-control" in terms of aural perception. Therefore, the analysis presented here will be concerned primarily with motivic manipulation and recursion. Evidence of the presence of "icti-controls" will be presented as it occurs in conjunction with such.

During the first three-measure phrase, the predominant rhythmic motive is found in the pod rattle (player B).


Figure 3-5. Pod rattle motive (player B) found in the first three measures of Amores, movement II.

The phrase is rhythmically stratified, with player B performing the most active role and player A the least active. Player C serves to support the metric inflections implied by the predominant rhythms of player B. For

instance, player C marks the downbeat of measure one and again provides emphasis on beat 3 of the same measure with a brush slide which coincides with the second grouping of sixteenth notes found in the pod rattle motive (see Figure 3-6).

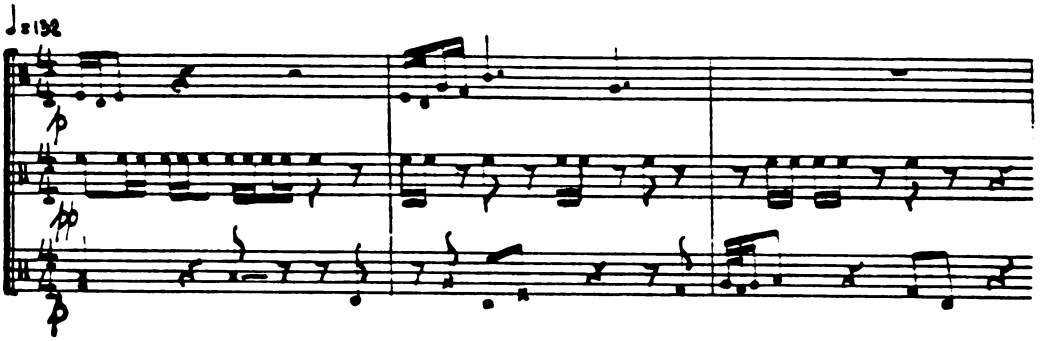


Figure 3-6. Measures 1-3 of Amores, movement II, showing rhythmic stratification.

In measure 4, the rhythmic emphasis shifts to the part of player C with a two-bar motive consisting of a gesture of three eighth-notes followed by grupetti of five-against-two and ten-against-three. This motive is repeated in measures 3-4, this time with the 10:3 grupetto displaced by 1/10 beat, allowing the gesture to carry over into the downbeat of measure 8. At measure 8, each player has two tutti attacks falling on the downbeat of the measure and on the second half of beat 3. This measure seems to serve a cadential function as it brings together all three parts. Its return later in the piece will support this observation.

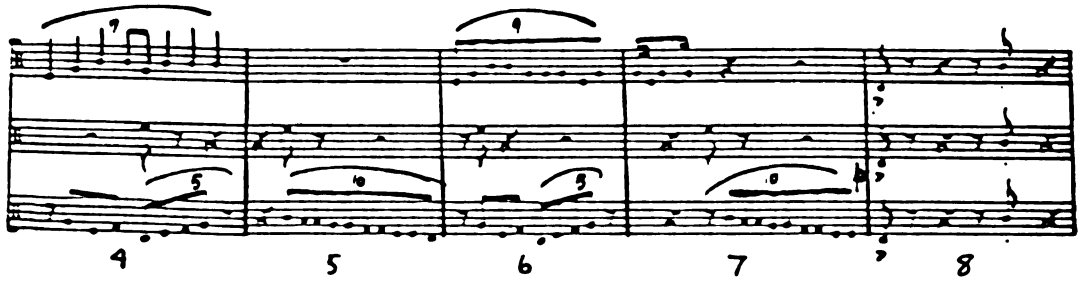



Figure 3-7. Measures 4-8 of Amores, movement II.

Following the tutti attacks of measure 8, the two-bar motive found in player C in measures 6-7 returns in measures 9-10, the displaced version of the 10:3 grupetto leading into the downbeat of Section II.

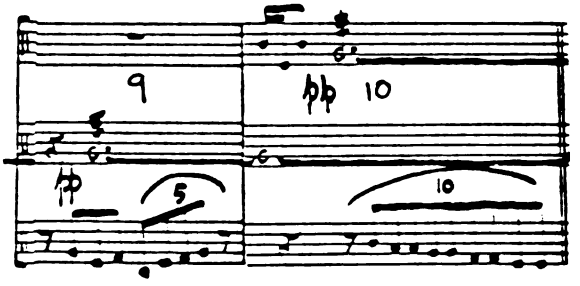



Figure 3-8. Measures 9-10 of Amores, movement II.

In referring back to figures 3-7 and 3-8, one will notice that the accompanying figures to player C's recurring motive vary with each appearance. The texture remains stratified, as it is in the first three-bar phrase, and both the principal and accompanying motives have become more aperiodic. This tendency toward greater aperiodicity continues in Section II.

The first four measures of Section II reveal the presence of "icti-control" procedures. In this phrase

player A has thirty-one attacks while player B has twelve and player C has nineteen (the sum of the latter two players' attacks is thirty-one). An interesting example of motivic recursion appears in measure 12. Player C has a complete version of the 5:2 grupetto which originally appears in the same part in fragmented form in measure 4. The completion of the motive as it appears in measure 12 could be said to account for the concurrent number of attacks appearing in the phrase. The original fragmented form of the same grupetto appears again in measure 14 (player A). This time, the grupetto appears at the beginning of the measure (now without its eighth-note anacrusis) and is followed by a pair of eighth-note triplets. This motive is accompanied by a pattern of eighth-notes appearing in durchbrochene-Arbeit fashion (see Figure 3-9).

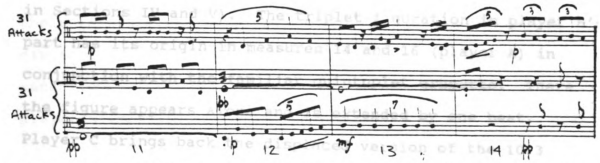



Figure 3-9. Measures 11-14 of Amores, movement II, showing "icti-controls" and motivic recursion.

In the next two-bar phrase (measures 15-16), evidence of "icti-control" is not apparent. Rather, the fragmented 5:2 grupetto followed by eighth-note triplets from measure 14 (player A) reappears in the same part in measure 16. The

accompanying eighth-note pattern in durchbrochene-Arbeit continues in the lower two parts (see Figure 3-10).

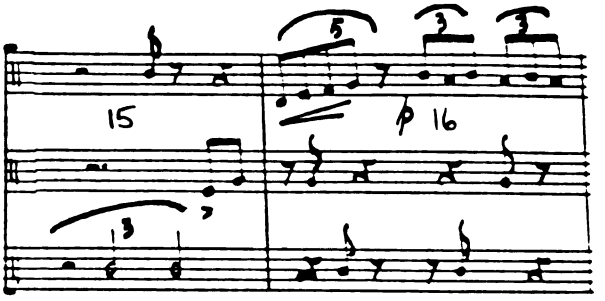



Figure 3-10. Measures 15-16 of Amores, movement II, showing motivic recursion and accompanying figures in durchbrochene-Arbeit.

The next two-measure phrase (measures 17-18) unfolds in a manner similar to that found in the preceding phrase. Measure 17 contains the sparse eighth-note accompaniment figure in durchbrochene-Arbeit. In measure 18, all three parts bring back previous rhythmic motives. Player A's septuplet figure first appeared in the same part in measure 4 (the 7:4 grupetto will become increasingly more prominent in Sections IV and V). The triplet figuration in player B's part has its origin in measures 14 and 16 (player A) in conjunction with the familiar quintuplet grupetto. There the figure appears alone and is extended by one beat. Player C brings back the displaced version of the 10:3 grupetto found originally in measure 7. This descending motive now establishes a clear cadential function as it signals the approaching end of the section (see Figure 3-11). The presence of "icti-control" is manifested by the recurring sum of 31 attacks in the two-bar phrase.

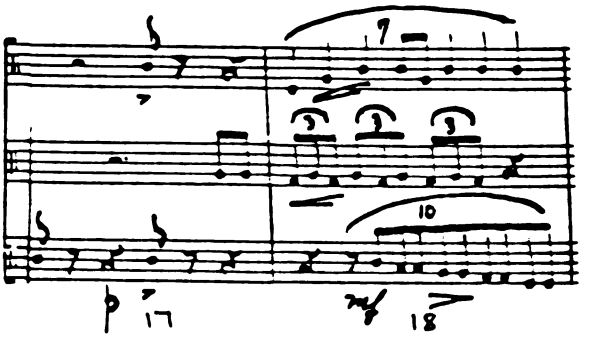


Figure 3-11. Measures 17-18 of Amores, movement II.

The final two-bar phrase (measures 19-20) also contains a total of 31 attacks. Like the preceding phrase, it begins with a fragmented eighth-note accompaniment and proceeds in nearly identical fashion to recall the same motives which recurred in measure 18. The septuplet of player A returns in the same part. The triplet figure of player B now appears in player C's part in a form which suggests the motive's gradual dissipation. The originally paired triplets are broken up and separated by a rest before losing their identity entirely, being replaced by a three-note sixteenth figure. The familiar 10:3 grupetto now firmly establishes itself as a cadential motive, reappearing in player B (see Figure 3-12).

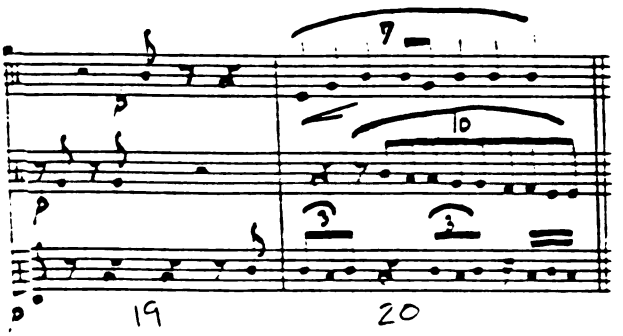


Figure 3-12. Measures 19-20 of Amores, movement II.

Section III is the least active in terms of rhythmic density. In each of the ten measures found in this section, player A has one attack, player B has two and player C has four. Working within the limitations fashioned by "icti-controls," Cage devised an interesting procedure for motive manipulation in each individual voice. For instance, the single eighth-note found in player A's part begins on the second half of beat four in measure 21 and moves up one-half beat in each consecutive measure. The figure reaches beat one in measure 28 and repeats on the downbeat in the remaining two measures (see Figure 3-13).

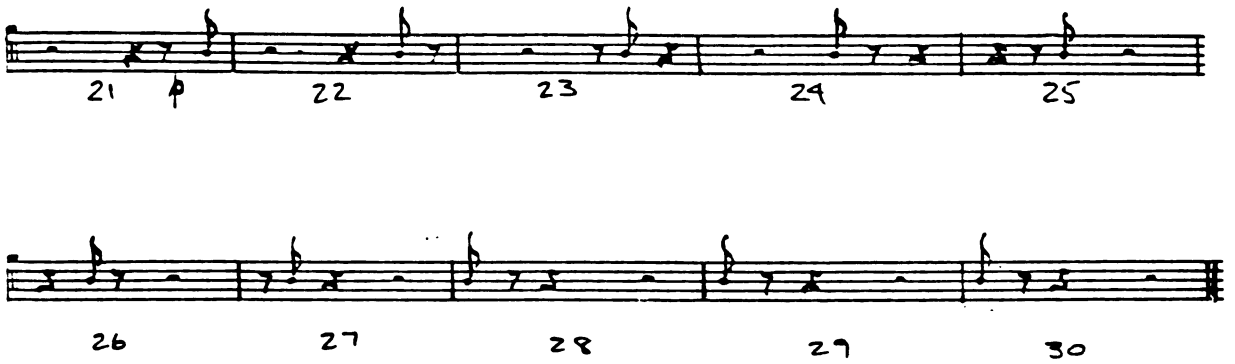



Figure 3-13. Measures 21-30 of Amores, movement II, player A.

Player B's part has a static pattern consisting of two rhythmic figures used interchangeably. These two figures could be said to form a symmetrical three-bar phrase (measures 21-23) which is repeated (measures 24-26). In the last measure of this repetition (measure 26), the figure elides with itself so that measure 26 comprises simultaneously the end of the second statement and the beginning of the third. This process apparently completes

itself at measure 28, the third statement ending with an altered version of the original. In like manner to the process found in player A's part, the concluding bar is repeated in the remaining two measures (see Figure 3-14).

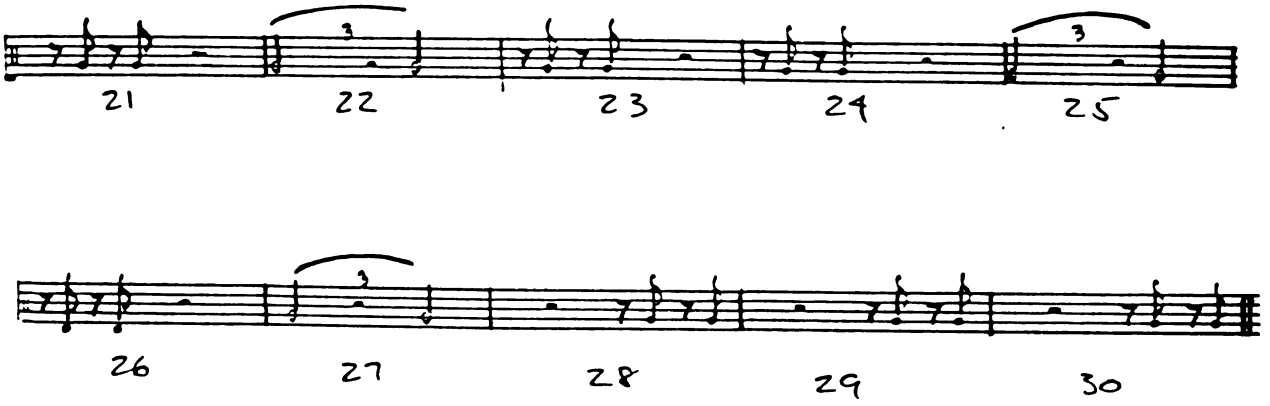



Figure 3-14. Measures 21-30 of Amores, movement II, player B.

Player C's part in Section III consists of three rhythmic motives, each two measures in length. Each measure expresses the manipulation of the prescribed number of attacks (four) in a different way while maintaining motivic integrity within each two-bar phrase. The first phrase (measures 21-22) contains a figure consisting of an eighth-note down beat followed by a quarter-note triplet figure spanning beats 3-4 with a descending contour. The same figure appears in the next measure in a literal retrograde of both rhythm and contour (see figure 3-15).


Figure 3-15. Measures 21-22 of Amores, movement II, player C.

The next two-bar phrase (measures 23-24) contains two versions of the same rhythmic motive consisting of a single eighth-note followed by a group of three eighth-notes arranged in a descending-ascending contour (see Figure 3-16).

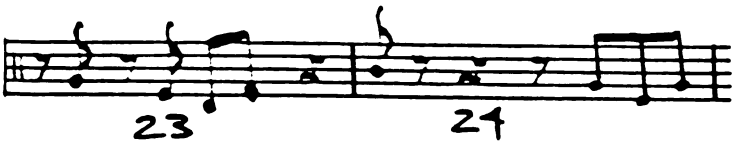



Figure 3-16. Measures 23-24 of Amores, movement II, player C.

The third two-bar phrase found in player C's part consists of two rhythmic components. The first is a 4:3 descending grupetto accompanying beats 2-4 of the first measure. The second is a version of the very first motive found in player A's part, measure 1. This motive is extended in measure 26 by the addition of a single eighth-note on beat 3. The same two-bar phrase is repeated in measures 27-28, with the single eighth-note in the second bar of the phrase moved over to the second half of the third beat (see Figure 3-17).


Figure 3-17. Measures 25-28 of Amores, movement II, player C.

As in the two voices previously discussed, the concluding rhythmic figure in measure 28 repeats in the

final two measures. This time the second half of the two-bar phrase (the extended version of player A's part, measure 1) takes over in measure 28, is repeated in slightly altered form in measure 29 (the eighth-note extension now appearing on beat 4) and again appears in measure 30 as it did two bars earlier (see Figure 3-18).

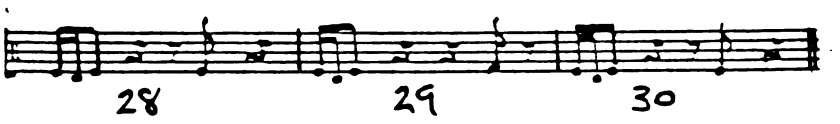



Figure 3-18. Measures 28-30 of Amores, movement II, player C.

The aural effect of Section III is that of a single rhythmic line projected among three voices in durchbrochene-Arbeit fashion. All of the rhythmic material is presented in the first eight measures, the last of which is repeated as a cadential extension to fill up the ten-measure structure. As mentioned earlier in this discussion, the presence of "icti-control" makes possible a myriad of vertically-perceived rhythmic aggregates within a linearly-conceived motivic construction.

The predominantly periodic rhythms of Section III are contrasted in Sections IV and V by increasingly aperiodic patterns. The septuplet figure which appeared on the highest drum of player C in measure 13 returns in measure 31, now on the middle drum of player B. The grupetto continues in measure 32 in a sub-divided fragmented form (see Figure 3-19).

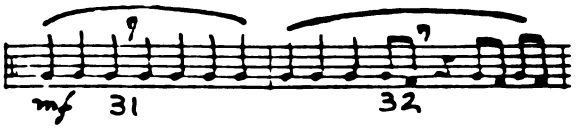



Figure 3-19. Measures 31-32 of Amores, movement II, player B.

The subdivision and fragmentation of grupetti generate an increased feeling of aperiodicity in Sections IV and V. Furthermore, motivic recursion is less frequent, and the motives presented are often fragmented, contributing to a generally amorphous character to the sound of these sections. There are, however, a few instances of motivic recursion which warrant closer scrutiny.

In the first five measures of Section IV (measures 31-35), player A presents the same accompaniment figures that first appeared in player B's part at measures 6-10, only now the rhythms appear entirely on drums, whereas the original presentation began with pod rattle in the first two measures (see Figure 3-20).

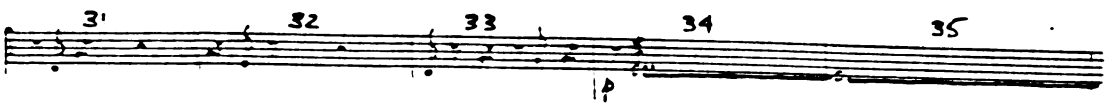



Figure 3-20. Measures 31-35 of Amores, movement II, player A.

The opening motive found in player A's part on the downbeat of measure 1 returns in player C's part in the middle of measure 34. The same figure appears in player B's

part in the next measure on the second half of beat 1 and again on beat 4. This occurs over a fragment of the motive which originally appeared in player A's part in measure 2. In measure 35, this motive appears in player C's part (see Figure 3-21).

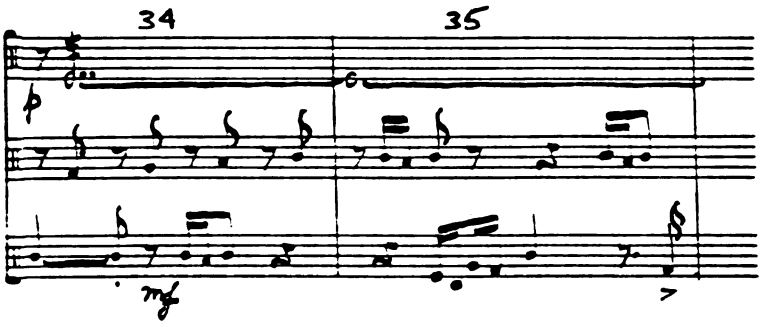



Figure 3-21. Measures 34-35 of Amores, movement II.

Player B's septuplet figure reappears in measure 36, the individual sounds now projected among the three drums. The accompaniment rhythm of player A creates a polyrhythmic effect which continues in the subsequent measures of the section. Player B's septuplets give way to eighth-note quintuplets appearing below quarter-note triplets in player A's part, while player C recalls and expands the motive originally found in measure 2 of player A (Figure 3-22).

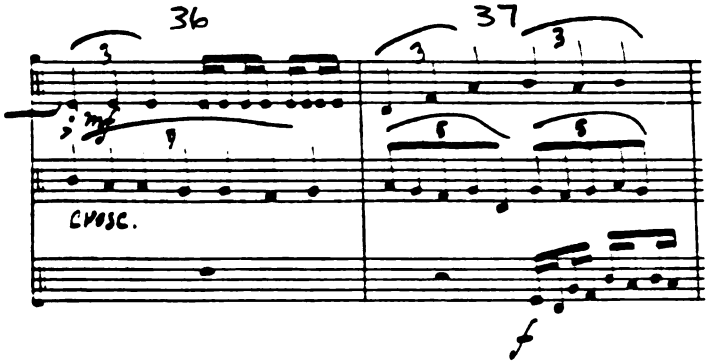



Figure 3-22. Measures 36-37 of Amores, movement II.

The septuplet figure of player B returns once again in measure 38. The following two measures present a winding-down of dynamic intensity and motivic activity. The 9:4 grupetto which originally appeared in player A's part, measure 6 returns in its same configuration in player C's part, measure 39. A fragmented septuplet appears above this grupetto in player B's part, while player A produces the glissando-like roar called the "moose" in the second half of the measure, the only occurrence of the effect in the entire movement. Measure 40 concludes the section with a restatement of the movement's first motive (from player A, measure 1) in player C's part. The rather sparse final measure of Section IV leads into the most aperiodic section in the movement (see Figure 3-23).

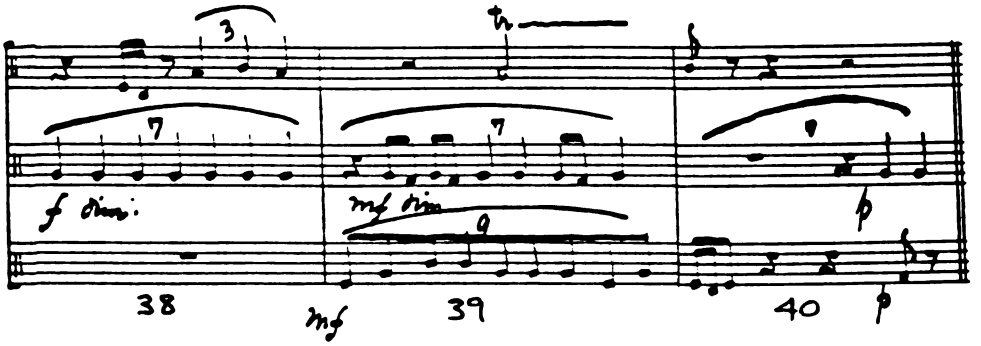



Figure 3-23. Measures 38-40 of Amores, movement II.

From the standpoint of "icti-control," Section IV presents some interesting numbering when all parts are added together. The first two measures (31-32) yield 20 total attacks. The following three-bar phrase (measures 33-35) totals 27 attacks, a number which appeared earlier in

Section I. In measures 36-37, players A and B each have 17 attacks, while player C has 8 (this combination recurs in Section V). The final three measures (38-40) yield a total of 31 attacks, a number which occurred frequently in Sections I and II.

Section V shows a similar construction in terms of "icti-control." The first two measures (41-42) contain a total of 31 attacks. In the following two-bar phrase (measures 43-44), players A and B each have 17 attacks, while player C has 8 (this combination was seen earlier in measures 36-37 of Section IV). In the next phrase, comprising three measures (45-47), player B has a total of 14 attacks, while player A has 4 and player C has 10. The final three-bar phrase (measures 48-50) contains a total of 27 attacks.

Because of the presence of septuplet figures in all but the final measure, Section V can be considered the most aperiodic section in the movement. As in Section IV, these grupetti undergo subdivision and fragmentation in a variety of combinations (see Figure 3-24).

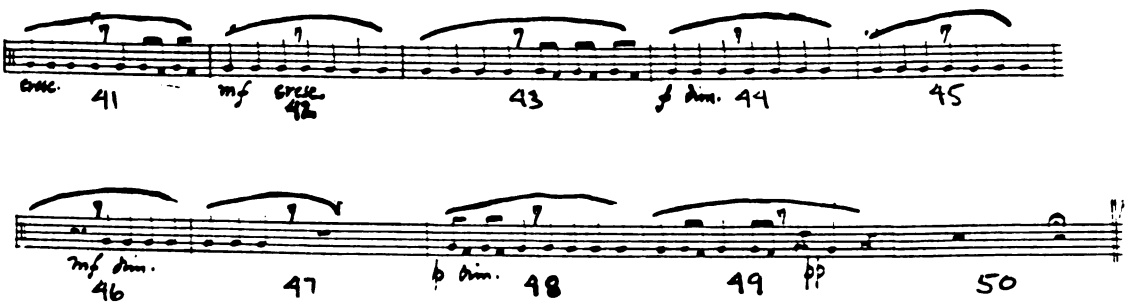



Figure 3-24. Measures 41-50 of Amores, movement II, player B.

Although the persistent septuplets dominate the texture in terms of aural perception, some interesting instances of motive recursion also appear in Section V. The 9:4 grupetto, seen earlier in measure 6 and again in measure 39, reappears in its original contour in measure 41, player C. At the same time, player A begins a retrograde of rhythmic events which originally appeared in the pod rattle of player B in the first four measures of the movement. Measures 41 and 42 bring back the pod rattle figures from measures 4 and 3, respectively. Measure 43 contains the same rhythm found in measure 2, now in a displaced retrograde. Measure 44 contains a literal retrograde of events first appearing in measure 1 of player B (see Figure 3-25).

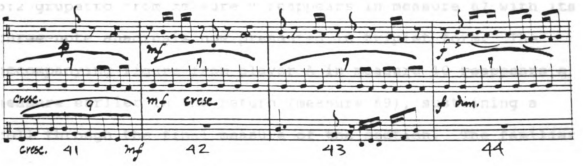



Figure 3-25. Measures 41-44 of Amores, movement II.

As in Section IV, the motivic activity and dynamic intensity gradually diminish in the final measures of Section V, ending with a singular statement in player C's part. A silent fermata marks the end of Part One (see Figure 3-26).

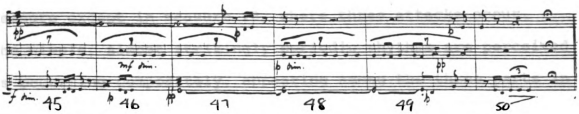



Figure 3-26. Measures 45-50 of Amores, movement II.

Part Two begins with an extended twenty-measure section which presents a verbatim return of the opening material from measures 1-8. At measure 58, where one would expect to find the cadential grupetti from measures 9-10, the same eight measures are repeated. Following the two tutti attacks in measure 66 (originally found in measure 8), the cadential grupetti from measures 9-10 reappear slightly altered in a four-bar gesture which closes the section. The 5:2 grupetto from measure 9 reappears in measure 67 with its three-note anacrusis now presented in triplet form. The accompanying figure from player A in measure 10 reappears a measure earlier in the return (measure 69), sustaining a roll through the final measure of the section. The familiar 10:3 grupetto takes on a new contour in measure 70, steadily rising toward the downbeat of Section VII (see Figure 3-27).

Section VII, occupying measures 71-80, bears a strong resemblance to Section III. The rhythmic activity is sparse, each player having the same number of attacks in each measure in all but two instances. Players A and C each have three attacks except in measure 71, where player A has four due to the release of a roll from the previous section. Player B consistently plays two attacks per

measure except in measure 78, where three attacks occur. The simple, almost strikingly periodic rhythms are perceived as occurring compositely, appearing among the three parts in durchbrochene-Arbeit fashion (see Figure 3-28).

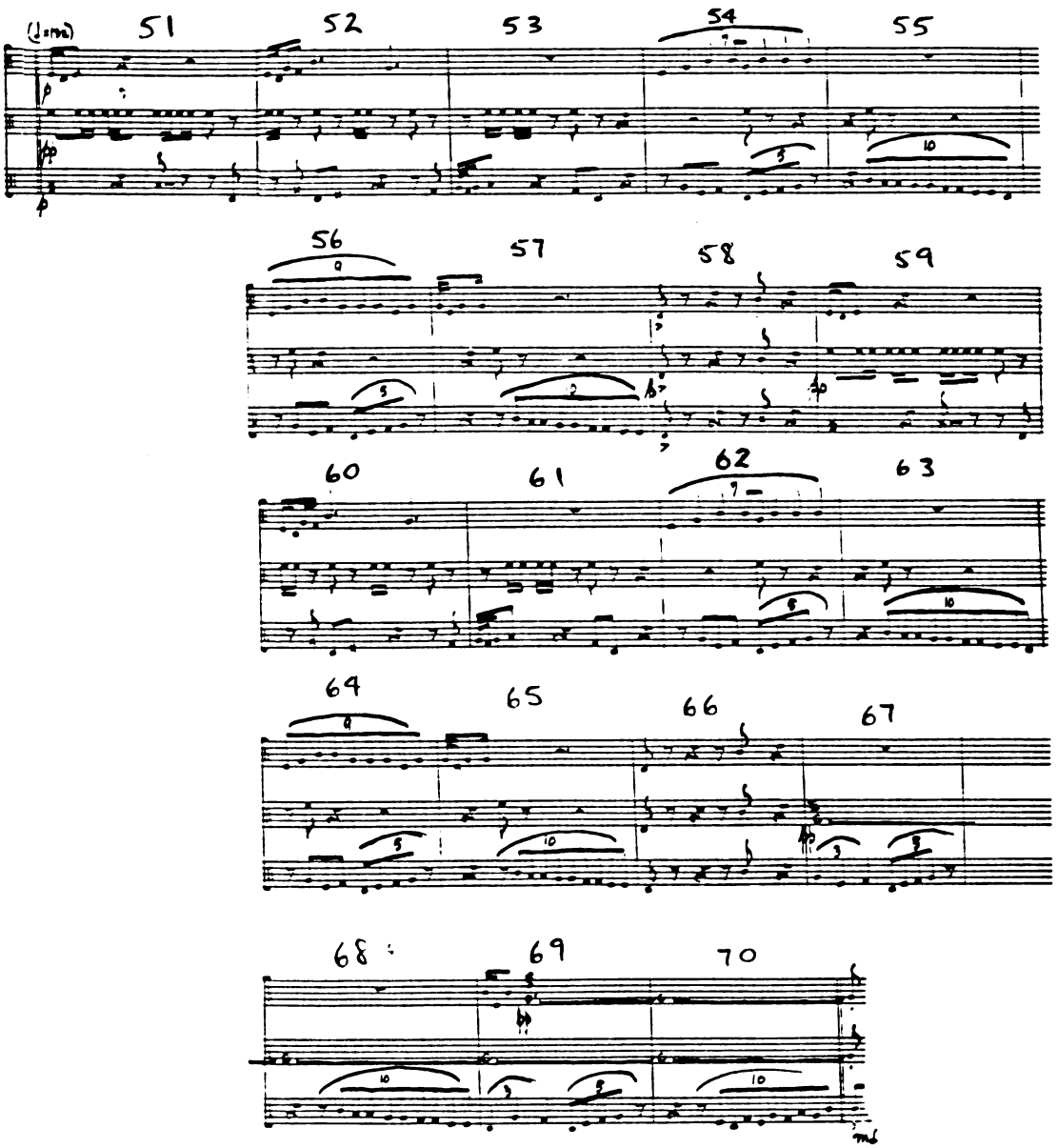



Figure 3-27. Section VI, measures 51-70 of Amores, movement II.

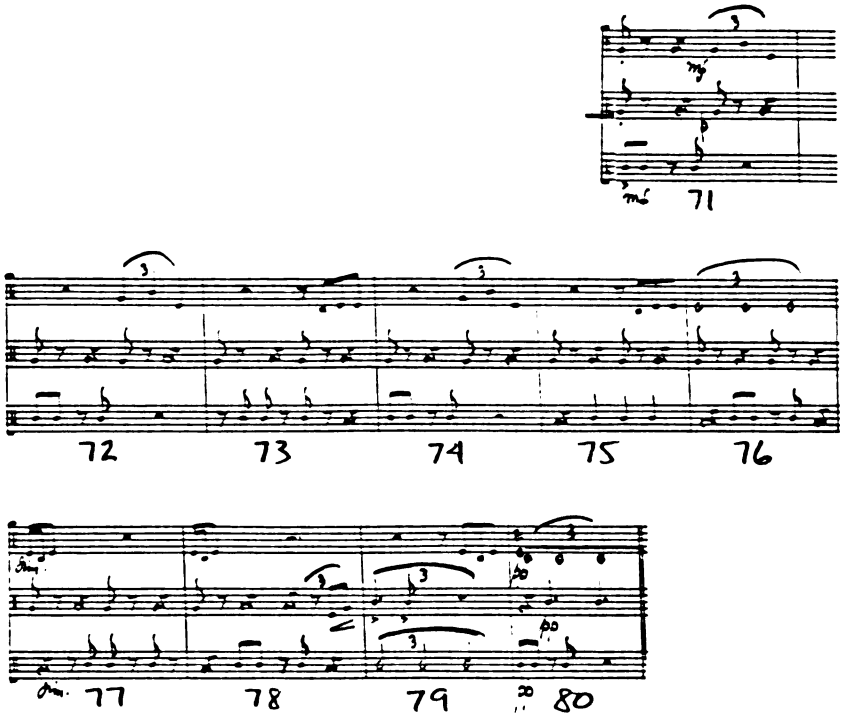



Figure 3-28. Section VII, measures 71-80 of Amores, movement II.

Section VIII seems somewhat related to Section IV in that the recurrence of motive fragments appears along with a gradual increase in aperiodicity. As in Section IV, a fragment of the original pod rattle motive from Section I reappears in Section VIII. In measures 82-84, player B has the original pod rattle motive from measures 5-7, now appearing on the highest-pitched drum. Player A's initial three-note motive from measure 1 reappears in various guises in measures 83, 84, 86 and 88. The original descending 10:3 grupetto from measure 5 reappears in measure 88. All of the rhythmic events in Section VIII are held together and propelled forward by the steady repetition of player C's very first motive from measure 1, appearing in the same part

in this penultimate section. The slide of the wire brush on beat 3, hardly noticeable when it first appears in measure 1, now seems to permeate the entire timbral fabric of Section VIII with its hypnotic repetition. The appearance of the pod rattle's sustained roll on the last beat of measure 89 anticipates the ensuing events of the final section (see Figure 3-29).

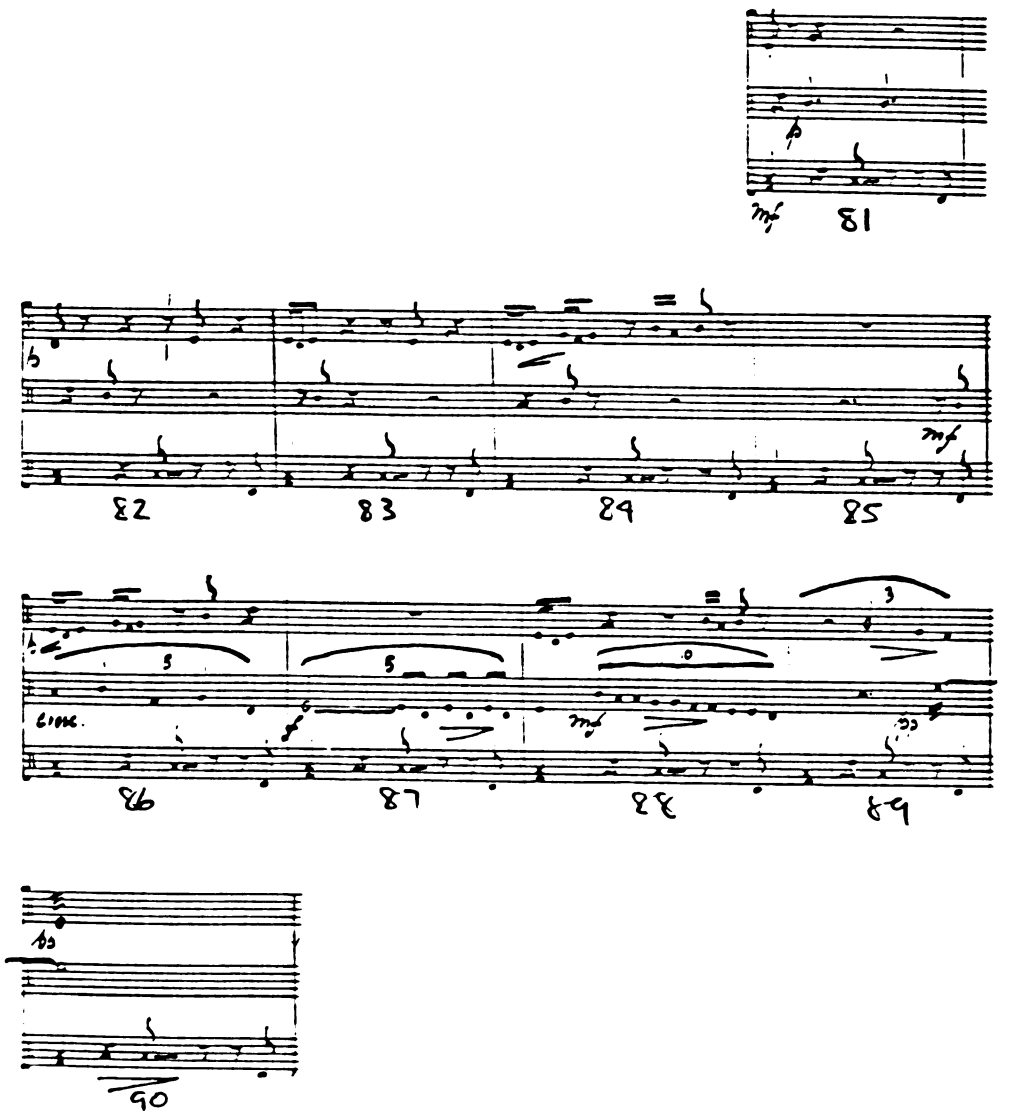



Figure 3-29. Section VIII, measures 81-90 of Amores, movement II.

The final ten-measure section presents yet another return of the movement's first eight measures, extended now by a two-bar repetition of the tutti attacks originally found in measure 8 (see Figure 3-30). The attacks on the second half of beat 2 occur on the edges of the upper, middle and lower drums, respectively, in each measure.

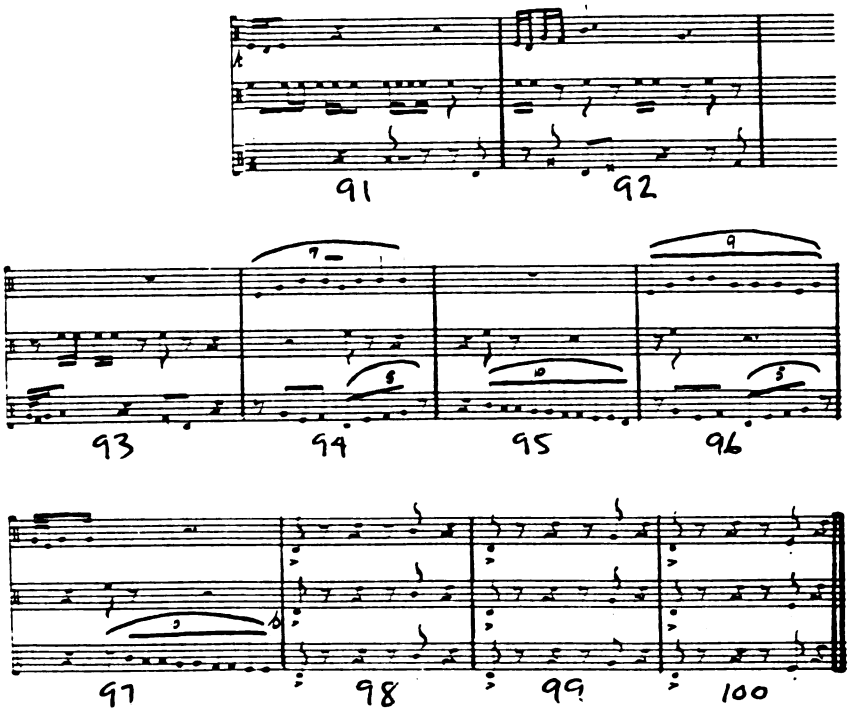



Figure 3-30. Section IX, measures 91-100 of Amores, movement II.

Although the use of the precompositional method of "icti- control" may have been the foundation upon which Cage originally conceived the second movement of Amores, the appearance of motivic and sectional recursion provides a solid structural framework for the movement. The following

diagram demonstrates how the recurrence of the first eight-measures (represented by "A") combines with the gradual shift from periodic to aperiodic rhythms to create the work's structure (Figure 3-31).

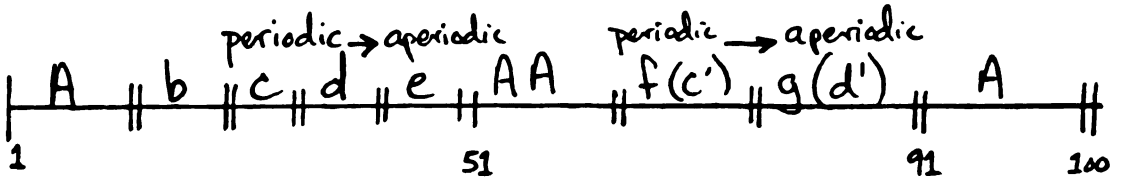



Figure 3-31. Diagram of structure for Amores, movement II.

The use of motivic and sectional recursion provides unity while the gradual shift from periodic to aperiodic rhythms through the imaginative employment of grupetti provides variety in the second movement of Amores, clearly the work of a highly skilled percussion composer.

## Movement III

### Trio: Seven Wood Blocks (not Chinese)

For the third movement of Amores, Cage used a movement from an earlier work, the Trio of 1936. When asked why he chose to bring back a portion of the earlier piece, he responded,

> That enabled me to write the work quickly. I had that movement and I had the idea for the work and it was three (voices) and there were three players.[14]

In the title of the movement, Cage specifies that the work is written for wood blocks, but not of the Chinese

variety. In the performance note, he clarifies his intentions:

> The graduated pieces of wood (three in the case of the first player, two in the other cases) are placed on cloth pads on benches in front of the players. They are arranged according to pitch, low to high, left to right; the notation is on the 2 or 3 lowest spaces of the staff, as the case may be. The ends of the pieces should face the players and slightly overhang the benches. The players, using small hard-wood beaters (e.g. cup gong beaters), may then conventionally hit the edges of the pieces, obtaining the desired resonance. Other arrangements may be invented. What is not desired, however, is the extreme richness of, e.g., the marimba or xylophone, nor, on the other hand, the extreme sharpness of the conventional Chinese wood block.[15]

When questioned further about the type of wood block he preferred, Cage responded,

> They happen to be wood blocks which were used for the backs of books. You remember, I told you that I worked with book binders during the day and we played percussion at night, so those wood blocks were part of the book binding. ...Off hand, I like the Trio best when it is played, not with a mallet, not with the ends of the sticks, but with the handles, so the wood blocks become extremely quiet, not brilliant, but almost inaudible.[16]

As mentioned in the performance note, the graduated pitches are notated on the lower spaces of a five-line staff with a neutral clef. In Trio, the movement is notated with the rhythms appearing on a single line for each pitch without a clef[17] (see Figures 3-32 and 3-33).

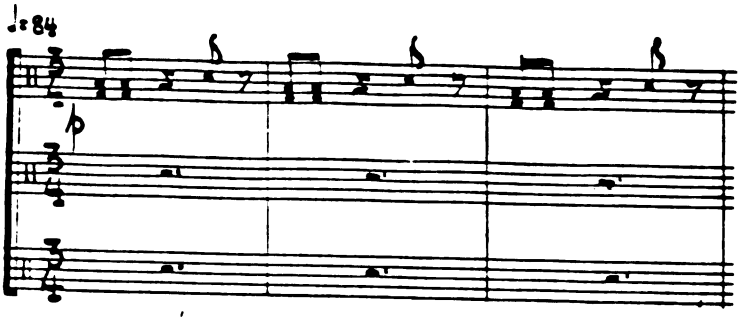


Figure 3-32. Example of notation used in Amores, movement III (measures 1-3).

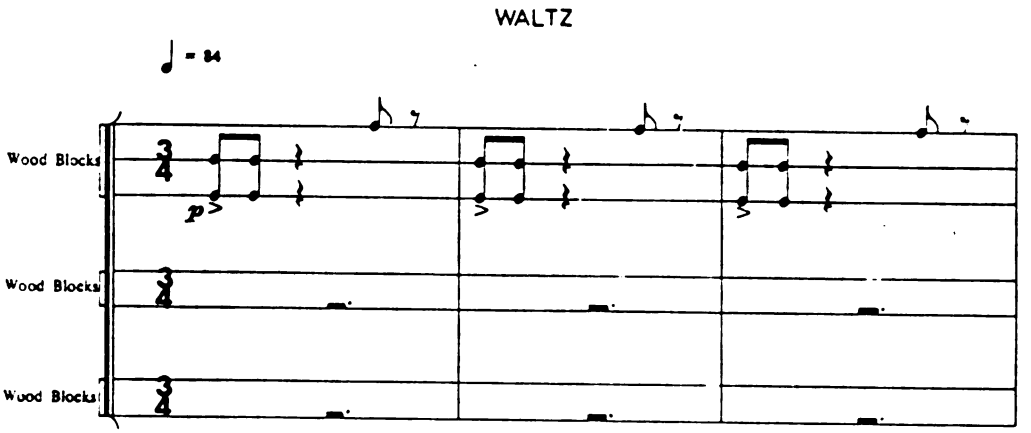



Figure 3-33. Example of notation used in Trio, movement III (measures 1-3).

The movement is thirty-three measures long, with a time signature of $\frac{3}{4}$ and metronome indication of $\text{♩} = 84$. The dynamics range from *p* in the opening bar to *pppp* in the closing bar.

Movement III of Amores is built entirely on two rhythmic motives which are manipulated according to their placement within a measure of $\frac{3}{4}$ time. The motives, labeled X and Z, appear in their original form in Figure 3-34.

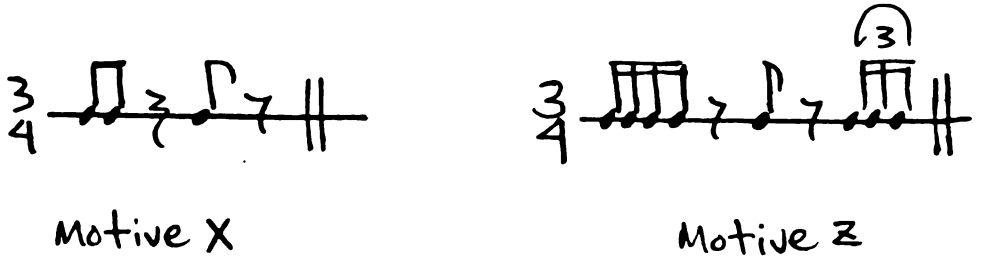



Figure 3-34. Motives found in movement III of Amores.

Each motive appears in six different locations within a given measure during the course of the work. A chart of these permutations appears in Figure 3-35.

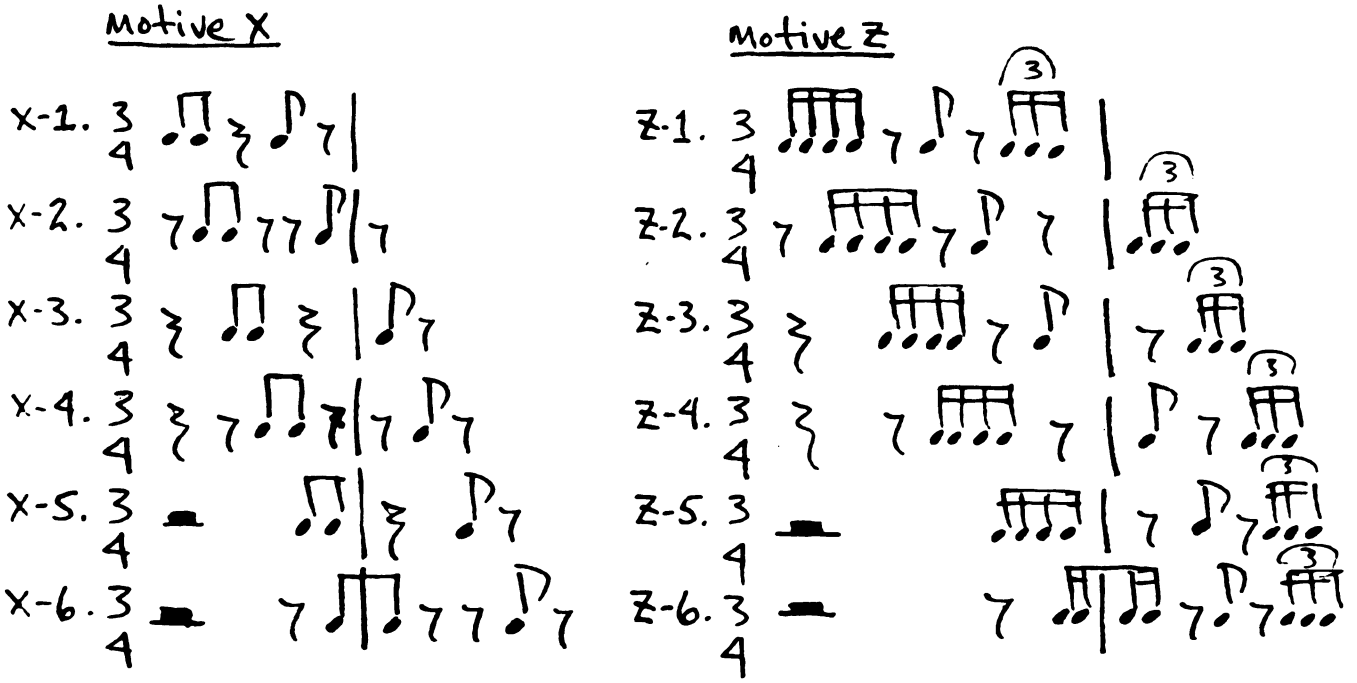



Figure 3-35. Permutations of motives found in movement III of Amores.

The work may be divided into three sections of varying length, each of which is defined by the appearance of motive X alone in no more than two of the three voices. Sections I and II are subdivided into phrases defined by rhythmic

activity, while Section III consists of a single five-measure phrase. The major sections and their divisions appear as follows:

| | | |
|---|---|---|
| Section I | measures 1 - 12 | 3:5:4 |
| Section II | measures 13 - 28 | 3:7:6 |
| Section III | measures 29 - 33 | 5 |

Section I begins with a three-measure phrase in which player A states motive X-1 three times. This motive is passed to player B in measure 4 while player C states motive Z-1. Player B continues to repeat motive X-1 in measure 5 and again in measure 6 as player C takes up motive X-4 in measure 5, repeating the motive in the next two measures. Meanwhile, player A re-enters at measure 7 with motive X-3 as player B states motive Z-5, ending the five-bar phrase (see Figure 3-36).

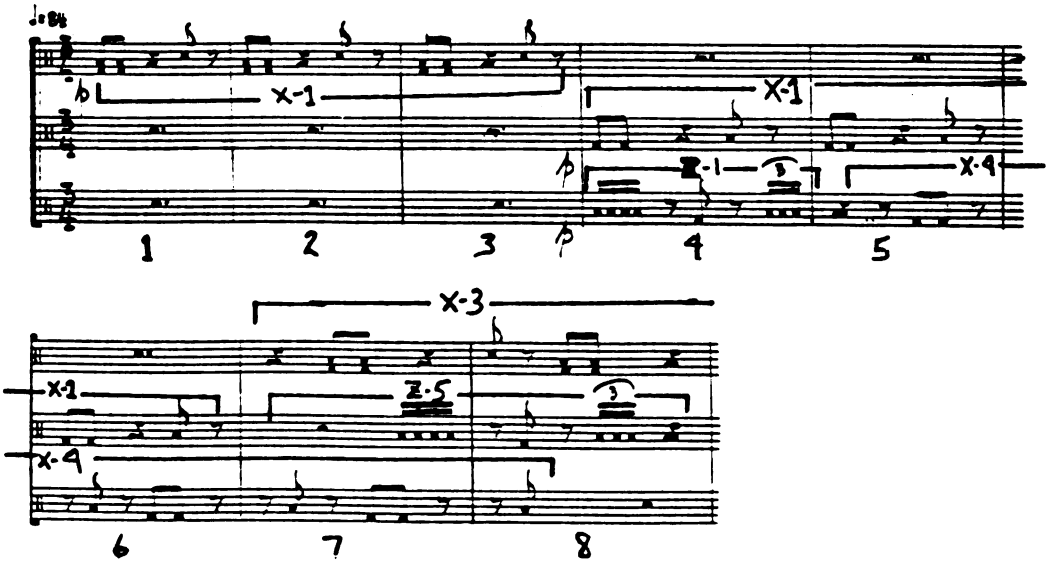



Figure 3-36. The first two phrases found in Section I of Amores, movement III, showing motives and their permutations.

In the final four-bar phrase of Section I, player A continues to state motive X-3 while player B begins motive X-5 and player C has motive X-6 (measure 9). Each player continues to state the motive three times. Player A completes the final repetition on the downbeat of measure 10, then states motive Z-3 in the middle of measure 11. In measure 12, player B completes the cycle of repetitions on beat 2 and player C one-half beat later. The completion of the cycle marks the end of Section I (see Figure 3-37).

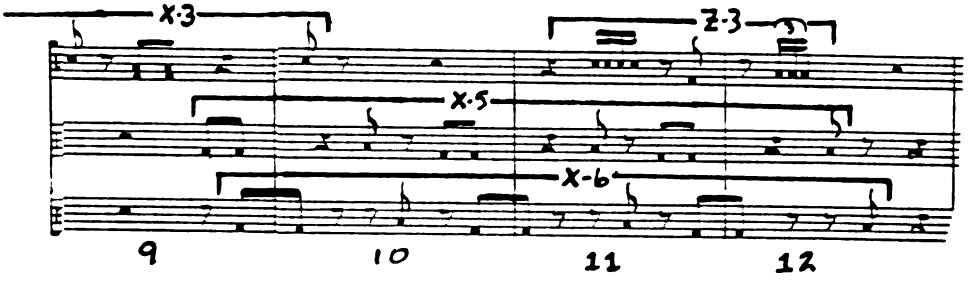



Figure 3-37. Motives found in the final four-measure phrase of Section I in Amores, movement III (measures 9-12).

Section II begins, as did Section I, with a single statement of a version of motive X which is repeated twice. After player B states motive X-2 in measures 13-15, a seven-bar phrase of overlapping motives ensues. The X motives (X-2, X-6, X-5 and X-3) continue to undergo a cycle of three statements with each presentation in this phrase. The Z motives, previously presented in single statements, begin to undergo repetition in Section II. Player C states motive Z-1 twice in measures 16-17, and player A has three statements of motive Z-5 in measures 19-22, ending the phrase (see Figure 3-38).

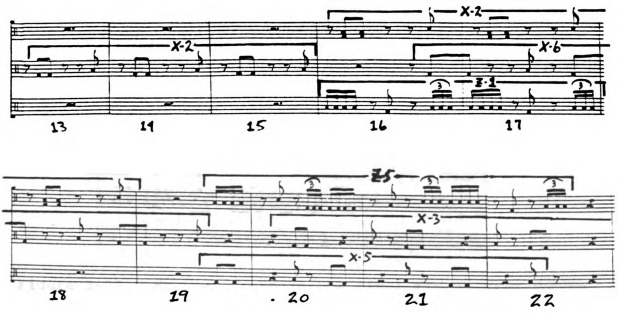



Figure 3-38. Motives found in the first two phrases (measures 13-15 and 16-22) of Section II in Amores, movement III.

The final six-bar phrase of Section II begins on the downbeat of measure 23 with the concluding note of motive X-3 in player B's part. Player C then begins two statements of motive Z-3 while player A has three statements of motive X-4. In measure 25, player B enters with two statements of motive X-1 and begins a third statement before shifting to motive X-5 on beat 3 of measure 27. Meanwhile, player C has a single statement of motive Z-4 beginning in measure 25 followed immediately by motive Z-6 at the end of measure 26. Player A states motive Z-2 in measure 27. As player B continues with motive X-5, player C begins a statement of motive X-4 in measure 28 (see Figure 3-39).

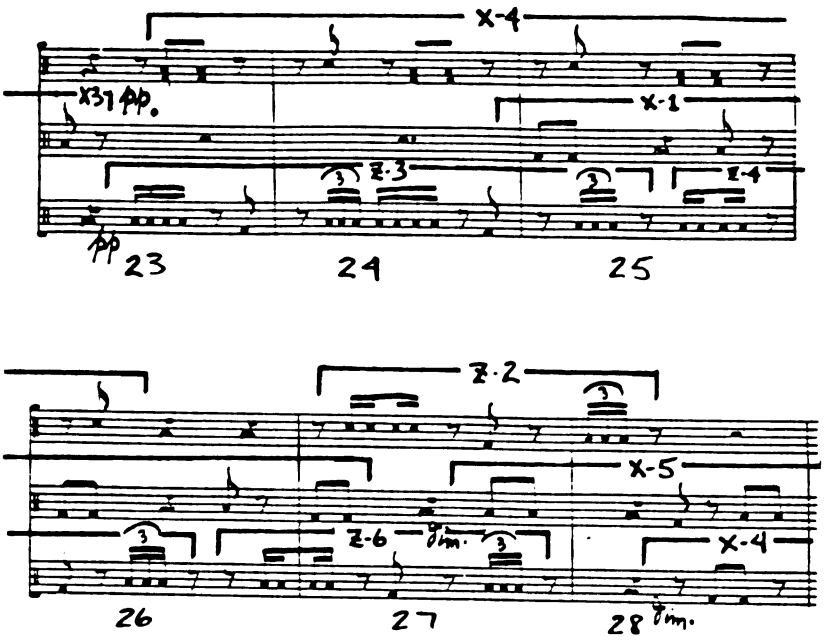



Figure 3-39. Motives found in the final six-measure phrase of Section II in Amores, movement III (measures 23-28).

Section III begins in measure 29 with the conclusion of player B's three statements of motive X-5 which began in measure 27. Player C continues with motive X-4 in measure 29, and after two statements of the motive, deviates from the pattern with fragments of previous motives in measures 30-31. As the dynamic level diminishes, player C settles into a final statement of motive X-3, while players B and A wind the movement down with three statements each of motives X-6 and X-2, respectively (see Figure 3-40).

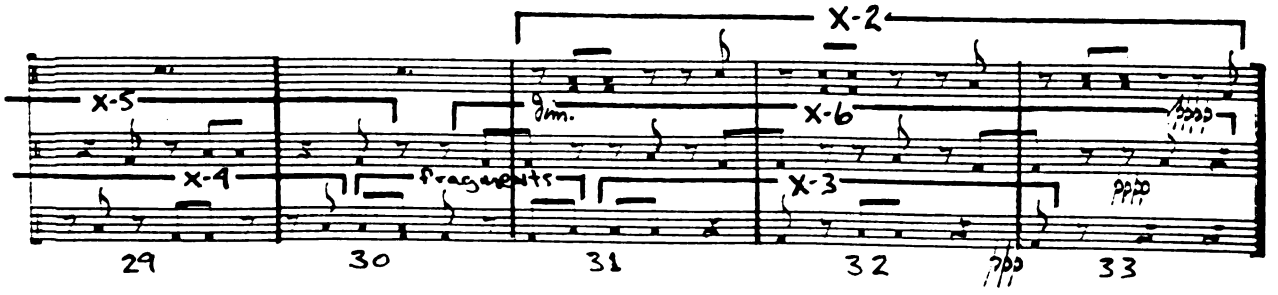



Figure 3-40. Motives found in Section III of Amores, movement III (measures 29-33).

The aural effect created in movement III is one of a complex collage of composite rhythms produced by the juxtaposition of the two static motives and their permutations among three voices. A somewhat similar effect occurs in Henry Cowell's Ostinato Pianissimo (1934) in which ostinati of differing lengths are recycled to create a variety of vertically-perceived rhythms. The technique of recycling static motives to create altered perceptions of rhythmic motion has become associated with a current compositional trend, known by some as minimalism, which has been explored by composers such as Terry Riley, Philip Glass and Steve Reich.

## Movement IV

### Solo: Prepared Piano

In the fourth movement of Amores, scored for prepared piano, Cage employed the "square-root" formula in a manner similar to that found in First Construction. The movement comprises one hundred measures, divided into ten sections of ten measures each grouped according to the proportional division 3:3:2:2. The rhythmic events occurring within the smaller ten-measure sections (the microstructure) define the proportional divisions as illustrated in Figure 3-41.

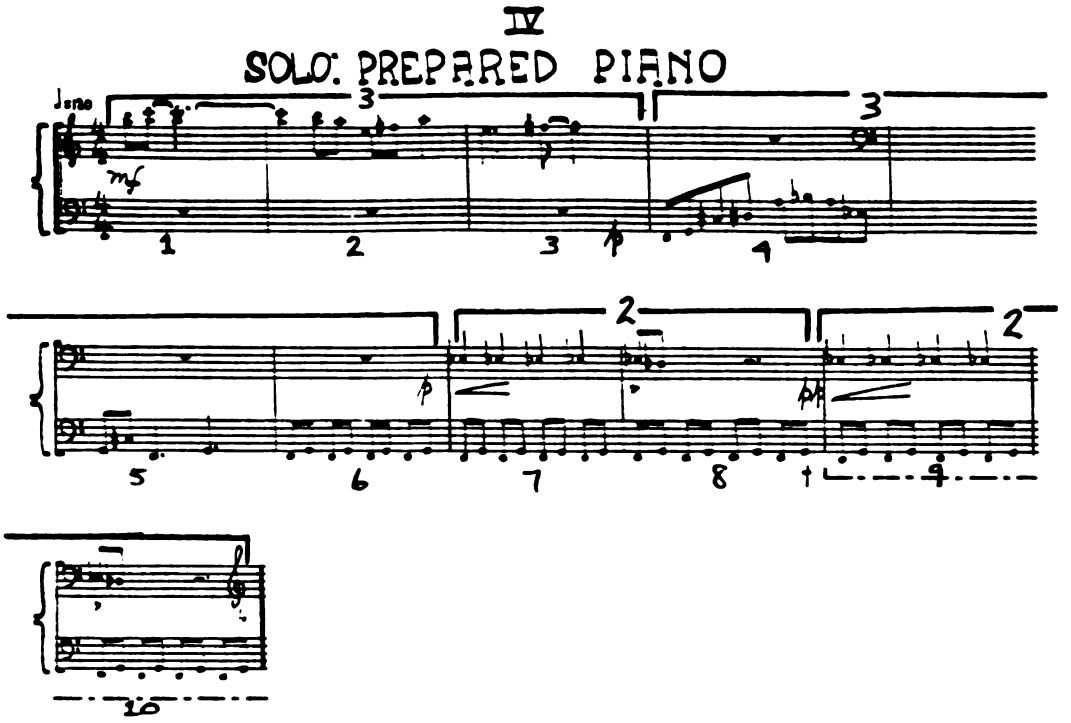



Figure 3-41. Proportional division 3:3:2:2 found in the first ten-measure section of Amores, movement IV (measures 1-10).

The proportional division 3:3:2:2 also applies to the grouping of the ten large sections (the macrostructure). Figure 3-42 illustrates the division of the macrostructure.

| | Ten-Measure Section | Measures |
|---|---|---|
| 3 | 1 | 1 - 30 |
| | 2 | |
| | 3 | |
| 3 | 4 | 31 - 60 |
| | 5 | |
| | 6 | 61 - 80 |
| 2 | 7 | |
| | 8 | 81 - 100 |
| 2 | 9 | |
| | 10 | |

Figure 3-42. Outline of macrostructure divisions found in Amores, movement IV.

Cage clearly adheres to the "square-root" formula throughout the movement, both in the macrostructure and the microstructure. His employment of this compositional technique has been discussed in detail in Chapter Two.

Movement IV serves to unify Amores by recalling thematic material from movement I. Beginning in measure 61, material from measures 11-13 of movement I appears in rhythmic augmentation.

In measures 61-64, the material from measures 11-12 of movement I is presented in its entirety. At measure 65, where one would expect to find material from measure 13 of movement I, the motive from the second half of measure 12 is repeated to accommodate the phrase structure. The material from measure 13 of movement I reappears in measure 66 in a slightly altered rhythm. Measures 67-68 recall the remaining material from measure 13 and the first figure of measure 14 before diverting from the pattern in measure 69 (see Figures 3-43 and 3-44).

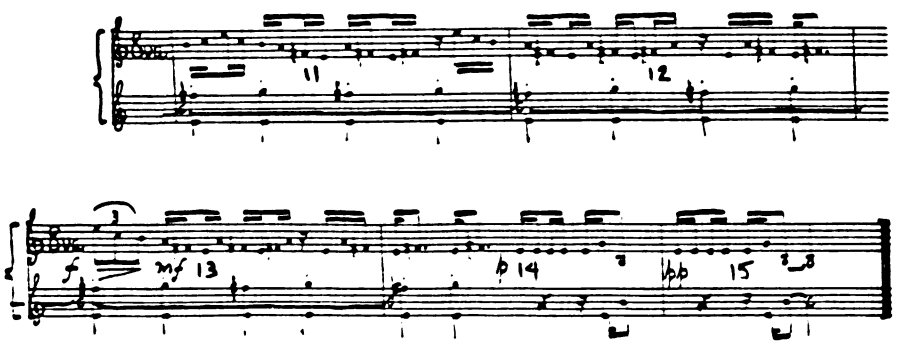



Figure 3-43. Measures 11-15 of Amores, movement I.

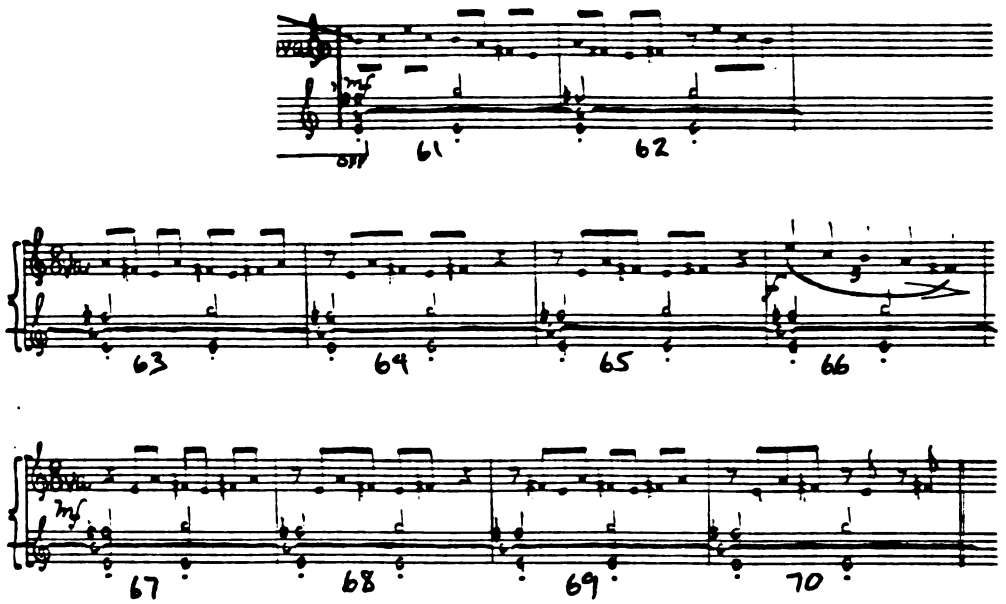



Figure 3-44. Measures 61-70 of Amores, movement IV.

The concluding motive of movement I (measures 14-15, Figure 3-43) forms the basis for the last two sections of macrostructure in movement IV, bringing the last movement and Amores to a close (see Figure 3-45).

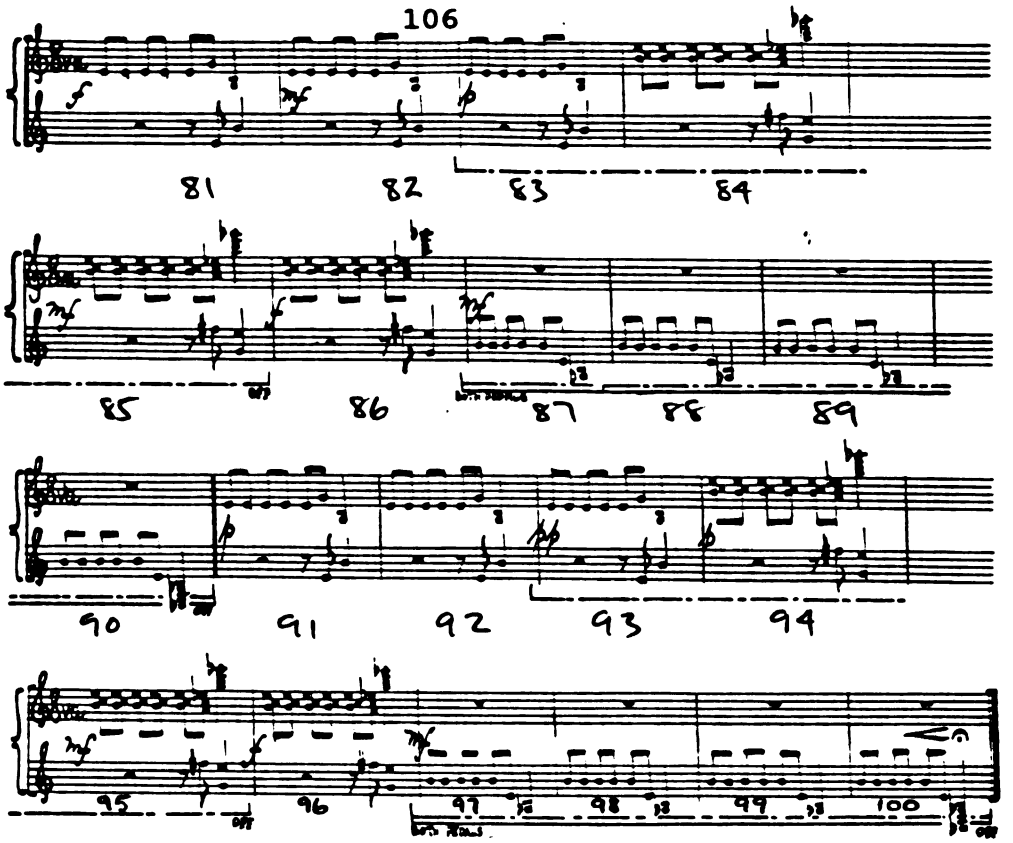



Figure 3-45. The final two sections of macrostructure found in Amores, movement IV (measures 81-100).

Cage has stated that Amores is "an attempt to express in combination the erotic and the tranquil, two of the permanent emotions of Indian tradition."[18] He had been introduced to Indian music and philosophy through Gita Sarabhai, a young Indian woman who had come to America to study Western music.[19] Cage's interest in non-Western thought is discussed in greater detail in Chapter Five. When questioned about how the attempt is realized in Amores, Cage responded:

> It is just realized as far as one's intentions go, which often fail for anyone but the person who has the intentions; and it was that fact, that the intentions one has are not always recognized by a receiver, that led me to use chance operations and renunciation of communication.[20]

## Endnotes - Chapter Three

[1]Interview, 6 June, 1988.

[2]John Cage, compiled by Robert Dunn (New York: Henmar Press, 1962), 33. Dunn cites several performances of Amores in which only movements I and IV were presented, including the Town Hall concert in New York, December 22, 1948, and a number of dance performances with Merce Cunningham. The Quartet for Twelve Tom-toms from She Is Asleep is also published separately.

[3]Thomas Moore, "Rhythmic Structures in John Cage's Amores" Master's thesis, University of Maryland, 1987, 20-25.

[4]John Cage, Amores (New York: Henmar Press, 1960).

[5]Ibid.

[6]Ibid.

[7]Ibid.

[8]Ibid. Mr. Cage is referring to Poinciana trees.

[9]Interview, 6 June, 1988.

[10]Stuart Smith, "The Early Percussion Music of John Cage," Percussionist 16, 1 (Fall, 1978), 16-27.

[11]Ibid, 21.

[12]Ibid, 22.

[13]Durchbrochene Arbeit is a term denoting the process by which a melodic or rhythmic line is projected into two or more different colors. Literally translated as "broken, pierced or perforated work," the term refers to a lace or filigree effect.

[14]Interview, 6 June, 1988.

[15]Cage, Amores.

[16]Interview, 6 June, 1988.

[17]John Cage, Trio (New York: Henmar Press, 1977), 7.

[18]Dunn, 33.

[19]Calvin Tomkins, The Bride and the Bachelors: The Heretical Courtship in Modern Art, (New York: The Viking Press, 1965), 98.

[20]Interview, 6 June, 1988.

## Chapter Four

## Cage's Other Percussion Works, 1935-1943

In addition to First Construction and Amores, Cage composed thirteen other works using percussion between 1935 and 1943. Eleven of these works are for ensembles of three or more percussionists. Two works are for percussion with vocal soloist. In this chapter, each of the thirteen works is discussed in terms of notation, instrumentation and compositional style with reference to specific information presented in Chapters Two and Three regarding First Construction and Amores.

Quartet (1935). 4 players, no specific instruments. 4 movements: I - Moderate, II - Very Slow, III - Slow (entitled "Axial Asymmetry"), IV - Fast. Duration: Approximately 20 minutes.

Quartet, Cage's first work for percussion, was composed in Santa Monica, California in 1935. The title page indicates that the work is for unspecified percussion instruments and that either one or both slow movements may be used in performance. In an interview with the author, Cage explained the environment in which the work was conceived:

> Then I lived in Santa Monica in a house that was devoted during the day to book binding and in the evening to making music, and some of the people who played in the percussion group had experience as modern dancers. What we did, then, was to experiment with pieces of junk and with a few rented instruments. I rented a timpani [sic] and some gongs and cymbals and so forth, but a lot of the instruments were things like brake drums and things from the kitchen, etcetera.[1]

The work is notated on a four-line grid divided by broken vertical lines representing units of time. Conventional notation representing durational values appears on a single horizontal line for each voice. Throughout the piece, the smallest durational value is the eighth note.

Each movement contains fixed rhythmic patterns which are manipulated in a manner similar to that employed in the third movement of Amores. The beginnings and endings of patterns are indicated by the appearance of a bold vertical line. Rehearsal numbers appear after every ten time units. An example of the notation used in Quartet appears in Figure 4-1.

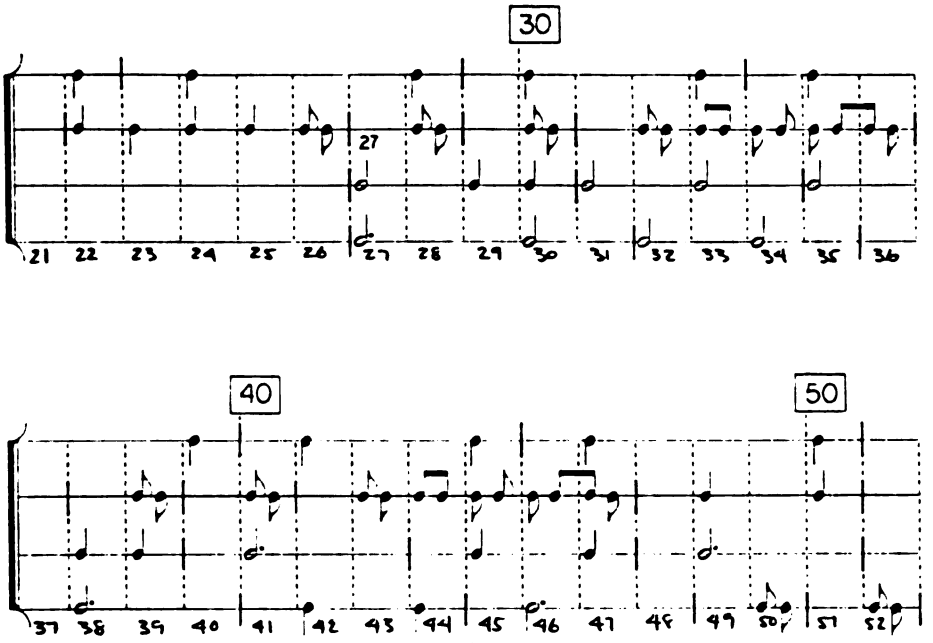



Figure 4-1. Example of notation employed in Quartet, movement I, units 21-52.

Although no instruments are specified, it is apparent by the notation of longer durational values that some instruments capable of producing a sustained sound could be employed. Furthermore, any number of instruments may be utilized, as the composer explains:

> There are no instruments specified, so it could be any number of instruments, and it often is. I think it's interesting to see what people do with it. The Percussion Group in Cincinnati made a very interesting performance of it, using a prepared piano to give two parts to one player because they had only three. I asked, "How can you perform a quartet with three players?" They said, "You'll see." So, it was with right and left hand, you see, on the piano.[2]

In her dissertation, Form and Structure in the Music of John Cage, Deborah Campana provides a detailed analysis

of the third movement of Quartet and draws the following conclusions:

> Although tradition had been eschewed in matters of both instrumental choice and structuring means, Quartet still maintains traits that can be labeled "classic." The work's division into four movements recalls symphonic, or more appropriately, quartet form. The intended performing situation for Quartet is what would be considered standard or formal--with or without a conductor, the work is performed in a concert setting in order to receive directed attention from a central focus. The "fixed rhythmic patterns" are treated thematically, and therefore, one can recognize the application of traditional developmental techniques: theme introduction, contrast, restatement and, on a more formal level, statement, development and return.[3]

Trio (1936). 3 players, 16 instruments. 3 movements: I - Allegro, II - March, III - Waltz. (Third movement later used in Amores, 1943.) Duration: Approximately 2 1/2 minutes.

Trio, like the Quartet, was composed in Santa Monica, California. The title page lists the instrumentation as follows:

1st. player: 3 graduated pieces of wood (not Chinese wood blocks), 3 small tom-toms (wire brush), bamboo sticks (played as claves).

2nd. player: tom-tom (wire brush), bass drum, 2 graduated pieces of wood (not Chinese wood blocks).

3rd. player: 3 graduated pieces of wood (not Chinese wood blocks), tom-tom, bamboo sticks (played as claves).

Unlike Quartet, Trio is written in conventional metric notation. The first movement, only twenty-four measures in length, is written in $\frac{3}{4}$ time with the tempo indication ♪=168. The second movement, also twenty-four measures long, is written in $\frac{4}{4}$ time and includes the tempo indication ♪=112. The $\frac{3}{4}$ time signature returns in movement three. The third movement has been discussed in detail in Chapter Three.

Trio is notated on a staff consisting of a single line for each instrument. Conventional rhythmic notation is employed throughout the work. In the bass drum part (Player Two),  indicates that the rhythm be performed on the rim of the drum, and  indicates a glissando to be played at the edge of the drum head (the "moose" found in movement two of Amores). All other rhythms are notated conventionally. An example of the notation used in Trio appears in Figure 4-2.

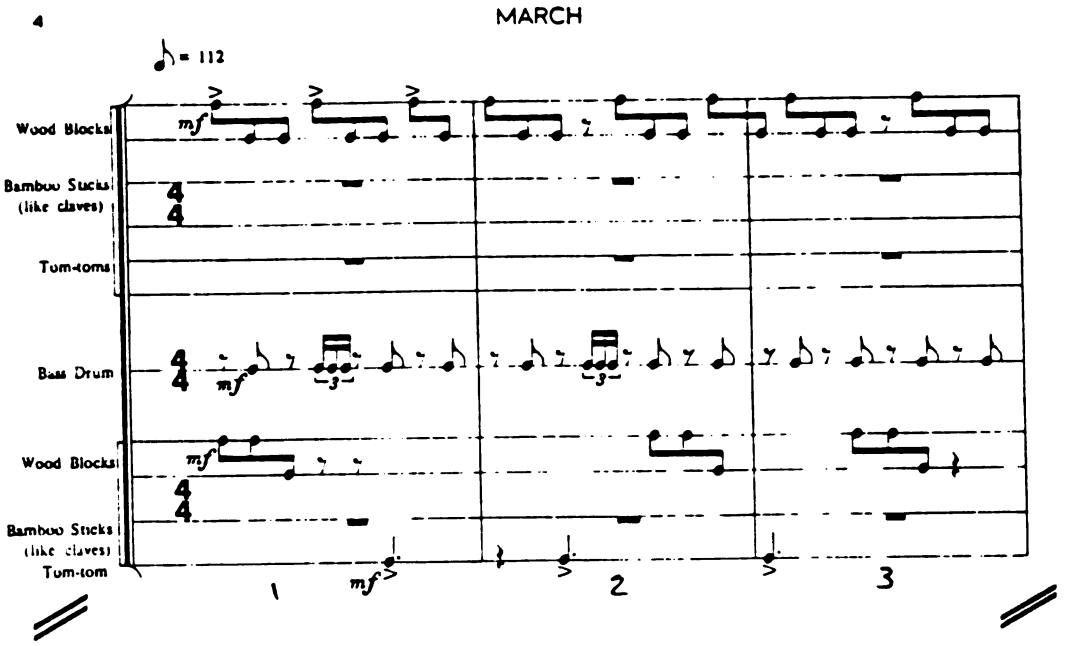



Figure 4-2. Example of notation found in Trio, movement II, measures 1-3.

In Trio, Cage employed the same method of manipulating fixed rhythmic patterns already discussed in Chapter Three. Throughout the work, rhythmic patterns are repeated and exchanged from voice to voice, at times creating more complex composite rhythms as a result of the vertical coincidence of two or more patterns.

Both Trio and Quartet were experiments in the emancipation of noise brought on by Cage's work with Schoenberg. Both works were originally conceived without particular instruments in mind, as the composer explains:

> The Trio and the Quartet were both written without instruments in mind. We experimented, with my help and with the players' help, to find out what would happen when we did one thing or another. I've let that continue in the presentation of the Quartet, whereas the Trio I've orchestrated, so to speak.[4]

The experiments in fixed rhythmic patterns found in Quartet and Trio led Cage to consider the possibility of creating a musical structure based on duration, which would be equally hospitable to noise and so-called musical tone. This concept led towards the development of the "square-root" formula. The earliest work to show evidence of such a structure was Imaginary Landscape No. 1, composed in 1939.

Imaginary Landscape No. 1 (1939). 4 players, 4 instruments. Duration: 7 minutes.

Imaginary Landscape No. 1 is the first in a series of five Landscapes. The first three Landscapes are for percussion and electronic devices. Imaginary Landscape No. 4 (1951) is scored for twelve radios, and Imaginary Landscape No. 5 (1952) is for forty-two recordings.

The electronic devices employed in Imaginary Landscape No. 1 include two turntables on which are played various frequency recordings, or "test" records. Player One is instructed to play two such recordings, Victor Frequency Record 84522B and Victor Constant Note Record No. 24 (84519B), on a single turntable. Each recording is played at both 78 and 33 1/3 RPM. Since the recordings produce only a single tone, each one is capable of generating two pitches, one high and one low, as the speed of the turntable changes. On Player One's part, the pitches are notated on a

four-line staff. Rhythms are executed by raising and lowering the needle.

In like manner, Player Two is instructed to play Victor Frequency Record 84522A. This recording generates a steadily rising pitch which shifts in frequency as the speed of the turntable changes from 33 1/3 to 78 RPM. This part is notated on a single line, with shifts in turntable speed indicated by x appearing above each note.

Player Three plays a large Chinese cymbal. The part is notated on a single line. Rolls are indicated with traditional slashes above the notes (  ).

Player Four plays a "string piano" on which is played three muted pitches and a glissando produced by a sweep across the bass strings with a gong beater, indicated by  . An example of notation employed in Imaginary Landscape No. 1 appears in Figure 4-3.

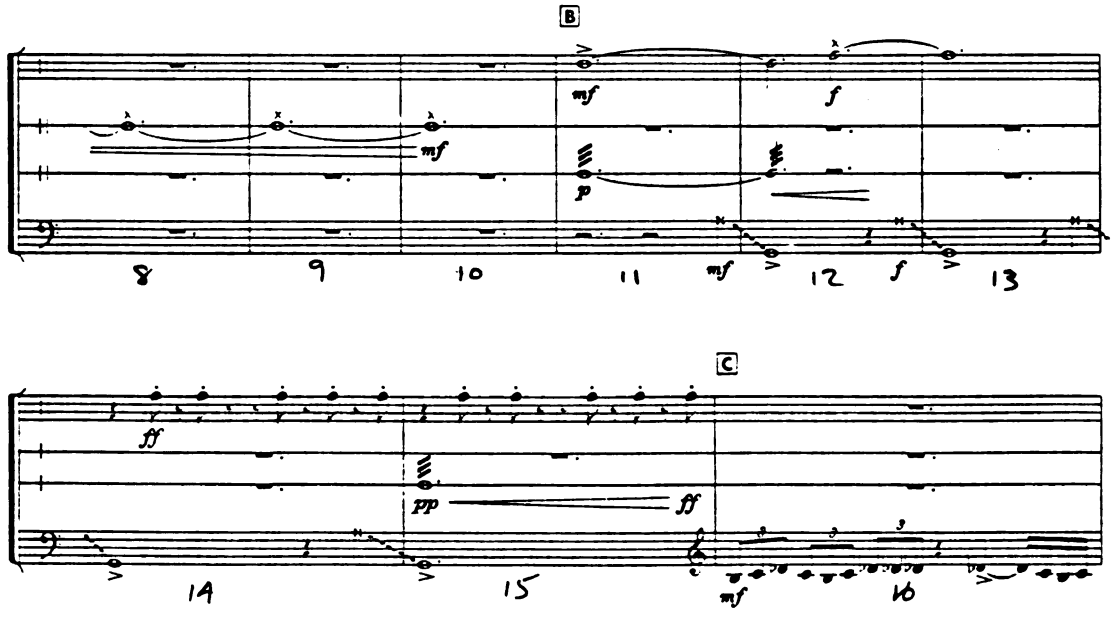



Figure 4-3. Example of notation employed in Imaginary Landscape No. 1.

The work consists of four fifteen-measure sections which are separated by interludes of one, two and three measures, respectively. The fourth fifteen-measure section is followed by a four-measure coda (see Figure 4-4).

| Section I | interlude I | Section II | interlude II | Section III | interlude III | Section IV | Coda |
|---|---|---|---|---|---|---|---|
| 15 ms. | 1 ms. | 15 ms. | 2 ms. | 15 ms. | 3 ms. | 15 ms. | 4 ms. |

Figure 4-4. Outline of formal structure found in Imaginary Landscape No. 1.

A time signature of $\frac{6}{4}$ and tempo of $\frac{}{}$ =60 is used throughout the piece. Most of the rhythmic activity occurs in the string piano with the introduction of the first interlude motive, which later appears in expanded form throughout the work (see Figure 4-5).

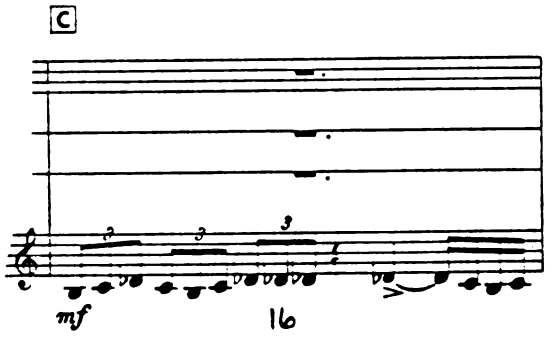



Figure 4-5. Imaginary Landscape No. 1, interlude 1, measure 16, string piano.

In Imaginary Landscape No. 1, Cage began to move toward his goal of creating music with a structure based on duration of time. The rhythmic structure employed in First

Construction seems to be a logical outgrowth of the technique with which the composer experimented in Imaginary Landscape No. 1. The two works are similarly constructed according to a specific number of measures which are "filled" with sound (noise or pitched sounds) or silence. In the Construction series, Cage began to work with a concept of "phraseology" which further defined the durations to be filled within the framework of the macro structure and micro structure.[5] This process has been discussed in detail in Chapter Two.

Deborah Campana provides a complete, detailed analysis of Imaginary Landscape No. 1 in her dissertation, Form and Structure in the Music of John Cage.[6]

Second Construction (1940). 4 players, 34 instruments. Duration: approximately 7 1/2 minutes.

Second Construction was composed in Seattle and was first performed at Reed College in Portland, Oregon on February 14, 1940. The performers were John and Xenia Cage, Doris Dennison and Margaret Jansen.[7]

The work is scored for four players performing on a total of thirty-four instruments. A list of instrumentation and the notational layout appears in Figure 4-6.

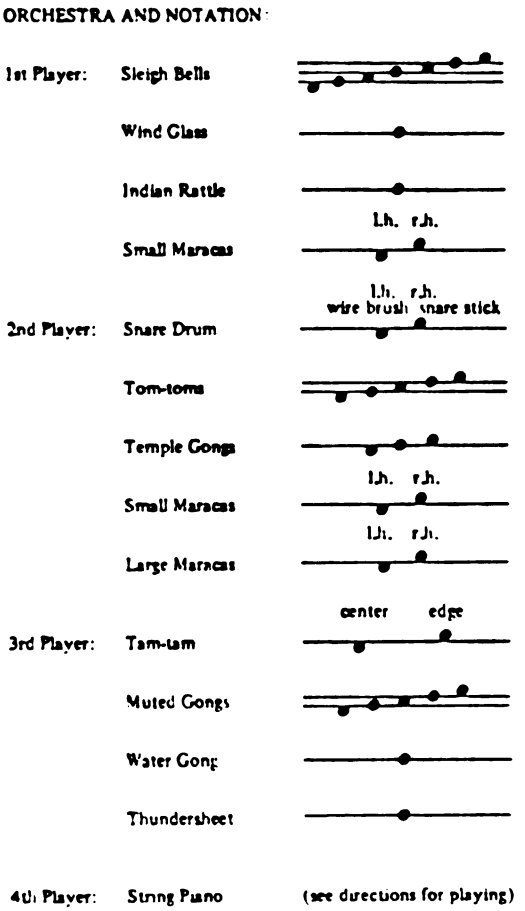



Figure 4-6. Instrumentation and notation employed in Second Construction.

Cage provides specific directions for playing procedures in the performance note included in the score. The directions appear as follows:

1st. player: The sleigh bells should be large (oxen bells if possible). They should be played on a padded table or bench. Hard rubber beaters. They should be arranged so that they are graduated with respect to pitch. The maracas should be smaller than those used by the second player. The tremolo on the bells is played by sliding rapidly back and forth on top of the bells.

2nd. player: The small maracas should be larger than those used by the first player. The five tom-toms should be graduated in pitch. They are to be played with timpani sticks. The snare drum is played as indicated in the score: right hand, snare stick, left hand, wire brush. The three temple gongs are the large Japanese ones and are played with the wooden leather-covered beaters generally employed.

3rd. player: The tam-tam should be very large, having a deep and resonant tone. The thundersheet should be light. The five gongs are muted by placing them on a padded bench, and are graduated. The water gong is an ordinary small gong which is lowered or raised into or from a tub of water as indicated in the score. Except for the tam-tam, gong beaters are useful. For the tam-tam, a larger padded stick is necesary.

4th. player: In the bass clef, 8va, "e" and "f" are muted by two fingers of the left hand, which fingers slide along the strings of the piano (as indicated in the score by the arrows above the staff), while the keys indicated are played by the right hand on the keyboard. "C" is muted by an ordinary screw placed between the strings.

In the treble clef, the tones between "a" and "e " are muted with a piece of cardboard. The tremolo indicated in the fourth section and elsewhere produces a siren-like sound, through the use of a metal cylinder which slides along the strings (manipulated by the left hand) while the right hand trills on the keyboard. The direction of the slide is indicated by the arrows above the whole notes above the staff. The arrows below the staff indicate pitch. Because of the individuality of piano construction, the tones or strings used to produce this siren-sound vary: they should be chosen for their convenience and length of string available. The glissandi in the bass clef are produced by sweeping the strings with a gong beater.[8]

Like the First Construction, Second Construction comprises sixteen sections, each divided into sixteen

measures. Each sixteen-measure section is grouped according to the proportional division 4:3:4:5. A time signature of $\frac{4}{4}$ and tempo marking of ♩ = 128-132 appears throughout the piece.

The opening four-measure motive found in the sleigh bells appears prominently throughout the piece in each of the four voices and serves as a generating device for other similar motives (see Figures 4-7, 4-8 and 4-9).

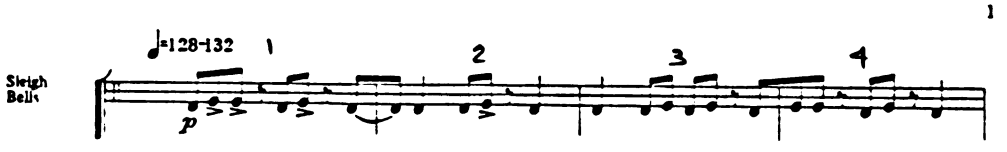



Figure 4-7. Opening motive found in Second Construction, measures 1-4, player one.

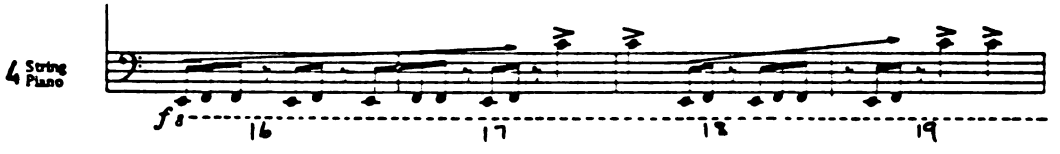



Figure 4-8. Similar motive found in measures 16-19, player four.

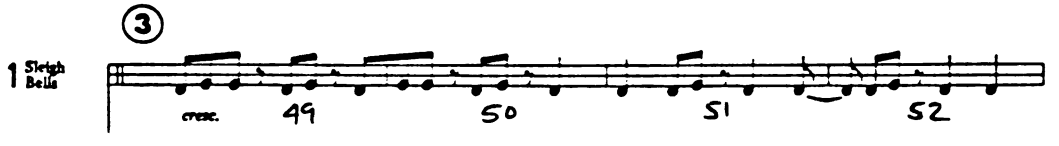



Figure 4-9. Similar motive found in measures 49-52, player one.

The opening motive also generates a rhythmic fugue subject which makes sixteen entries after its initial statement at measure 161 (see Figure 4-10).

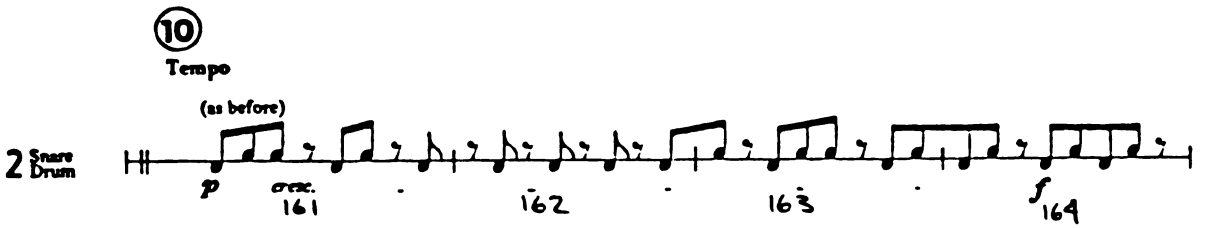



Figure 4-10. Fugue subject found in Second Construction measures 161-164, player two.

Because the fugue subject is exactly four measures long, it tends to work in opposition to the established rhythmic structure of 4:3:4:5. Whenever a voice does not play the fugue subject, it continues to adhere to the prescribed phrase lengths. After the completion of the sixteenth entry of the fugue subject, the work concludes with a single statement of the original motive from measures 1-4 in the sleigh bells, followed by the sustained ringing of a tam-tam in the final five-measure time division.

Living Room Music (1940). 4 players, unspecified number of household objects, furniture or architectural elements used as instruments. 4 movements: I - To Begin, II - Story (for speech quartet), III - Melody, IV - End. Duration: Approximately 6 minutes.

Living Room Music for percussion and speech quartet, is scored for any number of items commonly found in a living room to be used as instruments. Cage's performance directions found in the score appear in Figure 4-11.

DIRECTIONS:

Any household objects or architectural elements may be used as instruments, e.g.:

1st player—magazines, newspaper or cardboard
2nd player—table or other wooden furniture
3rd player—largish books
4th player—floor, wall, door or wooden frame of window.
(Some graduation from high to low pitch should be obtained from 1st to 4th player.)

The melody (if it is included in the suite) may be played on any suitable instrument: wind, string, or keyboard (prepared or not).

= r.h. and accented

= l.h. and unaccented

The first three players use the three middle fingers of both hands, the 4th player uses fists.

Do not use conventional beaters.

Figure 4-11. Performance note to Living Room Music.[9]

The work is in four movements, each with a time signature of $\frac{4}{4}$ and no tempo indication of any kind. In the movements for percussion ("To Begin," "Melody" and "End"), stickings are indicated by stem direction as mentioned in the performance note. Because the right hand is accented, the sticking patterns create composite rhythms among the four voices, as shown in Figure 4-12.

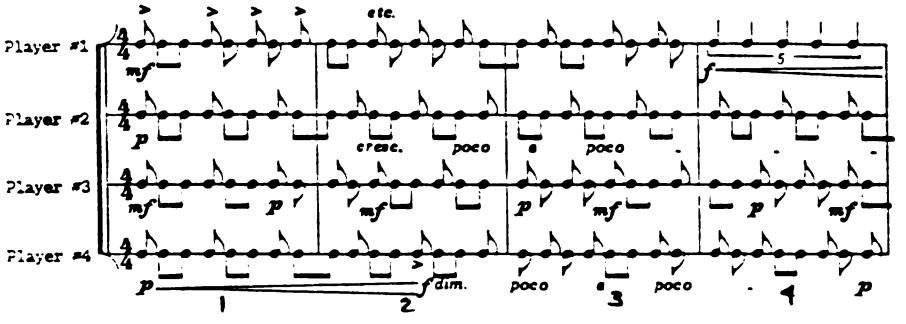



Figure 4-12. Composite rhythms created through variations in sticking patterns found in Living Room Music, movement I, measures 1-4.

Although the "square-root" formula does not seem to be applied in Living Room Music, some degree of rhythmic structuring is evident. "To Begin" is structured in two equal parts of eighteen measures each. A double bar appears after a six-measure introduction and again at the movement's mid-point (bar 18). "Story" begins with four seven-measure sections marked by double bars before expanding its phrase structure. The movement is fifty measures long. "Melody" consists of eight sections of eight measures each, and "End" contains seven sections of seven measures each.

"Story," based on a poem by Gertrude Stein, is performed by a quartet of voices "reciting" Cage's rhythmic rendition of the text. Percussive vocal accompaniments, such as "ti ti ti ti ti," "zz" as in "buzz," and a sustained sibilant "ce," are included along with rhythmic whistling, to create a "percussion ensemble" of voices. Relative pitch inflections are indicated by rising and falling arrows. An example of notation used in this movement appears in Figure 4-13.

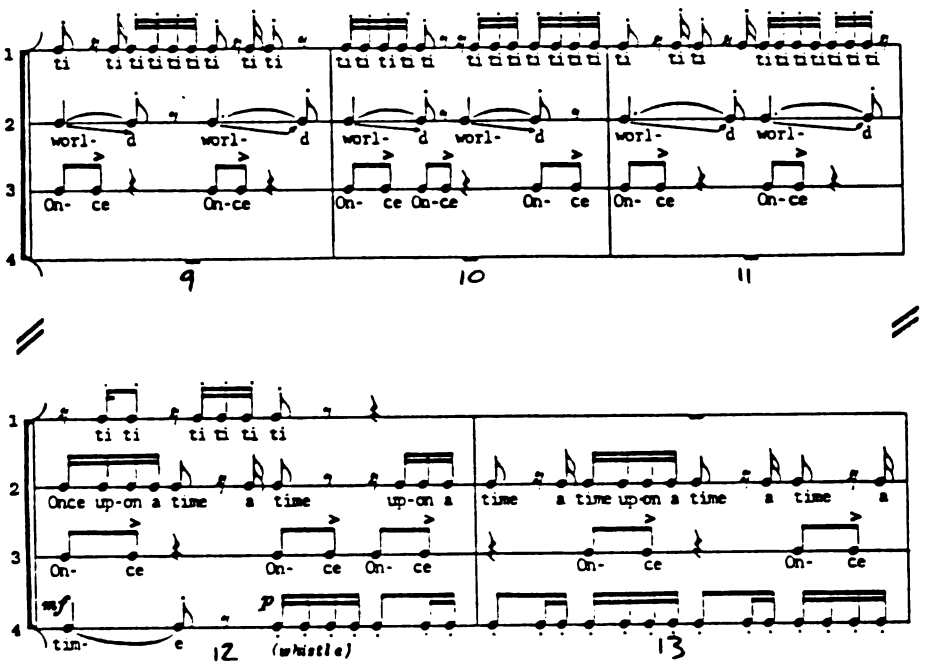



Figure 4-13. Example of notation used in Living Room Music, movement II, measures 9-13.

The rhythms found in "Story" are entirely periodic, presumably to aid in the articulation of the text. The other movements contain periodic rhythms which are occasionally interrupted by grupetti such as those found in Amores and First Construction.

In Movement III, "Melody," the first three players perform on the "living room" percussion instruments found in the first and last movements. Player four has a simple, folk-like melody based on a whole-tone scale which may be performed on any wind, string or keyboard instrument. The performance note (Figure 4-11) suggests that this movement is optional and may be omitted if so desired.

Double Music (1941). Composed jointly with Lou Harrison. 4 players, 45 instruments. Duration: Approximately 6 minutes.

Double Music was jointly composed with Lou Harrison during the spring of 1941 while the two composers were working together at Mills College. The length of the work was predetermined, and the parts were written separately. Cage wrote parts one and three, while Harrison wrote parts two and four.[10] The performance note lists the instrumentation as follows:

Player 1: 6 graduated water buffalo bells, 6 graduated muted brake drums.
Player 2: 2 sistra, 6 graduated sleigh bells, 6 brake drums, thundersheet.
Player 3: 3 graduated Japanese temple gongs, tam-tam, 6 graduated cowbells.
Player 4: 6 muted Chinese gongs, tam-tam (slightly lower in pitch than 3rd. player's), water gong.

According to Harrison, the water buffalo bells are oval-shaped metal bells which produce a "dry" metallic sound.[11] He also describes the sistrum as " . . . everything from a tin can with beans in it to an Ethiopian sistrum."[12] All other instruments are similar to those described in Chapter Two. The performance note suggests

that instrument substitutes may be chosen, if necessary, as long as the soprano, alto, tenor, bass relationship between the parts is maintained.[13]

The work is written in $\frac{4}{4}$ time, with a tempo indication of allegro moderato. The only dynamic markings appear in the tam-tam part. The performance note explains that the work "does not progress from soft to loud but is continuously festive in intention, the changes in amount and nature of activity producing changes in amplitude."[14]

The piece is notated on four five-line staves in a conventional manner, the lines and spaces representing various relative pitches where multiple instruments are used. An example of its notation appears in Figure 4-14.

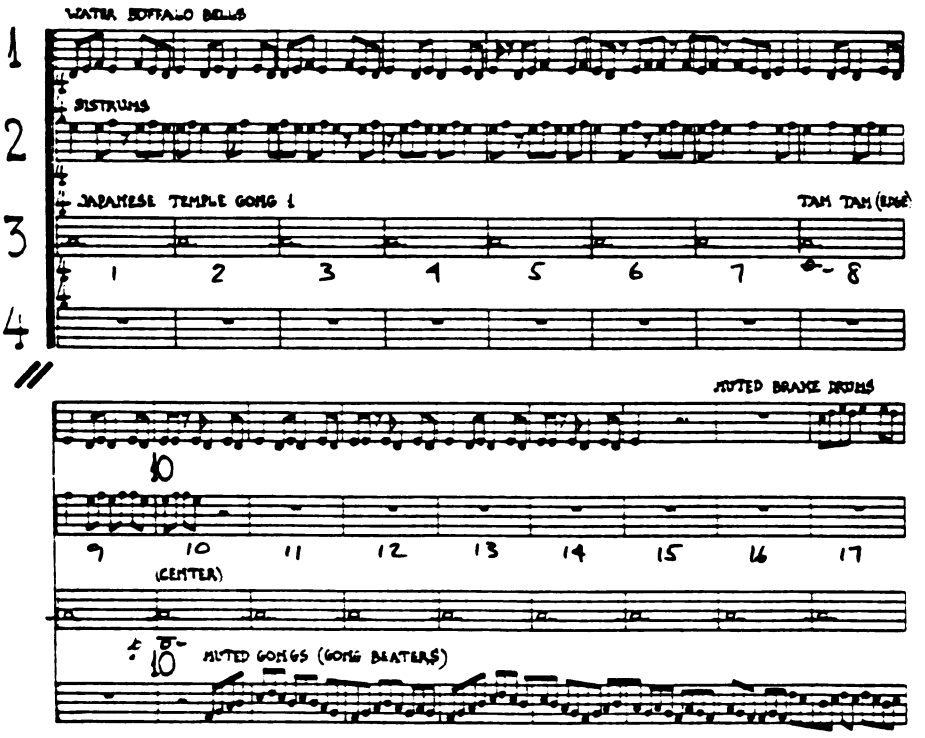



Figure 4-14. Example of notation used in Double Music, measures 1-17.

Double Music is exactly two-hundred measures in length. Parts one and three imply a fourteen-measure division (roughly approximating the square root of 200, thus implying some application of the square-root formula). Parts two and four are grouped into sections of nine and one-half measures. In Figure 4-14, this sectionalization is illustrated in parts one (water buffalo bells) and two (sistra).

For a complete timbral analysis of Double Music, one may wish to refer to a series of articles by Ronald Keezer entitled "A Study of Selected Percussion Ensemble Music of the Twentieth Century."[15]

Third Construction (1941). 4 players, 52 instruments. Duration: Approximately 15 minutes.

Third Construction was premiered at the California Club Auditorium in San Francisco on May 14, 1941, in a program of percussion music by Cage and Lou Harrison. The work was performed by Xenia Cage, Doris Dennison, Margaret Jansen and Lou Harrison, with John Cage conducting.[16]

The work is scored for a wide variety of traditional, "found," and ethnic percussion instruments. Figures 4-15 and 4-16 list instrumentation and notational layout as found in the score.

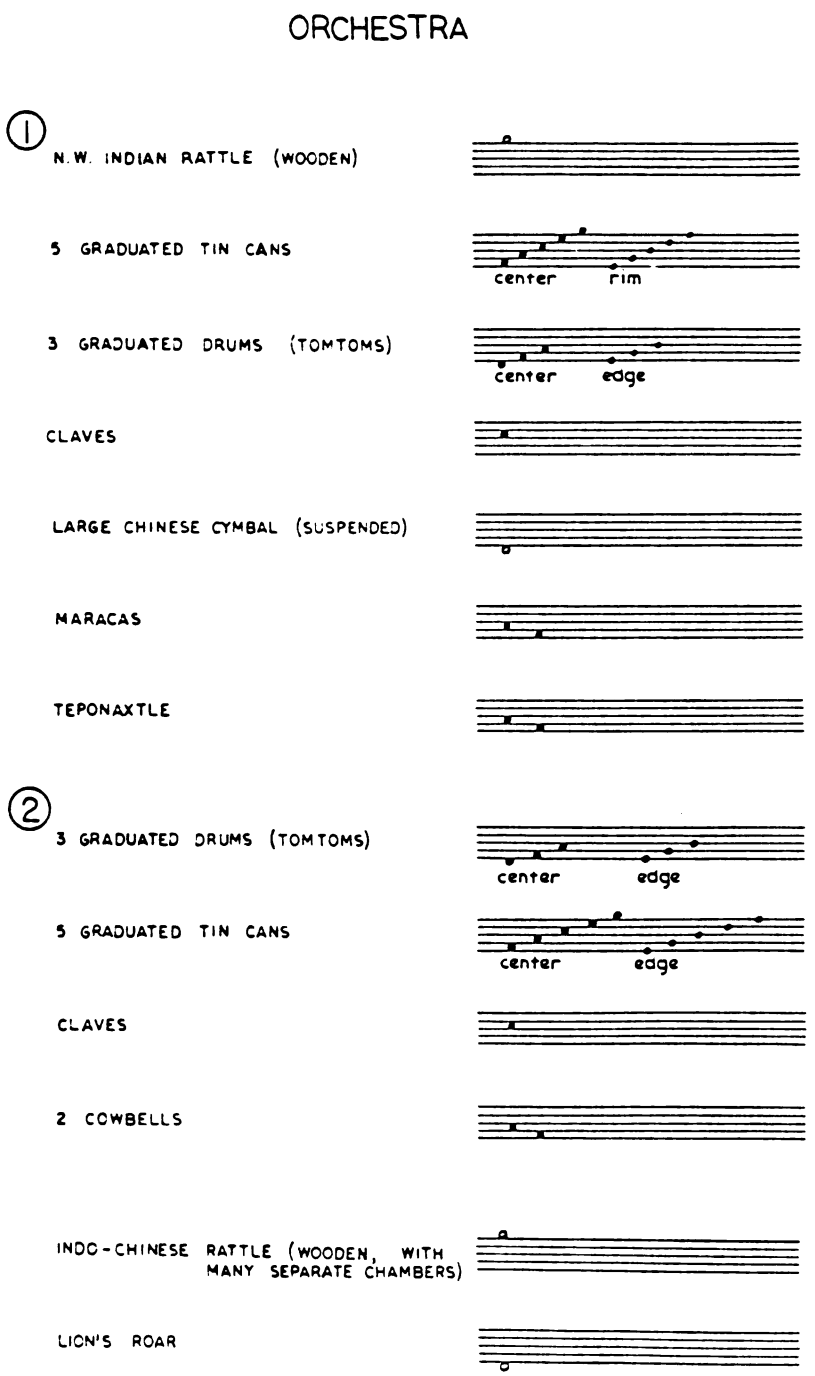



Figure 4-15. Third Construction. Instrumentation for players one and two.[17]

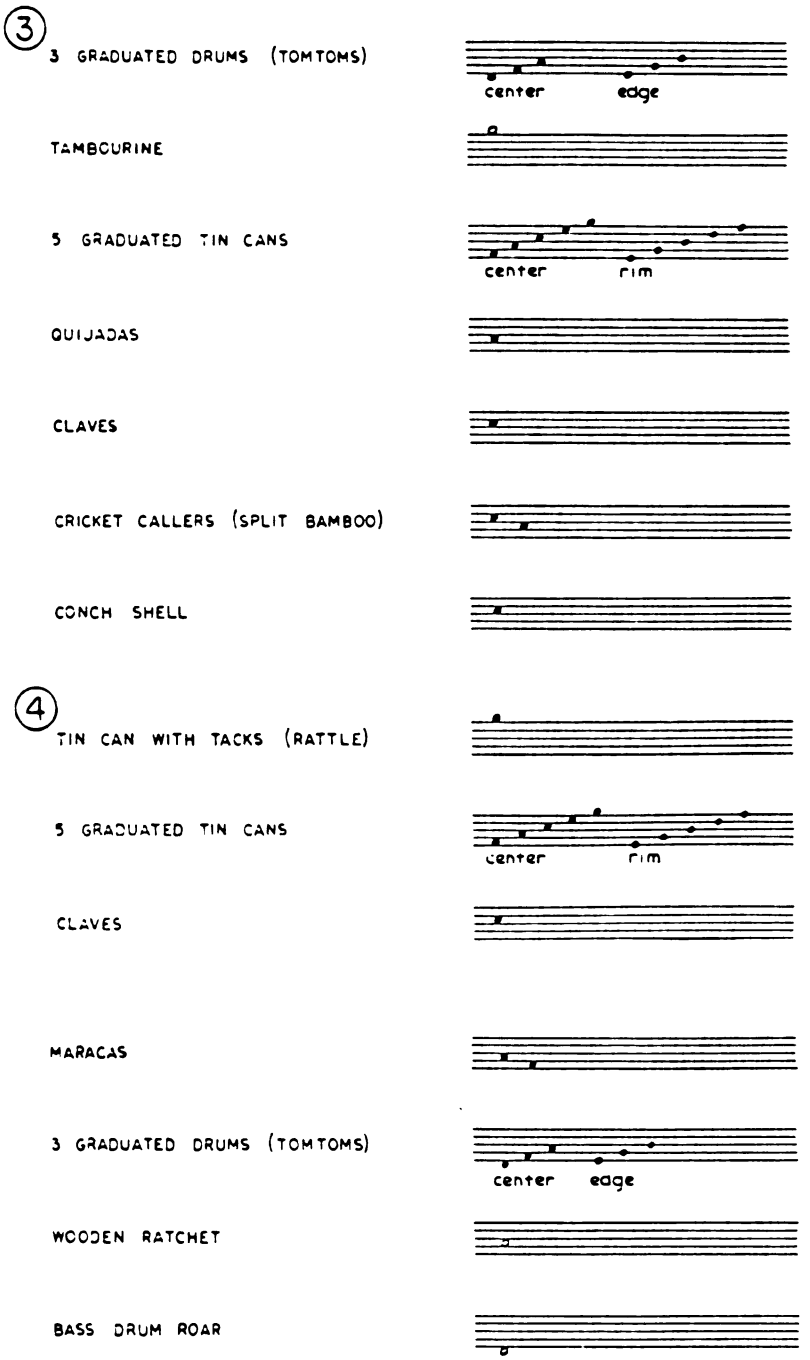



Figure 4-16. Third Construction. Instrumentation for players three and four.[18]

Each of the four players is responsible for thirteen instruments. In Figure 4-17, the instruments are listed according to skin, metal, wood and wind.

| Skin | Metal |
|---|---|
| 3 graduated drums (pl. 1) | 5 graduated tin cans (pl. 1) |
| 3 graduated drums (pl. 2) | Chinese cymbal |
| lion's roar | 5 graduated tin cans (pl. 2) |
| tambourine | 2 cowbells |
| 3 graduated drums (pl. 3) | 5 graduated tin cans (pl. 3) |
| 3 graduated drums (pl. 4) | tin can rattle |
| bass drum roar | 5 graduated tin cans (pl. 4) |

| Wood | | Wind |
|---|---|---|
| N.W. Indian rattle | cricket callers | conch shell |
| claves (pl. 1) | claves (pl. 2) | |
| maracas (pl. 1) | maracas (pl. 4) | |
| teponaxtle (log drum) | ratchet | |
| claves (pl. 2) | | |
| Indo-Chinese rattle | | |
| Quijadas | | |
| claves (pl. 3) | | |

Figure 4-17. Third Construction. Instruments grouped according to type.

Third Construction consists of twenty-four sections of twenty-four measures each. Unlike First Construction, this work has a phrase structure realized differently in each

voice, creating a complex web of rhythmic activity. Despite the frequent employment of grupetti, a meter of $\frac{2}{2}$ is easily heard throughout the work due to an abundance of periodic rhythmic activity (see Figure 4-18).

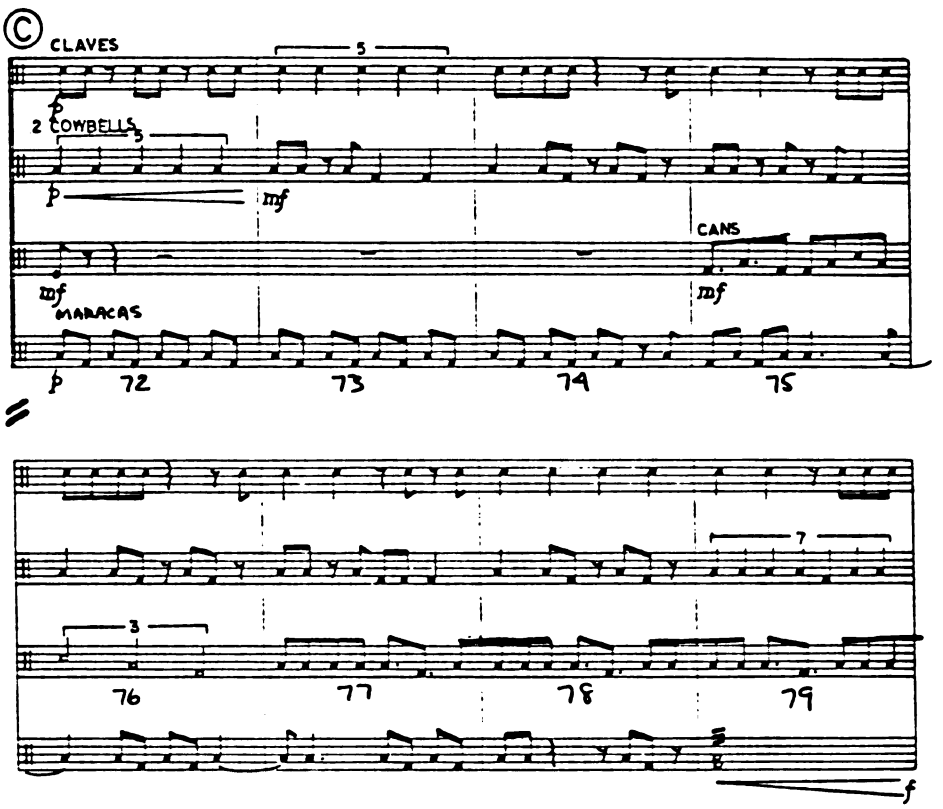



Figure 4-18. Combinations of periodic and aperiodic rhythmic activity found in Third Construction, measures 72-79.

Cage has said that an attempt was made in Third Construction to compose "rhythmic cadences."[19] The rhythmic cadences are apparently constructed through a variety of cross-rhythms which appear at the ends of the twenty-four measure sections. Such cadences occur in all but five of the twenty-four sections. (Periodic rhythms are heard at the ends of sections eight, eleven, fourteen and

nineteen, and a sustained roll on bamboo cricket callers is found at the end of section fifteen.) In many cases, these cross-rhythms appear in more than one voice simultaneously, creating a rhythmic tension which is resolved at the beginning of the following section with the appearance of predominantly periodic rhythms (see Figure 4-19).

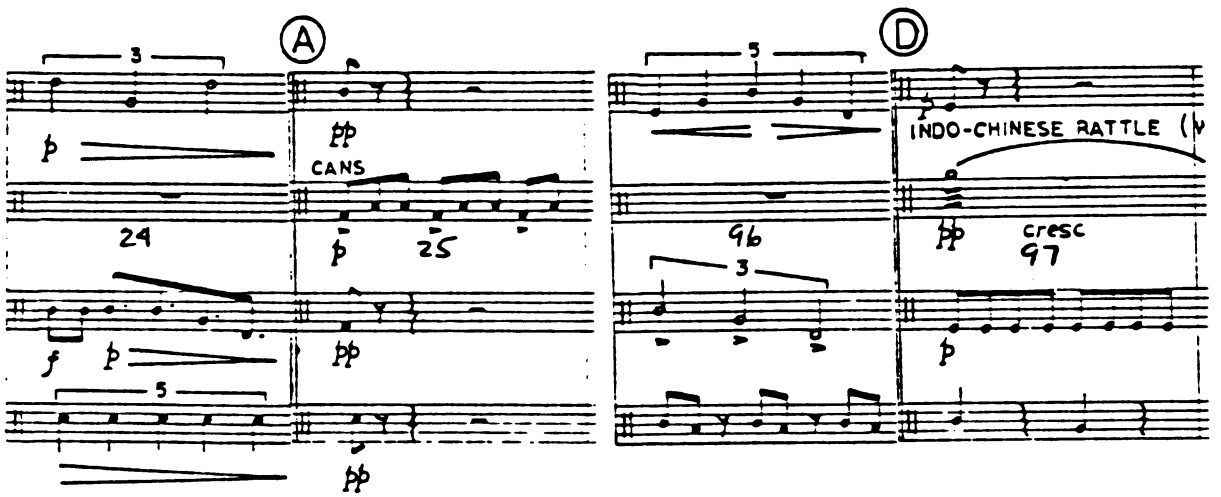



Figure 4-19. Rhythmic "cadences" found in Third Construction, measures 24-25 and 96-97.

Third Construction is among the most complex of Cage's works for percussion ensemble. It employs a wide variety of timbres together with a complex rhythmic structure. Cage said of the work, "In Third Construction, each part (voice) has its division into parts, (but) no two parts have the same structure. I like that independence."[20]

Imaginary Landscape No. 2 (1942). 5 players, 24 instruments. Duration: Approximately 7 minutes.

Imaginary Landscape No. 2 was completed in Chicago in April, 1942, and was dedicated to Lou Harrison.[21] The work is given the alternate title, March No. 1. The alternate title may have been applied to distinguish the work from an earlier piece, also entitled Imaginary Landscape No. 2, which Cage had withdrawn from publication.[22]

As in all the works in the Imaginary Landscape series, Imaginary Landscape No. 2 combines percussion instruments with electronic devices. The instrumentation from the score appears in Figure 4-20.

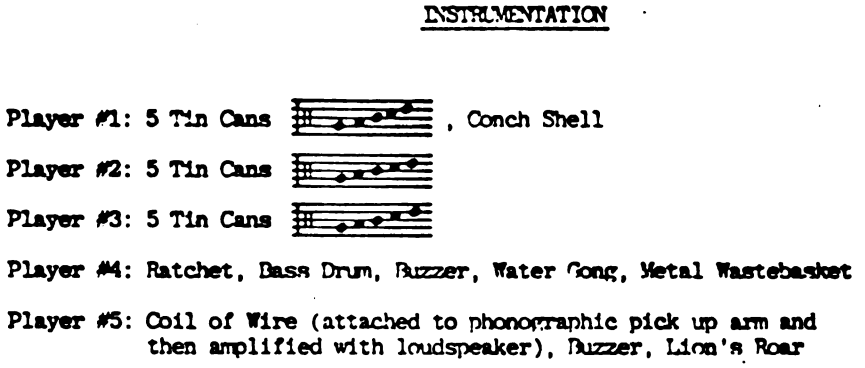



Figure 4-20. Instrumentation for Imaginary Landscape No. 2.

The wire coil is stroked with the fingernail or with a handkerchief to produce sustained rumbling sounds. Conventional notation is used to indicate duration (see Figure 4-21).

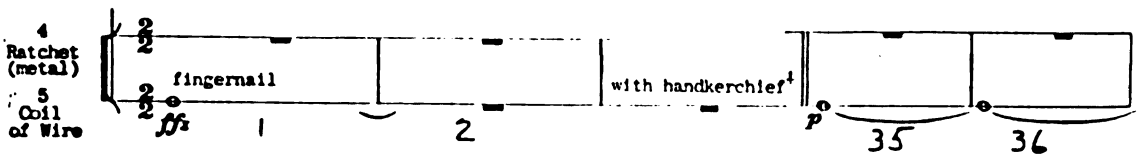



Figure 4-21. Imaginary Landscape No. 2. Notation for wire coil attached to phonographic cartridge, measures 1-2 and 35-36.

The tin cans are to be muted at times with a cloth. Players are also instructed to play with rubber beaters and with the "stick ends" (handles). The bass drum is to be played with bamboo timpani mallets (mallet heads and handles) at the center of the membrane and on the rim of the drum. The electric buzzers are notated in the same manner employed with the wire coil.

In Imaginary Landscape No. 2, Cage again employed the "square-root" formula of composition. The rhythmic structure of 3:4:2:3:5 is consistently applied to both microstructure and macrostructure through the twelfth section. Until that point, each seventeen-measure section is marked by the appearance of a double bar. Where one would expect to find the beginning of the final section of macrostructure (consisting of five seventeen-measure sections), there appears instead a forty-eight measure coda. The coda is grouped 6:4:3:4; 2:3:4:5; 3:4:2:3:5. One will note that the original phrase structure (3:4:2:3:5) appears in the final seventeen measures. When asked if the departure from the square-root structure was an indication

that the composer was moving away from the mathematical compositional method he had established, he replied, "I began to eliminate certain portions of the structure as a kind of cadence. I was not trying to get away from the structure, but trying to do something lively with it that would change its nature."[23]

Imaginary Landscape No. 2 was premiered under the direction of Lou Harrison on May 7, 1942, in San Francisco. The program, as well as subsequent reviews, listed the work's title as Fourth Construction. When questioned about the discrepancy, Cage replied, "I probably said I would do that (compose a fourth Construction), but then he didn't play that. Instead of writing a fourth Construction, which Lou may have announced, I actually wrote another Landscape."[24]

Imaginary Landscape No. 3 (1942). 6 players, 19 instruments. Duration: Approximately 3 minutes.

Imaginary Landscape No. 3 was completed in February, 1942, and was premiered at the Arts Club of Chicago on March 1 of the same year.[25] The instrumentation is as follows:

Player 1: Audio-frequency oscillator (capable of producing pitched slides), variable-speed turntable on which is played a constant frequency record (as in Imaginary Landscape No. 1).[26]

Player 2: Five graduated tin cans (at least six inches in diameter).

Player 3: Five graduated tin cans (as above).

Player 4: Electric buzzer, turntable on which is played a record of continuously variable frequency (as in Imaginary Landscape No. 1).

Player 5: 2 muted Balinese button gongs (large temple blocks may be substituted), variable-speed turntable on which is played a recording of a generator whine).

Player 6: Radio aerial coil attached to phonograph cartridge, marimbula (amplified with contact microphone).

The amplified wire coil of player 6 is plucked with the fingernail as in Imaginary Landscape No. 2. The marimbula is a very large "thumb piano" on which the player sits, plucking the keys with the fingers.

Conventional notation is employed throughout the work. The audio frequency oscillator is notated on a single space at the top of a five-line staff with indications for pitch slides given by the placement of arrows (see Figure 4-22).


Figure 4-22. Imaginary Landscape No. 3. Notation for audio frequency oscillators, measures 95-100.

The slides produced by the variable speed turntables are notated in the same manner employed with the audio frequency oscillator.

The rhythmic structure for Imaginary Landscape No. 3 is 12 x 12, with each section grouped according to the rhythmic

proportion 3:2:4:3. The rhythmic structure applies to both the microstructure and the macrostructure as in First Construction.

Complex cross-rhythms superimposed over one another appear throughout the work. Grupetti are notated in brackets as in previous works. An example of these cross-rhythms appears in Figure 4-23.

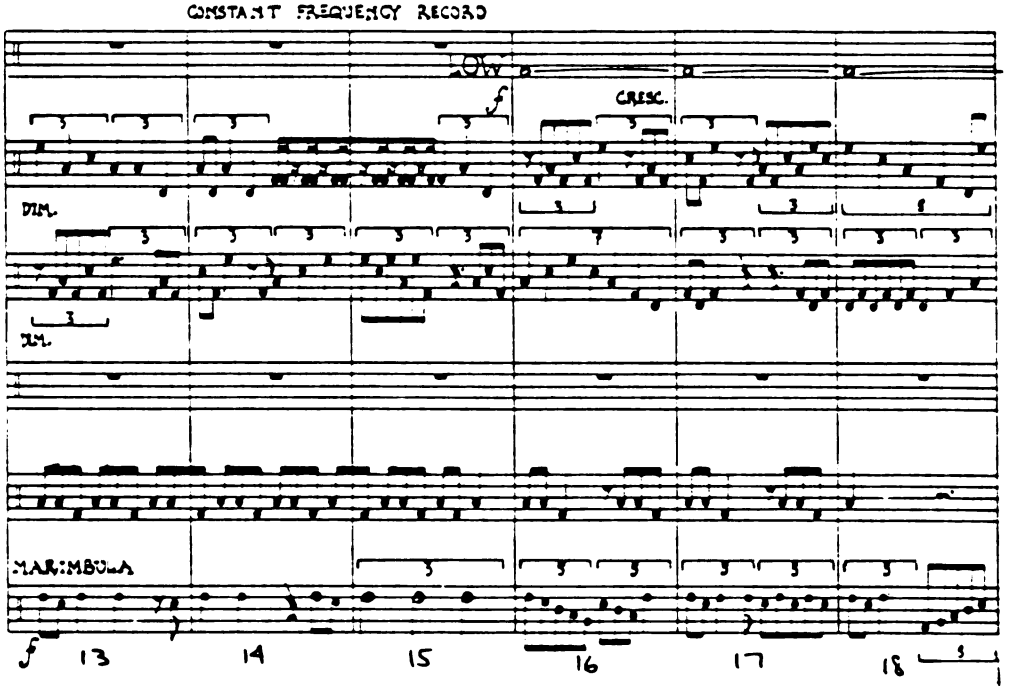



Figure 4-23. Imaginary Landscape No. 3. Example of superimposed cross-rhythms, measures 13-18.

In 1965, Cage made the following statement concerning Imaginary Landscape No. 3:

> When the Second World War came along, I talked to myself, "What do I think of the Second World War?" Well, I think it's lousy. So I wrote a piece, Imaginary Landscape No. 3, which is perfectly hideous. What I meant by that is that the Second World War is perfectly hideous, and I meant incidentally that Time, Life and Coca-Cola were also hideous, that anything that is big in this world is hideous.[27]

Credo in US (1942). 4 players, 19 instruments. Duration: Approximately 12 minutes.

According to John Cage, Credo in US is "a suite of satirical character composed within the phraseology of the dance by Merce Cunningham and Jean Erdman for which it was written."[28] The instrumentation is as follows:

Player 1: 2 muted gongs, 5 tin cans

Player 2: 5 tin cans, electric buzzer, tom-tom

Player 3: Piano, hands on wood (the player strikes the wood of the piano or piano bench), tom-tom

Player 4: Radio, phonograph

The radio may be tuned to any station, but the player is instructed to "avoid news programs during national or international emergencies."[29] On the phonograph, the player is instructed to "use some classic: e.g. Dvorak, Beethoven, Sibelius or Shostakovich."[30] Both instruments, which may be used interchangeably, are notated with sustained whole notes as shown in Figure 4-24.

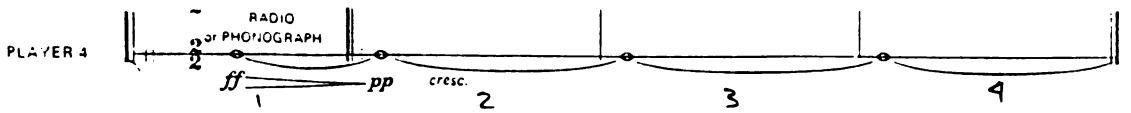



Figure 4-24. Credo in US. Notation for radio/phonograph, measures 1-4.

After the initial entrance of Player Four, which is notated for "radio or phonograph," each subsequent entrance is marked "radio." In an interview with the author, Cage indicated that each entrance could be for either instrument:

> There are a lot of people who give it kind of an ABA effect by using the radio in the middle and the record at the beginning and again at the end. I think it's nice that people make up their own versions.[31]

Credo in US consists of three "facades," each of which is followed by a "progression," concluding with a "coda facade." Each "facade" contains predominantly tutti percussive effects from the tin cans, muted gongs and electric buzzer over angular melodies or tone clusters in the piano, all apparently used to interrupt the "music" from the radio or phonograph. Two of the three "progressions" include piano solos which represent music of American culture. The first "progression" features a "cowboy solo,"[32] and the third "progression" contains a mixture of jazz, blues and "boogie woogie" styles. It is in the second "progression" that the radio typically makes its appearance amid repetitive clusters in the piano, adding an element of indeterminacy to the composition, since it is relatively unknown what will be on the air at the time of performance.

The form of the work could thus be described as a loosely-conceived rondo, as shown in Figure 4-25.

| Facade One | First Progression | Facade Two | Second Progression | Facade Three | Third Progression | Coda Facade |
|---|---|---|---|---|---|---|
| (158MS.) | "Cowboy Solo" (138MS.) | (47MS.) | "radio" (122MS.) | (20MS.) | "jazz solo" (107MS.) | (51MS.) |

Figure 4-25. Credo in US. Outline of form.

Credo in US begins with solo radio or phonograph which is interrupted by a repetitive motive in the piano, marked "very percussively" and accompanied by tin cans and muted gongs (see Figure 4-26). This initial piano motive figures prominantly in each of the three "facades."

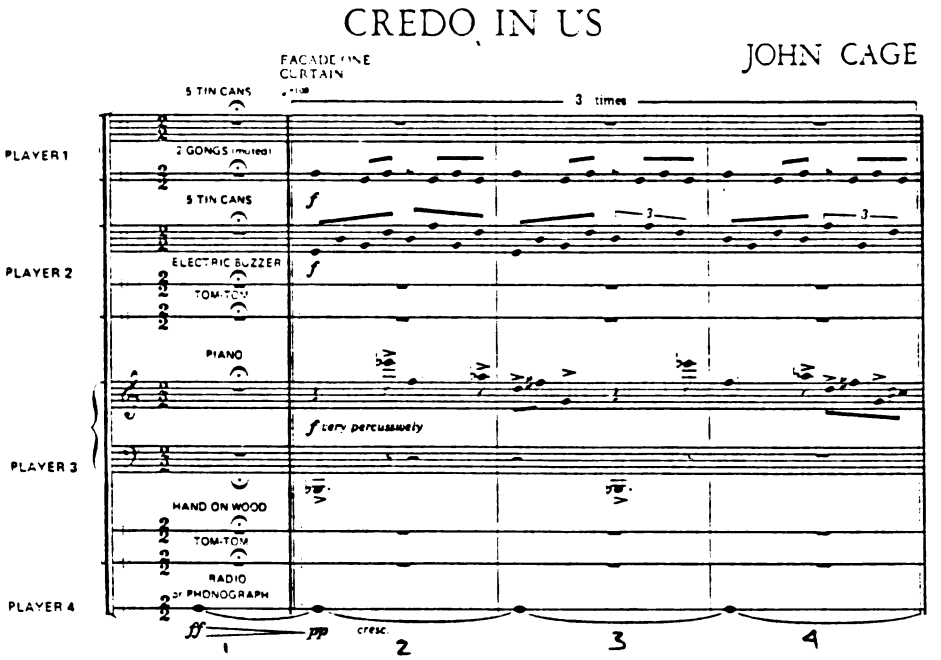



Figure 4-26. Credo in US. Opening motive, measures 1-4.

An excerpt from the "cowboy solo," featured in the first "progression" appears in Figure 4-27.

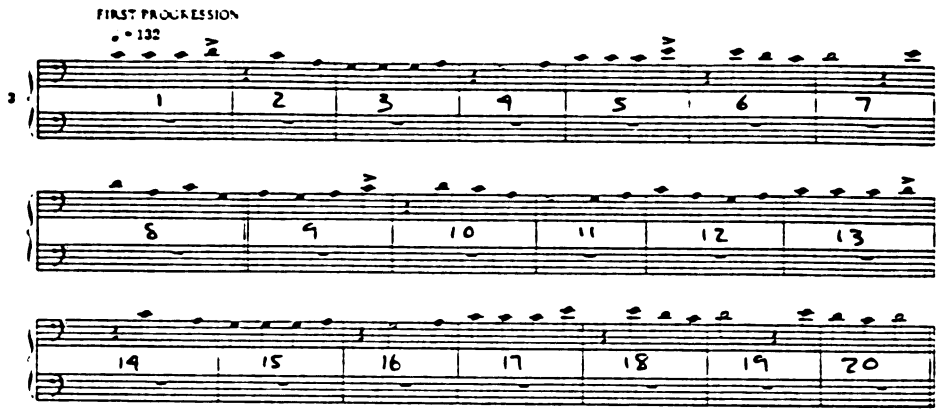



Figure 4-27. Credo in US. "First Progression," "Cowboy Solo," measures 1-20.

The piano's initial motive, accompanied by tin cans and muted gongs, returns in "Facade Two," along with the radio or phonograph (see Figure 4-28).

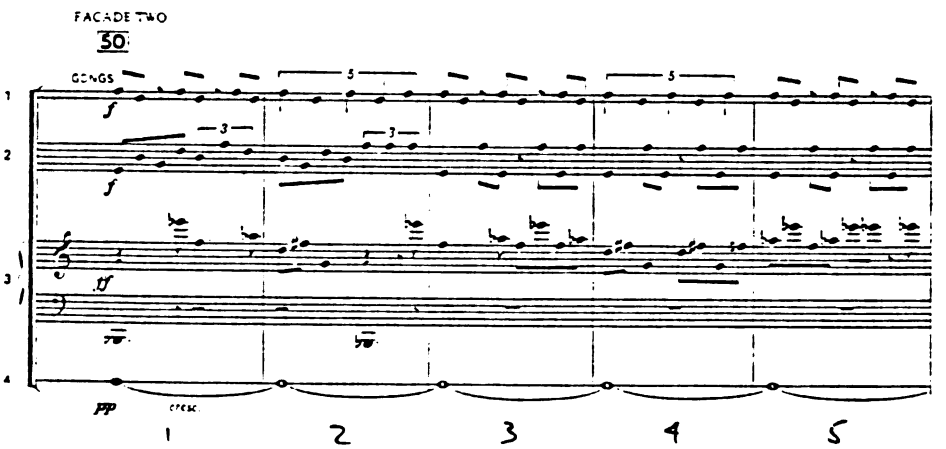



Figure 4-28. Credo in US. "Facade Two," measures 1-5.

The "Second Progression" features the rhythmic repetition of a polychord in the piano consisting of a D-flat major triad in the right hand over a D minor triad in the left hand. Each repetition concludes with an entrance from the radio/phonograph (see Figure 4-29).

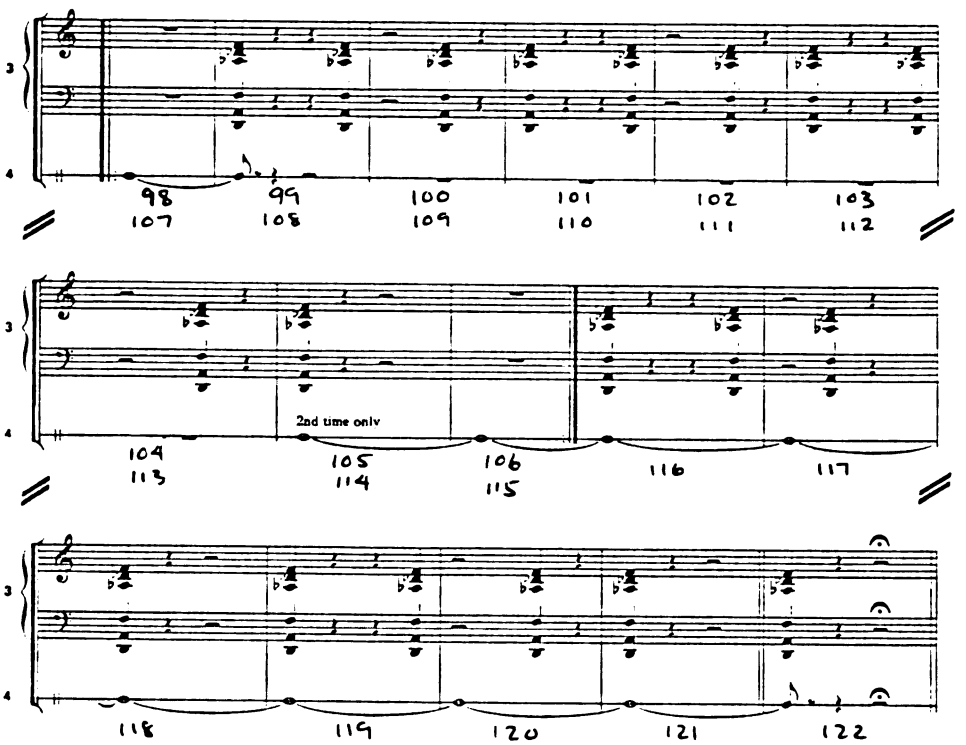



Figure 4-29. Credo in US. "Second Progression," measures 98-122.

An excerpt from the "Third Progression" appears in Figure 4-30. This bi-modal "jazz solo" is built on a blues scale in the right hand over triads ascending the C major scale in the left hand.

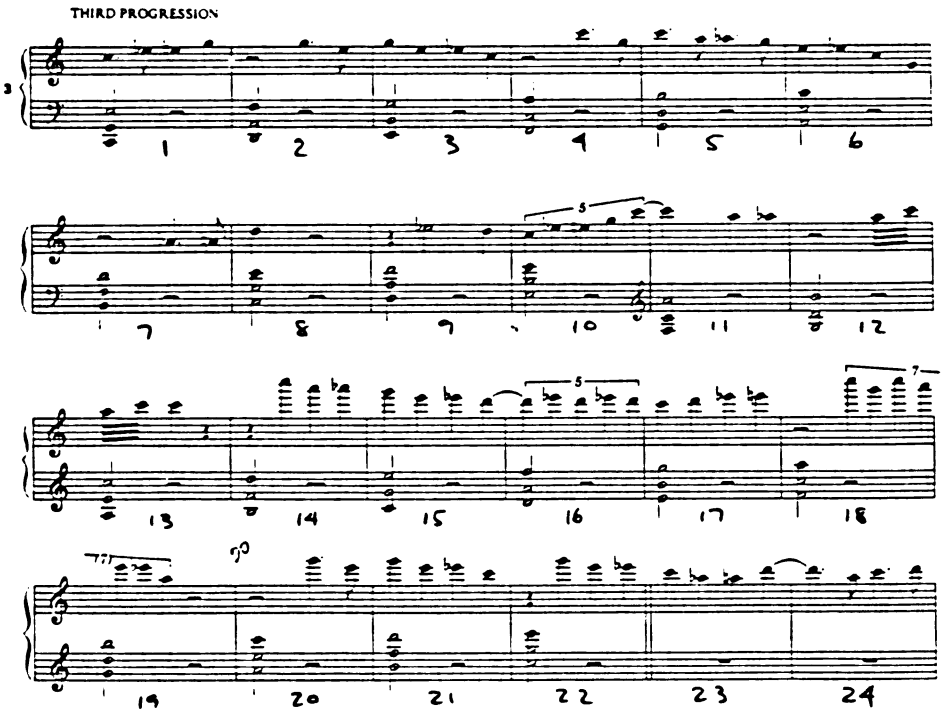



Figure 4-30. Credo in US. "Third Progression," measures 1-24.

The piano solo takes on a "boogie woogie" style later in the "Third Progression" (see Figure 4-31).

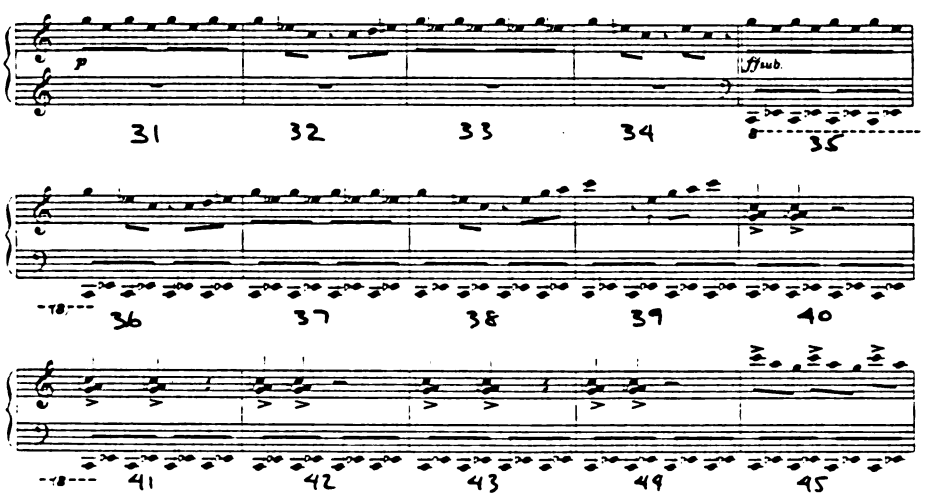


Figure 4-31. Credo in US. "Third Progression," measures 31-45.

The "Coda Facade" brings back the piano's repetitive tone clusters from the "Second Progression" along with machine-like sextuplets in the tin cans. The piano's initial motive from "Facade One" appears in the muted gongs, now in a truncated quintuplet rhythm, still attempting to interrupt the activity of the radio/phonograph (see Figure 4-32).

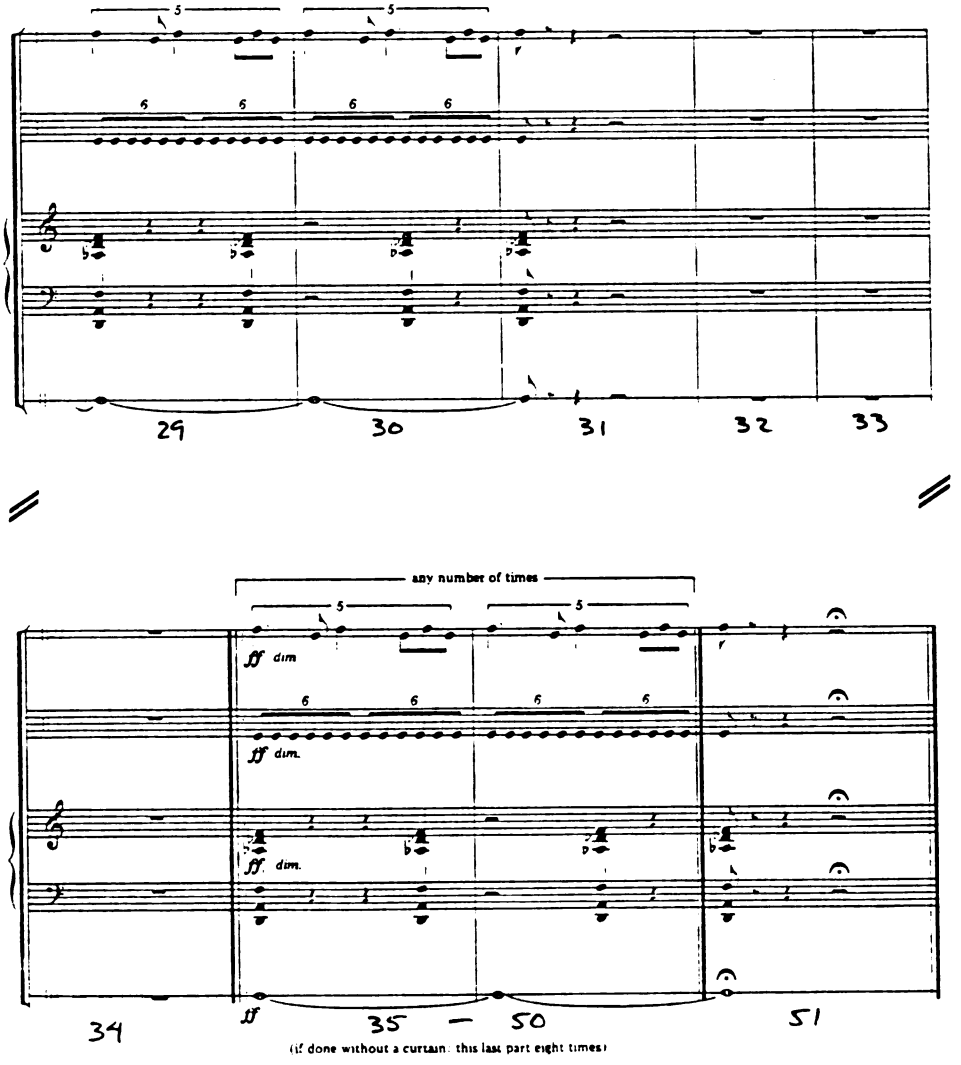



Figure 4-32. Credo in US. Excerpt from "Coda Facade," measures 29-51.

In a 1983 interview with Charles Amirkhanian, Cage explained his intentions with regard to Credo in US following a performance of the work:

Charles Amirkhanian: Did you start this piece with the idea of involving radio or recordings?

John Cage: Both. It was done for a dance which was choreographed by Merce Cunningham, and he made it with Jean Erdman. It's kind of satire on America.

C.A.: So the "US" is the U.S.?

J.C.: And it's also you and me.

C.A.: And what about the "Credo"?

J.C.: That we believe in all that.

C.A.: So the irony is also romantic, classical music bursting out of the speakers, and that was America's idea of culture.

J.C.: And the cowboy solo, and the jazz solo, and so forth.

C.A.: So how are you doing it here [tonight]?

J.C.: The phonograph is playing Tchaikovsky, and the radio, of course, is playing whatever you put on the air.[33]

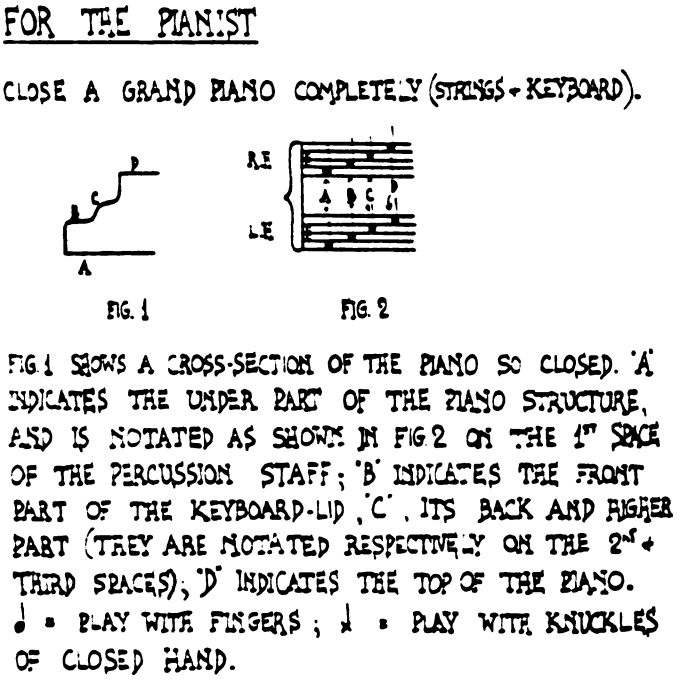
The Wonderful Widow of Eighteen Springs (1942). Voice and closed piano. Duration: Approximately 2 minutes.

The Wonderful Widow of Eighteen Springs was commissioned by mezzo-soprano Janet Fairbank, who first performed the work as a program of contemporary American music presented in New York City. The program mistakenly listed the title as "The Miraculous Widow of Eighteen Springs."[34]

The text is from James Joyce's Finnegan's Wake. In the introduction to his book, Writing Through Finnegan's Wake, Cage explained his employment of Joyce's text:

> In 1942 Janet Fairbanks [sic] asked me for a song. I browsed in the Wake looking for a lyrical passage. The one I chose begins on page 556. I changed the paragraph so that it became two and read as follows:
>
> "Night by silent sailing night, Isobel, wildwood's eyes and primrose hair, quietly, all the woods so wild, in mauves of moss and daphnedews, how all so still she lay, neath of the whitethorn, child of tree, like some lost happy leaf, like blowing flower stilled, as fain would she anon, for soon again 'twill be, win me, woo me, wed me, ah weary me! Deeply, now even calm lay sleeping;
> "Night, Isobel, sister Isobel, Saintette Isobel, Madame Isa Veuve La Belle."
>
> The title I chose was one of Joyce's descriptions of her, The Wonderful Widow of Eighteen Springs.[35]

The singer is accompanied by a "pianist" who plays on various parts of a completely closed piano with fingers and knuckles as explained in the performance note of the score (see Figure 4-33).



FOR THE PIANIST

CLOSE A GRAND PIANO COMPLETELY (STRINGS + KEYBOARD).

FIG. 1 FIG. 2

FIG. 1 SHOWS A CROSS-SECTION OF THE PIANO SO CLOSED. 'A' INDICATES THE UNDER PART OF THE PIANO STRUCTURE, AND IS NOTATED AS SHOWN IN FIG. 2 ON THE 1ST SPACE OF THE PERCUSSION STAFF; 'B' INDICATES THE FRONT PART OF THE KEYBOARD-LID, 'C', ITS BACK AND HIGHER PART (THEY ARE NOTATED RESPECTIVELY ON THE 2ND + THIRD SPACES); 'D' INDICATES THE TOP OF THE PIANO. ♩ = PLAY WITH FINGERS; 𝅗𝅥 = PLAY WITH KNUCKLES OF CLOSED HAND.

Figure 4-33. The Wonderful Widow of Eighteen Springs. Instructions for performing on closed piano.[36]

Since the closed piano is essentially a percussion instrument, the piece can rightfully be included among Cage's works for percussion. As in other percussion works employing multiple instruments or sounds, Cage assigned each sound a space on a five-line staff with a neutral clef. Notes to be played with knuckles are indicated by 𝅗𝅥. The sounds produced are deep and non-resonant.

The melody is built on three pitches; a chanting tone along with the perfect fourth above and the major second below. The singer is instructed to "sing without vibrato, as in folk singing."[37] The part may be transposed to allow the singer to employ "a low and comfortable range."[38]

The entire work is thirty-three measures long, with a time signature of $\frac{4}{4}$ and tempo indication of ♩ =58. The rhythms employed on the closed piano are largely aperiodic, the quintuplet grupetti figuring prominently throughout the piece. Conversely, the vocal line is almost entirely periodic. An excerpt from the work appears in Figure 4-34.

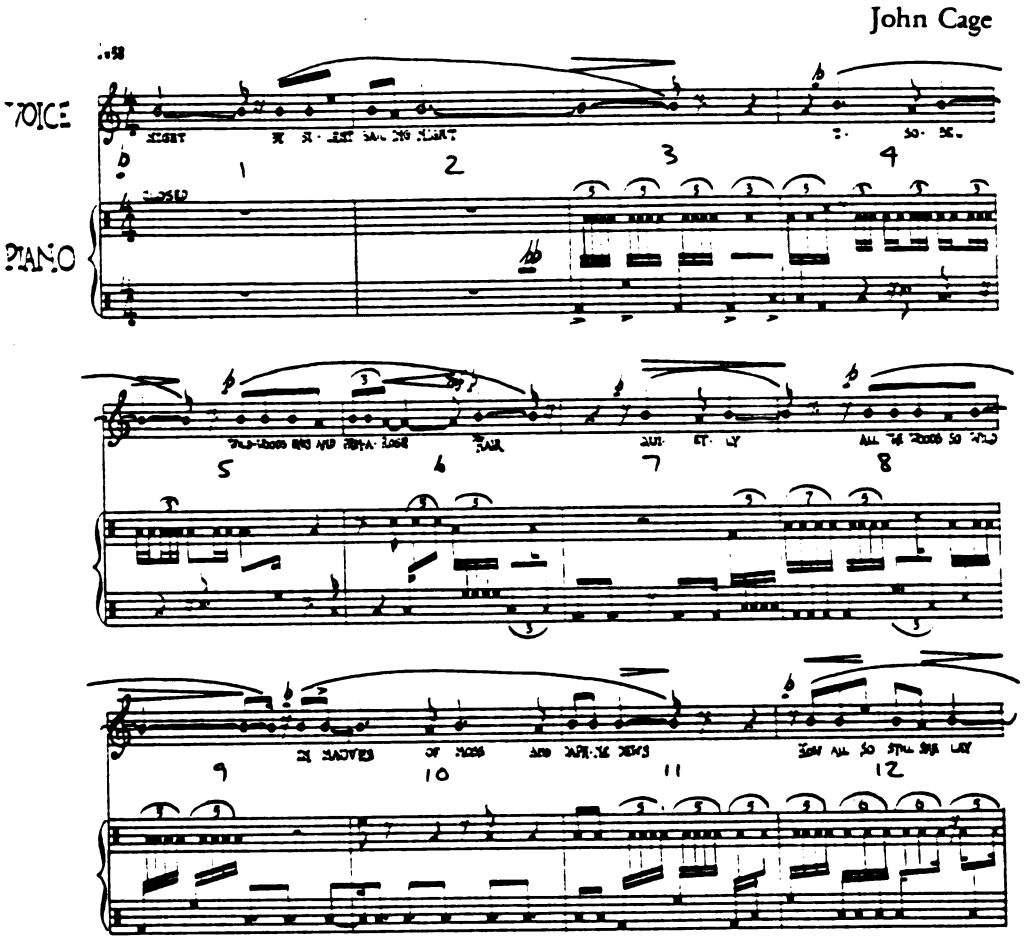



Figure 4-34. The Wonderful Widow of Eighteen Springs, measures 1-12.

Forever and Sunsmell (1942). Voice and percussion duo. Duration: Approximately 5 minutes.

Forever and Sunsmell was written for the dance choreographed by Jean Erdman. Although the published score bears the inscription "NYC 1944," a program found in Cage's personal collection indicates that the work was performed on October 20 and 21, 1942 at the Studio Theatre in New York City.[39]

The work is scored for voice and percussion duo. The following information is provided in the performance note:

> The first percussion player uses two large Chinese tom-toms (timpani sticks at first, fingers later, distinguishing center and edge).
>
> The second player uses a large suspended Chinese cymbal (yarn gong beater), distinguishing edge, center (the raised part), and "between edge and center." The cymbal should be at least 24 inches in diameter.[40]

The singer is instructed to make any transpositions that will give the highest pitch a "forced intense quality," and to "avoid vibrato, especially in the low register."[41] The text is from a poem by E.E. Cummings. The following information on the text appears in the performance note:

NO PUBLIC PERFORMANCE OF THIS SONG MAY BE GIVEN UNLESS THE FOLLOWING NOTE APPEARS ON THE PROGRAM. THE POEM WHICH FORMS PART OF THAT NOTE MUST BE PRINTED AS IT APPEARS ON PAGES 367-8 OF POEMS (1954) BY E E CUMMINGS (NOT IN CAPITAL LETTERS AS IT APPEARS BELOW, BUT IN LOWER CASE LETTERS EXCEPT FOR THE 'I' OF THE SECOND WORD OF THE TWENTY SEVENTH LINE.

NOTE:
THE TITLE AND TEXT OF FOREVER AND SUNSMELL ARE FROM 26 OF 50 POEMS (1940) BY E E CUMMINGS. SOME LINES AND WORDS HAVE BEEN OMITTED, OTHERS HAVE BEEN REPEATED OR USED IN AN ORDER OTHER THAN THAT OF THE ORIGINAL. THE HUMMING AND VOCALISE NOT PART OF THE POEM ARE AN INTERPOLATION. THE ORIGINAL POEM IS AS FOLLOWS:

WHEREUNTO WHETSTONE
DAUGHTERS OF (PUT OFFSPRING OF FOREFAR
SONS OF (MASS AND CHILDREN OF ALMOST)
NEVER SHALL GUESS THE DIMENSION OF

HIM WHOSE
EACH
FOOT LIKES THE
BEAR OF THIS EARTH

WHOSE BOTH
EYES
LOVE
THIS HOW OF THE SKY

—ENDLESS OF WHAT
SHALL NEVER
BEGIN
TO BEGIN TO

IMAGINE HOW(ONLY ARE SHALL BE WEAR
DAWN DARK RAIN SNOW RAIN
-BOW &
A

:LOOM
'S WHIS-
PER
IN SUNSET

OR THROUGHES TOWARD DUSK AMONG WHIPPOORWILLS OR
TREE FIELD ROCK HOLLYHOCK FOREST BROOK CHICKADEE
MOUNTAIN(, MOUNTAIN)
WHYCOLOURED WORLDS OF BECAUSE DO

NOT STAND AGAINST YES WHICH IS BUILT BY
FOREVER& SUNSMELL
(SOMETIMES A WONDER
OF WILD ROSES

SOMETIMES)
WITH NORTH
OVER
THE EARTH

Figure 4-35. Forever and Sunsmell. Note on text.

The work is organized into five sections, with the voice appearing alone at the beginning, middle and end. The first and second percussionists appear together with the voice in Section II, and the first percussionist appears with the voice in Section IV (see Figure 4-36).

| Section I | Section II | Section III | Section IV | Section V |
|---|---|---|---|---|
| 23MS. | 37MS. | 13MS. | 27MS. | 16MS. |
| Vocal Solo | Voice + Per. I&II | Vocal Solo | Voice + Per. I | Vocal Solo |

Figure 4-36. Forever and Sunsmell. Outline of form.

Section I comprises twenty-three measures of vocal solo build on the interval of a perfect fifth (see Figure 4-37).

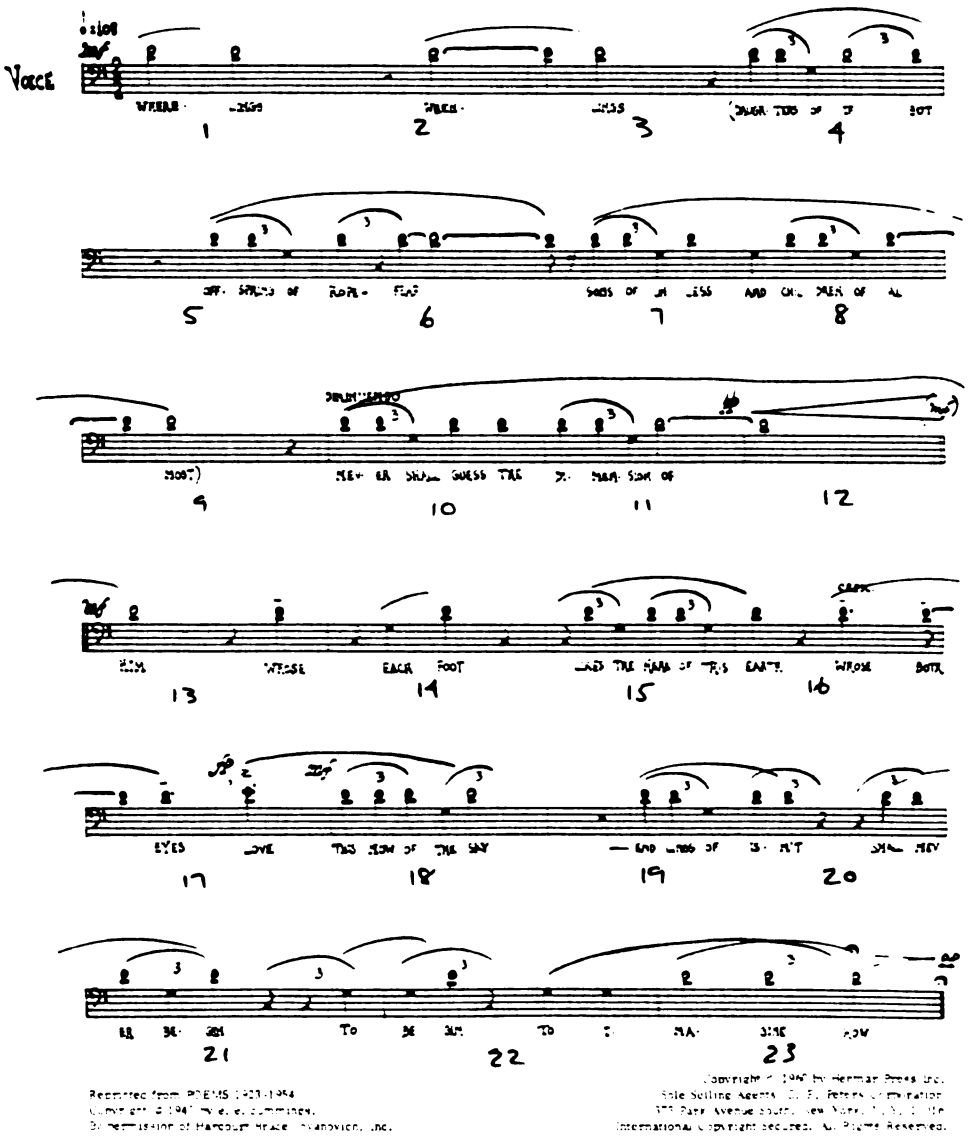





Figure 4-37. Forever and Sunsmell, Section I, measures 1-23.

In Section II, the disjunct triplet rhythms of the first percussionist combine with the syncopated dotted figures of the second percussionist to create complex cross-rhythms (see Figure 4-38).

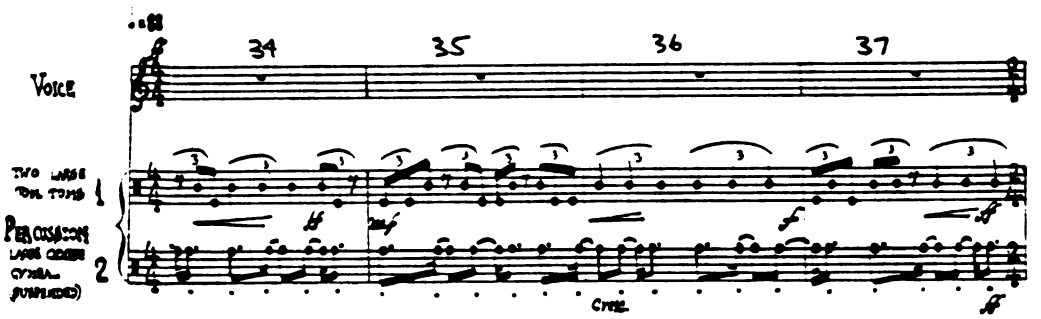



Figure 4-38. Cross-rhythms found in Section II of Forever and Sunsmell, measures 34-37.

The cross-rhythms become more complex as the first percussionist adds various grupetti while the second percussionist executes the notated rhythms on various areas of the cymbal's surface (see Figure 4-39).

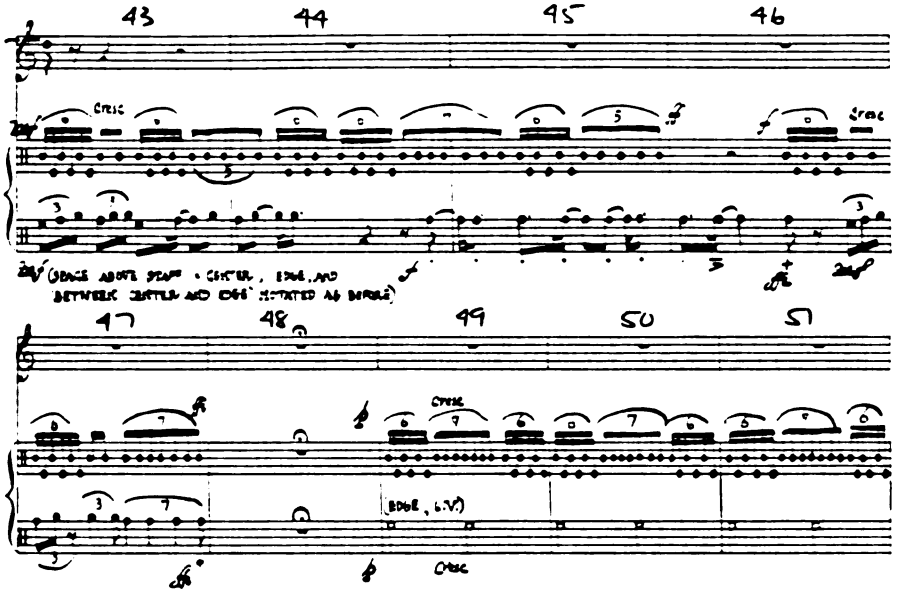



Figure 4-39. Forever and Sunsmell, Section II, measures 43-51.

Following a brief interlude featuring a textless vocalise, Section IV establishes a strict pulse through the employment of finger slides on the tom-toms (see Figure 4-40).

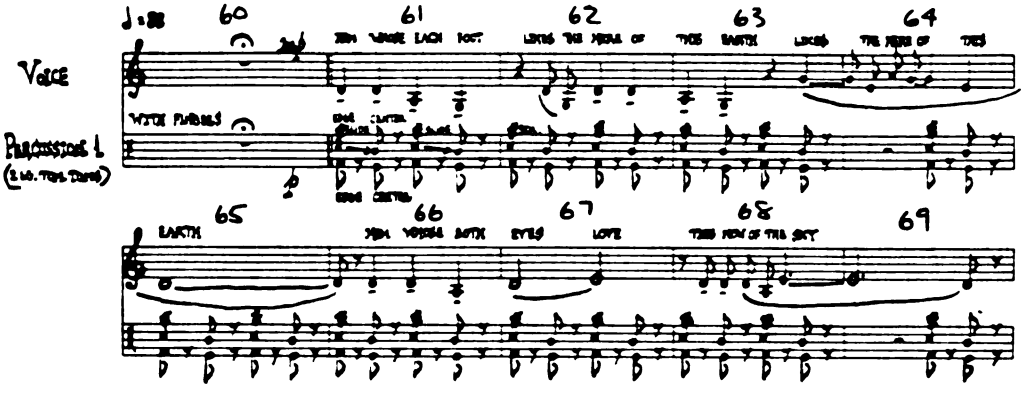



Figure 4-40. Forever and Sunsmell, Section IV, measures 60-69.

The work ends as it began, with a vocal solo built on the interval of a perfect fifth (see Figure 4-41).

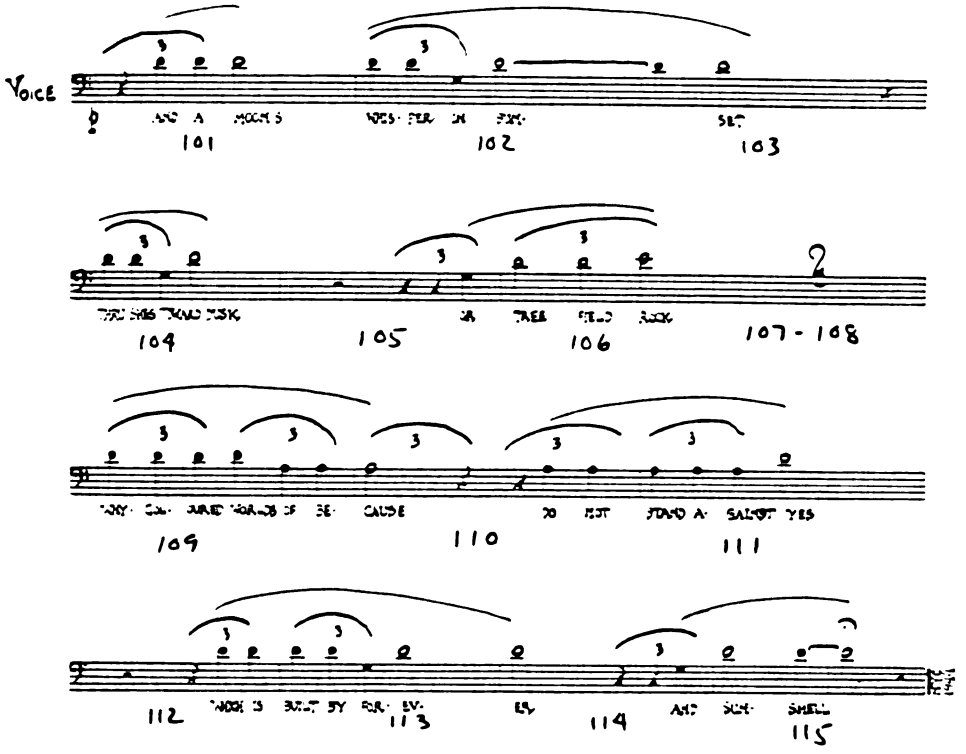



Figure 4-41. Forever and Sunsmell, Section V, measures 101-115.

She Is Asleep (Quartet: 12 Tom-Toms, 1943). 4 players, 12 instruments. Duration: Approximately 5 minutes.

She Is Asleep is an unfinished trilogy of works which begins with Quartet: 12 Tom-Toms. The Quartet is followed by a textless duet for voice and prepared piano. In an interview with the author, Cage explained the unfinished trilogy:

> I had the notion of writing a long work which would fill out a large rhythmic structure and which began with She Is Asleep, (the quartet for drums), and then the piece for prepared piano and voice. Then the third piece was a piano piece called A Room. It was, in general, about woman, hence, She Is Asleep. The work was never finished, and it was to be followed by another work which would have to do with maleness. Instead of finishing that work, I put those ideas in A Book of Music for two pianos.[42]

Quartet: 12 Tom-Toms systematically employs the technique of "icti control" discussed in Chapter Three. A complete analysis of the work appears in an article by Stuart Saunders Smith entitled "The Early Percussion Music of John Cage."[43]

Through the percussion works of 1935-1943, Cage established a firm reputation as one of the leading proponents of experimental music. By structuring his music on duration, rather than on tonality, he opened the door of possibility for noise to enter the field of musical expression. According to Cage,

> For someone interested in noise, like myself, if you start from the beginning of my work, after I studied with Schoenberg, I began hitting things in the environment. I wanted to find a way of making music that was free of the theory of harmony, of tonality; and so I had to find a way of composing with noise. And I came to the conclusion that the important aspect, or as we would say in the twelve-tone language, the important parameter of sound, is not frequency but rather duration, because duration is open to noise, as well as to what has been called musical.[44]

In the early percussion works, one can see a gradual synthesis of Cage's ideas on rhythmic structure. From the fixed rhythmic patterns of the Quartet and Trio to the "square-root" formula of the Construction and Landscape series, and from freely-composed works for the dance such as Credo in US and Forever and Sunsmell to the highly organized works employing "icti controls" such as Amores and She Is Asleep, the composer broadened the tonal spectrum available to music. He also gradually relinquished control over the compositional process by allowing the performers to choose the instruments to be played, as in Quartet, or by introducing a radio, and therefore indeterminate sounds, into a composition, as in Credo in US. Through the method of "icti-control" employed in the two percussion works of 1943, Cage yielded a great deal of compositional control to the method itself, a process which would continue to develop in later works composed through chance operations. In the early Landscapes, Cage explored the use of electronic devices. His interest in the electronic medium would continue in earnest during the 1950's and beyond. The prepared piano, which Cage happened upon as he searched for a substitute for percussion sounds, would dominate the composer's musical output in the decade immediately following the percussion works of 1943. The early percussion works tested the waters of change and served as a springboard for the more controversial works to come.

## Endnotes - Chapter Four

[1]Interview, 6 June, 1988.

[2]Ibid.

[3]Campana, 27-28.

[5]Cage, For the Birds, 73.

[6]Campana, 32-39.

[7]Dunn, 38.

[8]John Cage, Second Construction, (New York: Henmar Press, 1978).

[9]John Cage, Living Room Music, (New York: Henmar Press, 1976).

[10]Baker, 61.

[11]Ibid., 153.

[12]Ibid., 83.

[13]John Cage and Lou Harrison, Double Music, (New York: Henmar Press and C.F. Peters Corporation, 1961).

[14]Ibid.

[15]Ronald Keezer, "A Study of Selected Percussion Ensemble Music of the Twentieth Century," Percussionist, 8,1 (October, 1970), 11-23.

[16]Dunn, 39.

[17]John Cage, Third Construction, (New York: Henmar Press, 1970).

[18]Ibid.

[19]Dunn, 39.

[20]Interview, 6 June, 1988.

[21]John Cage, Imaginary Landscape No. 2, (New York: Henmar Press, 1960).

[22]Interview, 6 June, 1988. When questioned about the earlier Imaginary Landscape, Cage responded, "I wrote one piece which I wanted to get rid of, so the numbering in these pieces has become questionable."

[23]Ibid.

[24]Ibid.

[25]Dunn, 36.

[26]John Cage, Imaginary Landscape No. 3, (New York: Henmar Press, 1961). In the performance note, the composer indicates that the records "are not necessarily the ones used but give an indication of what may be used."

[27]Kostelanetz, Conversing with Cage, 59.

[28]Dunn, 35.

[29]John Cage, Credo in US, (New York: Henmar Press, 1962).

[30]Ibid.

[31]Interview, 6 June, 1988.

[32]Kostelanetz, Conversing with Cage, 62.

[33]Ibid., 62.

[34]Program of concert in Notebook, John Cage Composer, Vol. I, J.C.A.

[35]John Cage, Writing Through Finnegan's Wake, (Tulsa: University of Tulsa Monograph Series, 1978).

[36]John Cage, The Wonderful Widow of Eighteen Springs, (New York: Henmar Press, 1961).

[37]Ibid.

[38]Ibid.

[39]Program of concert in notebook, John Cage Composer, Vol. I, J.C.A.

[40]John Cage, Forever and Sunsmell, (New York: Henmar Press, 1960).

[41]Ibid.

[42]Interview, 6 June, 1988.

[43]Smith, "Early Percussion Music," 16-27.

[44]Kostelanetz, Conversing with Cage, 51.

## Chapter Five

## Cage's Percussion Music Since 1943

Cage employed rhythmic structures in his works for more than a decade after the early compositions for percussion. The percussion works led directly to the creation of the prepared piano, for which Cage composed most of his music in the 1940's and 1950's. Cage explains how the instrument came into being:

> In 1938 Syvilla Fort, a magnificent black dancer/choreographer in Bonnie Byrd's company at the Cornish School in Seattle, was giving a dance program on Friday, and I was the only composer around. She asked me to make the music for her Bacchanale. The space was small, and there was no room for percussion, only room enough for a grand piano. So I had to do something suitable for her on that piano. And that's what happened. She asked me on a Tuesday. I got to work quickly and finished it by Thursday. At that time, because I had recently been studying with Arnold Schoenberg, I wrote either twelve-tone music or percussion music. I first tried to find a twelve-tone row that sounded African, and I failed. So I then remembered how the piano sounded when Henry Cowell strummed the strings or plucked them, ran darning needles over them, and so forth. I went to the kitchen and got a pie plate and put it and a book on the strings and saw that I was going in the right direction. The only trouble with the pie plate was that it bounced. So then I got a nail, put it in, and the trouble was it slipped. So it dawned on me to put a wood screw between the strings, and that was just right. Then weather stripping and so on. Little nuts around the screws, all sorts of things.[1]

In 1949, shortly after the completion of Sonatas and Interludes for prepared piano, Cage earned awards from the Guggenheim Foundation and the National Institute of Arts and Letters, which cited him for "having thus extended the boundaries of musical art."[2]

Many of Cage's works for prepared piano, including Amores and Sonatas and Interludes, attempted to express the "permanent emotions" of Indian tradition: the heroic, the erotic, the wondrous, the mirthful, sorrow, fear, anger, and the odious, and their common tendency towards tranquility.[3] Other works, such as Imaginary Landscape No. 3, were attempts by Cage to express his own personal ideas about, for instance, war and devastation. In Amores, he attempted to express the beauty of love. One such piece, The Perilous Night, proved a turning point for Cage. The work was an expression of "the loneliness and terror that comes to one when love becomes unhappy."[4] When a critic wrote that the last movement of the work sounded like a "woodpecker in a church," Cage realized that communication was not to be the purpose of his music.

> I had poured a great deal of emotion into the piece, and obviously I wasn't communicating this at all. Or else, I thought, if I were communicating, then all artists must be speaking a different language, and thus speaking only for themselves. The whole musical situation struck me more and more as a Tower of Babel.[5]

Cage's denunciation of music as language or communication was nurtured by his growing interest in non-Western thought, particularly Zen Buddhism. His association with Eastern philosophers such as Daisetz Suzuki and Ananda K. Coomaraswamy led him to believe that all art should "imitate nature in her manner of operation."[6] Thus, Cage became increasingly concerned with eliminating

his personal taste from the compositional process, and began employing chance operations as a pre-compositional process in his works.

Cage had begun moving toward chance operations by the spring of 1950. In Sixteen Dances and Concerto for Prepared Piano and Chamber Orchestra, Cage used charts similar to the Magic Square on which he plotted musical parameters. The Magic Square, or matrix, is a method of representing the forms deriving from transposition and transposed inversion of a pitch set employed in serial composition. Read from top to bottom, each row in the matrix is a prime form of the tone row beginning on the various members of the original inversion form, and the columns read left to right are inversions beginning on the various members of the original prime form. Retrograde forms are found by reading in opposite directions. For his own use, Cage replaced the pitches in the matrix with single sounds, intervals, and aggregates of sounds.[7] "Somehow," he said, "I reached the conclusion that I could compose according to moves on these charts instead of according to my own taste. Until that time, my music had been based on the traditional idea that you had to say something. The charts gave me my first indication of the possibility of saying nothing."[8]

While Cage was working with the charts on Sixteen Dances and Concerto for Prepared Piano and Chamber Orchestra, Christian Wolff gave him a copy of the I Ching (Chinese Book

of Changes) that his father had just published. According to Cage:

> I saw immediately that that chart was better than the Magic Square, so I began writing the Music of Changes and later the Imaginary Landscape No. 4 for twelve radios.[9]

Music of Changes (1951) was Cage's first work which was completely determined by chance operations. Calvin Tomkins explains the complexity of Cage's procedures:

> In his Music of Changes he began by drawing up twenty-six large charts on which to plot the various aspects of the composition - sounds, durations, dynamics, tempi, and even the silences, which received equal value with sounds. Every single notation on each of these charts was determined by chance operations based on the I Ching. To plot a single note, for instance, Cage would toss three coins six times; the results, carefully noted down on paper, would direct him to a particular number corresponding to a position on the chart; this would determine only the pitch of the note, though, and the whole procedure would have to be repeated over and over to find its duration, timbre, and other characteristics. Since the piece lasts forty-three minutes, the total number of coin tosses that went into it was astronomical.[10]

Cage's next step was to combine chance operations with indeterminacy in Imaginary Landscape No. 4 (1951) for twelve radios. According to Cage:

> The reason I wrote (Imaginary Landscape No. 4) was because Henry Cowell had said that I had not freed myself from my tastes in the Music of Changes. It was my intention to do that, so I wrote the music for radios feeling sure that no one would be able to discern my taste in that. However, they criticized that too because it was so soft. So I just kept on going in spite of hell and high water.[11]

In Imaginary Landscape No. 4, each radio is "played" by two performers, one manipulating the station selector and the other operating the volume and tone controls. Cage tossed coins and consulted the I Ching to determine tuning frequencies, dynamics, durations and tempos. The sounds produced on the radios are, of course, totally indeterminate since it is impossible to predict what will be on the air at the time of performance.

Imaginary Landscape No. 4 was first performed in May, 1952. Calvin Tomkins provides the following description of the premiere performance:

> The concert took place in Columbia University's McMillan Theater before a large audience (admission free). Interest in the Cage piece was running high as a result of a recent article by Virgil Thomson in which he drew a parallel between Cage's chance operations and the work of some contemporary abstract painters. Over Cage's objections, the Imaginary Landscape was placed last on the program as the pièce de résistance. The earlier part of the program turned out to be exceptionally long. In plain view on the stage throughout the evening were the twelve RCA "Golden Throat" radio sets, lent by the manufacturer. By midnight, when the time came for the Cage work, nobody had left the hall and a buzz of anticipation filled the air. Unfortunately, this was very nearly all that did fill the air. The twenty-four performers took their places at the twelve radios and for four bewildering minutes the audience listened to a great deal of silence broken only by a few wisps of sound, when a station selector happened to hit a station at the same moment that the volume dial was turned on loud enough to hear it. Cage had been prepared to draw a blank much of the time, but he had not counted on the piece being performed after midnight, when most stations went off the air. . . . The disappointment of the audience was intense, and when Cage went backstage afterward, he found both Virgil Thomson and Henry Cowell looking decidedly glum. "Virgil told me later I had better not perform a piece like that before a paying public," Cage has recalled, "and so we had difficulty after that."[12]

In his book, Silence, Cage offers the following explanation:

> When I wrote the Imaginary Landscape for twelve radios, it was not for the purpose of shock or as a joke but rather to increase the unpredictability already inherent in the situation through the tossing of coins. Chance, to be precise, is a leap, provides a leap out of reach of one's own grasp of oneself.[13]

Cage continued to employ rhythmic structures in his chance-determined works. In Silence, he explains:

> My recent work (Imaginary Landscape No. 4 for twelve radios and the Music of Changes for piano) is structurally similar to my earlier work: based on a number of measures having a square root, so that the large lengths have the same relation within the whole that the small lengths have within a unit of it. Formerly, however, these lengths were time-lengths, whereas in the recent work the lengths exist only in space, the speed of travel through this space being unpredictable.[14]

In 1952, Cage composed what he considers to be the "first piece of music for magnetic tape made in this country."[15] Imaginary Landscape No. 5 was composed as a score for a dance by Jean Erdman by "fragmenting the sounds of forty-three jazz records and re-recording the fragments on tape, following a score written according to chance methods."[16]

Imaginary Landscape No. 5, the last in the Landscape series, adheres to Cage's original conception of making music with electronic devices begun in 1939 with Imaginary Landscape No. 1. The work reveals an additional connection

with the earlier percussion pieces in the employment of a $5^2$ rhythmic structure.

The early chance-determined works began to stretch Cage's ideas toward non-discrimination with regard to his own musical tastes. In referring to the element of timbre in those works, Cage explained:

> This matter of timbre, which is largely a question of taste, was first radically changed for me in Imaginary Landscape No. 4. I had, I confess, never enjoyed the sound of radios. This piece opened my ears to them, and was essentially a giving up of personal taste about timbre. I now frequently compose with the radio turned on, and my friends are no longer embarrassed when, visiting them, I interrupt their receptions. Several other kinds of sound have been distasteful to me: the works of Beethoven, Italian bel canto, jazz, and the vibraphone. I used Beethoven in the Williams Mix, jazz in the Imaginary Landscape No. 5, bel canto in the recent part for voice in the Concert for Piano and Orchestra. It remains for me to come to terms with the vibraphone.[17]

Later in 1952, Cage entered a totally sound-proof room, called an anechoic chamber, at Harvard University. According to Cage:

> In that silent room, I heard two sounds, one high and one low. Afterward I asked the engineer in charge why, if the room was so silent, I had heard two sounds. He said, "Describe them." I did. He said, "The high one was your nervous system in operation. The low one was your blood in circulation."[18]

Cage's experience in the anechoic chamber led him to a startling conclusion: There is no such thing as silence. According to Calvin Tomkins:

> If true silence did not exist in nature, then the silences in a piece of music, Cage decided, could be defined simply as "sounds not intended," and Cage made up his mind to write a piece composed entirely of just such sounds.[19]

4'33" (Four Minutes, Thirty-Three Seconds) was first performed by pianist David Tudor on August 29, 1952 in Woodstock, New York. The performance consisted of three movements (30", 2'23" and 1'40") which were indicated by Tudor's action of opening and closing the cover of the piano keyboard. The work contains no intentional sounds. According to Cage:

> I think perhaps my own best piece, at least the one I like the most, is the silent piece. It has three movements and in all of the movements there are no sounds. I wanted my work to be free of my own likes and dislikes, because I think music should be free of the feelings and ideas of the composer. I have felt and hoped to have led other people to feel that the sounds of their environment constitute a music which is more interesting than the music which they would hear if they went into a concert hall.[20]

With 4'33", Cage had taken yet another step in the direction of non-discrimination. One could view 4'33" as a rhythmic structure which Cage "filled" with silence. As an extension of Cage's desire to eliminate his own tastes from the compositional process, the work represents a move from chance operations to indeterminacy. Cage describes the difference between chance and indeterminacy as follows:

> Bringing about indeterminacy is bringing about a situation in which things would happen that are not

> under my control. Chance operations can guide me to a specific result, like the Music of Changes. An example of indeterminacy is any one of the pieces in a series called Variations which resemble cameras that don't tell you what picture to take but enable you to take a picture. . . . The thing I think that is consistent in my work, where otherwise inconsistency appears--like the difference between indeterminacy and the Music of Changes which is not indeterminate at all--the thing that is in common between them is non-intention.[21]

William Brooks has reached the following conclusion concerning Cage's work with chance and indeterminacy:

> The use of chance, then, was not a revolution in Cage's music, but simply one more way of extending his determination to accept refused elements. It enabled him to open his music not merely to all sounds, but to all continuities. As his familiarity with chance operations increased, Cage little by little discovered procedures which widened the universe of possibilities still further: the content of the score could remain partly specified, so that each performance would be different; parts could be overlapped arbitrarily, so that new continuities would always be created; the performing forces could be unspecified, so that the materials could be freshly conceived for each situation. Eventually, by the mid-1960's, Cage had extended such techniques to their limit; he was producing works which were not scores, but directions for making scores. These pieces left all aspects of performance undetermined; literally anything that coincidence might create could happen. In this musical universe only one concept was refused: intention.[22]

Cage has continued to work with chance operations and indeterminacy in his music up to the present. All of his most recent works for percussion (to 1987) combine these two compositional processes. The remainder of this chapter discusses specific works for percussion which Cage composed from 1956 to the present.

27'10.554" For A Percussionist (1956)

27'10.554" For A Percussionist is part of a series of works with time-length titles which may be performed separately or together in any combination. The other works in the series include 26'1.1499" For A String Player (1953 and 1955), 34'46.776" For A Pianist (1954) and 31'57.9864" For A Pianist (1954). Each of these works employs graphic notation, with each page of score representing one minute. According to Calvin Tomkins:

> The longest piece set the performance time, and the others could enter in at will, with no sense of beginning, middle, or end. Cage's idea was that the parts could go together like the parts of a Calder mobile, moving independently but related by their presence in the same time length.[23]

In the performance note included in the score, Cage provides the following information about 27'10.554" For A Percussionist:

> Percussion instruments are here divided into 4 groups: M = metal; W = wood; S = skin; and A = all others, e.g. electronic devices, mechanical arrangements, radios, whistles, etc.
>
> A correspondence between time and space is made so that each page = one minute; the numbers above the systems are the seconds of the minute. A performance with string player and/or pianists may be made providing the latter use an equal number of structural units of their parts.
>
> A virtuoso performance will include a wide variety of instruments, beaters, sliding tones, and an exhaustive rather than conventional use of the instruments employed. For example: a gong may be suspended or placed on a mat, struck with metal, felt, yarn, wood, rubber, etc., beaters at points on the edge or center or anywhere between. It may be lowered into and/or raised out of a tub of water. A tremolo between

> suspended gongs facing one another is another use. And directional changes following the attack are also effective.
>
> • 's above a line and lines are louder than those below (the staff line is to be taken in all cases as "mf"). Thus ⟋ will be a crescendo. Stems are attached when it is not otherwise clear which type of instrument is to be used. A hook for metal instruments (𝅗𝅥 or 𝅘𝅥) = "laissez vibrer." This piece may be performed as a recording or with the aid of a recording.[24]

Unlike the graphic scores of Morton Feldman, in which the vertical dimension of the score represents relative pitch, Cage's notation uses the vertical dimension to represent relative volume. Thus, points appearing above the horizontal lines are louder than those appearing below. The parameter of pitch is left to the discretion of the performer, according to the instruments chosen. An example of notation used in <u>27'10.554"</u> appears below.

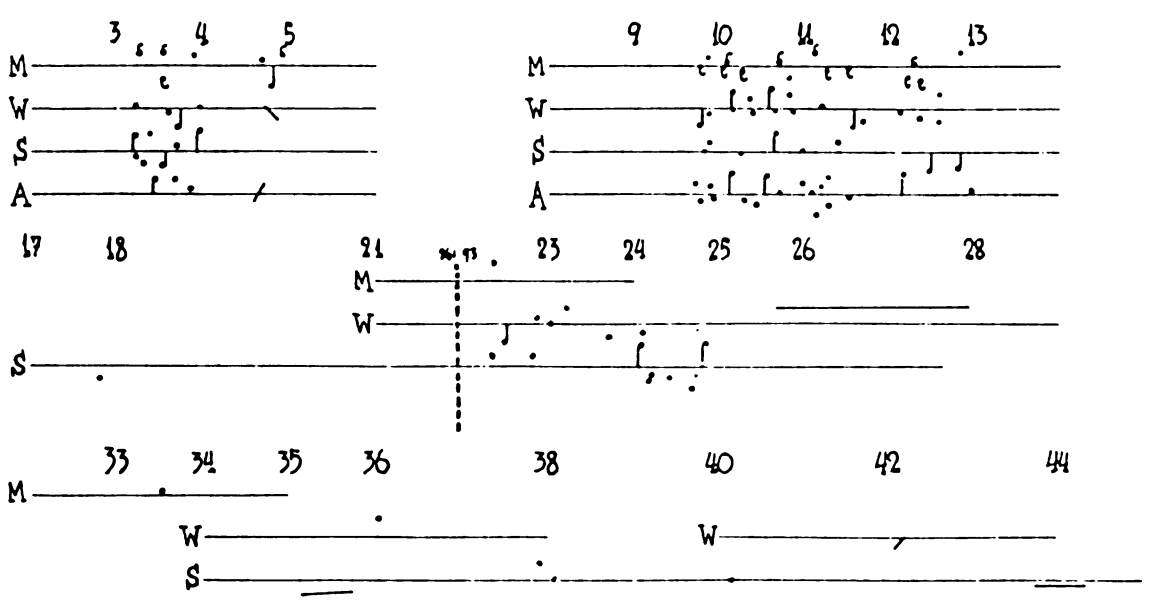



**Figure 5.1. Notation employed in <u>27'10.554</u> <u>For A Percussionist</u>, page 5.**

In his article, "John Cage's 27'10.554" For A Percussionist," Michael Ranta states, "One might speculate that the distribution of the dots was derived from a star chart, one of Cage's interests at the time the piece was written."[25] Actually, Cage employed a method of chance operations that involved marking the imperfections in a sheet of paper, tossing coins to determine which would be silences and which would be sounds, placing over the marked paper a transparent sheet on which the horizontal staves had been drawn, and noting where the marks fell within the staves.[26] Cage had first used this method in a series of compositions entitled Music for Piano (1952-1956).[27] Cage did not employ astronomical charts in his compositions until 1961, when he began work on his Atlas Eclipticalis for orchestra.[28]

Cage has stated that any of the works in the series of which 27'10.554" is a part may be performed in combination with a work entitled 45' For A Speaker, which is published in Silence.[29]

Cartridge Music (1960)

In the liner note to his 1962 recording made with David Tudor, John Cage gave the following description of Cartridge Music:

> The title Cartridge Music derives from the use in its performance of cartridges, that is, phonograph pick-ups into which needles are inserted for playing recordings. Contact microphones are also used. These

latter are applied to chairs, tables, wastebaskets, etc.; various suitable objects (toothpicks, matches, slinkies, piano wires, feathers, etc.) are inserted in the cartridges. Both the microphones and cartridges are connected to amplifiers that go to loud-speakers, the majority of the sounds being small and requiring amplification in order to be heard. The dials of the amplifiers affecting volume and tone are controlled by the performers.

Each performer makes his own part from materials supplied. These materials (made Stony Point, N.Y., July, 1960), all but one sheet of which are on transparent plastic, may be superimposed in any position. One then sees a complex of points, circles, biomorphic shapes, a circle representing clock time and a dotted curving line. Readings are taken which are useful in performance, enabling one to go about his business of making sounds, generally by percussive or fricative means, on the object in a cartridge, changing dial positions on the amplifiers, making "auxiliary sounds" by use of the objects to which the contact microphones are attached, removing an object from a cartridge and inserting another, and, finally, performing "loops:" these are repeated actions, periodic in rhythm. . . . The sounds which result are noises, some complex, others extremely simple, such as amplifier feed-back, loud-speaker hum, etc. (All sounds, even those ordinarily thought to be undesirable, are accepted in this music.)[30]

An example of the superimposed notation used in Cartridge Music appears in Figure 5-2.

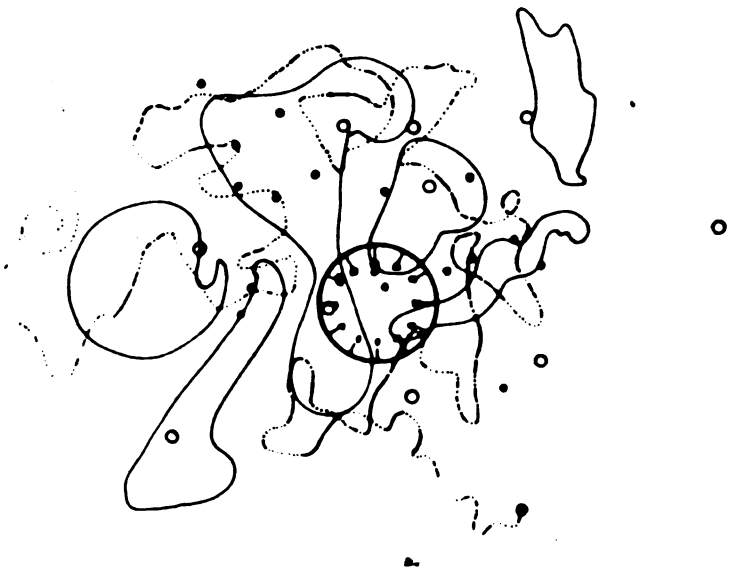


Figure 5-2. Example of notation employed in Cartridge Music. Superimposition using page 6.[31]

Cage has described Cartridge Music as "a composition indeterminate of its performance."[32] He explains:

> The objectives were uppermost in my mind when I supplied the material for Cartridge Music. First, to bring about a situation in which any determination made by a performer would not necessarily be realizable. When, for instance, one of the performers changes a volume control, lowering it to nearly zero, the other performer's action, if it is affected by that particular amplification system, is inaudible. I had been concerned with composition which was indeterminate of its performance; but in this instance performance is made, so to say, indeterminate of itself. Second, to make electronic music live.[33]

Cage had been concerned about the accessibility of tape music to the concert audience, and found in Cartridge Music a means of producing electronic music in a live performance setting. According to Calvin Tomkins:

> The trouble with electronic music produced in the laboratory, (Cage) had concluded, was that by the time it came to be performed it was stone dead; the audiences at electronic concerts, having nothing to watch on stage, often went to sleep. Cage's solution was to have the electronic sounds made by live performers in a concert situation that involved many elements of theater - and anyone who has been to a Cage concert, and seen Cage and Tudor threading their way about a stage cluttered with cables, amplifiers, speakers, and electrically wired instruments, can testify at least that the spectacle does not induce drowsiness.[34]

In Cartridge Music, Cage moved further into the field of indeterminacy, although not completely into that of improvisation. He had long been concerned with "letting sounds be themselves," unassociated with any preconceived function such as tonality. He had also worked to rid his music of his own personal taste. In Cartridge Music, both goals were realized. In his article, "Aesthetic Value in Indeterminate Music," Terence O'Grady offers the following appraisal of the work:

> Cage's Cartridge Music, although clearly indeterminate, provides for the possibility of a sensitive, although improvised, structured continuity partly because of its lack of specific instructions but also because of its potential variety of textures and sound effects. The sort of structured continuity which results from Cartridge Music, although differing from performance to performance, might well approach that associated with electronic music compositions in which contrasts between blocks of sound rather than pitch content are emphasized. The work provides enough timbral variety to avoid monotony, while tacitly encouraging the performers to establish their own continuity.[35]

Child of Tree (1975)

Child of Tree for percussion solo using amplified plant materials, is a composed improvisation involving chance operations. The performer is instructed to find ten "instruments," one of which is a pod rattle from a poinciana tree. Several pod rattles may be counted as one "instrument," or according to their actual number (e.g., five pod rattles may count as one instrument or as five instruments). Another of the ten instruments is a cactus. The score specifies that the cactus be "of a genus having a solid body and spines which are relatively free of other spines, so that when one spine is plucked, a single pitched sound issues."[36] The cactus requires amplification by means of a contact microphone or a phonograph cartridge. According to Cage:

> If I have a piece of cactus, either by means of an alligator clip attachment or by means of a cartridge with a needle in it, I can connect the cactus and the spines with the sound system, and then by plucking one of the spines or touching it with paper or cloth or something, I can get a very beautiful pitched sound, and the pitch relations between the spines of a single piece of cactus often will be very interesting - microtonal.[37]

The score suggests that other plant materials requiring amplification may be used together with those not requiring amplification, such as "claves or clave-like instruments, teponaxtli, sticks to be broken or slapped against one

another, etc."[38] Conventionally pitched instruments and those made of animal or metal materials are not to be used.

Cage establishes a time-length of eight minutes for the performance and provides instructions for dividing the eight minutes into parts by means of the coin oracle of the I Ching. Prior to the performance, the player tosses three coins six times to determine a number between 1 and 64 (this process is explained in any available edition of the I Ching), and consults the following chart to determine the length (in minutes) of each part.

| | |
|---|---|
| 1-16 = 1 | 33-48 = 3 |
| 17-32 = 2 | 49-64 = 4 |

Depending on the numbers derived by the I Ching, the performance may be divided into as few as two and as many as four parts.

After the player has divided the performance into parts, he then tosses coins to determine how many and which of the ten instruments are to appear in each part, consulting other charts similar to the one provided above. A given instrument is to be used only in a particular part of the composition. According to Cage:

> Using a stop-watch, the soloist improvises, clarifying the time structure by means of the instruments. This improvisation is the performance. The rest of the work is done ahead of time.[39]

Similar procedures are followed in Branches (1976) for "percussion solo, duet, trio or orchestra (of any number of players)."[40] According to Cage:

> If Branches is performed as a solo, it begins with a performance of Child of Tree. Follow that with an I Ching determined period of silence of one to eight minutes. The silence is then followed by an eight-minute variation of Child of Tree, specifically a performance using an I Ching determined number of the ten instruments. The variation is followed by a period of silence one to eight minutes long (I Ching determined). The performance continues for any number of variations (always eight minutes long) and silences.[41]

The composer gives further instructions for performing Branches as an accompaniment, duet or larger ensemble.

In Child of Tree and Branches, it seems that Cage relinquished his control over the compositional process even further than he had in Cartridge Music. Although in the past he had specifically avoided improvisation because it relies upon habit and personal taste, he discovered in these percussion works a way to free the art of improvisation from the personal tastes of the performers. He explains:

> In the case of the plant materials, you don't know them; you're discovering them. So the instrument is unfamiliar. If you become very familiar with a piece of cactus, it very shortly disintegrates, and you have to replace it with another one that you don't know. So the whole thing remains fascinating, and free of your memory as a matter of course.[42]

Cage calls this type of improvisation "music of contingency; improvisation using instruments in which there

is a discontinuity between cause and effect."[43] In his Inlets (1977), conch shells are filled with water and tipped to create a gurgling sound which is amplified. According to Cage:

> In the case of Inlets, you have no control whatsoever over the conch shell when it's filled with water. You tip it and you get a gurgle, sometimes; not always. So the rhythm belongs to the instruments, and not to you.[44]

Following a performance of Branches by the Canadian percussion ensemble Nexus, Cage made the following observations:

> I had thought of it, if it were to be played by a number of people, as it was the other evening, as being determined by each person independently of the other. But what the Nexus group did was to determine it for the whole group, and to play it in what you might call vertical harmony, rather than, as I had imagined it, contrapuntally, with each person independent of the other. I explained to them that their understanding of the piece was different from mine, but my directions are actually always ambiguous, and I do that in order to leave the door open for a musician to make an original use of the material. If you would ask me - because they probably would if we had a chance to talk - of what I thought of the performance and so forth, I would lead them away from continual activity to a sense of silence as activity. So that within, say, four minutes, it's not necessary to be continually making sound. You can fill that four minutes by simply putting one sound halfway through the third minute. Instead of being a lawmaker I would like to have my work take on the character of stimulus or suggestion.[45]

Cage has continued to produce "music of contingency" in one of his most recent works entitled Composed Improvisation for Snare Drum (1987). This work, part of a collection of solos for snare drum compiled by Stuart Smith entitled The

Noble Snare (Vol. 2), is an eight-minute improvisation which is divided into three parts by means of chance operations in a manner similar to that employed in Child of Tree. Chance operations are also used to determine the number of events in each part and the number of icti in each event. In order to free the player further from his personal taste, Cage supplies a chart from which sixty-four pairs of striking implements are determined by means of chance operations. In addition, instructions concerning playing surfaces are provided as follows:

> For each of the three parts, use chance operations to determine whether the snare is on or off. The drum can be given another "preparation," e.g. cloth, paper, rubber, plastic, etc., over the entire surface or over only a part of it. Or the side of the drum can be used as the surface to be struck, with or without preparations. Which surface and which if any preparation is to be used during a single event is determined by chance operations.[46]

Although the snare drum is a familiar instrument to any percussionist, through chance operations Cage transforms the instrument into a vehicle for music of contingency. Variations in striking implements, use of "preparations" and chance-determined icti controls insure an improvisation free of the personal tastes of the performer. Cage had employed chance operations in a similar manner in his earlier work as a means for freeing his music from his own personal tastes. With music of contingency, Cage's chance operations are extended to include the performer as well as the composer.

Cage's employment of chance operations stems from his earlier work in percussion combined with his interest in non-Western philosophy. He explains:

> Variations in gongs, tom-toms, etc. and particularly, variation in the effects on pianos of the use of preparations, prepared me for the renunciation of intention and the use of chance operations. Study of the philosophy of Zen Buddhism with Daisetz Suzuki was substantial to these steps. Suzuki gave a lecture on the structure of the mind. He drew an oval on the blackboard. Halfway up the left-hand side he placed two parallel lines. "They are the ego which has the capacity of flowing with its experience - out through the sense perceptions to the world of relativity; in through the dreams through the collective unconscious of Jung to the Ground of Meister Eckhart - or closing itself off from that experience by means of its likes and dislikes, its memory. What Zen wants is that ego flow full circle." Needing a musical discipline as strict as sitting cross-legged, I chose chance operations.[47]

Cage's later work in percussion reflects the evolution of the composer's ideas on music and art in general. While his philosophy can be extremely complex, it has at its root the desire to free sounds from any structural hierarchy which denies their individuality. "Sounds don't worry about whether they make sense or whether they're heading in the right direction," Cage has said. "They don't need that direction or mis-direction to be themselves. They <u>are</u>, and that's enough for them. And for me, too."[48]

## Endnotes, Chapter Five

[1]Kostelanetz, Conversing with Cage, 58.

[2]Charles Hamm, "John Cage" in The New Grove Dictionary of American Music, edited by H. Wiley Hitchcock and Stanley Sadie (London: McMillan Press Ltd., 1986) Vol. 1, 335.

[3]Ibid, 336.

[4]Calvin Tomkins, The Bride and the Bachelors: The Heretical Courtship in Modern Art (New York: The Viking Press, 1965), 97.

[5]Ibid.

[6]Ibid, 100.

[7]Kostelanetz, Conversing with Cage, 63.

[8]Tomkins, 105.

[9]Kostelanetz, Conversing with Cage, 64.

[10]Tomkins, 111.

[11]Kostelanetz, Conversing with Cage, 64.

[12]Tomkins, 113-114.

[13]Cage, "45' For A Speaker" in Silence, 162.

[14]Cage, "To Describe the Process of Composition Used in Music of Changes and Imaginary Landscape No. 4" in Silence, 57.

[15]Kostelanetz, John Cage, 130.

[16]Tomkins, 115.

[17]Cage, "Composition as Process" in Silence, 30-31.

[18]John Cage, A Year From Monday (Middletown, Connecticut: Wesleyan University Press, 1967), 134.

[19]Tomkins, 118.

[20]Kostelanetz, Conversing with Cage, 65.

[21]Campana, 97.

[22]William Brooks, "Choice and Change in Cage's Recent Music" in A John Cage Reader, edited by Peter Gena and Jonathan Brent (New York: C.F. Peters, 1982), 96-97.

[23]Tomkins, 124.

[24]John Cage, 27'10.554" For A Percussionist (New York: Henmar Press, 1960).

[25]Michael W. Ranta, "John Cage's 27'10.554" For A Percussionist," Percussionist, 7, 1 (October, 1969), 8.

[26]Tomkins, 124.

[27]Ibid, 123.

[28]Ibid, 139.

[29]Cage, "45' For A Speaker" in Silence, 147.

[30]John Cage, Cartridge Music, performed by John Cage and David Tudor (Time Records s/8009, 1962), liner notes by John Cage, c1962.

[31]John Cage, Cartridge Music (New York: Henmar Press, 1960).

[32]Dunn, 34.

[33]Cage, Cartridge Music, liner notes.

[34]Tomkins, 136.

[35]Terrence J. O'Grady, "Aesthetic Value in Indeterminate Music," Musical Quarterly, 67, 3 (July, 1981), 380.

[36]John Cage, Child of Tree (New York: Henmar Press, 1975), 1.

[37]Kostelanetz, Conversing with Cage, 88.

[38]Cage, Child of Tree, 3.

[39]Ibid, 7.

[40]John Cage, Branches (New York: Henmar Press, 1976).

[41]Ibid.

[42]Kostelanetz, Conversing with Cage, 91.

[43]Stuart Smith, "Interview with John Cage," Percussive Notes, 21, 3 (March, 1983), 3.

[44]Kostelanetz, Conversing with Cage, 91.

[45]Ibid, 89.

[46]John Cage, Composed Improvisation for Snare Drum (New York: Henmar Press, 1987).

[47]Smith, "Interview," 4.

[48]Cage, For The Birds, 150.

## Chapter Six

## Summary and Conclusion

This document presents historical information on John Cage's professional career through 1943 with emphasis on the composer's work in percussion. The specific analysis of two of Cage's most significant percussion works and the more generalized presentation of his thirteen other compositions for percussion from the same time period reveal certain compositional procedures or styles common to these early pieces. Some of Cage's most recent work has been presented in order to facilitate comparisons of these works with the early compositions for percussion. This chapter attempts to draw conclusions based on such comparisons, as well as to summarize the significant events of John Cage's early career, with particular regard to the influences which helped shape Cage's ideas on music. In addition, the chapter addresses Cage's early work in percussion as it fits into the context of the art form in general. Suggestions for further research are made where deemed necessary.

### Significant Influences on John Cage's Career Through 1943

Among Cage's most direct early influences were his teachers. Richard Buhlig, by virtue of having been acquainted with Schoenberg's work, was the first to instruct Cage in composition. Buhlig's most noteworthy

contribution to Cage's career was his suggestion that the young composer show his work to Henry Cowell. Cowell, in turn, suggested that Cage study composition with Schoenberg, and that he could best prepare himself by working with Adolph Weiss, Schoenberg's first American pupil. In the spring of 1933, Cage moved from California to New York and began studying harmony and composition with Weiss. He also attended some of Cowell's classes at the New School for Social Research. Although it was Cage's interest in serial technique that prompted Cowell to suggest he study with Weiss, it seems that Cowell himself had a greater influence on the young composer.

Cage has acknowledged that Cowell introduced him to music of various cultures. He had taken Cowell's course on music of the world's peoples at the New School for Social Research and so was undoubtedly acquainted with various non-Western musics, even before he began writing percussion music. Cage has said that Cowell's book, New Musical Resources, gave him "permission to enter the field of music."[1] "That was very important to me," Cage said, "to hear through him music from all the various cultures; and they sounded different. Sound became important to me - and noise is so rich in terms of sound."[2]

Cage has said that his employment of grupetti in the early percussion works came from his studies with Henry Cowell. He explains:

> It was characteristic of Indian music, not of the South, but influenced by Mohammedan music. Mohammedan rhythms were to me more interesting than the South Indian rhythms. They were interesting because of these grupettos. Henry, himself, was very interested in grupettos, and devised notation for them which I didn't use. I copied out of his book on rhythm, which was not published, and this book had all the information that led to my use of these grupettos.[3]

Cage used Cowell's "string piano" in several of the early percussion works and has acknowledged that Cowell's instrument was a definite precursor to his own prepared piano. "I remembered how the piano sounded when Henry Cowell strummed the strings or plucked them, ran darning needles over them, and so forth," he said. "I went to the kitchen and got a pie plate and put it and a book on the strings and saw that I was going in the right direction."[4]

Cage and Cowell continued to collaborate throughout Cage's early career. Cowell wrote several works for Cage's percussion ensemble and contributed the program notes for one of the group's concerts. Although examples of Cowell's direct influence on Cage are numerous, perhaps the most important was his openness toward sound materials and compositional innovation, an attitude which Cage most certainly embraced. "At that time, though (1933)," Cage said, "the essential thing for me was that Cowell led me to Schoenberg."[5]

Whatever influence Schoenberg may have had on John Cage or his music has been rather abstractedly manifested. Some of Cage's earliest works are experiments in serialism, but

Cage used no such methods in his later work, for percussion or otherwise. What attracted Cage to Schoenberg's twelve-tone method was the autonomy it granted to individual tones. According to Cage:

> What was so thrilling about the notion of twelve-tone music was that these twelve tones were all equally important, that one of them was not more important than another. It gave a principle that one could relate over into one's life and accept . . . "[6]

Cage very obviously venerated the Austrian master. "I worshipped Schoenberg," he said. "I saw in him an extraordinary musical mind, one that was greater and more perceptive than the others."[7] Yet, even Cage's deep admiration for his teacher could not deter him from following his own musical instincts. Schoenberg had emphasized the importance of harmony and tonality to the structure of music and Cage could not agree. "Though we had gotten along beautifully for two years, it became more and more clear to me, and to him, that he took harmony fundamentally seriously, and I didn't," Cage said. "The reason I couldn't be interested in harmony was that harmony didn't have anything to say about noise. Nothing."[8]

Schoenberg had impressed upon Cage that music required a tonal structure to differentiate parts of a whole. Cage determined that his own musical structure, in order to accommodate noises, must be based on duration, rather than on tonality. Nevertheless, he acknowledged Schoenberg's oblique influence on his early work:

> In all of my pieces coming between 1935 and 1940, I had Schoenberg's lessons in mind; since he had taught me that a variation was in fact a repetition, I hardly saw the usefulness of variation, and I accumulated repetitions. All of my early works for percussion, and also my compositions for piano, contain systematically repeated groups of sounds or durations.[9]

Cage's friends and colleagues were perhaps as influential to the development of his ideas on the employment of percussion in music as were his teachers. Oscar Fischinger, the abstract filmmaker with whom Cage collaborated in 1936, made a lasting impression on the young composer:

> Fischinger told me that everything in the world has a spirit that can be released through its sound. I was not inclined toward spiritualism, but I began to tap everything I saw. I explored everything through its sound. This led to my first percussion orchestra.[10]

Cage began to explore not only traditional percussion instruments, but also "found" objects such as automobile brake drums, lengths of metal pipe, strips of sheet metal and a number of common household objects or materials acquired from junk yards. Lou Harrison, whom Cage had met through Henry Cowell, worked with Cage in these early experiments with percussive sounds. The two composers worked together with a community of modern dancers in Santa Monica in 1938, and continued to collaborate both in the composition and in the performance of percussion music, particularly in conjunction with dance, throughout their early careers. It was Harrison who introduced Cage to

Bonnie Bird, a modern dancer who, in 1938, hired Cage as a dance accompanist at the Cornish School in Seattle.[11]

Cage and Harrison shared ideas not only about percussion instruments, but also on compositional procedures such as the "square-root" formula and "icti-controls." They jointly composed Double Music for percussion quartet in 1941.

The environments in which Cage worked throughout his early career provided, for the most part, positive reinforcement for his work in percussion and experimental music in general. The community of bookbinders with which Cage worked in Santa Monica in 1938 certainly encouraged his experiments with percussion. Since many of them were modern dancers, they helped Cage discover new sounds which could be utilized as dance accompaniments.

At the Cornish School, Cage's work in percussion flourished, largely due to the widespread support he received from the dance community there. Cage formed his first percussion ensemble at the Cornish School in 1938. The players, many of whom were modern dancers, presented a number of performances and premiered several new works for percussion. It was at the Cornish School that Cage invented the prepared piano and composed his first work for the instrument, Bacchanale, for dancer Syvilla Fort. There also, Cage met Merce Cunningham, who played in the percussion group and with whom Cage would establish a life-long collaboration.

The dance community-at-large embraced Cage's work in percussion and in experimental music in general, while music critics invariably took it lightly. Cage continued to work with modern dancers at Mills College in the early 1940's, where he engaged in successful collaborations with Lou Harrison and choreographer Marian Van Tuyl.

In Chicago, Cage's fame and notoriety increased. His two major percussion performances in that city, both given during March, 1942, received widespread attention from the press. While in Chicago, Cage became more actively involved in experiments with electronically-produced sounds, composing the second and third of his Imaginary Landscapes there in 1942.

Cage's move to New York City in December, 1942, was a major turning point in his career. His highly successful concert of percussion music presented at the Museum of Modern Art in February, 1943, established his reputation as a leading figure in experimental music. Curiously, his most successful percussion concert was his last, and his compositional activities for percussion came to a halt as he sought to concentrate on works for prepared piano.

The events of Cage's early career exerted considerable influence on his work in percussion. Perhaps the single most important event of Cage's career between 1935 and 1943 was his establishment of the percussion ensemble at the Cornish School in 1938. The three concerts presented at the Cornish School and the numerous appearances by the group at

colleges and universities provided recognition and growth not only for Cage's works, but for percussion music in general.

Cage solicited composers to submit new percussion works for his ensemble. The results of his efforts were quite impressive. Within a period of approximately four years (December, 1938 to February, 1943), Cage's ensembles (at the Cornish School and elsewhere) presented in public thirty-two different compositions for percussion. Considering the limited accessibility to music for percussion at that time, such prolificacy is indicative of the interest the group generated. The following is a list of works performed by John Cage and his percussion group from 1936 to 1943.

| | |
|---|---|
| Jose Ardevol | Preludio a 11 |
| | Suite |
| Johanna Beyer | Three Movements |
| John Cage | Amores |
| | Construction in Metal |
| | Second Construction |
| | Third Construction |
| | Imaginary Landscape No. 1 |
| | Imaginary Landscape No. 3 |
| | Quartet |
| | Trio |

Figure 6-1. Repertory of John Cage Percussion Group.

| | |
|---|---|
| Mildred Couper | Dirge |
| | Rumba |
| Henry Cowell | Ostinato Pianissimo |
| | Pulse |
| | Return |
| Ray Green | Three Inventories of Casey Jones |
| Lou Harrison | Canticle |
| | Counterdance in the Spring |
| | Fifth Simfony |
| | Song of Quezecoatl |
| | 13th Symphony |
| Harrison/Cage | Double Music |
| Amadeo Roldan | Ritmica No. V |
| | Ritmica No.VI |
| William Russell | Chicago Sketches |
| | Fugue |
| | March Suite |
| | Studies in Cuban Rhythms |
| | Three Dance Movements |
| | Waltz and Foxtrot |
| Gerald Strang | Percussion Music for Three Players |

Figure 6-1 (Cont.)

In his dissertation, The Percussion Ensemble Music of Lou Harrison, Don Baker lists fifty-three "known pieces for percussion ensemble and percussion solo from 1926 through 1943."[12] Of the works listed in that document, twenty-six were performed in public

by Cage's percussion ensemble. Many of the works were premiered by the group. Cage composed ten of the fifty-three works, more than any other composer represented.

Cage's contribution to the early milieu of percussion in America, through his organization of percussion ensembles in Seattle, Chicago and New York and the performances presented by these groups, was indeed significant. The events of his early career, particularly the performances by his ensembles of new works for percussion, had a lasting impact on experimental music and helped establish a direction for the future of percussion.

Compositional Procedures

Cage utilized four different compositional procedures in the fifteen works for percussion composed between 1935 and 1943. The earliest percussion pieces consist of fixed rhythmic patterns which are continually recycled, appearing in various locations within a given measure (or unit of time) throughout the work. The patterns, or motives, remain static and do not undergo any developmental manipulation other than their placement within a given unit of time.

The "square-root" formula provided a structural framework, based on duration, within which motives or silences could occur. Each work employing this procedure is based on a given number of measures having a square root, so that the large structural divisions (the macrostructure) have the same relationship within the whole that the small

structural divisions (the microstructure) have within a unit of it. The majority of Cage's percussion works employ this procedure in some form.

In two works composed in 1943, Cage utilized a compositional procedure known as "icti-controls", in which he predetermined the number of attacks (or "icti") per player within a given phrase-length. This procedure was applied within a structure of phrase-lengths similar to that employed in the "square-root" formula.

The three works involving either dance or voice (Credo In US, Forever and Sunsmell and The Wonderful Widow of Eighteen Springs, all composed in 1942) employ a more freely-structured compositional style based on the framework of the dance or vocal line. These works utilize the contraposition of periodic and aperiodic rhythms.

The following chart illustrates the compositional procedures employed in the fifteen works for percussion:

Fixed Rhythmic Patterns:

Quartet, 1935

Trio, 1936

Amores (Movement III), 1936

"Square-Root" Formula (partial application):

Imaginary Landscape No. 1, 1939

Figure 6-2. Compositional procedures utilized in percussion works, 1935 - 1943.

Living Room Music, 1940

Double Music, 1941

Imaginary Landscape No. 2, 1942

Amores (Movement I), 1943

"Square-Root" Formula (complete application):

First Construction (In Metal), 1939

Second Construction, 1940

Third Construction, 1941

Imaginary Landscape No. 3, 1942

Amores (Movement IV), 1943

Dance/Vocal Framework:

Credo In US, 1942

Forever and Sunsmell, 1942

The Wonderful Widow of Eighteen Springs, 1942

"Icti-Controls":

She Is Asleep, 1943

Amores (Movement II), 1943

(Figure 6-2 Cont.)

The chart above reveals a chronological sequence of evolution in the compositional procedures applied to the early percussion works. Cage's tendency in this evolution seems to be toward increasingly systematic pre-compositional procedures. Although Cage's desire to eliminate his own

taste from the compositional process came as a result of his study of Zen philosophy, which did not take place until the mid-1940's, it is apparent that in these early works he was already moving toward that goal. The pre-compositional procedures themselves governed Cage's compositional activity, as is most clearly demonstrated in the works employing "icti-controls." Of course, Cage would not completely eliminate his personal taste until the 1950's, when he began to work with chance operations.

Cage has said that his goal in composition is to allow sounds to be themselves, unhampered by the stringent laws of harmony and tonality. Although his early percussion music is often highly structured and organized (as in those compositions using "icti-controls"), it is open to any sound which might be placed within such a structure. Hence, Cage was able to explore a myriad of percussive sounds in his music. Often, a work explores a particular type of sound such as that produced by metal instruments (First Construction and Double Music, for example), or electronics (in Credo In US and the Imaginary Landscapes). In Living Room Music, he allowed the performer to choose the instruments to be played from among items found in an ordinary living room. In Quartet, he made no specification at all as to the sound sources (the title reads "For percussion: no instruments specified"), leaving the performers absolute freedom of choice. Figure 6-3 shows all the different types of instruments employed in the fifteen early percussion works.

A chronological list of these works with instrumentation appears in Appendix B.

| Metal | Wood |
|---|---|
| orchestra bells | wood blocks (not Chinese) |
| sleigh bells | wooden table |
| oxen bells | hands on wood |
| cowbells | teponaxtle |
| water buffalo bells | door |
| Chinese cymbal | window frame |
| Turkish cymbal | bamboo sticks |
| Japanese temple gongs | claves |
| muted gongs | cricket callers (split bamboo) |
| water gong | ratchet |
| suspended gong | Indian rattle |
| Balinese button gong | pod rattle |
| tam-tam | Indo-Chinese rattle |
| brake drums | maracas |
| anvils | quijadas |
| sistrum | |
| tin cans | |
| tin can with tacks | |
| metal wastebasket | |
| marimbula | |

Figure 6-3. Instrument types employed in Cage's fifteen early percussion works.

| Electronic | Skin |
|---|---|
| turntable | tom-toms |
| buzzer | bass drum |
| amplifier | snare drum |
| coil of wire | lion's roar |
| audio frequency oscillators | tambourine |
| radio | bass drum roar |

Other

wind glass

conch shell

magazines

newspaper

cardboard

books

floor

wall

piano

string piano

prepared piano

closed piano

Figure 6-3. (Cont.)

As noted earlier in this chapter, Cage collaborated with Lou Harrison, Henry Cowell and others in his search for new percussive sounds. Many of his instruments are of

non-Western origin, reflecting the influence of both Harrison and Cowell, who also experimented with such instruments. In addition to sharing ideas on sound materials, the composers also influenced one another in their compositional procedures. Cowell's Ostinato Pianissimo (1934) uses fixed rhythmic patterns in a manner similar to that employed by Cage in his Quartet (1935) and Trio (1936). In Pulse (1939), Cowell employed a structure consisting of twenty-five segments of five measures each, a procedure similar to Cage's "square-root" formula. The piece is dedicated to "John Cage and his percussion group."[13] Cage has said that he derived his use of "icti-controls" from Lou Harrison, who employed the procedure in several works prior to 1943. Further research would be necessary in order to verify the presence of similar compositional procedures in the works of other composers.

## Outside Influences on Cage's Early Percussion Works

Cage's work in percussion certainly has precedents in the music of earlier composers, such as Varèse, and in artistic movements such as Dadaism and Futurism, but direct influences are difficult to discern. In an article he wrote in 1959 entitled "The History of Experimental Music in the United States," Cage addressed the notion of influences by quoting painter Willem de Kooning: "The past does not influence me; I influence it."[14] Cage once asked a question of Varèse concerning the latter composer's views on the future of

music. "His answer," Cage said, "was that neither the past nor the future interested him; that his concern was with the present."[15] Cage is equally enigmatic concerning influences on his own music.

Cage heard Varèse's Ionization for the first time at the Hollywood Bowl around 1935.[16] He has said that Varèse "Fathered forth noise into twentieth-century music."[17] Both Cage and Varèse have defined music as "organized sound," yet Cage did not look upon Varèse as a model for his own methods of organizing music. According to Cage:

> What I appreciate about Varèse is obviously his freedom in choosing timbre. He, along with Henry Cowell, has very greatly contributed to getting us used to the idea of a limitless tonal universe. . . . Nevertheless, there is still in Varèse a prejudice towards controlling sounds or noises. He tries to bend sounds to his will, to his imagination. And that is what very quickly bothered us. We knew that he wouldn't let sound be entirely free. What we were looking for was in a way more humble: sounds, pure and simple.[18]

The Italian Futurists were among the earliest proponents of the emancipation of noise. A movement centered primarily in the visual arts, Futurism has been described as "a subversively dynamic art inspired by the machine age."[19] Its most significant representative in music was Luigi Russolo, who, in 1913, wrote a manifesto entitled The Art of Noises. Russolo classified noises into six families and invented machines called "noise intoners" to produce them. One source hailed him as "the forgotten precursor to John Cage and Edgard Varèse."[20]

In a letter presumably addressed to music critic Peter Yates around 1941, Cage said, "Russolo('s work) was a definitive result of the machine. He desired to carry his work forward with the aid of electrical means. . . . My Imaginary Landscape written for percussion and records of constant and variable frequency lies in this class of music dependent on the machine for performance."[21] Although Cage acknowledged Russolo's contribution to electronic music, in the same letter he indicated that his knowledge of Russolo's work was retrospective:

> I did not have the background . . . for my work in this field. I did not know about any of the above accomplishments except those of Varese in his Ionization. I had studied harmony with Weiss without liking it or feeling any natural inclination to use it. I had written a lot of dissonant linear music. I then studied counterpoint, form and analysis with Schoenberg. I saw the New Music publication of Percussion Music, heard Schoenberg call it nonsense, doubted whether it was nonsense. I saw some abstract films made by Oscar Fischinger, talked with him, and began writing my first Quartet for Percussion.[22]

Although Cage had implied that Russolo's work did not venture beyond mechanically-produced sound, there is evidence that the Futurists were, like Cage, concerned with the entire field of sound. According to art critic Caroline Tisdall:

> Russolo's manifesto was refreshingly lyrical and constructive, partly because he was arguing for the acceptance of a new awareness of beauty in which the perception of the primary sounds of nature was balanced with the excitement of city noises.[23]

Filippo Marinetti, a poet and dramatist considered to be the founder of Futurism, conducted sound experiments strikingly similar to Cage's around 1933. Tisdall explains:

> His use of "found sound" - the sounds of nature (fire crackling, water lapping, blackbirds calling) - added a new dimension to the Art of Noises. Marinetti's exploration of silence, as a positive compositional element to be "heard" like sound, prefigured the concerns of John Cage's generation of composers.[24]

Parallels have also been drawn between Cage's work and Dadaism, another early twentieth century artistic movement which, like Futurism, helped to usher in the avant-garde of which Cage is most certainly a part. Unlike Futurism, however, Dadaism had no direct musical expression. Its primary expressive vehicles were the literary and visual arts. Proponents of Dadaism used elements of shock and irrationality to break down the distinctions between art and everyday life. Although many in attendance at Cage's early percussion concerts (especially music critics) were shocked or annoyed by the proceedings, any attempt to connect his early work to Dadaism would be an exaggeration. Later in his career, Cage frequently associated with Max Ernst and Marcel Duchamp, both of whom were associated with Dadaism. Cage's work with chance operations and indeterminacy has been criticized for its irrationality and thus related by critics to Dadaism, but Cage himself has refuted such presumptions. "Critics frequently cry 'Dada' after attending one of my concerts or hearing one of my lectures," Cage said. "Others

bemoan any interest in Zen, . . . but neither Dada nor Zen is a fixed tangible. They change; and in quite different ways in different places and times, they invigorate action. What was Dada in the 1920's is now, with the exception of the work of Marcel Duchamp, just art."[25]

Insofar as they broke down distinctions concerning the nature of artistic expression, movements such as Dadaism and Futurism could indeed be viewed as precursors to Cage's broadest experimental ideas. There is, however, little evidence of their direct influence on his work in percussion.

It is a prevalent assumption that Cage's early percussion music was greatly influenced by non-Western music. The sounds of his prepared piano have been compared to those of the Balinese gamelan, and indeed, they are strikingly similar. The lists of instruments found in Appendix A and Figure 6-3 show that Cage had accumulated, and employed in his music, instruments from many different world cultures. It has been suggested that his rhythmic structures are akin to the tala found in Indian music.[26] It has already been established that Cage had been exposed to non-Western music through his association with Henry Cowell, yet Cage himself denies any direct influences on his work. "As I mentioned, I attended some of Henry Cowell's classes in New York where I heard some music of that type," he said. "If there were any influences, I was not conscious of them; anyway, at that time I had not seriously studied the theories of Indian or Indonesian music."[27]

What Cage was interested in were sounds, themselves. Through his association with colleagues such as Cowell and Lou Harrison, who were quite familiar with music of non-Western cultures, Cage became acquainted with the sounds associated with such cultures, and he freely employed those sounds in his own music. In First Construction (In Metal), for example, he used muted gongs, oxen bells and Japanese temple gongs, but he also employed such "found" instruments as automobile brake drums and thundersheets, in addition to ordinary orchestra bells and Cowell's "string piano"--"sounds themselves," Cage has said, "pure and simple."

Perhaps the most important outside influence on Cage's work in percussion came from the modern dance community. His earliest work was rejected by musicians who refused to perform it, but he found an outlet for his ideas within the dance community. According to Cage:

> . . . about that time I was called up by some modern dancers at UCLA, who actually wanted me to do something . . . and so I did it, and in that way I soon learned that if you were writing music that orchestras just weren't interested in . . . that you could get things done very easily by modern dance groups.[28]

The extent to which Cage was involved with modern dance has been discussed in Chapter One. Much of his early percussion music was written as accompaniment to the modern dance, and some of his works intended for concert performances were adapted as dance accompaniments. Cage found that his rhythmic structure was ideally suited to the dance:

> At the time I was interested in structure because I was fresh from working with Schoenberg. I thought that dealing with noises as I was I'd need another structure, so I found this time structure and immediately was able to give it to the dancers to work with. Time was a common denominator between dance and music, rather than being specific to music as harmony and tonality were. I freed the dancers from the necessity to interpret music on the level of feeling; they could make a dance in the same structure that a musician was using. They could do it independently of one another, bringing their results together as pure hypothetical meaning. And we were always delighted to see that what we brought together worked.[29]

The dance community did more than provide Cage with an outlet for his musical expression. It embraced his work, while the musical community rejected it. Many of the players in Cage's percussion ensembles were modern dancers. They helped him experiment with sound materials and provided the impetus for the creation of new media of sound production, such as the prepared piano and the water gong. The dance community provided Cage with an environment within which he could freely express his ideas and through which he received encouragement and positive interaction. Perhaps no other element so pervasively influenced Cage's direction in his early career.

## Relationships Between Cage's Early Percussion Music and His Later Works

Immediately following the early works for percussion, Cage concentrated on compositions for the prepared piano and

later experimented with chance operations, indeterminacy and both live and recorded electronic music. The early compositions for percussion, while seemingly far-removed from Cage's later musical directions, contain the seeds of development for many of his most controversial processes of composition.

The prepared piano was invented as an extension of Cage's work with percussion instruments. Not only did the instrument itself reproduce the sounds of a percussion ensemble, but the compositions for prepared piano contained the same types of rhythmic structures found in the works for percussion.

Cage's work with chance operations seems a natural outgrowth of the pre-compositional procedures utilized in the early works for percussion. William Brooks has suggested that, for Cage, the use of chance was simply another way of extending his determination to accept refused elements, much in the same way that the rhythmic structures in his early works provided a means of acceptance for noise.[30] Cage, himself, has said that variations in the sounds of percussion instruments and the effects of preparations on pianos prepared him for the renunciation of intention.[31]

Cage's work with indeterminacy can likewise be traced, in part, to his early work in percussion. The use of unspecified percussion instruments in Quartet, his first effort in that medium, is among the earliest examples of indeterminacy in Cage's work. The employment of a radio in

Credo In US opened the composition to indeterminate sounds. Cage's rhythmic structures were as equally open to silence, and thereby indeterminate sounds, as they were to intended sounds. 4'33", a totally indeterminate composition, could be viewed quite simply as an "empty" rhythmic structure.

Cage's later work in electronic music had its origins in the Imaginary Landscapes for percussion and electronic devices. The frequency recordings used in these works were precursors to Cage's work with magnetic tape in the 1950's and 1960's. The amplified coil of wire and the electric buzzer employed in the Landscapes prefigured the amplified sounds used in Cartridge Music and Child of Tree.

It is not the intent of this document to oversimplify Cage's later work by attempting to draw straight lines between the early percussion works and the new directions he eventually undertook. Cage's lines of development have rarely been straight. He has, in fact, occasionally fallen under criticism for what has been perceived as his tendency to move too abruptly from one compositional method, style or activity to another.[32] However angular his lines of development may have been, and however abrupt his tendency to move in new directions, there may be found in the early compositions for percussion the seeds of that development and potential for those new directions. Although Cage's later musical developments have taken him away from the percussion medium per se, he has recently stated that he still considers himself essentially a percussion composer.[33]

## John Cage's Influence on the Percussive Arts

John Cage was a vital part of the initial growth of activity in percussion during the late 1930's and early 1940's. As this document has shown, Cage contributed to that growth through his own compositions as well as his efforts to solicit the creation of new works from other composers. The activity of Cage's percussion ensembles reveals the performance of a large portion of the known repertory for the medium at that time. The performances by these groups of works by such composers as Amadeo Roldan, Lou Harrison, Henry Cowell, William Russell and Gerald Strang brought the new music to the attention of the public.

Cage's mutually influential relationships with Lou Harrison and Henry Cowell yielded a vast spectrum of new percussive sounds and inventive compositional techniques with which to employ them. Through the efforts of these composers, ethnic instruments, "found" sounds and electronics became common timbral resources in percussion compositions. Along with the new sounds came new ways of composing which often bore little relationship to conventional tonal music. Cowell's use of ostinati, Cage's "square-root" formula, and Harrison's "icti-controls" were compositional methods specifically designed for percussion. The fact that these composers borrowed ideas freely from one another in their compositions is evidence of the expansion of activity in percussion during the 1930's and 1940's. John Cage certainly

played a vital role in that expansion, as both a composer and a facilitator of ideas for other composers.

One should bear in mind that at no time during his early career was Cage considered in the mainstream of percussion. His works make little use of traditional percussion techniques such as rolls or rudiments. The players in his ensembles were, for the most part, untrained percussionists. When Carlos Chavez wrote his Toccata for Percussion for Cage's ensemble in 1942, the group was unable to perform it due to the specific techniques it required. "(Rolling) was the big impediment," Cage said. "Rolling requires training."[34] In spite of the fact that Cage was considered an outsider not only to the mainstream of music in general but even to the rather limited sphere of percussion, he influenced both through his work in expanding the resources of percussive sound. Cage's contribution to the percussive arts was not of a technical nature related to performance. Rather, it was one of expansion of the sounds available to the percussionist and to music in general. At the time that Cage organized his percussion ensembles, there had been very few, if any, precedents set in the area of percussion ensemble performance practice. Cage and his percussion players set their own precedents and created their own performance practices within a somewhat restricted technical proficiency. Not until the 1950's, when percussion ensembles began to be established in colleges and

universities around the country, would compositions for that medium be performed by trained percussionists.

Many of Cage's early percussion works are frequently performed today by professional and collegiate ensembles. All of the fifteen works presented in this document are published by C.F. Peters corporation and are thus readily available to the public. In order to assess Cage's influence on the art form accurately, further research into the performance history of these works is warranted.

## Conclusion

The initial idea that prompted John Cage to write music for percussion instruments was, quite simply, to make available to music any sound that could be heard, whether or not that sound was considered "musical." It was this idea that eventually led Cage beyond percussion and into the realm of new musical resources: the prepared piano, chance operations, indeterminacy, electronic music and "music of contingency." In the process of his own musical evolution, Cage influenced the worlds of percussion, music and art. Indeed, he revolutionized twentieth century aesthetics, opening new doors of artistic thought to those who followed him. For John Cage, the revolution began with the acceptance of noise as material for music, as articulated in his 1937 statement, "The Future of Music: Credo," which reads as follows:

> I believe that the use of noise to make music will continue and increase until we reach a music produced through the aid of electrical instruments which will make available for musical purposes any and all sounds that can be heard. Photoelectric, film, and mechanical mediums for the synthetic production of music will be explored. Whereas, in the past, the point of disagreement has been between dissonance and consonance, it will be in the immediate future, between noise and so-called musical sounds. The present methods of writing music, principally those which employ harmony and its reference to particular steps in the field of sound, will be inadequate for the composer, who will be faced with the entire field of sound. New methods will be discovered, bearing a definite relation to Schoenberg's twelve-tone system and present methods of writing percussion music and any other methods which are free form the concept of fundamental tone. The principle of form will be our only constant connection with the past. Although the great form of the future will not be as it was in the past, at one time the fugue and at another the sonata, it will be related to these as they are to each other: through the principle of organization or man's common ability to think.[35]

Cage's early prophecy (an expanded version appears in Appendix D) set the course which he followed throughout his career to the present day. In a recent interview, he acknowledged his continuing connection with percussion:

> I still believe what I wrote in 1939. "Percussion music is revolution." New music: new society. I don't think, as some seem to be thinking, that the percussion should become like the other sections of the orchestra, more expressive in their terms (overtone structure, frequency). I believe that the rest of the orchestra should become as noisy, poverty-stricken, and unemployed as the percussion section (or at least grant its acceptability in musical society). I do not mean anything hierarchical. I just mean accepting the fact that noises are sounds and that music is made with sounds, not just musical sounds.[36]

It was through his efforts to create music which would be open to noises that Cage became interested in percussion,

organized his percussion ensemble, composed music for the group and encouraged other composers to do the same. The result was much more than the fifteen compositions presented in this document. The early percussion music was merely a starting point in the ongoing evolution of one of the most imaginative minds of the twentieth century.

## Endnotes, Chapter Six

[1]Kostelanetz, Conversing with Cage, 39.

[2]Ibid.

[3]Interview, 6 June, 1988.

[4]Kostelanetz, Conversing with Cage, 58.

[5]Cage, For the Birds, 71.

[6]Kostelanetz, Conversing with Cage, 38.

[7]Ibid, 5.

[8]Ibid, 6.

[9]Cage, For the Birds, 75.

[10]Kostelanetz, Conversing with Cage, 41.

[11]Baker, Percussion Ensemble Music of Lou Harrison, 11.

[12]Ibid, 203.

[13]Ibid, 57.

[14]Cage, Silence, 67.

[15]Ibid.

[16]Cage, For the Birds, 73.

[17]Cage, Silence, 69.

[18]Cage, For the Birds, 74.

[19]John C.G. Waterhouse, "Futurism" in The New Grove Dictionary of Music, edited by Stanley Sadie (London: McMillan Press Ltd., 1980), vol. 7, 41.

[20]Carolina Tisdall and Angelo Bozzolla, Futurism (New York: Oxford University Press, 1978), 55.

[21]Untitled document in Notebook, John Cage Professor Maestro Percussionist Composer, vol. I, J.C.A.

[22]Ibid.

[23]Tisdall and Bozzolla, 114.

[24]Ibid, 108.

[25]Cage, Silence, Foreword/xi.

[26]Kostelanetz, Conversing with Cage, 191.

[27]Cage, For the Birds, 75.

[28]Kostelanetz, Conversing with Cage, 191.

[29]Ibid.

[30]Brooks, 96.

[31]Smith, "Interview," 6 June, 1988.

[32]Cage, For the Birds, 86.

[33]Interview, 6 June, 1988.

[34]Ibid.

[35]Cage, Silence, 3-6.

[36]Smith, "Interview," 4.

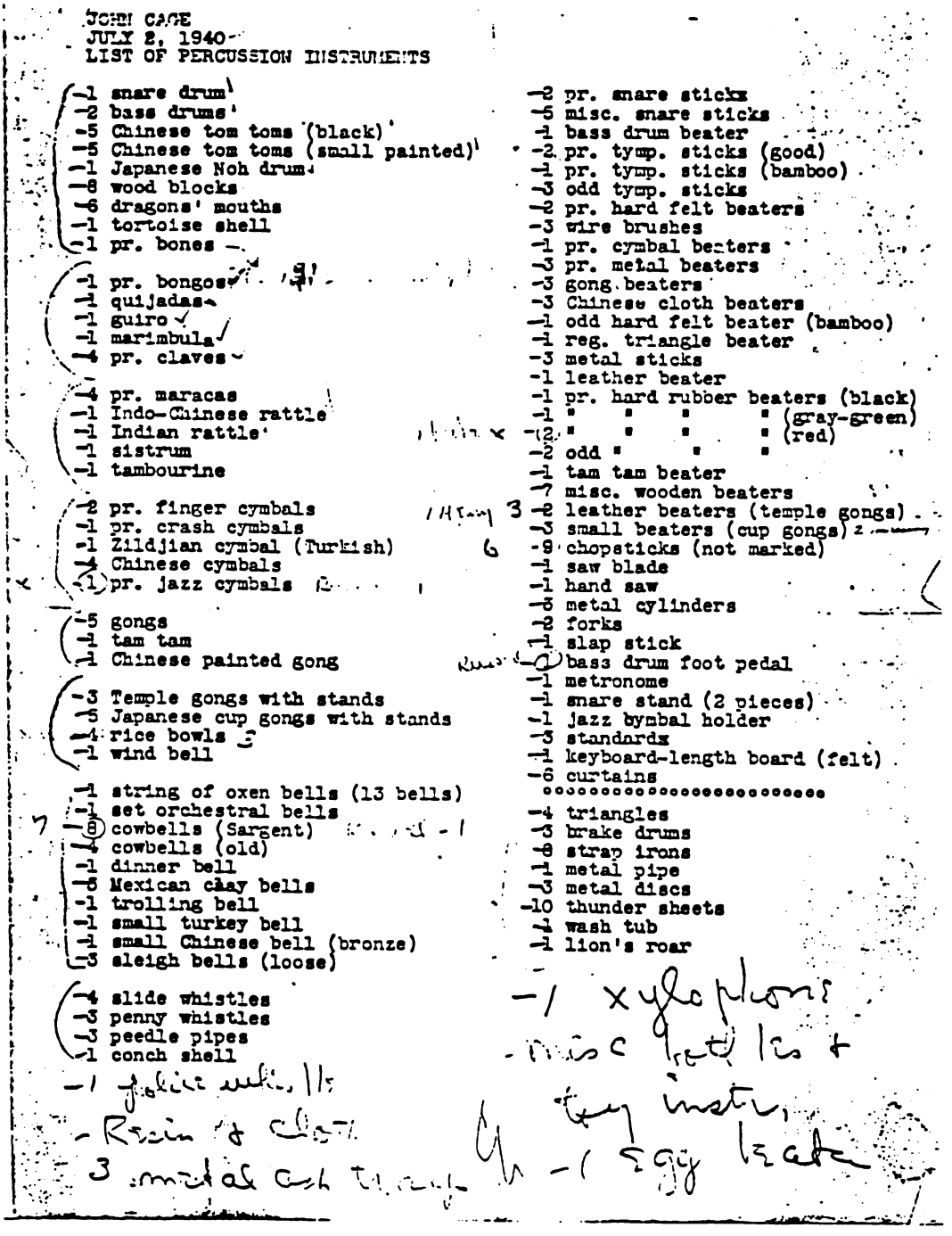
# A P P E N D I C E S

# Appendix A

## List of Percussion Instruments Owned By John Cage

## Dated July 2, 1940

Source: John Cage Archive, Northwestern University, Music Library.



JOHN CAGE
JULY 2, 1940
LIST OF PERCUSSION INSTRUMENTS

-1 snare drum
-2 bass drums
-5 Chinese tom toms (black)
-5 Chinese tom toms (small painted)
-1 Japanese Noh drum
-8 wood blocks
-6 dragons' mouths
-1 tortoise shell
-1 pr. bones

-1 pr. bongos
-1 quijadas
-1 guiro
-1 marimbula
-4 pr. claves

-4 pr. maracas
-1 Indo-Chinese rattle
-1 Indian rattle
-1 sistrum
-1 tambourine

-2 pr. finger cymbals
-1 pr. crash cymbals
-1 Zildjian cymbal (Turkish)
-4 Chinese cymbals
-1 pr. jazz cymbals

-5 gongs
-1 tam tam
-1 Chinese painted gong

-3 Temple gongs with stands
-5 Japanese cup gongs with stands
-4 rice bowls
-1 wind bell

-1 string of oxen bells (13 bells)
-1 set orchestral bells
-8 cowbells (Sargent)
-4 cowbells (old)
-1 dinner bell
-6 Mexican clay bells
-1 trolling bell
-1 small turkey bell
-1 small Chinese bell (bronze)
-3 sleigh bells (loose)

-4 slide whistles
-3 penny whistles
-3 peedle pipes
-1 conch shell

-2 pr. snare sticks
-5 misc. snare sticks
-1 bass drum beater
-2 pr. tymp. sticks (good)
-1 pr. tymp. sticks (bamboo)
-3 odd tymp. sticks
-2 pr. hard felt beaters
-3 wire brushes
-1 pr. cymbal beaters
-3 pr. metal beaters
-3 gong beaters
-3 Chinese cloth beaters
-1 odd hard felt beater (bamboo)
-1 reg. triangle beater
-3 metal sticks
-1 leather beater
-1 pr. hard rubber beaters (black)
-1 " " " " (gray-green)
-12 " " " " (red)
-2 odd " " "
-1 tam tam beater
-7 misc. wooden beaters
-2 leather beaters (temple gongs)
-3 small beaters (cup gongs)
-9 chopsticks (not marked)
-1 saw blade
-1 hand saw
-6 metal cylinders
-2 forks
-1 slap stick
-1 bass drum foot pedal
-1 metronome
-1 snare stand (2 pieces)
-1 jazz bymbal holder
-3 standards
-1 keyboard-length board (felt)
-6 curtains
.....
-4 triangles
-3 brake drums
-8 strap irons
-1 metal pipe
-3 metal discs
-10 thunder sheets
-1 wash tub
-1 lion's roar

## Appendix B

### Chronological List of Percussion Works by John Cage (1935-1943) with Instrumentation

Quartet (1935) Unspecified instruments.

Trio (1936) Player 1: 3 graduated pieces of wood, 3 small tom-toms (wire brush), bamboo sticks. Player 2: tom-tom (wire brush), bass drum, 2 graduated pieces of wood. Player 3: 3 graduated pieces of wood, tom-tom, bamboo sticks.

Imaginary Landscape No. 1 (1939) Player 1: turntable (Victor Frequency Record 84522B at 78 and 33 1/3 RPM, Victor Constant Note Record No. 24 (84519B) at 78 and 33 1/3 RPM). Player 2: turntable (Victor Frequency Record 84522A at 78 and 33 1/3 RPM). Player 3: large Chinese cymbal. Player 4: string piano.

First Construction (In Metal) (1939) Player 1: orchestra bells, thundersheet. Player 2: string piano. Player 3: thundersheet, sleigh bells, 12 graduated oxen bells. Player 4: thundersheet, 4 graduated muted brake

drums, 8 graduated cowbells, 3 graduated Japanese temple gongs. Player 5: thundersheet, 4 graduated suspended Turkish cymbals, 4 graduated muted anvils, 4 graduated suspended Chinese cymbals. Player 6: thundersheet, 4 graduated muted gongs, water gong, tam-tam, suspended gong.

Second Construction (1940) Player 1: 5 graduated sleigh bells, wind glass, Indian rattle, 2 small maracas. Player 2: snare drum (wire brush, snare stick), 5 graduated tom-toms, 3 graduated Japanese temple gongs, 2 small maracas, 2 large maracas. Player 3: tam-tam, 5 graduated muted gongs, water gong, thundersheet. Player 4: string piano.

Living Room Music (1940) Player 1: magazines, newspaper or cardboard. Player 2: table or other wooden furniture. Player 3: largish books. Player 4: floor, wall, door or wooden frame of window, melody instrument.

Double Music (1941) (Composed jointly with Lou Harrison) Player 1: 6 graduated water buffalo bells, 6 graduated muted brake drums. Player 2: 2 sistra, 6 graduated sleigh bells, 6 brake drums, thundersheet. Player 3: 3 graduated Japanese temple gongs, tam-tam, 6 graduated cowbells. Player 4: 6 muted Chinese gongs, tam-tam

(slightly lower in pitch than 3rd. player's), water gong.

Third Construction (1941) Player 1: N.W. Indian rattle (wooden), 5 graduated tin cans, 3 graduated tom-toms, claves, large suspended Chinese cymbal, maracas, teponaxtle. Player 2: 3 graduated tom-toms, 5 graduated tin cans, claves, 2 cowbells, Indo-Chinese rattle (wooden, with many separate chambers), lion's roar. Player 3: 3 graduated tom-toms, tambourine, 5 graduated tin cans, quijada, claves, cricket callers (split bamboo), conch shell. Player 4: tin can with tacks (rattle), 5 graduated tin cans, claves, maracas, 3 graduated tom-toms, wooden ratchet, bass drum roar.

Imaginary Landscape No. 2 (1942) Player 1: 5 graduated tin cans, conch shell. Player 2: 5 graduated tin cans. Player 3: 5 graduated tin cans. Player 4: ratchet, bass drum, buzzer, water gong, metal wastebasket. Player 5: coil of wire (attached to phonographic pick-up arm and then amplified with loudspeaker), buzzer, lion's roar.

Imaginary Landscape No. 3 (1942) Player 1: audio frequency oscillator, variable speed turntable (constant frequency record). Player 2: 5 graduated tin cans. Player 3: 5 graduated tin cans. Player 4: buzzer, turntable

(continuously variable frequency record). Player 5: 2 Balinese button gongs, variable speed turntable (recording of generator whine). Player 6: radio aerial coil attached to phonograph pick-up arm, marimbula.

Credo In US (1942) Player 1: 2 muted gongs, 5 tin cans, Player 2: 5 tin cans, electric buzzer, tom-tom. Player 3: piano, hands on wood, tom-tom. Player 4: radio (avoid news programs during national or international emergencies), phonograph (use some classic: e.g. Dvorak, Beethoven, Sibelius or Shostakovich).

The Wonderful Widow of Eighteen Springs (1942) Voice and closed piano.

Forever and Sunsmell (1942) Voice and percussion duo. Player 1: 2 large tom-toms. Player 2: large suspended Chinese cymbal.

Amores (1943) Prepared piano and percussion trio. Player 1: 3 graduated tom-toms, 3 graduated pieces of wood. Player 2: 3 graduated tom-toms, pod rattle, 2 graduated pieces of wood. Player 3: 3 graduated tom-toms, 2 graduated pieces of wood.

**_She Is Asleep_ (_Quartet: 12 Tom-Toms_) 4 players: 3 tom-toms each graduated in pitch played with fingers on edge and center.**

## Appendix C

### Biographical Chronology of John Cage's Career Through 1943

| | |
|---|---|
| 1912 | Born September 5, Los Angeles, California. |
| 1928 | Graduated from Los Angeles High School, class valedictorian. Entered Pomona College, Claremont, California, remained for 2 years. |
| 1930 | Left for Europe. Studied architecture, wrote poetry, painted, first composed music. |
| Fall, 1931 | Returned to California. Settled in Santa Monica, worked as gardener in auto court, gave lectures on modern painting and music to local housewives. Studied composition with Richard Buhlig. |
| Spring, 1933 | Went to New York at suggestion of Henry Cowell to study harmony and composition with Adolf Weiss. Also studied modern harmony, contemporary music, and music of the world's peoples under Henry Cowell at the New School for Social Research. |
| Fall, 1934 | Returned to California. Began studying counterpoint, form and analysis with |

Schoenberg at University of Southern California and UCLA.

1936 — Became acquainted with abstract film-maker Oscar Fischinger. Began concentrating on music for percussion instruments.

Summer, 1937 — Accompanist at the Demonstration School of the University of California at Los Angeles. Instructor in percussion at Virginia Hall Johnson School of Dance in Beverly Hills.

Fall, 1937 — Accompanist in Santa Monica public schools.

Spring, 1938 — Taught extension course at UCLA entitled, "Musical Accompaniments for Rhythmic Expression." Studied bookbinding with Hazel Dries. Formed quartet of bookbinders for playing percussion music.

Fall, 1938 — Moved to Seattle. Joined faculty of the Cornish School. Organized percussion orchestra. Composed first work for prepared piano, Bacchanale.

9 Dec. 1938 — Presented first percussion concert at Cornish School.

19 May 1939 — Presented second percussion concert at Cornish School.

27 July 1939 — Presented percussion concert at Bennington School of Dance, Mills College.

5 Aug. 1939 — Presented percussion concert at Lial Studio, Monterey, California.

| | |
|---|---|
| 9 Dec. 1939 | Presented third percussion concert at Cornish School. |
| Jan.-Feb., 1940 | Presented percussion concerts in Idaho, Montana, Washington and Oregon. |
| Summer, 1940 | Taught percussion and dance accompaniment at Mills College. |
| 18 July 1940 | Presented percussion concert with Lou Harrison and William Russell at Mills College. |
| Fall, 1940 | Remained at Mills College in order to establish a research laboratory of percussion and electrical instruments. |
| 14 May 1941 | Presented percussion concert with Lou Harrison at California Club Auditorium, San Francisco. |
| 26 July 1941 | Presented concert for percussion and dance with Marion Van Tuyl and Lou Harrison at Mills College. |
| Summer, 1941 | Worked as recreational leader for WPA. |
| Fall, 1941 | Moved to Chicago to join faculty of the School of Design. Taught classes in improvisation and "sound experiments." |
| 1 March 1942 | Presented percussion concert at Arts Club of Chicago. |
| 18 March 1942 | Presented percussion concert with University of Chicago Symphony Orchestra at Mandel Hall, University of Chicago. |
| Dec. 1942 | Moved to New York. |

| | |
|---|---|
| 7 Feb. 1943 | Presented percussion concert at Museum of Modern Art, New York City. |

## Appendix D

### "The Future of Music: Credo"

### 1940 revision in Cage's handwriting

**Source: John Cage Archive, Northwestern University Music Library.**

I believe that the use of noise to make music will continue and increase until we reach a music produced through the aid of electrical instruments which will make available to composers any and all sounds that can be heard. Whereas, in the past, the point of disagreement has been between dissonance and consonance, it will in the immediate future be between noise and so-called musical sound.

The present methods of writing music, principally those which employ harmony and its reference to a particular field of sound, will be inadequate for the composer who will be faced by the entire field of sound. New methods will be

2.

discovered, bearing a definite relation to Schoenberg's 12 tone system and present methods of writing percussion music and any other methods which are free from the concept of a fundamental tone.

The principle of form will be our only constant connection with the past. Although the great form of the future will not be as it was in the past, at one time a fugue and at another the sonata, it will be related to these as they are to each other: through the principle of organization or man's common ability to think.

3.

Some composers today are writing music of a conventional nature, but with the purpose of helping to bring about a better state of society. When this better social order is achieved, their songs will have no more meaning than the 'Star-spangled Banner' has today. We will then realize our need for the new music which will have been written by composers who didn't help fight, but who were aware in a general way of, and sensitive to, the continual series of world events.

Creed. 1940.
John Cage.

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