RINEHART, John McLain, 1937-
IVES' COMPOSITIONAL IDIOMS: AN INVESTIGATION
OF SELECTED SHORT COMPOSITIONS AS MICROCOSMS' 
OF HIS MUSICAL LANGUAGE.

The Ohio State University, Ph.D., 1970
Music

University Microfilms, A XEROX Company, Ann Arbor, Michigan

© Copyright by
John McLain Rinehart
1971
IVES' COMPOSITIONAL IDIOMS:
AN INVESTIGATION OF SELECTED SHORT COMPOSITIONS
AS MICRO-COMGS OF HIS MUSICAL LANGUAGE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

John Rinehart, A.B., M.M.

* * * * * * *

The Ohio State University
1970

Approved by

[Signature]
Adviser
School of Music
ACKNOWLEDGEMENTS

Grateful acknowledgement is made to the library of the Yale School of Music for permission to make use of manuscript materials from the Ives Collection.

I further wish to express gratitude to Professor Norman Phelps, whose wise counsel and keen awareness of music theory have guided me in this project.

Finally, I wish to acknowledge my wife, Jennifer, without whose patience and expertise this project would never have come to fruition.
VITA

March 17, 1937 • • • • Born – Pittsburgh, Pennsylvania

1959 • • • • • • • • A.B., Kent State University, Kent, Ohio

1960–1963 • • • • Instructor, Cleveland Institute of Music, Cleveland, Ohio

1961 • • • • • • • • M.M., Cleveland Institute of Music, Cleveland, Ohio

1963–1970 • • • • Associate Professor of Music, Heidelberg College, Tiffin, Ohio

PUBLICATIONS


FIELDS OF STUDY

Major Field: Theory and Composition

Studies in Theory. Professor Norman Phelps

Studies in Musicology. Professors Richard Hoppin and Lee Rigsby
# Table of Contents

**Acknowledgments** .......................... ii

**Vita** ......................................... iii

**Preliminary Considerations** ............... 1

The goals and structure of this investigation; definitions of unfamiliar and specifically applied terms; general descriptions of the compositions

## Part I. Individual Systems of Organization

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Serial Ordering of Duration</td>
<td>34</td>
</tr>
<tr>
<td>II.</td>
<td>Serial Ordering of Pitch</td>
<td>62</td>
</tr>
<tr>
<td>III.</td>
<td>Modulation of Meter, Tempo, Intensity, and Register</td>
<td>96</td>
</tr>
<tr>
<td>IV.</td>
<td>Scalar Atematicism</td>
<td>116</td>
</tr>
</tbody>
</table>

## Part II. Combinational Concepts

| V.      | The Combination of Musical Systems in a Counterpoint of Parameters | 126  |
| VI.     | Polyphony of Groups: An Introduction | 141  |
| VII.    | Spatial Composition | 154  |
| VIII.   | Compound Group Polyphony | 167  |

## Part III. Broader Idiomatic Concepts

| IX.     | The Structural Integration of Borrowed Materials | 180  |
X. COMEDIC TECHNIQUES ........................................ 205
XI. ALEATORY DEVICES ........................................ 218
XII. GENRES OF MUSICAL REALISM ......................... 236

SUMMARY .......................................................... 255

Summary of concepts; overview of the categories of classification in this study; general conclusions regarding the findings of this study

BIBLIOGRAPHY .................................................... 262
The sound world of Charles Ives embraced a broad spectrum of musical materials. While other composers worked within the limits of consonant and dissonant tonal objects, Ives reached to the extremities of the sound continuum from the simplest tones and tonal relationships to random elements and deliberate noise. As Peter Yates has said, "The entire field of sound is thus accessible as a musical system and Charles Ives was the first composer to grasp that fact."¹

It is, however, this very breadth that creates problems for the student of Ives. Despite his many innovations, Ives never completely abandoned the traditional procedures of preceding centuries. Rather, he combined old and new methods to form a new and more expansive art. For instance, the mere presence of tonality in a work does not necessarily imply that conventional analytical procedures will give a sufficient description of the relationships which obtain. It may well be that tonality, for Ives, was just one expression of a larger concept of ordering. A more inclusive analytical approach must be employed for a more inclusive musical language.

The analytical difficulties in a study of Ives are compounded by the fact that he wrote comparatively little about specifically technical aspects of his music. This is not inconsistent, however, with Ives' character. He was fundamentally a synthesist, and not an analyst, and presented solutions to, rather than explanations of problems. For instance, when he had an experimental idea about politics, he formulated and proposed a constitutional amendment; he contributed his innovative ideas about the insurance business in the form of a published manual. Thus, if he had an experimental idea about music, he wrote a short piece demonstrating and testing the idea, rather than a theoretical treatise about it. Such a piece can, therefore, be considered a "theoretical treatise," as it were, by Ives.

There are many such short compositions in the catalogue of Charles Ives, giving ample evidence of the variety of his techniques. It can usefully be postulated that these pieces constitute what structural linguists would call "kernels" of his musical language. Noam Chomsky, who has developed his "generative theory of grammar" around this "kernel concept," says:

... in order to understand a sentence, it is necessary to know the kernel sentences from which it originates... and the phrase structure of each of these elementary components, as well as the transformational history of development of the given sentence from these kernel sentences. The general problem of analyzing the process of "understanding" is thus reduced, in a sense, to the problem of explaining how kernel sentences are understood, those being considered the basic 'content elements' from which the usual more complex sentences of real life are formed by trans-
Thus, the entire corpus of sentences, or possible sentences, in a language consists of "transforms" of these basic kernels. The description of a "kernel" constitutes a theory of the language, and can well serve as basic data for subsequent studies on a larger scale. The Chorales of Bach and Cantiones Duarum Vocum of de Lasso have traditionally been used pedagogically as kernels. In a more general way, the five species of Fux can be considered to be kernels of contrapuntal structure in western European music of the past several centuries.

It can, therefore, be postulated that the description of compositional techniques in the music of Charles Ives is prerequisite to the development of a general theory of his style. On the basis of this postulate fifteen short compositions were chosen to demonstrate compositional concepts which are idiomatic to the style of Ives, in kernel form:

1. From the Steeples and the Mountains (1901)
2. Scherzo from A Set of Three Pieces (1903; 1914)
3. In the Inn (1904)
4. Scherzo: Over the Pavements (1906)
5. The Unanswered Question (1907)
6. Hallowe'en (1907)
7. Largo Risoluto No. 2 (1907)
8. Largo Risoluto No. 1 (1908)
9. The Gong on the Hook and Ladder or Firemen's Parade on Main Street (1911)
10. Tone Roads No. 1 (1911)
11. Vote for Names (1912)
12. Paracelsus (1912-1921)
13. In Re Con Moto Et Al (1913)
14. Tone Roads No. 3 (1915)
15. On the Antipodes (1915-1923)

---

The choice of these compositions was based on their succinctness of demonstration of numerous idiomatic concepts. Thus, they can serve as *loci classici* of the kernel concept. No work lasts more than ten minutes, and the shortest is less than a minute. The works are chosen from the sections of the John Kirkpatrick Catalogue described as "Music for Chamber or Theatre Orchestra," "Music for Various Combinations" and "Solo Songs." Thus, the chosen works include a wide variety of instrumentations, from solo song to chamber orchestra. Nevertheless, instrumentation was a primal consideration in the selection of a work *only* when that instrumentation was an integral part of the concept.

The choice of idiomatic concepts was the result of extensive analyses of many compositions. This study is not intended to be exhaustive of the many facets of Ives' style, but merely represents some of the most recurrent concepts to emerge from this writer's analyses.

The concepts are classified according to three broad categories, each of which corresponds to one part of this thesis. Part I examines individual *devices*, applied to numerous parameters; Part II examines combinatorial procedures, and is therefore a study of polyphonic concepts. Part III examines a variety of general and somewhat broader concepts which characterize Ives' musical thought as

---

a whole. These concepts cannot, in every case, be reduced to explicit devices and, hence, Part III is entitled "Broader Idiomatic Concepts."

Each chapter of the three major parts describes a specific concept and examines its usage in several of the fifteen compositions, noting similarities of usage as well as differing manifestations of the concept. The specific listing of concepts constitutes the Table of Contents of this thesis.

The concepts are summarized and some conclusions regarding Ives' musical thought are offered in a final section.

To summarize, it is the primal hypothesis of this investigation that a description of compositional practices, as they occur in concentrated "kernel" form, is prerequisite to a more general theory of the style of Ives. Thus, in this study, we describe idiomatic concepts of compositional practices in fifteen short compositions of varying instrumentations. We hope that these findings will provide materials for subsequent investigations of this important American composer.

DEFINITIONS OF UNFAMILIAR AND SPECIFICALLY APPLIED TERMS

The analytical tools employed in this investigation vary widely, ranging from terminology applicable to medieval music to some of the most recent systems of serial analysis. Moreover, certain descriptive terminology, as for example, that concerned with comedic techniques, is drawn from related disciplines and non-musical sources. Finally, some terms have been coined when no adequate term is available. The following is a list of such terms with definitions.
additive counterpoint:
Additive counterpoint occurs when a passage progressively accrues more voices and thicker texture. (See Chapter VI)

aleatory:
The term aleatory refers to all operations in music which involve elements of chance. In this investigation, aspects of aleatoric operations are further distinguished as ossia form, improvisation, indeterminacy and chance, q.v. (See also Chapter XI)

centonic patch:
A centonic patch is a musical fragment which Ives uses in more than one composition, often in similar contexts. (See Chapter IX)

chance:
Chance is the freest type of aleatoric composition in which, within a very general environment, the performer is free to extemporize in any manner he may wish. (See aleatory)

chordal cycle:
A chordal cycle is a series of chordal structure which recurs in cyclic repetition. (See Chapter II)

"dancing-jack" technique:
A term used by Henri Bergson to describe situations in which an action is humorous because it can be seen to be manipulated, in a puppet-like fashion, by an outside force. (See Chapter X)

improvisation:
Improvisation is a type of aleatoric composition in which details are left unrealized, but a set of compositional conventions is indicated or implied, and thus, preferred solutions are assumed. (See aleatory)

indeterminacy:
A type of aleatoric composition in which the overall form is specified but detail is somewhat free. Specifically, categories of events which are to be realized are specified, but with no preferred solutions indicated. (See aleatory)

integer valor:
In 15th and 16th century mensural notation, the normal value of a note before being augmented or diminished by proportional manipulations. In this investigation, the term is used to signify the original metrical speed in a passage which undergoes metrical modulation. (See Chapter III)
intensity modulation:
An intensity modulation is graduated increase or decrease in the intensity level of a composition. (See Chapter III)

"jack-in-the-box" technique:
A term used by Henri Bergson to describe situations in which an unexpected event causes laughter. The "surprise" chord of Haydn's Symphony No. 94 provides an example. (See Chapter X)

metrical modulation:
A term introduced by Elliot Carter to describe a graduated increase or decrease in speed produced by metronome markings or by rhythmic proportionalities which create a progressively changing pulse value. (See Chapter III)

panchromaticism:
Panchromaticism is a term used to describe music in which all notes of the chromatic scale are considered consonant with all others. No hierarchies of vertical organization obtain.

pandiatonicism:
Pandiatonicism is a term used to describe music in which all notes of a given diatonic scale are considered consonant with all others. No hierarchies of vertical organization obtain.

polyphony of groups:
Rudolph Reti coined the term polyphony of groups to describe polyphonic textures in which the constituent elements are not single strands but complete musical entities, each with its own harmonic and contrapuntal organization. (See Chapters VI, VII and VIII)

pyramid structure:
A form of retrograde organization in which the elements which are retrograded are either phrases or measures. These elements are repeated intact, without change; only their order is reversed. For example, the following might be a pyramid of measures: measure: 1 2 3 4 5 4 3 2 1. The materials within each measure would not be retrograded.

reference chord and reference associate:
These are terms coined by the present writer to describe two chords which recur throughout the composition In Re Con Moto Et Al. (See Chapter I)

register modulation:
A registral modulation is graduated expansion or contraction of the pitch register employed in a composition. (See Chapter III)
Scalar athematicism:
Scalar athematicism is a term coined by the present writer to describe passages in which all themes and melodies consist primarily of a series of scale lines, either diatonic or chromatic.

"snow-ball" technique:
A comedic technique described by Henri Bergson, in which an arithmetically increasing chain of events causes laughter. (See Chapter X)

Somnigenic transformation:
Literally "sleep-born," somnigenic is a term coined by Joseph Yasser to describe subconscious transformations and metamorphoses which a previously composed melody undergoes in a composer's mind prior to the composer's use of it as "original" material. (See Chapter IX)

Subtractive counterpoint:
Subtractive counterpoint is a term coined by the present writer to describe passages which progressively subtract voices according to a graduated plan.

talea:
Talea is a 14th century term to describe rhythmic patterns which are reiterated.

tempo modulation:
A tempo modulation is a graduated increase or decrease in speed, indicated by tempo markings rather than by precisely measurable units, as for example, metronome markings. (See Chapter III)

GENERAL DESCRIPTIONS OF THE COMPOSITIONS

Works for Chamber Orchestra

From the Steeples (1901) 48 mm.

4 sets of 8 bells each
No. 1 in C, range: c'-c
No. 2 in D, range: d'-d
No. 3 in B, range: b-b'
No. 4 in C, range: c-c'
Trumpet (2nd trumpet ad. lib.)
Trombone
From the Steeples was composed in 1901, while Ives was living in New York, and remained unperformed until 1965, when it was premiered in that city. It is quite possible that it was intended to be performed in actual steeple towers as "out-of-doors" music and, thus, finds its prototype in the "tower music" of the seventeenth century. The range of the bell music is not possible to realize on many standard orchestral bells, and members of the American Brass Quintet have made a recording of the work using the carillon of Riverside Church in New York, thus possible realizing Ives' original conception of the music. 

The most striking characteristic of this short composition is its progressive accumulation of reverberative sound. The postscript with which Ives concludes the score implies the importance of echo and reverberation in this work: "From the Steeples—the Bells!—then the Rocks on the Mountains begin to shout!" 

Arthur Cohn writes of the work:

Ives's tintinnabulous sound-picture calls for the inclusion of two pairs of church bells arranged in scalar, sustained, and arpeggiated patterns. The clash of bells is further intensified by the frictions derived from the combined, clustered tonalities of B, C, and D flat. Against these, a trumpet and trombone . . . are pitted, each severely linear—rhythmic simultaneity is practically non-existent.

---


5See John Kirkpatrick, op. cit., p. 38.

The two instrumental groups of *From the Steeples* (bells and brass) unfold independent musical materials throughout. The bells present a series of canons on the following traditional chime tune:

Ex. 1

\[
\begin{array}{cccccccccccc}
\text{C} & \text{E} & \text{G} & \text{B} & \text{D} & \text{F} & \text{A} & \text{C} \\
\text{E} & \text{G} & \text{B} & \text{D} & \text{F} & \text{A} & \text{C} & \text{E} \\
\text{G} & \text{B} & \text{D} & \text{F} & \text{A} & \text{C} & \text{E} & \text{G} \\
\text{B} & \text{D} & \text{F} & \text{A} & \text{C} & \text{E} & \text{G} & \text{B} \\
\text{D} & \text{F} & \text{A} & \text{C} & \text{E} & \text{G} & \text{B} & \text{D} \\
\text{F} & \text{A} & \text{C} & \text{E} & \text{G} & \text{B} & \text{D} & \text{F} \\
\text{A} & \text{C} & \text{E} & \text{G} & \text{B} & \text{D} & \text{F} & \text{A} \\
\text{C} & \text{E} & \text{G} & \text{B} & \text{D} & \text{F} & \text{A} & \text{C} \\
\end{array}
\]

These canons are organized rhythmically according to a durational series based on progressively decreasing and increasing note values (discussed in Chapter III).

Simultaneously, the brass states two canons, in an atonal texture. These canons unfold in an unorthodox system of cancrizans, in which the order of the measures is retrograded, but the materials within each measure are stated in their original order. As a result, the second canon is a retrograde, with regards measure order, of the first.

Gunther Schuller sums up the significance of this extraordinary composition when he notes that:

"*From the Steeples* is remarkable not only for its instrumentation . . ., but also for the fact that it was created as early as 1901, when Debussy was just finishing up "Pelleas et Melisande," when Schoenberg had not yet written his F# Minor Quartet (No. 1), when Stravinsky had not yet started studying with Rimsky-Korsakov and his first works involving bitonality were still half a decade away."

---

7 Gunther Schuller, "Charles Ives Calcium Light Night," Columbia Masterworks recording no. MS 7318, record jacket notes.
In the Inn from Set for Theatre Orchestra (1904) 129 mm.

Clarinet
Bassoon
Timpani
Piano
Violin
Viola
Cello

In the Inn is the second movement of Ives' Set for Theatre Orchestra, composed between 1904 and 1911. Ives later arranged the work for piano solo and then incorporated it into the second movement of his First Sonata for piano.

Ives described what he meant by "theatre orchestra" in a note in the score:

The make-up of the average theatre orchestra of some years ago, in the towns and smaller cities, in this part of the country, was neither arbitrary nor a matter of machinery. It depended somewhat on what players and instruments happened to be around. Its size would run from four or five to fifteen or twenty, and the four or five often had to do the job of twenty without getting put out. Sometimes they would give as much support "during the rescue" as the whole town band. Its scores were subject to make-shifts, and were often written with that in mind. There were usually one or two treble Wood-Wind, a Trombone, a Cornet, sometimes a Saxophone, Strings, Piano and a Drum—often an octave of High Bells or a Xylophone. The pianist usually led—his head or any unemployed limb acting as a kind of Ictus organ. However, a separate conductor, in these pieces, is a rather necessary member. The piano player might object to him; the other players quite probably would not, and the composer would vote for him.

In the Inn is intended to suggest the various raucous sounds which can be heard in an inn. The composition is actually a pot-pourri of popular songs, hymns, ragtime rhythms and barn dance tunes, set in a verse and chorus form typical of many revival hymns. The
form of In the Inn is summarized below.

TABLE 1
FORMAL STRUCTURE OF IN THE INN

<table>
<thead>
<tr>
<th>Section</th>
<th>Measures</th>
<th>Tempo</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1-8</td>
<td>Allegro</td>
</tr>
<tr>
<td>B</td>
<td>9-72</td>
<td>Allegro moderato</td>
</tr>
<tr>
<td>C</td>
<td>73-101</td>
<td>Meno allegro</td>
</tr>
<tr>
<td>D</td>
<td>101-124</td>
<td>Presto</td>
</tr>
<tr>
<td>Chorus</td>
<td>125-129</td>
<td>Meno mosso con moto</td>
</tr>
</tbody>
</table>

Regarding the use of both religious and jazz elements in a single composition, Dennis Marshall says:

This combination of ragtime and hymn tunes may seem incongruous—perhaps even a bit sacrilegious—to some, but Ives is expressing not ridicule, but intense admiration. He feels, with the New England Transcendentalists, that "all occupations of man's body and soul in their diversity come from but one mind and soul."  

Scherzo: Over the Pavements (1906) 129 mm.

Piccolo  
Clarinet  
Bassoon  
Trumpet  
3 Trombones  
Cymbal  
Drum  
Piano

Scherzo: Over the Pavements for chamber orchestra is one of Ives' most complex works, rhythmically, harmonically and formally. The form is that of a modified arch or pyramid: A, B, C, Cadenza, B, C, A.

| TABLE 2 |
| ARCH FORM OF SCHERZO: OVER THE PAVEMENTS |
| Section | A | B | C | Cadenza | B | C | A |
| Meas. | 1-31 | 32-65 | 66-80 | 81-95 | 32-65 | 66-79 | 97-129 |

The thematic, rhythmic and harmonic organization of the work becomes increasingly complex and atheematic until the Cadenza. At this point the music is organized by serialization of harmonic and rhythmic materials (to be examined in Chapters III and IV). Following this cadenza, the earlier sections are repeated in reversed order. Thus, the composition unfolds a progressive metamorphosis of musical style, from theraticism, to atheaticism, to serialism, and back again.

The complex nature of Over the Pavements is implied in the title of the earlier work from which this scherzo was derived: Take Off #2: Rube Trying to Walk 2 to 3!! Moreover, Ives' typical scorn of inadequate musicians who would approach this work with standards of conventional musicality is indicated in the following marginal note to the Cadenza: "... as a Cadenza to play or not to play! if played,
to be played as not a nice one—but evenly, precise & unmusical as possible."  

Harold Farberman describes Over the Pavements as:

A forceful and dramatic piece, . . . as impressive for its originality and craftsmanship as for its effect. Such devices as the metrical modulations (since made famous by Elliot Carter's String Quartet No. 2) and the harmonic organization at the end of the Cadenza are as surprising for the date of the piece as would be, in any age, the comic Ivesian ending.

The Unanswered Question (1907) 61 mm.

<table>
<thead>
<tr>
<th>Trumpet</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Flutes</td>
</tr>
<tr>
<td>Strings</td>
</tr>
</tbody>
</table>

The Unanswered Question, subtitled A Cosmic Landscape, is perhaps Ives' best known short composition. Originally entitled "A Contemplation of a Serious Matter" or "The Unanswered Perennial Question," it may have been composed as early as 1906 or as late as 1908. It is scored for one trumpet, four flutes and strings, although Ives indicates in a foreword to the score that oboe and clarinet may be substituted for the third and fourth flutes. Similarly, English horn, oboe or clarinet may be substituted for the trumpet. Either a string quartet or a full complement of muted strings, with double bass, may be employed.

9See John Kirkpatrick, op. cit., p. 43.

10Harold Farberman, "Charles Ives Pieces for Chamber Orchestra and Songs," Cambridge recording no. CRS 1804, program notes.

Ives discusses the philosophical content of *The Unanswered Question* and its relation to the musical organization, in the foreword.

The strings play ppp throughout with no change in tempo. They are to represent "The Silences of the Druids—who know, see and hear nothing." The trumpet intones "The Perennial Question of Existence," and states it in the same tone of voice each time. But the hunt for "The Invisible Answer" undertaken by the flutes and other human beings, becomes gradually more active, faster and louder through an animando to a con fuoco . . . "The Fighting Answerers," as the time goes on, and after a "secret conference", seem to realize a futility, and begin to mock "The Question"—the strife is over for the moment. After they disappear, "The Question" is asked for the last time, and "The Silences" are heard beyond in "Undisturbed Solitude." .

Ives includes some remarks in the foreword regarding the placement of the instrumental groups, in order to achieve certain stereophonic, or spatial effects.

The string quartet or string orchestra (con sordini), if possible, should be "off stage", or away from the trumpet and flutes. The trumpet should use a mute unless playing in a very large room . . .

The implication is that the trumpet, too, should seem somewhat distantly removed from the other instruments.

Ives also gives certain performance instructions which are aleatoric in nature. For instance, the flute music . . . need not be played in the exact time position indicated. It is played in somewhat of an impromptu way . . . The flutes will end their part approximately near the position indicated in the string score; but in any case, "The Last Question" should not be played by the trumpet until "The Silences" of the strings in the distance have been heard for a measure or two. The strings will continue their last chord for two measures or so after the trumpet stops. If the strings have reached their last chord before the trumpet plays
"The Last Question", they will hold it through and continue after, as suggested above. During some of the louder passages of the flutes, the strings may not be heard, and it is not important that they should be. "The Answers" may be played somewhat sooner after each "Question" than indicated in the score, but "The Question" should be played no sooner for that reason . . .

Thus, The Unanswered Question combines features of stereophony, or space composition, with aleatoric performance practices in the musical unfolding of a philosophical problem.

The Gong on the Hook and Ladder or Firemen's Parade on Main Street (1911) 35 mm.

The Gong on the Hook and Ladder or Firemen's Parade on Main Street presents one of Ives' dream-like successions of familiar tunes in an almost surrealistic stream of consciousness.

Formally, the work is a march in three sections, the third of which is a partial recapitulation of the first.

TABLE 3
SECTIONAL FORM OF THE GONG ON THE HOOK AND LADDER

<table>
<thead>
<tr>
<th>Part</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1-19</td>
</tr>
<tr>
<td>II</td>
<td>20-30</td>
</tr>
<tr>
<td>III</td>
<td>31-35</td>
</tr>
</tbody>
</table>
The first section is characterized by a uniform tempo and dynamic level, while the second unfolds a progressive increase in intensity as well as complexity. The final section repeats measures 9-12, but with additions in the violin and viola parts.

The principal thematic organization of The Gong on the Hook and Ladder lies in the presentation of the thematic quotes, which include:

1. Clementine
2. Marching through Georgia
3. Columbia the Gem of the Ocean
4. O, Susannah!
5. The Battle Cry of Freedom
6. Jingle Bells

The purpose of the remaining materials is to provide a non-thematic web of background sonority, against which the quoted tunes may unfold in a relationship of melody and accompaniment.

Regarding Ives' frequent use of quotation in his compositions, Leonard Bernstein has said:

When you hear Turkey in the Straw . . ., you are not supposed to visualize a barn dance. Rather, try to feel the impact of such a tune on one particular composer's consciousness at a given moment in American cultural history . . .

And the composer Lou Harrison:

Ives . . . assembles the data of his observed surroundings and tells the tale, not without tenderness, of what he and his friends were like and where they lived . . .

. . . he composes love songs that are fantastically accurate records of the taste in love songs at the turn of the century, church tunes that are just right for the village soprano, and Fourth of July . . .

celebrations that couldn't be better. Observation of nature, all of it.13

Thus, The Gong on the Hook and Ladder presents, in a microcosmic version, the "holiday parade" genre which is found, full blown, in such works as Putnam's Camp, The Fourth of July, and the Scherzo from the Fourth Symphony.

Tone Roads No. 1 (1911) 42 mm.

Flute
Clarinet
Bassoon
Strings

Tone Roads No. 1, Tone Roads No. 3 and an unfinished "No. 2" form a set, or suite, called Tone Roads Et Al for chamber orchestra. Regarding the titles of these works, Henry and Sidney Cowell explain:

When Ives calls a piece 'tone roads,' he means something for a combination of instruments in which the tone color of one of them gives its character to the sound all the way through. Some of his finest music is to be found among such pieces for miscellaneous chamber combinations (which sometimes include the voice).14

The cello and bassoon state the two "roads" of Tone Roads No. 1 at the outset of the composition:


14Henry and Sidney Cowell, Charles Ives and His Music (2nd ed.; New York: Oxford University Press, 1969), p. 171. All subsequent citations will refer to the second edition unless otherwise noted.
These two "roads" constitute the subjects of a very free double fugue, in which subsequent entries appear as follows:

Subject I:
1. Flute on B♭, meas. 4
2. Bassoon, in inversion, on C, meas. 6
3. Violins and Violas on E, meas. 15
4. Bassoon, in inversion, on A, meas. 17
5. Flute, partial, on D♯, meas. 19
6. Violins, partial inversion, on C♯, meas. 20
7. Bassoon, on A, meas. 38

Subject II:
1. Violins and Viola, on E/A/D, in parallel 4ths, meas. 4
2. Clarinet, a free inversion on A♭, meas. 6

The remaining materials consist of episodic lines, including a remarkable passage in which a complete twelve-tone row is used in
strict serial fashion (to be examined in Chapter IV).

Harold Farneman has described *Tone Roads No. 1* as:

... a mass of free counterpoint in atonality ... in which the texture as a whole is thick, the general impression being one of tremendous energy exerted on several different levels.\(^{15}\)

And Gunther Schuller notes:

This piece is best listened to in its vertical totality, as an inherently block-like entity in which the various polyphonic strands and linear convolutions serve only to achieve a dense structure that is merely the sum of its parts.\(^{16}\)

Ives, as if to poke fun at the contrapuntal profundity of the work, supplies the following marginal note in the manuscript:

"Tone Roads" Rough ones--good ones bad ones Fast ones Slow ones! ... All Roads lead to Rome and to F. E. Hartwell & Co. Gent's Furnishings.\(^{17}\)

And elsewhere in the manuscript: "All roads lead to the Centre--in a race to Town Meetin'."\(^{18}\) And finally:

Over the rough & Rocky roads are [sic] ole Fore-fathers strode on their way to the steepled village church or to the farmers Harvest Home Fair or to the Town Meetings, where they got up and said whatever they thought regardless of consequences.\(^{19}\)

\(^{15}\)Harold Farneman, *op. cit.*

\(^{16}\)Gunther Schuller, *op. cit.*

\(^{17}\)See John Kirkpatrick, *op. cit.*, p. 50.

\(^{18}\)Ibid.

\(^{19}\)Ibid.
Tone Roads No. 2 (1915) 36 mm.

Flute
Clarinet
Trumpet
Trombone
Chimes
Piano
Strings

Tone Roads No. 2 is a multisectonal, atonal composition subtitled by Ives, "Rondo Rapid Transit." The "road" of Tone Roads No. 2 is stated by the chimes, first as a twelve-tone row,

Ex. 4

Andante con moto

and later, in the "trio," as a diatonic statement of the tonic, subdominant and dominant of C major.

Ex. 5
Henry and Sidney Cowell give the following description of Tone Roads No. 3:

The 'tone road' is the tone of the chime, and the whole is a fantasy on the mood of the chime tone. Chime tones are in themselves a rather dissonant complex, but they can hardly have been used in atonal melody with wide dissonant leaps before.

When the trombone joins the chimes, it does so in a counter-melody of stuttering rhythmical figures based on a rhythm of five against the chimes' three, and when the trumpet joins in, its melody has a rhythm of four against the other two. The clarinet soon adds a counterpoint of rapid syncopation. When the piano comes in with a series of low major seventh chords that suggest the tone of the chimes, the rhythm changes to 3/4, with the piano playing dotted eighth notes, and the trombone hurrying his groups of five so that they fit into a 3/4 measure instead of the earlier 4/4. When the flute brings in its independent melody in fast triplets, there are six very individual strands of melody in dissonant counterpoint, dominated by the all-penetrating chimes as a binding force. The trio increases in speed and with the help of the strings builds up to a nine-part counterpoint. There the chimes stop for a moment, the other parts go wildly every which way, until at the end, the chimes reappear as a catalyst to crystallize the sound of the other instruments into sense.

Thus, Tone Roads No. 3 is characterized throughout by mounting rhythmic energy and contrapuntal complexity, culminating in a final quarter-tone cluster, shown in Ex. 6.

---

In typical fashion, Ives adds the postcript to the score:

"There are many roads you know besides the Wabash ... "21

21 See John Kirkpatrick, op. cit., p. 50.
Vocal Works

Vote for Names (1912)

Voice or Unison Chorus
Three Pianos
Text by Charles Ives

Ives wrote *Vote for Names* in November, 1912, presumably at election time. The song is a caustic spoof of elections in which the choices among candidates are limited. Ives describes the significance of the ostinato-like nature of the accompaniment in a note in one of his manuscript lists: "same chord hit hard over & over," "Hot Air Election Slogan."^22^  

The text and its vocal treatment are divided into two distinct parts. The first of these is spoken while the second is sung; moreover, Ives' manuscript gives no specific indications of rhythm for the spoken portion of the text. The sung portion is given exact rhythms but is unbarred.^23^  

\[ \begin{align*} 
\text{Part One} & \quad \text{Vote for Names! Names! Names} \notag \\
& \quad \text{all nice men!!--3 nice men} \notag \\
& \quad \text{(Teddy Woodrow & Bill)} \notag \\
\text{Part Two} & \quad \text{After trying hard to think} \notag \\
& \quad \text{what's the best way to} \notag \\
& \quad \text{vote--I say--just} \notag \\
& \quad \text{walk right in & grab} \notag \\
& \quad \text{a ballot with eyes shut} \notag \\
& \quad \text{& walk right out again!} \notag \\
\end{align*} \]

Paracelsus (1912-1921) 20 rm.

Voice
Piano
Text by Robert Browning

---


^23^Ibid.
Paracelsus is a setting of part of Scene 5 of Robert Browning's dramatic poem of the same name, and is number 30 in Ives original publication, 114 Songs. Ives indicated, in a note, that the song "... may be found suitable for some religious services." However, the extreme musical and technical difficulties of Paracelsus make such a use improbable.

The song begins in a dense and complex texture, which becomes progressively simpler throughout the course of the piece. Thus, both voice and piano employ an extraordinarily wide range of dynamics, tempi and register. The initial musical intensity, and its subsequent decrease, reflect the emotional intensity and eventual resolution depicted in the Browning text. The text of the song is given in full below:

... For God is glorified in man,
And to man's glory vowed I soul and limb.
Yet, constituted thus, and thus endowed,
I failed: I gazed on power, I gazed on power
till I grew blind ...
What wonder if I saw no way to shun despair?
The power I sought seemed God's...
... I learned my own deep error; ...
And what proportion love should hold with power
In man's right constitution;
Always preceding power, and with much power,
Always, always much more love ...

On the Antipodes (1904; 1915-1923) 34 mm.

Voice or Unison Chorus
Piano, Four Hands
Text by Charles Ives

On the Antipodes was partially sketched early in 1904 and brought to completion between 1915 and 1923, the year after the publication.

of all Songs. On the Antipodes is derived from materials and structural systems of Ives' incomplete and most ambitious large work, the Universe Symphony. Moreover, according to Sidney Cowell, Antipodes "is marked on C. E. I.'s Ives' list as part of Universe Symphony."25 On the Antipodes is scored for solo voice and piano duet accompaniment; however, the voice-line may be performed by full chorus, singing mostly in unison, but with occasional organum-like doublings. A choral performance may be preferable, in consideration of the extreme difficulties in range, melodic contour and balance. Furthermore, the impersonal quality of added voices may well be more in keeping with the character of the words.

The form of On the Antipodes is a series of couplets describing various contrasting attributes of Nature, followed by a chorus, in which a cyclic explanation of the mystery of Nature is offered. The text, by Ives, is quoted in full, with an indication of the literary form, in the following example:

Ex. 7

Stanzas

1. Nature's relentless;
2. Nature is kind.
3. Nature is eternity;
4. Nature's today!
5. Nature is geometry; Nature is mystery.
6. Nature's man's master;
8. Sometimes Nature's nice and sweet,
    as a little pansy and,
9. Sometimes it "ain't."
10. Nature is man's enemy;
11. Nature is man's friend.

Chorus

1. Does Nature know the beginning of time
   or the beginning of Space?
2. Man! We ask you! Is Nature nothing but
   atomic cosmic cycles around the perennial
   antipodes?

The word "antipodes" comes from the Greek word antipous, meaning "with the feet opposite." Opposite positions on the earth, such as the north and south poles, are antipodes.

The text of On the Antipodes celebrates the simultaneous existence of such opposites in its description of various opposing attributes of nature. These oppositions are symbolized musically by the simultaneous contrasting of various structural devices, such as the opposition of tempo extremes in the presentation of the same basic thematic materials. Moreover, serialistic devices are juxtaposed with techniques of conventional harmony. This most striking fingerprint of the style of Ives—this union of opposites—was best described by Peter Yates when he said:

That stillness of sound, a mingling of dissonance and consonance, seeming to go nowhere, is the inward field of Ives's spiritual vision, recurring through many of his compositions, a sound for which I can think of no precedent, across which move the dramatic reminiscences of memory and vision.26

26 Peter Yates, op. cit., p. 257.
Music for Various Combinations

Scherzo from *A Set of Three Pieces* (1903; 1914) 50 mm.

Violin I
Violin II
Viola
Cello
Double bass ad. lib.

Toward the end of 1908 Ives assembled *A Set of Three Pieces* for string quartet, double bass and piano. The second of these pieces is the present Scherzo for string quartet, with string bass ad. lib. Sometime in 1914 Ives added a middle section, or trio, thus producing a traditional scherzo with trio format.

The principal characteristic of the first part of the scherzo is its use of three thematic quotations. Two of these are by Stephen Foster: *Massa's in de Cold Cold Ground* and *My Old Kentucky Home*. The remaining quote is a traditional folk tune which, for lack of a specific title, John Kirkpatrick has dubbed the "hootchi-kootchi dance":

Ex. 8

The middle section, or trio, of the scherzo bears the following inscription by Ives: "'Practice for String Q't' In Holding Your Own! Study Dedicated to Gustave Bach (from the line of John Seb. Bach)."

---

Similarly humorous marginalia occur in like passages in other works, and probably refer to the contrapuntal substance of the trio. The principal structural device of the trio is that of canonic imitation.

**Hallowe'en** (1907) 16 mm.

<table>
<thead>
<tr>
<th>Violin I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violin II</td>
</tr>
<tr>
<td>Viola</td>
</tr>
<tr>
<td>Cello</td>
</tr>
<tr>
<td>Piano</td>
</tr>
</tbody>
</table>

**Hallowe'en**, for string quartet and piano, was composed in 1907, apparently on April 1. The complete title on the manuscript is "**Hallowe'en (on the 1st of April!)**." This short eighteen measure work combines various contrapuntal and serial devices of rhythm, melody, texture and form in the cumulative execution of a classic musical joke, one which finds its precedent in Mozart's *Musical Joke* and Haydn's *Surprise Symphony*. **Hallowe'en** is also significant for its inclusion of certain aleatory performance devices, both with respect to the overall form and to the execution of detail as well.

Ives suggests that **Hallowe'en** should be performed around a campfire, and that "**The Hallowe'en . . . goes faster & louder with the bonfire.**" However, as Peter Yates has said, "**. . . Ives's 'campfire' was more likely the visual image he meant his music to convey.**"  

---

29Ibid., p. 65.  
30Peter Yates, *op. cit.*, p. 149.
Largo Risoluto No. 1 (1906) 26 mm.
Largo Risoluto No. 2 (1907) 29 mm.

Violin I
Violin II
Viola
Cello
Piano

Largo Risoluto No. 1 for string quartet and piano is subtitled Prelude & Statement (of the law of diminishing returns) (in economics and tennis!). The "Statement" of Largo Risoluto No. 1 is a free four voice canon, based upon melodic materials of the Prelude. The voices of this canon are related by various augmentations and diminishments, thus producing, in effect, a mensuration canon. The rhythmic complexities are further compounded by the fact that the metrical systems and barlines of the four instruments frequently conflict. Regarding the performance difficulties resulting from such complexities, Ives quipped in a marginal note in the manuscript:

Prof. O. will tap 16th notes on blackboard throughout—it's all a matter of even J's [and] 16th notes in this axiom (financial or athletic!)

Largo Risoluto No. 2 also employs the procedures of a mensuration canon. However, Largo Risoluto No. 1 employed an atonal texture, while Largo Risoluto No. 2 is merely bitonal: the piano music is set in A major while that of the strings is in E♭ major.

Ives subtitles this work A Shadow made—A Silhouette, and instructed that when the piano plays forte the strings play piano.

31 See John Kirkpatrick, op. cit., p. 65.
32 Ibid.
and vice versa. Thus, one instrumental force echoes the other at all times.

John Kirkpatrick has suggested that either a third *Largo Risoluto* may have existed, but is now lost, or that perhaps Ives intended that these two make a set with *Hallowe'en* between them.33

*In Re Con Moto Et Al* (1913) 61 mm.

| Violin I |
| Violin II |
| Viola |
| Cello |
| Piano |

*In Re Con Moto Et Al* for string quartet and piano was completed in April 1913. The work was described by Ives as: "Studies in rhythm, time duration, space, pulse, meter, accent, together and in various ways—called 'IN RE CON MOTO ET AL'."34

Ives apparently intended to incorporate *In Re Con Moto* into the unfinished *Third Orchestral Set* for chamber orchestra. A pencil sketch of *In Re Con Moto* contains the following marginal note regarding this relationship: "'Studies in Space, Pulse, Phrase, Accent, Rhythm'—for String Quartet and Piano—(incomplete, used partly in 2nd Movement, 3rd Orchestral Set)."35

*In Re Con Moto Et Al* consists of a series of sections which are all related by a number series. That is, the parameters of pulse, phrase, accent and meter are all measured durationally, according to a single number series. There are ten varied statements of the

---

33Ibid.
34Ibid., p. 68.
35Ibid.
series, and it is quite possible that these statements constitute the material which Ives intended to incorporate into his *Third Orchestral Set*. The following marginal note appears in the sketches of the second movement of the *Set*: "'Background Sounds' part (all strings) is divided into 10 sections . . . (repeated at direction of cond.)".

---

PART I

INDIVIDUAL SYSTEMS OF ORGANIZATION
CHAPTER I

NUMERICAL ORDERING OF DURATION

A frequently recurring compositional device in these fifteen works of Ives is the arrangement of durational, accentual, metrical and phrasal elements into numerical series. These series often approximate arithmetic progressions, and constitute progressive augmentation and/or diminution series which affect durations, meters, accentual groupings and phrasal lengths. The present chapter will examine instances of numerical ordering in the following compositions:

1. Vote for Names
2. The Gong on the Hook and Ladder
3. Hallowe’en
4. From the Steeples
5. Over the Pavements
6. In Re Con Moto Et Al

Vote for Names

The music of the three pianos, in Vote for Names, is notated in \( \frac{9}{16} \) meter throughout. However, an examination of the patterns within the measures reveals consistent additive groupings, rather than the more usual divisive organization.\(^1\) For instance, the measures in the third

\[^1\text{See Curt Sachs, Rhythm and Tempo (New York: W. W. Norton & Company, 1953). A divisive meter, according to Sachs, is one which can easily be subdivided by two or three. An additive meter is one which does not admit of such subdivision, as for example, 5/8. Rather, an additive measure is brought about by the addition of unequal, smaller groups, for example: } 5/8 = 2/8 + 3/8.\]
piano part are subdivided into three beats each, but not according to the usual grouping of $3 \times 3$. Rather, the beats are additively grouped as $2 + 3 + 4$, forming an arithmetic progression of durations.

Ex. 1.1 Piano III

This pattern is extended further in the groupings of the second piano, which repeats the same chord, in constant and equal sixteenth notes, throughout the entire composition. However, the sixteenth notes are beamed in groups which produce the numerical series $2, 3, 4, 5, 6, 7$. In other words, the accentual groups are progressively and arithmetically increased in length.
This numerical series constitutes the fundamental rhythmic structure of the composition. It is stated by the second piano as an isorhythmic talea, without variation, throughout the course of the composition.

The initial portion of the text is given no specific rhythmic or pitch notation and is apparently intended to be spoken. However, the number of syllables and natural rhythm of the words can easily be organized according to the numerical pattern of the second piano, forming two complete serial statements. The following example shows such a possible rhythmic realization of the spoken portion of the text.
The Gong on the Hook and Ladder

The Gong on the Hook and Ladder employs two distinct numerical series. The first of these unfolds between measures 1 and 21, and again, between measures 31 and 35. The second series appears in measure 29, and is not repeated. We will examine each of these two series separately in this analysis.

Series No. 1

The first of the two series of this composition is notated consistently in \( \frac{7}{8} \) meter. A marginal note in the manuscript indicates that
Ives thought of this measure as a basic durational unit, or tactus, as it were:

(Space or Duration) Rhythm measure of this space = \( \ldots 7 = 1 \ldots \) a gong or bell or drum may strike this all through.\(^2\)

Timpani, gong, snare drum and piano maintain this constant measure-length between measures 1 and 21 by playing repetitive rhythmic patterns of either one or two beats per measure.

Ex. 1.4 Snare Drum, Timpani, Piano (A gong strikes at the beginning of each 7/8 measure throughout)

Simultaneously, the bassoon, triangle, cellos and basses unfold a durational series in which the measure-length, or basic unit, is maintained, but the number of pulses per measure successively increases and then decreases. The first four measures of this pattern are given in

\(^2\)See John Kirkpatrick, op. cit., p. 47.
Example 1.5:

Ex. 1.5 Triangle

This scheme may also be described as an attack density series, since the number of attacks per measure progressively increases and decreases. The pattern is stated three times between measures 1 and 21. The second statement is extended internally by one measure, and the third statement is only partial. The following table summarizes the serial scheme between measures 1 and 21.

**TABLE 1.1**

DURATION/ATTACK DENSITY SCHEME, MM. 1-21

<table>
<thead>
<tr>
<th>Attacks per Measure</th>
<th>2 3 4 5 6 5 4 3 2 3 4 5 6 7 6 5 4 3 2 3 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Statements</td>
<td>1 2 3</td>
</tr>
</tbody>
</table>

The effect of this scheme is that of an alternation of accelerando and ritardando until, in measure 14, the \( \frac{7}{8} \) notated meter is finally established.
In measures 31-35, which recapitulate measures 1-5, the first four terms of Series I reappear unaltered.

Series No. 2

The notated meter expands from $\frac{7}{8}$ to $\frac{7}{4}$ (♩ = ♩) in measures 29 and 30. During measure 29 the flute, clarinet and violins present one statement of a durational scheme in which sixteenth notes are slurred in progressively shorter groups. These groups are emphasized by disjunct intervals, resulting from change in octave as well as a change in melodic direction in the fourth and sixth groups.

Ex. 1.7 Violin I

Melodic Direction:

Serial Groups: [6, 5, 4, 3, 2, 2] (non serial) (1+1)
Hallowe'en

Hallowe'en also presents two independent systems of numerical ordering: one in the music of the strings and one in the piano music.

The string writing consists mainly of a series of slurred sixteenth-note groups which successively decrease and then increase in length. The beginnings of these slurs are often marked by a melodic leap and/or a change of direction, and are punctuated by an accent articulation.

Example 1.8 illustrates one complete statement of this serial pattern of slurs. The hocket-like rests often function as "zero" in the series and are punctuated by ad lib "thumps" in the bass drum.

Ex. 1.8 Violin I

Serial Groups:

All string instruments employ this serial pattern in varying degrees of strictness, producing a constant succession of rhythmic imitations. The following is an analysis of the rhythmic scheme of the
second violin, from the end of measure 4 to the beginning of measure 12:

Ex. 1.9

\[
10-9-8-7-6-5-4-3-0-2-3-4-0-5-6-7-8-9-8-7
\]

The music of the piano employs an independent rhythmic scheme between measures 1 and 7, consisting of a series of durational groupings. The note values within each group are constant, but are successively reduced at the start of each new group. The scheme is summarized in the table below:

**TABLE 1.2**

**NUMERICAL SERIES IN THE PIANO MUSIC OF HALLOWE'EN, MM. 1-7**

<table>
<thead>
<tr>
<th>Serial Group</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhythmic Pattern</td>
<td>(\ddot{\underline{\underline{\underline{\underline{\dddot{}}}))))</td>
<td>(\dddot{\underline{\underline{\underline{\underline{\dddot{}}}))))</td>
<td>(\dddot{\underline{\underline{\underline{\underline{\dddot{}}}))))</td>
<td>(\dddot{\underline{\underline{\underline{\underline{\dddot{}}}))))</td>
<td>(\dddot{\underline{\underline{\underline{\underline{\dddot{}}}))))</td>
<td>(\dddot{\underline{\underline{\underline{\underline{\dddot{}}}))))</td>
</tr>
<tr>
<td>No. of (\dot{\underline{\underline{\underline{\underline{\dddot{}}}))))) in each Duration</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

The number of separate durations within a group, and hence the length of the group, is not systematized in any consistent manner, as the "Rhythmic Patterns" in the above table show.
From the Steeples employs a system of numerical ordering in the music of the bells, in which both the durations of individual notes as well as the duration of entire phrases are affected by a numerical system of ordering.

The four sets of bells reiterate, in canonic texture, a two-phrase cantus firmus seven times between measures 15 and 40, phrase one in the first half of this passage and phrase two in the remainder. The note values, constant within each statement of a phrase, become progressively shorter with the reiterations of phrase one, and longer with the repetitions of phrase two.

Ex. 1,10
mm. 15-40

Phrase I

Phrase II
Such a technique, in which entire groups of values are altered as units, finds its precedent in medieval motets where entire tenor taleae are repeated in diminution.

Scherzo: Over the Pavements

The cadenza of Over the Pavements (mm. 81-95) employs a complex system of numerical ordering, affecting individual durations, meters and phrasal units, and involving the winds and the piano. The bass drum maintains a constant quarter-note pulse throughout the passage, thus providing a constant point of rhythmic reference.

Ex. 1.11 Percussion

The wind group (clarinet, bassoon and trumpet) unfolds a series of six rhythmic phrases in note against note counterpoint. Within each phrase, the durations of individual chords, or groups of chords under a slur, remain constant, but diminish as a unit with the start of each new phrase. The first two phrases of the wind music are given in Ex. 1.12.
The grouping of these individual durations is regulated by a specific plan, in which the number of chords and/or slurred groups in a phrase increases as the individual durations diminish. Thus, each phrase is approximately equal in length. This grouping procedure is illustrated in Table 1.3.
TABLE 1.3
HIGHER-ORDER GROUPING OF DURATIONS INTO PHRASES

<table>
<thead>
<tr>
<th>Number of ⌘'s in a Chord or Slurred Group</th>
<th>Number of Chords and Slurred Groups in a Phrase</th>
<th>Number of ⌘'s in a Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>28</td>
</tr>
</tbody>
</table>

This system of numerical ordering terminates at the end of measure 92.

Two systems of rhythmic ordering are employed simultaneously in the music of the piano. One is produced by the spacing of accent marks and slurs, while the other is the result of pitch contours. The piano writing consists of a series of arch-like arpeggios of ascending and descending minor ninths and major sevenths in constant sixteenth notes. Slurs and accent marks group these arpeggios into patterns of duration which are identical with those of the wind group.
However, the number of sixteenth notes within individual arpeggio arches varies, producing a conflicting scheme of numerical ordering:

Ex. 1.14 Piano
These arpeggio arches of varying lengths are grouped in a repetitive pattern which is somewhat isorhythmic.

Ex. 1.15

<table>
<thead>
<tr>
<th>mm. 81-92</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 7 7 4</td>
</tr>
<tr>
<td>8 8 8 4</td>
</tr>
</tbody>
</table>

Talea I                    Talea II

This pattern very closely approximates a pattern created by the notated meter:

Ex. 1.16

<table>
<thead>
<tr>
<th>mm. 81-92</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 3 3 9</td>
</tr>
<tr>
<td>4 4 4 8</td>
</tr>
<tr>
<td>14 ( \frac{3}{8} ) s</td>
</tr>
</tbody>
</table>

Arpeggio Pattern

<table>
<thead>
<tr>
<th>Notated Meter</th>
<th>7 7 7 4</th>
<th>7 4</th>
<th>7 7 7 4</th>
<th>7 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 8 8 4</td>
<td>8 4</td>
<td>8 8 8 4</td>
<td>8 8</td>
<td></td>
</tr>
</tbody>
</table>

**In Re Con Moto Et Al**

Ives described *In Re Con Moto Et Al* as:

Studies in rhythm, time duration, space, pulse, meter, accent, together and in various ways ... 4

This work synthesizes many of the techniques described in this chapter and can thus conclude our examination of numerical ordering of duration.

---

4 See John Kirkpatrick. *op. cit.*, p. 68.
In Re Con Moto Et Al is integrated throughout by a single numerical series, comprised totally of prime numbers: 11, 7, 5, 3, 2, 3, 5, 7, 11. This series is first stated by strings and piano between measures 2 and 6. The series disintegrates at the end and the measuring unit of duration changes midway, but the series is nonetheless evident.

Ex. 1.17

<table>
<thead>
<tr>
<th>Notated Meter</th>
<th>11/8</th>
<th>7/8</th>
<th>5/8</th>
<th>5/4</th>
<th>3/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numerical Series</td>
<td>11</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

The remainder of the composition unfolds a series of variations in which durations, regulated by this numerical series, are manifest in numerous ways. The organizational systems of piano and strings, however, unfold independently, and will, therefore, be examined individually.

Numerical Serialism in the Strings

Throughout the work, a succession of two chords recurs, marking the beginning points of durational groupings. We will designate these two chords as "reference chord" and "reference associate," or R.C. and R.A.
The combination of these two chord structures exhausts the twelve notes of the scale. The arrangement of tones in R.C. normally remains unchanged, but the notes in R.A. are frequently rearranged in permutations of invertible counterpoint; the following are several examples:

Variation I, MM. 7-14

The R.C. and/or R.A. appears at the beginning of each measure in this variation. Each measure-length thus serves as one term of the numerical series. The measuring unit of each term is a dotted quarter note.
Ex. 1.20

<table>
<thead>
<tr>
<th>Meter</th>
<th>6</th>
<th>9</th>
<th>15</th>
<th>21</th>
<th>33</th>
<th>21</th>
<th>15</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Serial Terms</td>
<td>2 (\uparrow)</td>
<td>3 (\uparrow)</td>
<td>5 (\uparrow)</td>
<td>7 (\uparrow)</td>
<td>11 (\uparrow)</td>
<td>7 (\uparrow)</td>
<td>5 (\uparrow)</td>
<td>3 (\uparrow)</td>
</tr>
</tbody>
</table>

Notice that the order of the statement is the inverse of the initial statement (mm. 2-6).

The musical materials in measures with identical meters are always alike, save for matters of articulation and dynamics, thus producing an arch, or pyramid structure.

Ex. 1.21

Variation II, MM. 15-22

This variation states only half the series, and the unfolding of the series is not dependent upon the notated meter, as in variation I. Each appearance of the R.C. is separated by an increasing number of \(\uparrow\)'s. These \(\uparrow\)'s are grouped into units of 5 \(\uparrow\)'s each.
Ex. 1.22 Violin I

The scheme of this variation is summarized below:

Ex. 1.23

\[
\text{\textbf{\textit{\textbf{s}}}': 15 \quad 25 \quad 35 \quad 55 \\
\text{\textbf{\textit{\textbf{s}}}': 3 \quad 5 \quad 7 \quad 11}
\]

Variation III, MM. 23-31

The series is defined by measure-lengths with a \( \text{\textbf{\textit{\textbf{s}}}'} \) unit of measure, and appears complete and in its original order.

Ex. 1.24

\[
\text{Meter:} \quad 11 \quad 7 \quad 5 \quad 3 \quad 2 \quad 3 \quad 5 \quad 7 \quad 11 \\
\quad 4 \quad 4 \quad 4 \quad 4 \quad 4 \quad 4 \quad 4 \quad 4 \quad 4
\]

As in variation I, the materials of the successive measures are arranged in a pyramid form.

Variation IV, MM. 32-41

The first half of this variation is based on a \( \text{\textbf{\textit{\textbf{s}}}'} \) unit and the
second half on an \( \text{\textdegree} \) unit. The rotated meter length, however, unfolds the series throughout.

Ex. 1.25

<table>
<thead>
<tr>
<th>Notated</th>
<th>33 21 15 9 6 2 3 5 7 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meter:</td>
<td>16 16 16 16 16 8 8 8 8 8</td>
</tr>
<tr>
<td>Series Terms:</td>
<td>11 ( \text{\textdegree} ). 7 ( \text{\textdegree} ). 5 ( \text{\textdegree} ). 3 ( \text{\textdegree} ). 2 ( \text{\textdegree} ). 2 ( \text{\textdegree} ). 3 ( \text{\textdegree} ). 5 ( \text{\textdegree} ). 7 ( \text{\textdegree} ). 11 ( \text{\textdegree} ).</td>
</tr>
</tbody>
</table>

Summary of Variations I–IV

In the first four variations, the R.C. and/or the R.A. marked the beginning of each term of the numerical series 11, 7, 5, 3, 2, 3, 5, 7, 11. In each variation, a different note value, or unit of measure, was employed to delineate the terms of the series, and the series were frequently reflected in the notated meter. The series began with the smallest number in variations I and II, and with the largest in III and IV. Two variations presented partial statements of the series, and the musical materials of two were cast in a pyramid form.

**TABLE 1.4**

**SUMMARY OF PRESENTATION OF SERIES IN VARIATIONS I–IV**

<table>
<thead>
<tr>
<th>Variation</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series Order</td>
<td>2 ↔ 3</td>
<td>3 → 11</td>
<td>11 ↔ 11</td>
<td>11 → 2:2 → 11</td>
</tr>
<tr>
<td>Form</td>
<td>Pyramid</td>
<td>Phrase</td>
<td>Pyramid</td>
<td>2 Phrases</td>
</tr>
<tr>
<td>Unit of Measure</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3,2</td>
</tr>
</tbody>
</table>
The remainder of the variations, which conclude at measure 60, are cast in a constant \( \frac{4}{4} \) meter. During these variations, the series unfold in three manners:

1. Gruppettos in which the number of notes in a gruppetto corresponds to a term of the series, as for example:

\[
\begin{array}{c}
\text{\underline{2}} \\
\text{\underline{3}} \\
\text{\underline{5}} \\
\text{\underline{7}}
\end{array}
\]

2. Slurs of various lengths, as for example:

3. Individual durations, as for example:

\[
\begin{array}{c}
\text{[2} \\
\text{3} \\
\text{5} \\
\text{7]}
\end{array}
\]

The first of these manners allots equal durations of time to each term, but grounds the subdivisions of these durations according to the series. The second and third manners alter the duration of each term.

Variation V, MM. 42-45

Variation V presents a contracted version of the series, consisting of gruppettos, each equal to a whole note:

Ex. 1.26 Violin I

\[
\begin{array}{l}
\text{\underline{3}} \\
\text{\underline{5}} \\
\text{\underline{3}}
\end{array}
\]
During this variation, the R.C. and R.A. are transposed to the upper perfect fourth—the "subdominant," as it were.

Variation VI, MM. 46-49

The series in variation VI consists of gruppettos, each equal to a half note. The materials of the gruppettos are arranged in pyramid fashion, and the center gruppetto (gruppetto "11") contains a cancrizan in its bass line.

Ex. 1.27

Variation VII, MM. 50-52

The violins unfold the series of variation VII in beamed and slurred groups of varying lengths, as in "manner 2," while the lower strings unfold individual durations: "manner 3". The final term overlaps with the first of variation VIII. The first half of the series is summarized in Ex. 1.28.
The musical materials of the groups in the violins and the chords in the lower strings are arranged in pyramid form in this variation.

Variation VIII, MM. 52-53

The first violin states this variation of the series in gruppettos. The length of the series is contracted, omitting gruppetto "11."

Ex. 1.29

Variation IX, MM. 54-59

The final variation of the string music is based on gruppettos, each equal to a whole note. The series is terminated at measure 59, as in the following example:
Thus, the music of the strings presents ten statements of a numerical series between measures 2 and 59, in the manner of a theme with variations. These statements can be grouped into two divisions of five statements each. The first five contain many changes of meter, which often correspond to the numerical series, while the second five maintain a $\frac{4}{4}$ meter, with sub-groupings which correspond to the series.

Numerical Serialism in the Piano

The piano does not employ the numerical series during the first four variations in the strings, but unfolds completely independent materials. However, at measure 40, the piano adopts the numerical scheme of the strings, in five distinct variations of the series. These variations, however, unfold independent of those of the strings. Moreover, the piano applies a new manner of presentation, adding to the three of the strings. The successive terms of a series, whether groups of equal or unequal length, often begin with the same melodic figure. However, as the groups lengthen, new notes are added at the ends. Such a progressive lengthening of groups clarifies the beginning points of the serial terms in much the same way the R.C. does in the string music.
As in the music of the strings, the piano music presents only one serial statement at a time.

Variation I, MM. 40-42 (MM. 42-44 in the Strings)

The series unfolds in slurred groups, the lengths of which are determined by the successive terms of the series. The unit of measure in this variation is the \( \text{J} \), and the strictness of the presentation is relaxed at the end. The basic groupings of the terms are indicated in the following example:

Ex. 1.32

Variation I

\[
2 \text{ J} ; 3 \text{ J} ; 5 \text{ J} ; 7 \text{ J} ; 11 \text{ J} ; 7 \text{ J} : 5 \text{ J} ; 4 \text{ J}
\]

The right hand music of the piano presents the approximate inversion of the left hand music and the serial terms are arranged in pyramid form.

Variation II, MM. 43-48 (MM. 44-49 in the Strings)

The manner of lengthening the groups described on p. 57 is employed in this variation. That is, the serial terms "2," "5," and "7"
begin with the same melodic figure: the "ll" term, however, does not.
The form of this variation is also a pyramid, and the last two terms of
the series are omitted.

Ex. 1.33

Variation III, MM. 49-52 (MM. 50-53 in the Strings)

The right hand unfolds the series in gruppettos, while the left
hand plays an ostinato figure:

Ex. 1.34

This is the only variation in which only one hand of the piano music is
involved in the presentation of the numerical series. Ex. 1.35 summa-
rizes the serial statement of Variation III.
Variation IV, MM. 53-55 (MM. 54-56 in the Strings)

The upper staff of the piano music unfolds the series in progressively lengthening groups, while the left hand presents the series in individual durations during this variation. The right hand material forms a near-pyramid, but the left hand is free. The scheme is summarized below:

Ex. 1.36 Piano

Variation V, MM. 55-58 (MM. 56-69 in the Strings)

The final statement is unfolded in successive gruppettos and is freely extended in measure 58. This series is a compound statement in which two subseries unfold. The second presentation of the numerical series begins in measure 57 (58 in the strings). We have considered these two statements to belong to one variation, since the melodic and harmonic materials are similar and two interrelated pyramids thus occur.
Example 1.37 summarizes the serial scheme of variation V:

Ex. 1.37

\[\begin{array}{cccccccc}
3 & 5 & 7 & 11 & 7 & 5 & 3 & 5 & 7 & 11 & 10 & 14 \\
\end{array}\]

Summary

We have, in this chapter, examined numerous instances of the numerical ordering of duration. It was applied to individual durations, to accentual and slurred groupings of varying lengths, to gruppettos of equal lengths but with subdivisions of varying lengths, to phrasal lengths, and to the notated meter. This wide variety of manners in which numerical ordering was applied can be reduced to four basic manners, which are listed below:

1. Lengths of Individual Durations
2. Lengths of Groups containing Equal Subdivisions
3. Lengths of Subdivisions within Groups of Equal Lengths
4. Lengths of Subdivisions within Groups of Varying Lengths
CHAPTER II

SERIAL ORDERING OF PITCH

The scores of Ives often demonstrate patterns of pitch ordering which can be described as serial. Often these patterns undergo repetition in a manner akin to the medieval isorhetic device of color, while in other cases an entire section may consist of one such pattern. This present chapter examines this practice of serialistic pitch ordering in six compositions:

1. Hallowe'en
2. Tone Roads No. 1
3. From the Steeples and the Mountains
4. On the Antipodes
5. In Re Con Moto Et Al
6. Scherzo: Over the Pavements

Hallowe'en

The string music of Hallowe'en demonstrates a serial scheme in which the first notes of slurred groups form a 7-note tone row.

Ex. 2.1 Violin I

\[\begin{array}{ccccccc}
& C & A & D & E & G & F & B
\end{array}\]
This row carries strongly tonal implications, due to the close association of G, F and B, the dominant and tritone of C major. Moreover, the row exhausts the tones of the diatonic scale of C major.

A particularly striking characteristic of this row is the fact that it contains no pitch or interval repetitions.

Ex. 2.2

C A D E G F B (C)

\[ \text{Min.} 3 \downarrow \text{Perf.} 4 \uparrow \text{Maj.} 2 \uparrow \text{Min.} 3 \uparrow \text{Maj.} 2 \downarrow \text{Tritone} \text{Min.} 2 \uparrow \]

Moreover, the row approaches an all-interval row, assuming octave equivalency.

Ex. 2.3

1. Minor 2 \( \uparrow \) or Major 7 \( \downarrow \)
2. Major 2 \( \uparrow \) or Minor 7 \( \downarrow \)
3. Major 2 \( \downarrow \) or Minor 7 \( \uparrow \)
4. Minor 3 \( \uparrow \) or Major 6 \( \downarrow \)
5. Minor 3 \( \downarrow \) or Major 6 \( \uparrow \)
6. Perfect 5 \( \downarrow \) or Perfect 4 \( \uparrow \)
7. Tritone

This tone row, defined by the first notes of the slurs, is repeated serialistically, between measures 1 and 12. The pitch scheme is not related to the rhythmic scheme of lengths described in Chapter III. Rather, the two systems unfold independently. For
example, in the first statement of the pitch scheme, "C" is part of a 6-note slur and in the second statement, of a 2-note slur:

Ex. 2.4 Violin I

Moreover, the remaining pitches of the slurs are normally unserialized, although sporadic instances of interrelationships between pitch and rhythm systems can occasionally be found. Notice, for example, the cancrizan relationships illustrated in Ex. 2.5:

Ex. 2.5 Violin I

Pitch Scheme:

C A D E G F B // C A D E G F B

Rhythmic Scheme:

6 5 4 3 2 0 2 3 4 5 6
Similar serial schemes of pitch organization unfold between measures 1 and 12. Violin I and viola share the same row, while violin II and cello employ another row.

Ex. 2.6

\[
\begin{array}{cccccc}
B & D^\# & G^\# & F^\# & E & A^\# & C^\#
\end{array}
\]

This row is similarly tonal but includes several interval repetitions.

Ex. 2.7

\[
\begin{array}{cccccc}
B & D^\# & G^\# & F^\# & E & A^\# & C^\#
\end{array}
\]

The following table summarizes the statements of the pitch schemes in each of the string instruments. Notice that the upper strings are more consistent in their presentations, but that, in general, the scheme progressively disintegrates.
TABLE 2.1
SERIAL ORGANIZATION OF PITCH IN THE STRINGS

<table>
<thead>
<tr>
<th>Statement No.</th>
<th>Violin I</th>
<th>Violin II</th>
<th>Viola</th>
<th>Cello</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>C A D E G F B</td>
<td>B D# G# F# E A# C#</td>
<td>D♭ B♭ E♭ F G♭ G♭ C</td>
<td>D F♯ B E A G [F♯] E</td>
</tr>
<tr>
<td>3.</td>
<td>C A D E G F B</td>
<td>B D# G# F# E A# C#</td>
<td>D♭ B♭ E♭ G♭ C</td>
<td>D G B scheme disintegrates here</td>
</tr>
<tr>
<td>5.</td>
<td>C A D E G F B</td>
<td>B - G# - E - -</td>
<td>B - G# - E - -</td>
<td></td>
</tr>
</tbody>
</table>
Tone Roads No. 1 employs a twelve-tone row in the flute music, consistently, between measures 13 and 32.

Ex. 2.8

\[
\begin{array}{cccccccccccc}
E & G^\# & D^\# & C^\# & F^\# & G & F & B^b & A & C & B & D \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12
\end{array}
\]

This row contains no repetitions, exhausts the entire twelve notes of the chromatic scale, and is consecutively repeated, in isomelic fashion. The repetitions contain numerous octave transpositions, comparable to those in twelve tone compositions by Schönberg, and the rhythms vary with each repetition. Thus, the tone row is not simply a twelve-tone ostinato figure, but a strictly serial structure.

The tone row appears also in the clarinet in cancrizan during measures 13 through 19. The violins double the clarinet during measures 17 through 19 and present a partial cancrizan during measures 22 through 24.

The serial portions of Tone Roads No. 1 have been extracted and analyzed in the following example.
Ex. 2.9

Flute, Clarinet

Cancrizez:
12 11 10 9 8 7 6 5 4

Flute, Clarinet

Flute; Clarinet, Violins and Violas

6 5 4 3 2 1// 12 11 10 9 8 7 Vls. and Vlas. begin to double clar. at this point

6 5 4 3 2 1// 12 11 10 9 8(7 o-mitted)
Ex. 2.9 (cont.)

Flute

Clarinet and Viola no longer serial; Violins non-serial during rm. 20-21

Flute; Violins I and II

Violins no longer serial

Flute

12//1 2 3 4 serial scheme ends
Ives frequently orders the twelve-tone content without specifically devising twelve-tone rows which repeat isomorphically. From the Steeplec demonstrates such an approach.

Between measures 17 and 24 the trumpet groups the twelve notes of the scale in a manner not unlike the "trope" technique of Matthias Hauer, where internally unordered pitch groups are serialized as units. In the present passage, two groups of pitches, which together exhaust all twelve notes, alternate. This system of grouping disintegrates during measure 25 but the rapid use of all twelve tones continues. The two pitch groups and an analysis of the passage are given below:

Ex. 2.10

Group I
A E♭ F A♭ G D♭ B♭

Group II
D F♯ C F E B

Ex. 2.11 Trumpet

Groups I II

The trombone employs similar pitch groupings in this passage, but not as systematically as in the case of the trumpet.

**On the Antipodes**

In an article "Some 'Quarter-Tone' Impressions," Ives complained of "the drag of repetition" in traditional music, and offered a compositional solution, which is, in effect, the serial ordering of chordal structures.

In a movement of music, a structure built primarily on a progression of chords not necessarily the same but of the same relative intervals seems more and more to hold up that organic flow which we feel the need of—it halts us so severely that a resort to other material is almost forced on us. As an instance, we may go perhaps
to a series of chords, each different, occurring in cyclic repetition.\textsuperscript{2}

In a second manuscript of this article, Ives elaborates upon this device, describing it as "a series of chords each different which do not repeat except as the cycle repeats and then not literally."\textsuperscript{3} \textit{On the Antipodes} offers a clear example of such cyclic ordering of chordal structures in the piano accompaniment.

"Chordal Cycles"\textsuperscript{4}

The work opens with a series of twenty-one chords, highly varied in interval structure. The first eleven chords are all different, after which some are similar in structure and some are exact repetitions, but in cancrizan order. For purposes of later identification, each will be given a number corresponding to the order of its initial appearance in the opening four measures. Those \textit{exact} repetitions which occur in the cancrizan portion of the series will be given their original number, but with a subscript, as, for example, "5a." The chords appear in the following example just as they do in the score, but without their original rhythm.


\textsuperscript{3}Ibid., n.

\textsuperscript{4}Ives described the serial repetition of chordal structures examined in this section as "chordal cycles." See, for example, John Kirkpatrick, \textit{op. cit.}, p. 27.
Ex. 2.12 Piano

Primo

Secondo

Chord No.: 1 2 3 4 5 6 7 8

9 10 11 12 13 8a
Each chord in the series demonstrates a distinct pattern of interval structuring. Although these patterns are not always carried out exactly throughout the entire chord, they are consistent enough to characterize the overall vertical sonority. A brief description of each different chord is given in the following table.
<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chord of 5ths</td>
</tr>
<tr>
<td>2.</td>
<td>Alternating 5ths and tritones</td>
</tr>
<tr>
<td>3.</td>
<td>Alternating 4ths and tritones</td>
</tr>
<tr>
<td>4.</td>
<td>Chord of 4ths</td>
</tr>
<tr>
<td>5.</td>
<td>Alternating 4ths and major 3rds</td>
</tr>
<tr>
<td>6.</td>
<td>Alternating major and minor 3rds</td>
</tr>
<tr>
<td>7.</td>
<td>&quot;French 6th&quot; - whole tone</td>
</tr>
<tr>
<td>8.</td>
<td>Alternating minor 3rds and major 2nds</td>
</tr>
<tr>
<td>9.</td>
<td>Alternating minor 3rds and minor 2nds</td>
</tr>
<tr>
<td>10.</td>
<td>Alternating major and minor 2nds (Messiaen's &quot;2nd mode of limited transposition&quot;)</td>
</tr>
<tr>
<td>11.</td>
<td>Minor 2nd cluster</td>
</tr>
<tr>
<td>12.</td>
<td>(Same as No. 10, but transposed)</td>
</tr>
<tr>
<td>13.</td>
<td>Complete whole-tone scale</td>
</tr>
<tr>
<td>14.</td>
<td>Chord of major 7ths</td>
</tr>
</tbody>
</table>

Notice that the intervals of successive chords are generally contracted from those of a chord of 5ths to a cluster of minor 2nds, after which the procedure is reversed.
Serial Presentation and Form

The macroform of Antipodes can be seen to emerge from the nodes of presentation of this basic series of chords. The series appears four times during the course of the work. The first, third and fourth are chordal statements, each governed by a constant tempo. These statements constitute complete sections in the form. Statement II unfolds in two formal sections, separated by a non-serial interlude and statement III. The two sections of statement II employ a freer, broken chordal texture, with frequent changes in tempo. They also contain some "non-chord tones," which function as embellishments in the traditional manner. Nevertheless, the characteristic interval patterns of the chords are evident, in the approximate order of the original series.
Ex. 2.13 Voice and Piano

Chord No.: | 4 | Free | 5 |
Statement  II
Ex. 2.13 (cont.)

Chord No.: 6
Statement (II)
The non-serial interlude (Ex. 2.14) contrasts greatly with the serial sections by virtue of its conventional tonal idiom.

Ex. 2.14

Andante grazioso

Sometimes Nature's nice and sweet, as a little pansy.
The following table summarizes the serial-formal scheme of On the Antipodes.

**TABLE 2.3**

**SERIAL-FORMAL SCHEME OF ON THE ANTIPODES**

<table>
<thead>
<tr>
<th>Sectional Scheme</th>
<th>Statement No.</th>
<th>Measures</th>
<th>Tempo Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>a: chordal</td>
<td>I</td>
<td>1-4</td>
<td>Constant</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b: broken</td>
<td>II part 1</td>
<td>5-13</td>
<td>Changing</td>
</tr>
<tr>
<td>Interlude</td>
<td>non-serial</td>
<td>14-17</td>
<td>Constant</td>
</tr>
<tr>
<td>a': chordal</td>
<td>III</td>
<td>17-19</td>
<td>Constant</td>
</tr>
<tr>
<td>A'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b': broken</td>
<td>II part 2</td>
<td>20-27</td>
<td>Changing</td>
</tr>
<tr>
<td>A'' a'': chordal</td>
<td>IV</td>
<td>28-34</td>
<td>Constant</td>
</tr>
</tbody>
</table>

The following is a serial analysis of the distribution of the chords in the two sections which comprise serial statement II.

Ex. 2.15

<table>
<thead>
<tr>
<th>Measure</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chord No.</td>
<td>1,2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8,9</td>
<td>10,11,12</td>
<td></td>
</tr>
</tbody>
</table>

Statement II, part 1

<table>
<thead>
<tr>
<th>Measure</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interlude, and Statement III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>13</th>
<th>8a</th>
<th>6a</th>
<th>5a</th>
<th>4a</th>
<th>3a</th>
<th>2a</th>
<th>14</th>
</tr>
</thead>
</table>

Statement II, part 2
The two sections of serial statement II are related musically, as for example, by similar arch-like arpeggio patterns.

Ex. 2.16

Ex. 2.17
Serial Freedoms in Statement II

The degree of freedom in the presentation of a chord in statement II corresponds, in a general way, to the number of notes in the original presentation of that chord. That is, the more dense the chord in statement I, the freer its subsequent statements. For example, the following is a tally of the number of notes in each of the first eleven chords of the basic series.

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Notes</td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>8</td>
<td>18</td>
<td>4</td>
<td>20</td>
<td>11</td>
<td>12</td>
<td>45</td>
</tr>
</tbody>
</table>

The presentation of chords 8 and 11 is much freer than that of chords with fewer notes. Moreover, the larger the number of notes in a chord, the larger the number of interval types, and the less distinctive the chord type. Ives described the bearing which the number of notes in a chord has on its treatment when he said:

... The process of finding whatever one feels is wanted in each case is mostly instinctive, but that there are underlying laws is evidenced by the fact that they may be traced in a general way after the notes are written down. As an example, it appears (but not always) that the greater the number of intervals in a chord, the less is the movement of change, and that it takes place in the inner parts to a greater extent than in the outer; the converse seems true in a series of chords with fewer intervals.5

5Ibid., pp. 115-16.
Relationships Among Serial Statements I, III and IV

Statements III and IV alter the original statement (I) less than do the broken chordal sections of statement II. Differences among the strict chordal statements are never great enough to obscure their identity with statement I. For instance, statement III is an exact repetition, on the same pitch level, of statement I, but in a 2:1 diminution of note values. The final statement is a close repetition of the basic series, with only minor changes, but with all the chords built on "C". The score calls for an organ to double this one extended pedal point.

Ex. 2.18 Organ

Furthermore, some of the differences tend to emphasize a symmetrical unity among the three statements, as the following table illustrates.
TABLE 2.5
RELATIONSHIPS AMONG SERIAL SECTIONS I, III AND IV

<table>
<thead>
<tr>
<th>Statement</th>
<th>I [complete]</th>
<th>III [complete-dimination]</th>
<th>IV [complete-transpositions]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tempo</td>
<td>Adagio</td>
<td>Presto or Allegro</td>
<td>Largo Maestoso</td>
</tr>
<tr>
<td></td>
<td>Maestoso</td>
<td>[fastest tempo]</td>
<td>[slowest tempo in composition]</td>
</tr>
<tr>
<td></td>
<td>constant</td>
<td>constant</td>
<td>constant</td>
</tr>
<tr>
<td>Durations</td>
<td>wide range</td>
<td>wide range</td>
<td>wide range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[shortest note]</td>
<td>[longest note]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[in piece]</td>
<td>[in piece]</td>
</tr>
<tr>
<td>Voice line</td>
<td>None</td>
<td>extremely raucous</td>
<td>extremely even</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[in rhythm and interval]</td>
<td>[in rhythm and interval]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[contour]</td>
<td>[contour]</td>
</tr>
<tr>
<td>Dynamics</td>
<td>f</td>
<td>ff</td>
<td>f ← fff</td>
</tr>
</tbody>
</table>

Thus, although contrasts occur, statements I, III and IV constitute strict serial statements, while statement II presents a free application of the initial chordal series.

Harmonic Rhythm in the Four Serial Statements

The harmonic rhythm of statements I, III and IV corresponds to the durations of the chords themselves and is, therefore, in an almost constant state of rhythmic flux. Note values within these statements are not systematized as are the chords, but each statement,
nevertheless, presents a wide variety of durations.

Ex. 2.19

Rhythm in Statement I

\[
\dfrac{\text{overall spacing}}{\text{rhythm}}
\]

In terms of written note values, the harmonic rhythm of statement II appears somewhat less varied and less rapid than that of the chordal statements. However, the constant tempo fluctuation affects the audible harmonic rhythm, as illustrated in the following example.

Ex. 2.20

<table>
<thead>
<tr>
<th>Meas.</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tempo</td>
<td>Andante con spirito</td>
<td>Adagio non spirito</td>
<td>Moderato</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial Chord Number</td>
<td>6 5</td>
<td>4</td>
<td></td>
<td>2 1</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Harmonic Rhythm</td>
<td>5 [ \dfrac{\text{rhythm}}{\text{note}} ]</td>
<td>4 [ \dfrac{\text{rhythm}}{\text{note}} ]</td>
<td>0</td>
<td>6 [ \dfrac{\text{rhythm}}{\text{note}} ]</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Nevertheless, the overall spacing is fairly even, with changes occurring normally after every two or three half notes.

Thus, the harmonic rhythm of the chordal statements is jagged and rapid, but unfolds within one constant tempo. That of statement II,
a broken chordal statement, is somewhat more even, with regard to the written meter, but unfolds in a constant state of tempo change.

In Re Con Koto Et Al

In Re Con Koto Et Al employs a series of chordal structures similar to that of On the Antipodes, in the initial statement of numerical series described in Chapter I. Unlike On the Antipodes, however, In Re Con Koto Et Al does not employ this chord series in a repetitive serial manner, but merely states it once. The use of the "reference chord" (R.C.) and "reference associate" (R.A.) to delineate individual durations in the scheme of numerical ordering, on the other hand, does constitute a serial procedure. The following example shows the series of chordal scales combined with the numerical series.
Ex. 2.21 Violin I, Violin II, Viola, Cello

Chord structure: P4, P5, P5/T
Numerical series: 11, 7, 5

P=Perfect
T=Tritone
←Major
→Minor
Ex. 2.21 (cont.)
The R.C. and R.A., combined, exhaust the twelve notes of the scale, and their cyclic repetitions constitute a serial technique comparable to that found in the trumpet music of From the Steeples: the "trope" technique of Matthias Hauer.

The material between appearances of the reference chords does not represent pitch serialism, but is often highly patterned. The following is a graphic analysis of the first half of variation I (mm. 7-11) in the strings.
Notice that immediately following each appearance of the reference chords, a chord occurs in which three tones form a major or minor triad and the fourth forms a semitone with one of the other three pitches (marked $x$ in Ex. 2.23). These chords are simplified in Ex. 2.24.
Scherzo: Over the Pavements

The clarinet, trumpet and bassoon present a series of three-voice chords in the cadenza of Over the Pavements simultaneously as they unfold the rhythmic scheme described in Chapter I. Moreover, the chordal and rhythmic schemes are both based upon the same series of diminishing numbers. For instance, the first phrase presents chords of major 7ths, each of which lasts seven $\frac{3}{8}$'s; the second phrase employs chords of major and minor 6ths, lasting six $\frac{5}{8}$'s. This procedure is continued until an octave/unison is reached. Rhythmic and chordal phrases one and two (mm. 81-24), are given in the following examples.
Ex. 2.25 Clarinet and Trumpet, Bassoons

Durations in ½'s

| 7 | 7 | 7 | 7 |

Interval Structuring

| 4+3 |

Ex. 2.26 Clarinet and Trumpet, Bassoon

Durations in ½'s

| 6 | 6 | 6 | 6 | 6 |

Interval Structuring

| +6, -6, +6, -6/+6, -6/+6, +6 |
Notice that both major and minor 6ths are employed. Furthermore, the phrase based on thirds presents major, minor, augmented and diminished chords. The phrase of seconds employs both whole tone and semitonal clusters, as well as mixtures. Samplings of chords from each phrase are given in the following example.

Ex. 2.27

Phrase 1

<table>
<thead>
<tr>
<th>Interval</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structuring</td>
<td>+7</td>
<td>+6</td>
<td>P5</td>
<td>P4</td>
</tr>
<tr>
<td></td>
<td>-6</td>
<td></td>
<td>P5</td>
<td>P4</td>
</tr>
</tbody>
</table>

6 | 7

+2 | -2

P8
Summary

In this chapter we have examined applications of the concept of pitch serialism in six works. The first three, Hallowe'en, Tone Roads No. 1, and From the Steeples, applied it to single pitches while the remaining three, On the Antipodes, In Re Con Mote and Over the Pavements applied it to series of chord structures.

Hallowe'en organized the entire string group according to its serial plan and Antipodes structured the piano duet accompaniment by its serial scheme. Tone Roads No. 1 and From the Steeples, on the other hand, used serial devices only sporadically.

Finally, Over the Pavements and In Re Con Mote applied devices of pitch serialism concurrently with parallel plans of rhythmic ordering.

The following table compares, in summary, the uses of serialism in the six compositions.
<table>
<thead>
<tr>
<th>Composition</th>
<th>Type of Serial Unit</th>
<th>Mode of Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hallowe'en</td>
<td>Diatonic Row</td>
<td>Linear: applied consistently in strings between mm. 1-12</td>
</tr>
<tr>
<td>Tone Roads No. 1</td>
<td>12-note Row</td>
<td>Linear: applied sporadically in flute, clarinet, violins and viola</td>
</tr>
<tr>
<td>From the Steeples</td>
<td>12-tonal Tropes</td>
<td>Linear: applied sporadically in trumpet and trombone</td>
</tr>
<tr>
<td>On the Antipodes</td>
<td>Chordal Structures</td>
<td>Textural: applied consistently in piano throughout</td>
</tr>
<tr>
<td>In Re Con Koto</td>
<td>Chordal Structures</td>
<td>Textural: applied sporadically in strings</td>
</tr>
<tr>
<td>Scherzo: Over the Pavements</td>
<td>Chordal Structures</td>
<td>Textural: applied consistently in clarinet, trumpet and bassoon, during cadenza.</td>
</tr>
</tbody>
</table>
CHAPTER III

MODULATION OF METER, TEMPO, INTENSITY, AND REGISTER

Charles Ives frequently created long-range series of progressive augmentations or diminutions of various attributes of musical tone. Often, an entire composition employs a progressive increase or decrease of dynamic level, tempo or combinations of various factors. These planned changes, or modulations, sometimes involve a measurable unit, as in metrical modulations, or a controlled expansion of registers. In other cases, the modulations involve approximate dimensions, as in a modulation of tempi, or intensity levels. Any progressive change in an attribute of music can be described as a modulation of a parameter, and Ives incorporated many such modulations in his scores. We will in this chapter examine the following modulatory devices:

1. Metrical modulation
2. Tempo modulation
3. Intensity modulation
4. Register modulation

in the following scores:

1. From the Steeples
2. Over the Pavements
3. Hallowe'en
4. The Unanswered Question
5. Paracelsus
METRICAL MODULATION

Metrical modulation results when the rate of speed of the rhythmic pulse in a given passage is measurably increased or decreased in such a way that the previous notated pulse is no longer effective.¹

From the Steeples

From the Steeples employs such a temporary metrical modulation between measures 41 and 43, in the music of the brass.

Ex. 3.1 Trumpet, Trombone

¹Note the distinction between metrical modulation and tempo modulation: the former involves a mathematically changed unit of pulse, whereas the latter merely involves a change of tempo markings. See definitions, pp. 8 and 9.
Not only is the unit accelerated in this passage, but the effective measure-length decreases as well. The inversion of metrical patterns, evident in measures 41 and 42, establishes a cross-metricality of triple-time.

Ex. 3.3

The gruppettos of 12 $\text{f}$'s and 9 $\text{f}$'s constitute a proportional "measure" of $\frac{3}{4}$, which stands in a relation of 3 units:2 units with the preceding measures. Example 3.3 compares the meter as notated with the effective "meter," which the rhythmic patterns create.
This metrical modulation terminates, and the original metrical pulse is restored, in measure 43.

A series of metrical modulations unfolds between measures 49 and 65 of *Over the Pavements*, in which the effective pulse of some instruments becomes progressively faster, while that of others becomes slower, relative to the notated measure, which serves as an "integer valor." This integer valor is maintained throughout in the left hand of the piano and the piccolo, which play constant triplets of quarter notes equal to one measure-length.
The persistence of the integer valor, however, becomes somewhat obscured visually by the notation at measure 61, where Ives indicates "this \( \frac{9}{8} \) measure is of the same time duration as two of the preceding \( \frac{5}{8} \) measures." The following example will clarify the notational obscurity, but actual persistence, of the integer valor measure-length.

Ex. 3.5

\[
\begin{align*}
\left[ \text{\( \frac{3}{7} \) } \right. \\
\left. \left[ \text{\( \frac{10}{8} = \frac{9}{8} \) } \right. \\
\end{align*}
\]
The numerous metrical modulations which are contrasted with this constant integer valor begin at various points during the passage. Some are unfolded by individual instruments, while others are executed by instrumental groups. An understanding of the total effect of these modulations can best be gained by an examination of the individual modulatory process in each of the instruments.

Metrical Modulation in the Clarinet

Between measures 49 and 59, the clarinet employs the triplet organization of the integer valor, albeit with numerous variations in the subdivisions.

Ex. 3.6 Clarinet

However, in measure 61, after a long glissando in measure 60, the clarinet states a series of quintuple patterns, producing a series of $5/\delta$, measures, which are contractions of the original $5/8$.

---

2 Notice that the piccolo is beamed to conform with the notated 6/8 measure, but that no metrically modulated pattern is established.
Ex. 3.7 Piccolo (integer valor), Clarinet

These quintuple "measures" are contracted in measures 63 and 64, producing yet another metrical modulation.

Ex. 3.8 Clarinet

Metrical Modulation in the Bassoon

During measures 49 through 58 the bassoon plays an ostinato figure based upon a duple subdivision of the $\frac{5}{8}$ measure (integer valor measure-length).
Ex. 3.9 Bassoon

The bassoon begins a metrical modulation in measures 59 and 60, at which point three modulated "measures" are compressed into the space of two integer valor measures.

Ex. 3.10 Bassoon

From here to the conclusion of the modulatory passage (meas. 65) the bassoon fluctuates between accelerations and decelerations, relative to the integer valor.

Remaining Metrical Modulations

The right hand of the piano, the trombones and percussion, in identical rhythmic patterns, execute the remaining metrical modulations in
In measure 54, the right hand of the piano plays the following figure, based on a duple subdivision of the integer valor measure-length.

Ex. 3.11 Piano, r.h.

\[
\text{\textbf{Ex. 3.11 Piano, r.h.}}
\]

The speed of this figure is accelerated twice between measures 55 and 65. The first of these modulations occurs in measure 55,

Ex. 3.12 Piano, r.h.

\[
\text{\textbf{Ex. 3.12 Piano, r.h.}}
\]

and the second in measures 59 and 60.\(^3\)

---

\(^3\)Notice the peculiar notation employed by Ives in measure 59. Despite the fact that measures 55 and 59 both use quarter-note triplets, the time-lengths of measures 55 and 59 are identical, since Ives indicates no change of measure-length in the score.
To summarize, between measures 55 and 65, the piccolo and the left hand of the piano maintain a constant measure-length, which functions as an integer valor, while a complex set of metrical modulations unfolds in the right hand of the piano and in the remaining instruments. These metrical modulations begin at various points in the passage, creating a continual state of rhythmic and metrical flux. Some modulations produce a metrical acceleration, while others ritard the metrical pulse. The points at which these modulations occur, according to instrumentation, are summarized in Table 3.1.
TABLE 3.1

OCCURRENCES OF METRICAL MODULATION IN OVER THE PAVEMENTS

<table>
<thead>
<tr>
<th>Instrumentation</th>
<th>Measures in which Metrical Modulations Occur</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Piano, right hand;</td>
<td>55; 59</td>
</tr>
<tr>
<td>percussion; trombone</td>
<td></td>
</tr>
<tr>
<td>2. Bassoon</td>
<td>59; 61, 63, 64</td>
</tr>
<tr>
<td>3. Clarinet</td>
<td>61; 63</td>
</tr>
</tbody>
</table>

TEMPO, INTENSITY, DENSITY AND REGISTER MODULATIONS

A tempo modulation is similar to a metrical modulation except that the increase or decrease in the rate of speed of the rhythmic pulse is not numerically measurable. Rather, a tempo modulation is normally indicated by successive tempo markings. Thus a patterned and progressive modulation of tempi can be structured without indicating exact rates of change.

An intensity modulation is a comparable progressive change in intensities, and may be indicated either by dynamic markings or by verbal instructions.

Hallowe’en

Hallowe’en employs tempo and dynamic modulations simultaneously in both the strings and in the piano. During each repetition of the first fourteen measures, the tempo is to be increased and the dynamics
are to be louder. Ives describes, in a set of performance instructions, the plan according to which dynamics and tempi are to be increased. Two versions are offered, depending upon whether the performers choose to play these fourteen measures three times or four. In any case, the coda, which is to be played after the final repetition, is equal to the final repetition in tempo and intensity. The tempo and intensity modulation schemes in *Halloween* are summarized in the following tables.

**TABLE 3.2**

**TEMPO AND INTENSITY MODULATION IF PLAYED FOUR TIMES**

<table>
<thead>
<tr>
<th></th>
<th>First Time</th>
<th>Second Time</th>
<th>Third Time</th>
<th>Fourth Time</th>
<th>Coda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strings</td>
<td>Allegretto</td>
<td>Allegro</td>
<td>Allegro</td>
<td>Presto (as fast as possible)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pp</td>
<td>Moderato</td>
<td>Molto</td>
<td>ff</td>
<td></td>
</tr>
<tr>
<td>Piano</td>
<td>(silent)</td>
<td>(silent)</td>
<td>Presto (as fast as possible)</td>
<td>ff</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Molto</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p</td>
<td>ff</td>
<td>fff sf</td>
</tr>
</tbody>
</table>
TABLE 3.3
TEMPO AND INTENSITY MODULATION IF PLAYED THREE TIMES

<table>
<thead>
<tr>
<th></th>
<th>First Time</th>
<th>Second Time</th>
<th>Third Time</th>
<th>Coda</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strings</strong></td>
<td>Allegretto</td>
<td>Allegro</td>
<td>Presto (as fast as possible)</td>
<td></td>
</tr>
<tr>
<td><strong>Piano</strong></td>
<td>(silent)</td>
<td>Allegro</td>
<td>Presto (as fast as possible)</td>
<td></td>
</tr>
<tr>
<td><strong>Piano</strong></td>
<td>pp</td>
<td>mf</td>
<td><strong>ff</strong></td>
<td><strong>fff</strong></td>
</tr>
<tr>
<td><strong>Piano</strong></td>
<td></td>
<td>pp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notice that the tempo modulation of the piano is parallel to that of the strings, but that the intensity modulations proceed at different rates and include different extremes.

The piano also employs a wedge-like expansion of registral extremes which constitutes a register modulation. Example 3.14 illustrates the skeletal framework of this expansion scheme (without rhythm) from the beginning of measure 1 to the middle of measure 7.
This grid can be further reduced to an expanding wedge of scale lines.

Ex. 3.15
The flute music of The Unanswered Question consists of six "answers" to the "perennial question," in which each "answer" becomes faster, louder and more complex than the preceding. The following table summarizes the tempo and intensity modulations in the flute music.

**TABLE 3.4**

TEMPO AND INTENSITY MODULATION IN THE SIX FLUTE "ANSWERS"

<table>
<thead>
<tr>
<th>Adagio</th>
<th>Andante</th>
<th>Allegretto</th>
<th>Allegro</th>
<th>Allegro Molto</th>
<th>Allegro-accel. to Presto; Molto Agitando</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>mp</td>
<td>mf</td>
<td>f</td>
<td>f</td>
<td>ff pp</td>
</tr>
</tbody>
</table>

The tempi and dynamic levels of the string group and the trumpet remain absolutely constant throughout, thereby functioning as a reference point for the modulatory schemes of the flutes. However, the music of the strings is structured registrally according to a plan which is modulatory in nature.

The range of the string writing extends from contra C (CC) in the double basses to $g^3$ in the first violins.
During the first half of the composition, the entire range is consistently used. During the final half, however, the outer extremities progressively contract and subsequently expand. The following graph illustrates the registral modulation of the outer voices of the strings in the second half of *The Unanswered Question*.
From the Steeples

The trumpet and trombone in From the Steeples execute concurrent modulations of intensity and register, and the bells present an intensity modulation, all of which extend continuously throughout the entire composition.

A constant increase in dynamic level is indicated in the score, from ppp to fff in the brass and from pp to fff in the bells. The successive stages of these intensity modulations are indicated in the following example.

Ex. 3.18

<table>
<thead>
<tr>
<th>Meas.</th>
<th>1</th>
<th>6</th>
<th>12</th>
<th>15</th>
<th>17</th>
<th>18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bells</td>
<td>pp</td>
<td>mf</td>
<td>f</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brass</td>
<td>ppp</td>
<td>pp</td>
<td>f</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(from here to measure 27, each ring a little louder)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meas.</th>
<th>26</th>
<th>27</th>
<th>39</th>
<th>40</th>
<th>41</th>
<th>46</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bells</td>
<td>ff</td>
<td>fff</td>
<td>fff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brass</td>
<td>ff</td>
<td>fff</td>
<td>fff</td>
<td>sempre fff non decresc.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The registers employed by trumpet and trombone are extremely wide, and unfold from low to high, progressively, throughout the work.
The registral extremes of the trumpet coincide with the first and last notes of the composition, the low note occurring only once and the high note twice. The plan of the trombone is similar, but not as systematic in its unfolding. For instance, the highest note of the trombone occurs frequently during the course of the work. The following example shows the upward progression of the trumpet music.

Ex. 3.20
**Paracelsus**

Paracelsus simultaneously presents a tempo and intensity modulation in which speed and loudness are progressively decreased from Allegro-ff to Andante Molto-p. These modulations are not unfolded in a strictly linear manner, and include numerous increases and decreases. Nevertheless, the overall tendency is one of decrease.

In addition, note values are, in general, progressively lengthened. This is not regulated by numerical scale as in the examples discussed in Chapter I, but the principle is, nevertheless, similar.

Successive stages in the tempo and intensity modulations of **Paracelsus** are summarized in the following example.

Ex. 3.21

<table>
<thead>
<tr>
<th>Meas.</th>
<th>1</th>
<th>3</th>
<th>7</th>
<th>11</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allegro (with marked energy)</td>
<td>(with less energy)</td>
<td>ff</td>
<td>fff</td>
<td>ff</td>
<td>mf</td>
</tr>
<tr>
<td></td>
<td>[fff]</td>
<td>[ff]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meas.</td>
<td>15</td>
<td>16</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Andante Molto</td>
<td>mf</td>
<td>p</td>
<td>p</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mf</td>
<td>p</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary

We have seen, in this chapter, instances in which various attributes of musical tone have been subjected to progressive change, or modulation. The device of modulation was applied in general changes of tempo and/or dynamics, as well as in proportionally modulated rates of metrical pulse. Moreover, the device was applied consistently in long-range series, affecting an entire composition as a whole, as well as sporadically, in short passages.

The feature which characterizes all modulatory series is a linearly progressive increase or decrease in one or more attributes of a compositional parameter.
Many passages, in the fifteen compositions of this study, employ a device which is athematic in nature. That is, the passages contain little or no specific melodic content which might undergo thematic or motivic development. However, this athematicism is not of the type found in certain works of Schonberg (for example, Erwartung).\(^1\) In contrast to the complex melodic structures of the athematic works of Schonberg, the present passages by Ives achieve athematicism by presenting almost no distinctive melodic shapes. Rather, melody is reduced to a mere succession of scale lines, either diatonic or chromatic. Thus, melodic and thematic character being virtually non-existent, the ear can concentrate almost totally upon other modes of organization. We shall call such a technique "scalar athematicism."

Frequently, passages of scalar athematicism produce a harmonic structure resembling pandiatonicism, in which "any or all notes of the diatonic scale may be regarded as consonant with one another ..."\(^2\)

We will in this chapter examine instances of scalar athematicism and the resulting states of pandiatonicism and/or panchromaticism.

---


in the following compositions:

1. Scherzo from A Set of Three Pieces  
2. Hallowe'en  
3. From the Steeples and the Mountains  
4. The Gong on the Hook and Ladder  
5. Largo Ritoluto No. 1

Scherzo from A Set of Three Pieces

The middle section, or trio, of the Scherzo from A Set of Three Pieces (mm. 22-28) employs scalar aethematicism throughout, in all voices. The lines of the first violin and viola consist of a series of ascending and descending chromatic scales, while those of the second violin and cello consist of diatonic scales.

Ex. 4.1

Thus, systems of pandiatonicism and panchromaticism obtain simultaneously.
Hallowe'en

The string quartet of Hallowe'en unfolds its numerical scheme of rhythm (described in Chapter I) in a consistent state of scalar athematicism. Occasional melodic leaps occur, but normally these are simply octave displacements, serving to delineate rhythmic groupings, and not to create thematic shapes.

Ex. 4.2

The lines of all four instruments consist of diatonic scales. However, the resultant harmonic structure is not a simple pandiatonicism, but a polytonal complex. Each line is set in a different key, creating an organization of key systems which lie within a minor third "band": B, C, D♭, D.
These systems merge at the close of the composition in a fairly clear cadence in C major.

From the Steeples and the Mountains

The bell music of From the Steeples, although based upon a traditional English chime theme, creates an effect which is very similar to that of scalar athematicism. Each of the two phrases of the motive exhaust an entire diatonic scale, and the two phrases are merely reiterated in ostinato fashion, phrase one in the first half of the work, and phrase two in the second. Thus, thematic development
is virtually precluded, and the bell music can be said to represent a state of scalar atheomaticism.

The four sets of chimes are notated in three different keys, thus producing a clustering of diatonic systems similar to that found in Hallowe'en. Several measures of the bell music, from the center of the composition, are given below.

Ex. 4.5
The *Ron* on the *Hook* and *Ladder* employs the device of scalar athematicism in the unfolding of its two numerical series (explained in Chapter I). The first use of it occurs between measures 1 and 21 in the music of the bassoon, cellos and basses, and is partially repeated in measures 31-35. The lines are based primarily on a principle of chromatic scales, but not with absolute consistency; frequent octave displacements and melodic skips occur as well.

Ex. 4.6 Bassoon, Cellos and Basses

Thus, the writing of these instruments represents a modified state of scalar athematicism, in which an athematic effect is nonetheless evident.

The second of the two numerical series in *The Ron* on the *Hook* and *Ladder* (m. 29) is also set in a system of scalar athematicism. This setting is again somewhat free but the lines are more strictly scalar than those of the former.

This passage also presents a clustering of chromatic scales,
comparable to the scale clusterings of Halloween and From the Steeples.

Ex. 4.7 Violin I, Flute, Clarinet

**Largo Risoluto No. 1**

*Largo Risoluto No. 1* extends the principle of scalar athematicism to include lines based on intervals larger than tones and semitones. During measures 24 and 25 of this composition, the strings play lines based on alternating fourths and fifths in a freely imitative texture.
The principle of scale clustering is concomitantly expanded in this passage. The three different melodic lines employed in the passage begin on the notes E-B-F♯, a fourth-fifth arrangement. Thus, diatonic lines are clustered harmonically in seconds, and fourth-fifth lines are clustered in fourth-fifth relationships.

Summary

Ives occasionally eliminates thematicism from his music by substituting mere scale-lines for thematic shapes. This does not eliminate such basic concepts as interval and register, but merely
precludes motivic development from the possible means of organization.

We have in this investigation designated this device by the term "scalar athematicism," to differentiate it from the type of athematicism that occurs in certain works of Schonberg.

The scalar systems employed in scalar athematicism are normally diatonic or chromatic, but the principle is sometimes extended to include melodic lines based on intervals larger than a tone and semitone, such as fourth and fifth cycles.

The lines in scalar athematic passages are freely combined in a system of pandiatonicism or panchromaticism. Moreover, the scalar systems of the various lines in a given passage are frequently combined polytonally, producing a clustering of scales.
PART II

COMBINATIONAL CONCEPTS
CHAPTER V
- THE COMBINATION OF MUSICAL SYSTEMS IN A COUNTERPOINT OF PARAMETERS

We have seen various devices of organization applied to numerous attributes of tone in works of Ives. This chapter examines ways in which Ives combines organizational systems in independent counterpoints of pitches, durations, intensities, modes of articulation, and even scalar systems. We will examine such counterpoints of attributes in the following compositions:

1. From the Steeples and the Mountains
2. Largo Risoluto No. 1
3. Largo Risoluto No. 2
4. Scherzo: Over the Pavements
5. Scherzo from A Set of Three Pieces

From the Steeples

The bell sets and the brass instruments each present independent, but concurrent canonic sets in From the Steeples. Two canonic sets in the bells extend from measure 15 through measure 41, and two canons in the brass unfold between measures 17 and 37.

The Canons of the Bells

The two sets of canons in the bells are based, respectively, on the two phrases of the chime-tune motive.
The first phrase is treated in the first half of the passage, and the second phrase in the second. The rhythmic points of entry are summarized below.

TABLE 5.1
CANONIC POINTS OF ENTRY IN BELLS

<table>
<thead>
<tr>
<th>Bell</th>
<th>Time Interval Between Successive Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (High Bell)</td>
<td>Entry after 1</td>
</tr>
<tr>
<td>II (Low Bell)</td>
<td>Entry after 2</td>
</tr>
<tr>
<td>IV (Low Pell)</td>
<td>Entry after 2</td>
</tr>
<tr>
<td>III (High Bell)</td>
<td>Entry after 2</td>
</tr>
</tbody>
</table>

The rhythmic durations of notes within each canon are constant, but change at the start of each new canon, according to the scheme of numerical ordering outlined in Chapter I. The following example gives the first three canons in bells I and II.

The succeeding canons maintain the time interval of entry, despite the progressively shortened note values. As a result, the vertical alignments between voices are constantly changed in successive canons. The following example illustrates this changing relationship in bells I and II.
The second phrase of the cantus firmus is employed in the second set of canons. During these canons the imitative procedure is similar, except that durations are progressively augmented, rather than diminished.

The Canons of the Brass

A canon between trumpet and trombone begins in measure 17 and continues through measure 24. In this canon the trumpet is answered by the trombone in the lower minor 10th after one measure of $\frac{3}{4}$. The imitation is exact, except that the harmonic interval of imitation changes during measure 22 to that of a major 10th.

Ex. 5.3 Trumpet (Dux), Trombone (Comes)

\[ \text{Imitation at the lower minor 10th} \]

\[ \text{Imitation at the lower major 10th} \]
Following the conclusion of this canon in measure 24, a period of free counterpoint extends to measure 30, at which point a second canon begins. The materials of this canon are identical with those of the first, but in reversed relationships, due to a cancrizan system in the brass. In this system, individual notes and rhythms are not retrogressed; rather, entire measures are repeated intact, but in reverse order. The midpoint of this pyramid system falls at measure 27, after which the crab repetition begins. Thus, for instance, measure 26 appears before and after measure 27. The beginning, midpoint and end of this crab system is illustrated in Ex. 5.4

Ex. 5.4

Measure

As a result of this pyramid structure, the voice that formerly carried the dux now has the comes.

Ex. 5.5

Thus the two canons in the brass music are, in effect, two symmetrical halves of one canon. The opening and closing measures of the two canons are juxtaposed in the following example.
Measures 10 through 23 of *Largo Risoluto No. 1* employ devices of rhythmic counterpoint in a free pitch and mensuration canon. The dux, in the piano, is answered by the viola in a diminution of 4:3. This diminution subsequently changes to 8:5 and finally to 16:5.
Ex. 5.7 Viola, Piano
The line of the cello begins at measure 17, and employs a constantly changing proportion in its rhythmic imitation.

Ex. 5.8 Cello

Rhythm of Dux in Piano

Proportion

Similar relationships obtain among all the voices, producing a complex web of rhythmic counterpoint.

Largo Risoluto No. 2

Largo Risoluto No. 2 presents a somewhat simpler mensuration canon than that of Largo Risoluto No. 1. During measures 1 through 17 the string quartet, as a unit, canonically imitates the piano at the tritone. The note values in the string comes are increased by ½. This rhythmic proportionality, as well as the notated measure, remains constant throughout the passage.
Ex. 5.9
The dynamics of the passage are systematized in a scheme which is independent of the rhythmic and pitch schemes. The entire passage is to be played twice with a reversal in intensity levels. That is, the piano begins forte and the string quartet piano during the first playing; the string quartet begins forte and the piano, piano during the repetition. The dynamic scheme of measures 1-17 is summarized in the following table.

<table>
<thead>
<tr>
<th>Measures</th>
<th>1-10</th>
<th>10-17</th>
<th>1-10</th>
<th>10-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strings</td>
<td>p</td>
<td>mp</td>
<td>f</td>
<td>ff</td>
</tr>
<tr>
<td>Piano</td>
<td>f</td>
<td>ff</td>
<td>p</td>
<td>mp</td>
</tr>
</tbody>
</table>

First Playing           Second Playing

Scherzo: Over the Pavements

A similar scheme of invertible counterpoint of intensities occurs in Over the Pavements, measures 55 through 59, in the music of the piano. The left hand maintains a constant dynamic level of fff, while the right hand executes a constant crescendo from ff to ffff. Thus, in contrast to the intensity scheme of Largo Risoluto No. 2, this interchange of intensities unfolds gradually. The scheme is summarized in the following table.
Scherzo from A Set of Three Pieces

The trio of the Scherzo from A Set of Three Pieces (mm. 22-28) employs imitative devices throughout. However, the imitative principle involves attributes other than pitch. For instance, the scale line of violin I is imitated by the viola, but its rhythmic plan of progressive diminution is imitated by violin II.

Ex. 5.10

<table>
<thead>
<tr>
<th>Measure</th>
<th>55</th>
<th>57</th>
<th>59</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Hand</td>
<td>ff</td>
<td>ff r.h. cresc.</td>
<td>ffff</td>
</tr>
<tr>
<td>Piano</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Hand</td>
<td>fff</td>
<td>fff</td>
<td>fff</td>
</tr>
</tbody>
</table>
Furthermore, modes of articulation are stratified canonically.

Voices I and III have slurred lines while the others play non legato.

The following is a summary of the structural attributes which are
imitatively systematized throughout:

1. Rhythm: either
   a. accelerando, or
   b. ritardando

2. Scale: either
   a. C major diatonic, or
   b. Db chromatic

3. Articulation: either
   a. slurred, or
   b. non legato

Each of the instruments is described below according to the above characteristics.

Voice I (Violin I)
1. accelerando
2. chromatic
3. slurred

Voice II (Violin II)
1. accelerando
2. diatonic
3. non legato

Voice III (Viola)
1. ritardando
2. chromatic
3. slurred

Voice IV (Cello)
1. ritardando
2. diatonic
3. non legato

A complex set of imitative relationships can be inferred from the above list. For instance, an acceleration in violin I is answered by an acceleration in violin II, whereas the mode of articulation of violin I (slurred) is answered by the viola. Thus, the four instruments are interrelated in various ways, according to the attribute being considered.

Summary

The compositions examined in this chapter have demonstrated contrapuntal organizations in which various attributes of tone were
structured independently. The following table summarizes these contrapuntal practices.

**TABLE 5.4**

**CONTRAPUNTALLY INTERRELATED ATTRIBUTES**

<table>
<thead>
<tr>
<th>Composition</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>From the Steeples</em></td>
<td>Pitch; Rhythm</td>
</tr>
<tr>
<td><em>Largo Risoluto No. 1</em></td>
<td>Pitch; Rhythm</td>
</tr>
<tr>
<td><em>Largo Risoluto No. 2</em></td>
<td>Pitch; Rhythm; Intensity</td>
</tr>
<tr>
<td><em>Over the Pavements</em></td>
<td>Intensity</td>
</tr>
<tr>
<td><em>Scherzo from A Set of Three Pieces</em></td>
<td>Pitch; Rhythm; Mode of Articulation</td>
</tr>
</tbody>
</table>
CHAPTER VI

POLYPHONY OF GROUPS: AN INTRODUCTION

This chapter examines two techniques which are fundamental to the concept of group polyphony: successive counterpoint and the combination of independent textures. The compositions to be examined are the following:

1. Hallowe'en
2. Paracelsus
3. Largo Risoluto No. 2
4. Tone Roads No. 1
5. Tone Roads No. 2

SUCCESSIVE COUNTERPOINT

Successive counterpoint results from the progressive increase or decrease of textural density in the counterpoint. For instance a line may be stated alone, and then restated with the addition of a counterpoint. Such a practice of successive counterpoint has existed for centuries. For example, in the double fugue of Bach's harpsichord Toccata in C Minor, a fugue with one subject is presented, followed by a second fugue in which a new subject has been added to the original.

This chapter will examine instances of successive counterpoint based both on additive and subtractive principles.
The music of Hallowe'en is based on an additive principle, in which new voices are added in successive repetitions of an entire section. This scheme pairs the first violin with the viola and the second violin with the cello. Each pair unfolds a canon, and each pair is the approximate inversion of the other.

Ex. 6.1

If Hallowe'en is played four times, the paired voices present their canons separately and then together. If the three-time performance version is chosen, this procedure is condensed. The following tables summarize each version of performance and the resulting additive counterpoint.
TABLE 6.1
VERSION I: IF PLAYED FOUR TIMES

<table>
<thead>
<tr>
<th>Canon I</th>
<th>Canon II</th>
<th>Canon III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violin II and Cello</td>
<td>Violin I and Viola</td>
<td>Canons I and II performed simultaneously (repeated)</td>
</tr>
</tbody>
</table>

TABLE 6.2
VERSION II: IF PLAYED THREE TIMES

<table>
<thead>
<tr>
<th>Canon I</th>
<th>Canon II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violin II and Cello</td>
<td>Violin I and Viola</td>
</tr>
<tr>
<td></td>
<td>Violin II and Cello (repeated)</td>
</tr>
</tbody>
</table>

The piano plays only during the final two repetitions. In the first of its appearances, the piano plays only the outside notes of its chords, thus providing the two-voice framework of its harmonic structure. It plays the full chords, as notated, in the final repetition. The following tables summarize the scheme of additive counterpoint in each of the two performance versions, as well as the concomitant tempo and intensity modulatory schemes.
### TABLE 6.3
SUCCESSIVE COUNTERPOINT SCHEME IF PLAYED FOUR TIMES

<table>
<thead>
<tr>
<th>First Time</th>
<th>Second Time</th>
<th>Third Time</th>
<th>Fourth Time</th>
<th>Coda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violin II and Cello Canon</td>
<td>Violin I and Viola canon</td>
<td>Strings in Double Canon</td>
<td>Strings in Double Canon</td>
<td>All Instruments Play</td>
</tr>
<tr>
<td>(Allegretto-pp)</td>
<td>(Allegro Moderato-mp)</td>
<td>(Allegro Molto-f)</td>
<td>(Presto-ff)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piano: 2 Voice Framework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Allegro Molto-p)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 6.4
SUCCESSIVE COUNTERPOINT SCHEME IF PLAYED THREE TIMES

<table>
<thead>
<tr>
<th>First Time</th>
<th>Second Time</th>
<th>Third Time</th>
<th>Coda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violin II and Cello canon</td>
<td>All Strings in Double Canon</td>
<td>All Strings in Double Canon</td>
<td>All Instruments Play</td>
</tr>
<tr>
<td>(Allegretto-pp)</td>
<td>(Allegro-mf)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piano: 2 Voice Framework</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Allegro Molto-pp)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Paracelsus

The plan of Paracelsus finds its precedent in the finale of Haydn's Farewell Symphony. The contrapuntal texture of Paracelsus progressively thins out, in a plan which parallels the tempo and intensity modulations described in Chapter III. However, this thinning out is not merely the reduction of the number of voices, but a general decrease in textural complexity. This decrease can be seen best in a comparison of several measures in the song. The texture in measure 4 is extremely dense.

Ex. 6.2 Piano

This density of texture, however, becomes considerably reduced by measure 14, where there are fewer voices, and these voices are related in a simpler homophonic texture.
Ex. 6.3 Voice, Piano

The texture is finally reduced, at the end, to a simple, quiet unison.

Ex. 6.4 Voice, Piano

This scheme is not numerically ordered, as in the systems described in Chapter I, but the aural effect, as well as the visual impression of the score, is nonetheless evident.

Notice the lack of correspondence of note values between voice and piano. Perhaps Ives intended that the sonorities of the chords overlap.
Rudolph Reti has described a contrapuntal concept to emerge from the works of Ives, which he calls a "polyphony of groups," in which the elements are not lines but full musical entities which carry within themselves their harmonic and contrapuntal life.²

We will, in this discussion, describe the constituent parts of a group polyphony as "polyphonic elements" to distinguish them from individual voices in a conventional polyphonic texture.

**Largo Risoluto No. 2**

*Largo Risoluto No. 2* was discussed in Chapter V as a mensuration canon. It was pointed out, also, that the pitches of the strings imitated those of the piano as a unit. As such, *Largo Risoluto No. 2* is consistently a two-part canon of groups between measures 1 and 17, with imitation at the tritone. Each group element is a homophonic texture with a complete set of harmonic relationships. The two groups are unified solely by their imitative identities and not by any harmonic or tonal intersections, since the interval of imitation—the tritone—is the remotest of all tonal intervals (See Chapter V, Ex. 5.9).

**Tone Roads No. 3**

The concepts of additive counterpoint and group polyphony are combined in the coda of *Tone Roads No. 3*. Between measures 27 and

the strings state a phrase three times. This phrase opens with the following cluster.

Ex. 6.5

During the second string statement, a wind group, comprised of flute, clarinet, trumpet and trombone, states a contrasting phrase in which the registral extremes are, in a general way, expanded and then contracted. This group also begins with a tone-cluster.

Ex. 6.6

Strings and winds then state their phrases again, while the piano adds a third polyphonic element to this additive polyphony of groups. The piano phrase is also a wedge-like expansion and contraction series, beginning with a cluster.

Ex. 6.7
The soprano line of the piano outlines a whole tone scale, while the alto voice moves through a chromatic scale. The bass line is an inversion of the alto, and the tenor functions as a pedal point. The scheme is such that the two hands of the piano have identical intervals at all times, expanding and contracting in contrary motion.

Thus, each group is delineated timbrally and by independent systems of organization. The groups are unified by the cluster chords which begin and end each phrase statement. No cluster repeats pitches of another, and the three clusters exhaust the twelve notes of the scale.

Ex. 6.8 Wind Group, String Group, Piano

Thus, the groups meet harmonically at cadence points and then diverge during the phrase itself.
Each statement of the scheme is faster than the preceding, creating a tempo modulation which is parallel to the scheme of additive counterpoint. The following example gives the final, three-group statement in this additive polyphony of groups.
Ex. 6.9

Allegro molto

[Music notation image]
Summary

We have examined the concept of successive counterpoint, in which textural density may be increased or decreased progressively, by a system of additive or subtractive counterpoint. In cases such as *Halloween*, where the process involves individual lines, rather than a general change of density, a high degree of independence in the constituent voices is requisite.

We have also examined the concept of group polyphony, in which complete and self-contained textures are combined in a polyphony of groups. Finally, we have examined a synthesis of the above concepts in *Tone Roads No. 3*, in which the technique of additive counterpoint is applied to a polyphony of groups.
CHAPTER VII

SPATIAL COMPOSITION

An important application of the concept of group polyphony is the physical separation of groups in the creation of a technique of spatial composition. In this chapter we examine the technique of stereophonic, or spatial composition, in the following compositions:

1. The Unanswered Question
2. From the Steeples and the Mountains
3. Largo Risoluto No. 2
4. In Re Con Moto Et Al

The Unanswered Question

Charles Ives discussed the concept of spatial composition in his article "Music and Its Future:"

It is difficult to reproduce the sounds and feeling that distance gives to sound wholly by reducing or increasing the number of instruments or by varying their intensities. A brass band playing pianissimo across the street is a different-sounding thing from the same band, playing the same piece forte, a block or so away. Experiments, even on a limited scale, as when a conductor separates a chorus from the orchestra or places a choir off the stage or in a remote part of the hall, seem to indicate that there are possibilities in this matter that may benefit the presentation of music, not only from the standpoint of clarifying the harmonic, rhythmic, thematic material, etc., but of bringing the inner content to a deeper realization . . .

---

The Unanswered Question constitutes such an experiment in spatial composition. Regarding the importance of The Unanswered Question, the composer Henry Brant has said:

This unique, unprecedented little work ... presents, with extraordinary economy and concentration, the entire twentieth-century spatial spectrum in music, and offers guide lines for solving all the practical problems involved ... 

The spatial-contrapuntal-polytemporal principles so brilliantly exemplified in this piece are the basis for the more complicated superimpositions present in all my own recent large-scale works.²

Brant summarizes the spatial-compositional aspects of The Unanswered Question:

There are two groups, intended to be separated, and one isolated soloist. There is complete contrast between the three elements: in tone quality, tempo (which includes speedups, ritards and rubato), meter, range, harmonic, melodic, and contrapuntal material. No rhythmic coordination exists between the three constituents, except an approximate one at points of entrance. No matter how great the distances in position, two conductors can maintain the simultaneous independence of all the participating musical elements with utmost precision and control.³

Brant argues that musical groups will be sufficiently contrasted to achieve a feeling of spatial separation "if groups with highly contrasted tone-qualities, each with rhythms contrasted to the others (and especially if no rhythmic co-ordination is required be-


³Ibid.
tween the groups) are assigned to widely separated positions . . . "4

Brant calls such a use of organizational contrast and physical separation "non-spill counterpoint." In other words, there is "no influence, or real or imagined extension, of one texture upon the others."5 Moreover, he claims to have found by experiment that even when a highly unified composition, such as a Bach fugue, is played by widely separated instruments, some "non-spill" occurs, and "the harmonic relationship, although definitely present, takes on an elusive character, difficult to describe. The polyphony seems almost unnecessarily clear."6

With regard to rhythmic organization in spatial music Brant says:

Whether the spatial separation is small or great, it will cause a deterioration in the rhythmic co-ordination (keeping together) of the separated groups . . .

There may also be a time lag, so that . . . the groups situated at a distance from the conductor will produce their sounds fractionally—and sometimes noticeably—later than those groups close to him.7

Brant calls rhythm in which exact rhythmic correspondence does not obtain "non-cc-ordinated, but in-its-essential-parts-controlled, rhythm," and claims The Unanswered Question to be one of the earliest examples known to him.8

---

4Ibid.
5Ibid.
6Ibid., p. 240.
7Ibid., pp. 233-34.
8Ibid.
To summarize Prant's theories, spatial separation and non-spill contrapuntal relationships among musical materials are prerequisite to successful spatial composition.

Ives himself has indicated such spatial separation of groups and instances of "non-co-ordinated-but-controlled" rhythm in his foreword to the score of The Unanswered Question. A comparison of structural organizations in the three musical forces indicates that although certain interrelationships exist among the organizational systems of the three instrumental elements, there is sufficient contrast to warrant the description "non-spill counterpoint." Both contrasts and interrelationships among the three elements can be observed in the following outline of organizational characteristics.
<table>
<thead>
<tr>
<th></th>
<th>Strings</th>
<th>Trumpet</th>
<th>Flutes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td><img src="image" alt="Range Diagram" /></td>
<td><img src="image" alt="Range Diagram" /></td>
<td><img src="image" alt="Range Diagram" /></td>
</tr>
<tr>
<td><strong>Harmony-Tonality</strong></td>
<td>Tonal: G Major</td>
<td>Vague tonality: Possible G♭</td>
<td>Vague tonality: Possible G♭</td>
</tr>
<tr>
<td><strong>Contrapuntal Texture</strong></td>
<td>Homophonic: Chorale style</td>
<td>Monophonic</td>
<td>Polyphonic</td>
</tr>
<tr>
<td><strong>Form</strong></td>
<td>Repeated phrases</td>
<td>Rondo-like alternation with flutes</td>
<td>Rondo-like alternation with trumpet</td>
</tr>
<tr>
<td><strong>Tempo and Dynamics</strong></td>
<td>Stabile: Largo; ppp</td>
<td>Stabile: Largo; p</td>
<td>Modulatory: Adagio to Presto p−fffffff</td>
</tr>
<tr>
<td><strong>Rhythm and Meter</strong></td>
<td>⁴; simple patterns; pulse throughout</td>
<td>⁴ meter, due to triplets; Beginnings of metrical groupings do not coincide with those of strings</td>
<td>Highly varied metrical groupings; Beginning points are freely related to those of trumpet</td>
</tr>
<tr>
<td><strong>Thematic Organization</strong></td>
<td>&quot;G major scale&quot; motif</td>
<td>Quasi &quot;setting&quot; of the question &quot;What is Existence?&quot;</td>
<td>Initially scalar–athematic; Later adopts Trumpet motif</td>
</tr>
</tbody>
</table>
From the Steeples

Ives considered the possibility of an application of spatial techniques to "out-of-doors" music as well as indoors. He spoke of remembering

... hearing, when a boy, the music of a band in which the players were arranged in two or three groups around the town square. The main group in the center usually played the main themes, while the others, from the neighboring roofs and verandas, played the variations, refrains and so forth. The piece remembered was a kind of paraphrase of "Jerusalem the Golden," a rather elaborate tone-poem for those days. The bandmaster told of a man who, living nearer the variations, insisted that they were the real music and it was more beautiful to hear the hymn come sifting through them than the other way around. Others, walking around the square, were surprised at the different and interesting effects they got as they changed positions. It was said also that many thought the music lost in effect when the piece was played by the band all together, though, I think, the town vote was about even. The writer remembers, as a deep impression, the echo parts from the roofs played by a chorus of violins and voices.9

It is quite possible that Ives conceived From the Steeples as such an "out-of-doors" spatial composition. The four sets of bells might be performed by actual church bells in separate towers, and the brass music could be played in a remote position as well. The footnote which Ives added to the score of From the Steeples implies the possibility of a spatial conception of the work.

From the Steeples — the Bells! — then the Rocks on the Mountains begin to shout!10

10 See John Kirkpatrick, op. cit., p. 38.
The systems of musical organization in *From the Steeples* lend themselves to such a spatial presentation. The music of the brass and bells constitute separate polyphonic groups, indeed, independent compositions. Each is separated timbrally and unfolds independent systems of harmony, rhythm, and melodic materials. Nevertheless, they are joined by a common scheme, in which critical moments in the separate schemes of each occur simultaneously, so that a collective form, dependent upon both groups, emerges. For instance, the musical systems of each divide at measure 27, and both groups present progressive modulatory schemes throughout the entire work. The following table illustrates the coordination of organizational schemes in brass and bells.
TABLE 7.2

COORDINATION OF THE SYSTEMS OF BRASS AND BELLS IN A POLYPHONY OF GROUPS

Numerical Duration System

Bells Meas.

Canons on Phrase I of Cantus Firmus

Brass Meas.

Canons on Phrase II of Cantus Firmus

Cancrizan 'Pyramid' System

Modulatory Systems

Belts: Intensity
Brass: Intensity and Register
Largo Risoluto No. 2

Ives was also concerned about the spatial effect which "may be obtained indoors by partially inclosing the sounding body."

For instance, in a piece of music which is based, on its rhythmic side, principally on a primary and wider rhythmic phrase and a secondary one of shorter span, played mostly simultaneously—the first by a grand piano in a larger room which opens into a smaller one in which there is an upright piano playing the secondary part—if the listener stands in the larger room about equidistant from both pianos but not in a direct line between them (the door between the rooms being partially closed), the contrasting rhythms will be more readily felt by the listener than if the pianos are in the same room . . .

. . . the listener may choose which of these two rhythms he wishes to hold in his mind as primal. If it is the shorter-spaced one and it is played after the longer has had prominence, and the listener stands in the room with the piano playing this, the music may react in a different way, not enough to change its character, but enough to show possibilities in this way of listening.11

The structure of Largo Risoluto No. 2 meets the demands of such a spatial composition. The string quartet supplies the "wider rhythmic phrase" in its rhythmic augmentation of the music of the piano. Moreover, Ives implies the spatial conception of this composition in his footnote to the manuscript:

The first time the Piano will play f, and the String Quartet p (as if heard in the distance), the second time the String Quartet plays f and the piano p.12

12 See John Kirkpatrick, op. cit., p. 65.
This may imply that the listener should hear the work at different distances during the two playings.

Ives also remarks on "the occasional impression, in hearing sounds from a distance, that the pitch is changed to some extent."

That pitch is not changed by the distance a sound travels unless the sounding body is moving at a high velocity is an axiom of acoustics; that is, the number of vibrations of the fundamental is constant, but the effect does not always sound so—at least to the writer—perhaps because, as the overtones become less acute, the pitch seems to sag a little.\(^\text{13}\)

Thus, the juxtaposition of remote keys in \textit{Largo Risoluto} No. 2 (A major and E\textsuperscript{b} major) not only creates a "non-spill" relationship between the two polyphonic groups, but perhaps suggests spatial separation, and the concomitant "sag" in pitch, as well. The score does not call for such spatial separation, but the organization of materials resembles that which Ives describes in his discussion of spatial composition.

\textbf{In Re Con Moto Et Al}

\textit{In Re Con Moto Et Al} presents a final example of a "non-spill" polyphony of groups which might conceivably be performed as a spatial composition. In fact, Ives spoke of \textit{In Re Con Moto} as "Studies in space ... ."\(^\text{14}\)

The organizational systems of the string quartet and those of the piano establish a two-part polyphony of groups in which there is a sufficient "non-spill" relationship to constitute spatial

\(^{13}\)Charles Ives, "Music and Its Future," p. 194.

\(^{14}\)See John Kirkpatrick, \textit{op. cit.}, p. 68.
composition. Systems of rhythm, meter and pitch ordering in the piano are entirely independent of those of the strings, until measure 40 (meas. 42 in the strings). At this point, the strings begin the second half of their ten statements of the numerical series (see Chapter I). During the first half, the string music was characterized by constantly changing meters in its statements of the numerical series. The piano, however, did not employ the series, but rather, unfolded an independent set of materials. At measure 40 (meas. 42 in the strings) the piano begins its five variations of the numerical series with a statement of the "reference chord" (see Chapter I).

Ex. 7.1

Thus, the systems of both groups intersect at this point.

The two groups then diverge again in independent rhythmic and motivic systems. A second, and final coincidence of systems occurs in the final measure. Both groups join in the antepenultimate sonority, to form a chord containing all twelve notes of the chromatic scale, followed by a one-note unison on "B". The final sound of the composition is the "reference chord," (R.C.):
Summary

In this chapter we have examined applications of group polyphony in a technique of stereophonic, spatial composition, in the light of remarks by Ives himself in this regard. We have suggested the possibility of spatial performance of From the Steeples, Largo Risoluto No. 2 and In Re Con Moto, even though the scores do not specifically indicate such a performance. The organization of musical materials in these works resembles organizational systems described by Ives in his discussions of spatial composition. The following table summarizes the types of spatial composition in the works studied.
### TABLE 7.3

**SPATIAL COMPOSITION**

<table>
<thead>
<tr>
<th>Composition</th>
<th>Musical Materials</th>
<th>Use of Space</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Unanswered Question</strong></td>
<td>Three Different Groups</td>
<td>Indoor Hall</td>
</tr>
<tr>
<td><strong>From the Steeples</strong></td>
<td>Two Different Groups</td>
<td>Outdoor</td>
</tr>
<tr>
<td><strong>Largo Risoluto</strong></td>
<td>Mensuration/Pitch, Canon of Two Groups</td>
<td>Indoor: Partially Enclosed</td>
</tr>
<tr>
<td><strong>In Re Con Moto Et Al</strong></td>
<td>Two Groups: Similar Materials, Independent Systems</td>
<td>Indoor</td>
</tr>
</tbody>
</table>
A polyphony of groups sometimes functions unitarily as a counterpoint to a single strand of melody, a polyphonic group, or even another complete polyphony of groups. Charles Ives discussed such an extension of the concept of group polyphony in his remarkable description of his *Universe Symphony.¹*

When we were in the Keene Valley, on the Plateau in 1915, with Edie, I started something that I had in mind for some time: trying out a parallel way of listening to music suggested by looking at a view.

First, with the eyes toward the sky or tops of the trees, taking the earth or foreground subjectively (that is, not focussing the eye on it), and then

Second, looking at the earth and land and seeing the sky and the top of the foreground subjectively . . .

In other words, giving a musical piece in two parts, but both played at the same time . . . the whole played through twice, first when the listener focuses his ears on the lower or Earth music, and the next time on the upper, or Heaven's music . . .

The Earth part is represented by lines, starting at different points, and at different intervals. A kind of uneven and interlapping counterpoint, sometimes reaching nine or ten different lines representing the ledges, rocks, woods and land formations, lines of trees and forest, meadows, roads, rivers and undulating lines of mountains in the distance, that you

¹Quoted from his autobiographical notes in Henry and Sidney Cowell, *op. cit.*, pp. 201-202.
catch in a wide landscape. And with this counterpoint, a few of the instruments playing the melodic lines are put into a group, playing masses of chords built around intervals, in each line. This is to represent the body of the earth, where the rocks, trees and mountains arise.

... The part of the orchestra representing the Heavens has its own chord system, but its counterpoint is chordal ... There are three groups in some places divided into four or five.

... These two main groups come into relation harmonically only in cycles, that is they go around their own orbit and come to meet each other only where their circles eclipse.

Thus, there are two main groups, each of which, in turn, consists of smaller groups, each of which consists of numerous voices. Such an extension of the polyphonic concept produces, as it were, a compound polyphony of groups.

Ives employed this concept of a polyphony of polyphonies on a smaller scale in numerous short compositions, often with one group functioning as an accompaniment to a thematic quotation. We will, in this chapter, examine passages in which group polyphonies are counterpointed with single-voice polyphonies as well as with other groups. The examples chosen include solo lines and groups which consist of thematic quotations as well as original materials. The following are the compositions to be examined:

1. Tone Roads No. 1
2. The Gong on the Hook and Ladder

Tone Roads No. 1

Tone Roads No. 1 contrasts a polyphony of single voices with a polyphony of groups at several points, thus producing a very dense
polyphony of polyphonies.

Beginning at measure 5, the strings create a two-part polyphony of groups, and the woodwinds unfold a two-part polyphony of single voices.

Ex. 8.1 Flute, Bassoon; Strings

The particular groupings of instruments vary during the course of the work, but the principle of contrasting polyphonies remains constant until measure 33. At this point the texture becomes a single polyphony of groups in which the woodwinds and violins form one group and the lower strings form the other.
The Gong on the Hook and Ladder

The Gong on the Hook and Ladder combines the concepts of compound group polyphony and additive texture. During measures 13 through 15 a two-part polyphony of groups accompanies a three-voice setting of the traditional melody "Clementine." The accompanying groups consist of piano, a percussion group, bassoon and lower strings. The piano, timpani, gong and snare drum comprise one polyphonic element, which consists of an ostinato figure.
The triangle, bassoon, cellos and basses unfold a second polyphonic element, based on a numerical series (see Chapter I).
The tune *Clementine* is set in a dissonant parallel chord style. This group, due to its thematic character, contrasts as a unit with the other two groups, which are mainly ostinato figures.

*Ex. 8.5 Flute, Clarinet and Trumpet*
Thus, the result is not a simple three-part polyphony of equal groups, but a compound polyphony in which two groups, as a unit, accompany a third.

The number of elements in the accompanying polyphony increases at measure 22 as the upper strings enter and the piano forms its own polyphony of groups. The following example shows one polyphonic group which includes bassoon, trombone, percussion and strings.
Ex. 8.6 Bassoon, Trombone, Snare Drum, Triangle, Timpani and Gong, Strings

Allegro vivace
The piano simultaneously presents a polyphony of groups, based on three chordal groups.

Fx. 8.7

Chordal Groups

I

II

III

These three groups produce a cross metrical scheme, which forms an isorhythmic talea, which in turn is grouped into three ostinato statements. One complete statement is given in the example 8.8.
Ex. 8.8

Resultant Rhythmic Pattern

Cross Meter

Isorhythmic Talea

Ostinato Statement
Flute, clarinet and trumpet state the thematic quotations in a two-part polyphony of strands.

Ex. 8.9 Flute and Trumpet I; Clarinet and Trumpet II

Thus, the compound polyphony of groups has expanded additively. Initially, two groups accompanied a third group as a unit. Later, a group, plus a polyphony of groups (in the piano) accompanied a third polyphonic element (the quoted tune).

Summary

This chapter has been concerned with an expansion of the concept of group polyphony to include a compound group polyphony, in which complete group polyphonies are counterpointed against independent voices, polyphonic groups, and even entire polyphonies of groups. The various polyphonic organizations examined in this chapter are summarized in the following table.
<table>
<thead>
<tr>
<th>Composition</th>
<th>Polyphonic Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tone Roads No. 1</td>
<td>Group Polyphony vs. Single Group</td>
</tr>
<tr>
<td>The Gonz on the</td>
<td>1. Group Polyphony vs. Single Group (Quoted</td>
</tr>
<tr>
<td>Hook and Ladder</td>
<td>Tune)</td>
</tr>
<tr>
<td></td>
<td>2. Group Polyphony plus Single Group vs.</td>
</tr>
<tr>
<td></td>
<td>Single Group (Quoted Tune)</td>
</tr>
</tbody>
</table>

Additive

Counterpoint
PART III

BROADER IDIOMATIC CONCEPTS
CHAPTER IX

THE STRUCTURAL INTEGRATION
BORROWED MATERIALS

Perhaps the most widely discussed compositional practice in the work of Ives is the use of borrowed materials. These materials come from a wide variety of sources and undergo an equally wide variety of manipulations in the hands of Ives. Nevertheless, all borrowed materials fall into one of two general categories:

1. Quotations of original materials from other works by Ives
2. Quotations of previously composed materials by other composers

We will, in this chapter, examine instances of each category in the following compositions:

1. Largo Risoluto No. 1
2. Scherzo: Over the Pavements
3. Paracelsus
4. Scherzo from A Set of Three Pieces
5. The Gong on the Hook and Ladder

THE QUOTATION OF ORIGINAL MATERIALS:
PATCHWORK COMPOSITION

Peter Yates discusses Ives' unusual habit of composing in bits and pieces, often over a period of many years:

... he composed in fragments or patches, which he joined with others, and these to other combinations and patches of compositions, in such a way that the sequence of completed works, instead of representing graduated steps of progress or a gradual transformation of means, seems to be all of a heap. Only
with the invaluable Catalogue of Ives's manuscripts prepared by John Kirkpatrick, which shows in great detail the vine-like interweaving of these compositions, can one trace his musical development.\(^1\)

We will designate such "patchwork" procedures by the term "centon." The word "centon" literally means a "patchwork cloak" and is applied frequently to literary works which are made up of parts from other works. In this investigation we will apply the term "centon" to musical fragments which Ives uses in more than one composition.

A glance at the Kirkpatrick Catalogue reveals the many instances in which Ives inserted patches or fragments from one work into another. We will examine the structural significance of several such instances of "centonic" or "patchwork" composition in:

1. Largo Risoluto No. 1
2. Scherzo: Over the Pavements
3. Paracelsus

Largo Risoluto No. 1 and Scherzo: Over the Pavements

The materials of measures 73 to 80 of Scherzo: Over the Pavements appear also in measures 3 to 9 of Largo Risoluto No. 1. The two instances are not exact, but the differences are minor. The principal characteristic of the passage is the reiteration of a one-measure cell in alternating \(\frac{3}{4}\) and \(\frac{4}{4}\) measures, producing successive accelerations and decelerations of the same basic idea. The following is a juxtaposition of several measures of the passage as they appear in both Over the Pavements and Largo Risoluto No. 1.

\(^{1}\)Peter Yates, op. cit., pp. 262-63.
Ex. 9.1

**Over the Pavements** - Clarinet and Trumpet, Trombone and Bassoon, Piano

**Largo Risoluto No. 1** - Strings, Piano
Ex. 9.1 (cont.)

Over the Pavements

Largo Risoluto No. 1
This passage is part of the prelude of *Largo Risoluto No. 1*, which Ives subtitled *Prelude & Statement (of the law of diminishing returns ...)*. The one-measure cell upon which the passage is based is a two-part polyphony of groups. The skeletal framework of one measure is given in the following example (measure 4 in *Largo Risoluto No. 1* and measure 74 in *Over the Pavements*).

Ex. 9.2

The rhythmic accelerations and decelerations of this cell constitute the principal function of the passage as a prelude in *Largo Risoluto No. 1*; the following "statement" (mm. 10-23) is a mensuration canon in which the rhythmic relation between the first two entries is 4:3 (see Chapter V).

This same passage is used in *Over the Pavements* as a transition which prepares the "Cadenza," in which durations are ordered according to a series of diminishing values (see Chapter I).

Thus, in both compositions, this passage, or "centonic patch," functions as introductory material: as a prelude in *Largo Risoluto No. 1* and as a transition in *Over the Pavements*. Moreover, in both

---

works, it introduces rhythmic schemes of both, by virtue of its own striking rhythmic organization.

**Paracelsus**

Whereas *Largo Risoluto* No. 1 and *Over the Pavements* both employed the same fragment in a similar context— as introductory material— *Paracelsus* applies borrowed material in a manner which is different from that of its source. Measures 7-10, 27 and 38-55 of the *Robert Browning Overture*, for orchestra, are employed in the song *Paracelsus*. However, these measures appear in a different order, thereby creating a new scheme of continuity. In the *Browning Overture*, these measures are part of a progressive increase in tempo and intensity, whereas the order of their succession in *Paracelsus* produces the opposite effect. The following tables juxtapose the passages in each work which contain similar materials. Within each measure—group, drawn from the *Browning Overture*, the materials are unaltered, but the measure—groups as units are arranged, in *Paracelsus*, in an approximate retrograde order.
### TABLE 9.1

**A COMPARISON OF MEASURES CONTAINING SIMILAR MATERIALS**

<table>
<thead>
<tr>
<th>Robert Browning Overture</th>
<th>Paracelsus</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8</td>
<td>17-18</td>
</tr>
<tr>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>27</td>
<td></td>
</tr>
<tr>
<td>38-41</td>
<td></td>
</tr>
<tr>
<td>42-55</td>
<td></td>
</tr>
<tr>
<td>1-10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

---
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tempo</strong></td>
<td>1-10</td>
<td>42-55</td>
<td></td>
</tr>
<tr>
<td>Allegro With less</td>
<td>Allegro con</td>
<td>Allegro con</td>
<td></td>
</tr>
<tr>
<td>energy</td>
<td>Spirito Maestoso</td>
<td>Maestoso Largo</td>
<td></td>
</tr>
<tr>
<td>Con moto giusto</td>
<td>Adagio con</td>
<td>Adagio con</td>
<td></td>
</tr>
<tr>
<td>Andante Molto</td>
<td>Andante Molto</td>
<td>Andante Molto</td>
<td></td>
</tr>
<tr>
<td>Andante Molto</td>
<td>Andante Molto</td>
<td>Andante Molto</td>
<td></td>
</tr>
<tr>
<td>ff-fff-f-ff</td>
<td>ff</td>
<td>ff</td>
<td></td>
</tr>
<tr>
<td>mf</td>
<td>mf</td>
<td>ff</td>
<td></td>
</tr>
<tr>
<td>f&lt;ff&lt;</td>
<td>p</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>p</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>ff</td>
<td>ff</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>ff</td>
<td>ff</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>mf</td>
<td>mf</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>p</td>
<td>p</td>
<td></td>
</tr>
</tbody>
</table>
The second broad category of quotations to be examined in this chapter comprises the materials which Ives drew from sources other
than his own works. Regarding the use of such materials, the composer Lou Harrison has said:

- . . . there are a startling number of similarities between the works of Ives and Joyce, and (even more startling) their work procedures as well. Both artists set off from a very special, very folksy locale. Both take the road through local myth outward across the borders towards general (personal) culture.

How far the characters of H. C. Earwicker's purgatorial dream in Finnegans Wake are found from home? How far is the singer suggested by In the Night from any special Danbury night; rather isn't he heard singing in every night, almost everywhere, of deserted homes, and despite the charming words (only to be thought, not sung or heard!) appended to the tune? 3

Regarding specific compositional procedures, Harrison goes on:

Ives composes by several processes. It is often evident that he has started from a very simple basis. The final result is achieved sometimes by direct addition, more often by splitting and stretching a bit the original phrase to include pertinent matter. 4

And elsewhere:

- . . . the air around is filled with fluent, sometimes mysterious, always fascinating comment: puns, the tunes and harmonies scrambled, related expressions (tonal or associative) from other pieces—in short, the revealed mind of the author as oracle. 5

Such a fluid continuity of interrelated borrowed materials,

3 Lou Harrison, op. cit., p. 168.
4 Ibid.
5 Ibid., p. 167.
unfolded in a stream of consciousness manner, resembles what Joseph Yasser calls "somnigenic transformation." Yasser coined this term to describe the subconscious scrambling, permutating and reassociating of pre-existing materials, by composers, into new musical shapes. It is Yasser's theory that such transformations and metamorphoses of familiar melodies, rhythms and phrase structures occur during an early stage of the creative process, one which might continue for years before the concrete act of composition actually takes place. In support of his thesis, he compares a Russian Orthodox chant, known early to Rachmaninoff, with a strikingly similar melody composed by him many years later. The materials of the original are greatly scrambled but the resemblance is nonetheless remarkable.

Though Ives' use of quotation would normally appear to be more conscious, the techniques applied to the tunes are nevertheless similar. In the remainder of this chapter we will examine such combinatorial and developmental devices, as applied to quotations in:

1. Scherzo from A Set of Three Pieces
2. The Gong on the Hook and Ladder

Scherzo from A Set of Three Pieces

The Scherzo from A Set of Three Pieces employs three quoted tunes during measures 1 through 21:

1. Massa's in de Cold Cold Ground
   by Steven Foster
2. My Old Kentucky Home
   by Steven Foster

---

3. Folktune ("Hootchi-Kootchi Dance")

The portions of these tunes which appear in this composition are quoted below in their original form.

Ex. 9.3 Massa's in de Cold Cold Ground

Ex. 9.4 My Old Kentucky Home

Ex. 9.5 "Hootchi-Kootchi Dance"

The cello states the Foster melodies (mm. 5-13) accompanied by the

7This familiar tune has no title; thus John Kirkpatrick has dubbed it "Hootchi-Kootchi Dance." See John Kirkpatrick, op. cit., p. 66.
upper strings in a polyphony of groups organization (see Chapter VII), and the folk tune, "Hootchi-Kootchi," is set in a canonic texture, involving all four instruments. This canon functions as the coda of the Scherzo and demonstrates melodic and rhythmic affinities with My Old Kentucky Home.

Ex. 9, 6

Regarding such similarities, which often obtain among the quotations in a given work of Ives, Dennis Marshall says:

This use of previously composed elements which are carefully selected for their motivic relationships can be found in much of the composer's work. One of the best-known examples of this is his choice of the hymn tune "Missionary Chant" in the "Concord" Sonata because of the tune's melodic similarities to the "Beethoven Fifth" motive, which also plays an important role in the composition.8

And later:

The previously composed materials which Ives uses are selected, of course, partly for their program

8 Dennis Marshall, op. cit., pp. 54-55.
matic connotations, but the composer is conscious of their musical characteristics and interrelationships from the very beginning of the creative process, and these borrowed elements form a part of the real substance of his musical art.

Thus, the combination of the "Hootchi-Kootchi Dance" and *My Old Kentucky Home* forms a musically cohesive whole, quite apart from any programmatic or extra-musical connotations.

The joining of the two Foster melodies, on the other hand, demonstrates a slightly different form of thematic interrelationship. The continuation of *Massa's in de Cold Cold Ground* literally dissolves into *My Old Kentucky Home* by a process that is not unlike "common chord" modulation in the realm of harmony.

Ex. 9.7 Cello

Massa's in de Cold Cold Ground

In the example above, measure 10 is common to both melodies and serves as a "pivot" between the two tunes.

The Gong on the Hook and Ladder

The Gong on the Hook and Ladder makes extensive use of thematic quotations throughout. These tunes never appear fully quoted, nor do the original melodic and rhythmic shapes always appear intact. Rather, they appear sonically transformed in a stream of consciousness continuity.

The following is a list of the quoted tunes used in The Gong on the Hook and Ladder.

1. Clementine (folk tune)
2. Marching through Georgia (Rock)
3. Columbia the Gem of the Ocean
4. O, Susannah (Foster)
5. Jingle Bells (Traditional)
6. The Battle Cry of Freedom (Root)

The approximate portions of these tunes which appear in The Gong on the Hook and Ladder are given below in their original forms.

Ex. 9.8 Clementine

Ex. 9.9 Marching through Georgia
Ex. 9.10 Columbia Gem of the Ocean

Ex. 9.11 O Susannah

Ex. 9.12 Jingle Bells

Ex. 9.13 Rally Round the Flag (Battle Cry of Freedom)
Of the above quotes, Clementine and Marching through Georgia are stated the most clearly: Clementine is never combined with other tunes, and Marching through Georgia concludes the large middle section of the composition (mm. 20-30). The principal figure which relates the quoted tunes motivically is a rising minor third, from "mi" to "sol".

Ex. 9.14

The statements of Clementine in The Gong on the Hook and Ladder center around this motif, in a dissonant and melodically altered setting of part of the above fragment.

Ex. 9.15 Flute, Clarinet and Trumpet
The statement of *Marching through Georgia* consists of a phrase-
ologically contracted and metrically varied version of the refrain,
which opens with the characteristic minor third motif.

Ex. 9.16 Trumpet I

phrasal elision

Thus, *Clementine* has been somnigenically distorted in rhythm,
melodic line and harmony, while the most striking transformations
within *Georgia* are the omission and elision of phrases in measure
28, and the metrical modulation of the tactus which occurs at
measure 29.

The remaining quoted tunes are fragmented and scrambled almost
beyond recognition, and combined successively and simultaneously,
according to their motivic interrelationships. Due to their exten-
sive fragmentation and brevity, these tunes can be considered as
secondary themes, in contrast to the *principal* themes, *Clementine*
and *Georgia*.

The principal melodic motifs which interrelate these secondary
tunes, as well as relate them to the principal tunes, are the minor
third "mi-sol" and the falling pattern "mi-re-do".
The internal phrase of *Columbia the Gem of the Ocean* which occurs in *The Song* first appears in the flute in measure 20. In the following example, the tune in its original form, and the altered phrase as it appears in *The Song* are juxtaposed.

Ex. 9.17

Above: Original version

Below: Flute version in *The Song*

Immediately following this, a fragment from the chorus of *Jingle Bells* appears (flute and trumpet I, meas. 22). These two phrases are elided by a common, or "pivot" incise.

Ex. 9.18

*Columbia the Gem of the Ocean* | *Jingle Bells*

*Susannah* appears in measures 20 and 21, fragmented and
transformed in rhythm, melody and tonal organization. The clarinet
states two incises of the theme while the bassoon simultaneously
states a third. Moreover, the key of the clarinet statement changes
twice during the course of the short fragment. The original version
of the tune and the comparable fragment in the score of The Gong
are juxtaposed in the example below.

Ex. 9.19

Form: incise one incise two cadence incise

Original Version

Form: incise one cadence incise

Clar.

Key: D minor F\textsuperscript{b} major

Bsn.

Form: incise two

Key D major

It is characteristic of somnigenic transformational procedures
that the features of related melodies merge and a resultant new
theme emerges that resembles both themes simultaneously. In the
present passage, Columbia the Gem and O, Susannah—both altered and
both in the same rhythmic scheme—occur simultaneously. The themat­
ic product of this merger is an emphasis of the similarities in the
two tunes.
The only remaining quotation to be cited is a short fragment of The Battle Cry of Freedom (Rally Round the Flag), which appears in the clarinet and second trumpet during measure 26.

Ex. 9.21 Clarinet and Trumpet II

Among these many quotations, Jingle Bells functions as a thematic fulcrum or axis, relating all the quoted tunes by the two motifs "mi-sol" and "do-re-mi". For instance, if the two incises of Jingle Bells were to be reversed, O, Susannah would appear.
The original materials reveal these two motifs as well. For instance, the ostinato of the piano, which persists between measures 1-21 and later, 31-35, emphasizes a rising minor third. Significantly, this motif is the final melodic figure of the composition, thus implying the paramount structural importance of the motif.

Ex. 9.23 Piano

The pattern "mi-re-do" appears as an ostinato in the cellos and basses between measures 22-28.
Thus, The Gong on the Hook and Ladder presents a complex set of thematic interrelationships among its quoted and originally composed materials. Clementine opens and closes the work, while Marching through Georgia closes the middle section. Snatches of Columbia the Gem of the Ocean and O, Susannah are merged and sonnigenically transformed into a new theme, and The Battle Cry of Freedom constitutes the only unvaried fragment to appear. All these tunes are motivically related to the fragment of Jingle Bells, and the entire envelope of tunes is coordinated by two motifs: "mi-sol" and "Mi-re-do". This family of thematic interrelationships is diagrammed in the following table.
TABLE 9.3

FAMILY OF THEMATIC RELATIONSHIPS IN THE GONG ON THE HOOK AND LADDER

- **MI-SOL**
  - **MI-RE-DO**

- **Clementine**
  - **Columbia the Gem**
    - **O, Susannah**
  - **Battle Cry of Freedom**
  - **Marching through Georgia**

- **Jingle Fells**

- **mm. 1-19**
- **mm. 20-30**
- **mm. 31-35**
Summary

In this chapter we have examined instances of borrowed materials and some devices of organization applied to them. These materials were classified either as quotations of original materials from other works by Ives, or materials drawn from outside sources. Quotations of original materials were employed in a "centonic" or "patch-work" manner, while quotes from outside sources were transformed somnigenically.

Ives occasionally applies both techniques of quotational composition by using a particular setting of familiar tunes as a centonic patch. For instance, the combination of Columbia the Gem and Jingle Bells in The Gong on the Hook and Ladder also appears in the scherzo of the Trio for Violin, Cello and Piano, thus synthesizing the two concepts.

Ex. 9.25

Flute: The Gong

Violin: Scherzo from Trio for Violin, Cello and Piano
CHAPTER X

COMEDIC TECHNIQUES

Comedy appears to have been an essential concern in the music of Charles Ives. His manuscripts are peppered with humorous jibes at "Rollo," the "lily-livered" musical conformist, as well as sardonic remarks about music and society in general. Moreover, he had very definite ideas about the nature of comedy and distinguished between humor and wit:

Manner breeds a cussed cleverness only to be clever ... and perhaps to be witty in the bargain—not the wit in mother-wit, but a kind of indoor, artificial, mental arrangement of things quickly put together which have been learned and studied. It is of the material and stays there, while humor is of the emotional, and of the approaching spiritual. ... "wit in music is as impossible as "wit" at a funeral. The wit is evidence of its lack. Mark Twain could be humorous at the death of his dearest friend, but in such a way as to put a blessing into the heart of the bereaved.¹

Regarding the use of comedy in music, he continues:

Humor in music has the same possibilities. But its quantity has a serious effect on its quality; "inverse ratio" is a good formula to adopt here. Comedy has its part, but wit—never—. . . . A symphony written only to amuse and entertain is likely to amuse only the writer ... ²

Thus, humor should not be the sole concern of a composition, or the

²Ibid.
work will lose its substance. A remark by John Kirkpatrick at Ives' funeral indicates that Ives, himself, possessed and communicated that kind of humor he had extolled.

After the service there was an interim of milling around while some left and others got ready to go to the cemetery. Looking at Charlie's face again from a distance moved me to murmur to Harmony's sister, Mrs. Hall, "Even the sight of his face still makes one giggle inwardly!"—to which she agreed with enthusiastic nods and smiles. But nearer to, before they closed the coffin, there seemed to be a kind of serene elusive mystery.3

In this chapter we will examine this "elusive" quality of humor, in the light of Henri Bergson's theory of comedy, and his classifications of comedic types. The works chosen for this examination are:

1. Vote for Names
2. Scherzo: Over the Pavements
3. Hallowe'en
4. The Unanswered Question

Vote for Names

A fundamental concept in Bergson's theory of comedy is that humor is essentially a human condition, and the result of social significance. It is Bergson's contention that:

... the comic does not exist outside the pale of what is strictly human. A landscape may be beautiful, charming and sublime, or insignificant and ugly; it will never be laughable. You may laugh at an animal, but only because you have detected in it some human attitude or expression. You may laugh at a hat, but what you are making fun of, in this case, is not the piece of felt or straw, but the shape that men have given it,—the human caprice whose mould it

has assumed. In other words, humor is only possible in the context of a human situation. Upon this basic assumption, Bergson then formulates the following general theory of comedy: "Any arrangement of acts and events is comic which gives us, in a single combination, the illusion of life and the distinct impression of a mechanical arrangement." Thus, when a man stumbles and falls, passers-by laugh because his sitting is involuntary,—the result of what Bergson calls "mechanical elasticity."

Bergson applies this general theory to gestures and movements in the following theory: "The attitudes, gestures and movements of the human body are laughable in exact proportion as that body reminds us of a mere machine." And later: "We laugh every time a person gives us the impression of being a thing."

Vote for Names involves just such a circumstance. The speaker in the song, offered merely token choices in an election, caustically advocates abandoning all human choice in favor of a mechanical voting procedure. The second part of the text, by Ives, is as follows:

After trying hard to think what's the best way to vote I say—just walk in & grab a ballot with the eyes shut & walk right out again!

Thus, a mechanical and rigid momentum, considered by Bergson to be an

5Ibid., p. 105.
6Ibid., p. 79.
7Ibid., p. 97.
8See John Kirkpatrick, on. cit., p. 195.
essential ingredient of humor, is depicted by the text. Ives creates this mechanism in the music as well. He describes the principal device of the piano music in a marginal note of the manuscript of the composition: "same chord hit hard over & over Hot Air Election Slogan."

The music of the three pianos, thus, consists of a monotonous ostinato of pitch and rhythmic structures (see Chapter I), which does not conclude in a cadence pattern, but merely ceases to sound at the end, as if turned off by a machine. In contrast to this, the voice line employs disjunct, atonal and atematic patterns which are completely independent of the pianos.

Ex. 10.1

The caustic nature of the text, and this "non-spill" separation of voice and accompaniment, suggest that the speaker is, in reality, observing the situation from a position of aloofness. Such intellectual objectivity, Bergson explains, is essential to an appreciation of a humorous condition.

Try, for a moment, to become interested in everything that is being said and done; act in imagination, with those who act, and feel with those who feel; in a word, give your sympathy its widest expansion: as though at the touch of a fairy wand you will see the flimsiest of objects assume importance, and a gloomy hue spread over everything. Now step aside, look upon life as a disinterested spectator: many a drama will turn into
Thus, *Vote for Karnes* fulfills Bergson's initial conditions of comedy by supporting a humorous text musically, by the simultaneous opposition of mechanistically rigid and elastically free systems of organization—in short, a contrast of machine and human.

**Scherzo: Over the Pavements**

While the humor of *Vote for Karnes* is somewhat dependent upon a knowledge of the text, the joke of *Over the Pavements* is realized more strictly in musical terms.

The joke of the composition occurs in the final two measures. After 127 measures of extremely complex music which is consistently dissonant and atonal throughout, all complexities suddenly dissolve in a tonic-dominant—"one-two" vamp cadence group.

Ex. 10.2 Piano

![Musical notation](image)

C major: I V I

---

9*Henri Bergson, op. cit., p. 63.*
The humor behind this joke is best described in terms of Bergson's theory of the "Comic Element in Situations." It is Bergson's theory that the situations which make children laugh underlie all great comic art. Bergson argues:

Now, comedy is a game, a game that imitates life. And since, in the games of the child, when working with dolls and puppets, many of the movements are produced by strings, ought we not to find those same strings, somewhat frayed by wear, reappearing as the threads that knot together the situations in a comedy?

It is Bergson's contention that the comic artist, as he grows and matures, continues to employ the devices which, as a child, made him laugh, albeit with greater sophistication and refinement. Thus, says Bergson, "he makes his puppets grow, inspires them with life, and finally . . . , without ceasing to be puppets, they have yet become human beings. We thus obtain characters of a comedy type."

Bergson then names three basic comic situations derived from children's toys:

1. The Jack-in-the-box
2. The Snow-ball
3. The Dancing-jack

Regarding the first of these, he explains:

As children we have all played with the little man who springs out of his box. You squeeze him flat, he jumps up again. Push him lower, and he shoots up still higher. Crush him down beneath the lid,

---

10Ibid., pp. 104-27.
11Ibid., p. 105.
12Ibid.
and often he will send everything flying.\textsuperscript{13}

Bergson finds "jack-in-the-box" situations in "Punch and Judy" shows, as well as in the plays of comic poets such as Molliere. For instance, "when Dorine is telling Orgon of his wife's illness, and the latter continually interrupts him with inquiries as to the health of Tartuffe, the question 'Et Tartuffe?' repeated every few moments, affords us the distinct sensation of a spring being released."\textsuperscript{14}

Similarly, Over the Pavements develops a complex and intricate harmonic, rhythmic and atonal structure which is abruptly terminated at the end, by a banal "authentic cadence" in C major. The sudden release of musical tension created by this cadence constitutes a "jack-in-the-box" technique. The sudden change of style forces the listener, as Bergson would say, to step aside, and look upon style as a disinterested, but amused, spectator.

\section*{Halloween}

Halloween combines the technique of "jack-in-the-box," as seen in Over the Pavements, with that of the "snow-ball." A "snow-ball" is an effect which increases by an arithmetic progression, such as the tumbling of a line of toy soldiers, or "a house of cards that has been built up with infinite care: the first you touch seems uncertain whether to move or not, its tottering neighbor comes to a quicker decision, and the work of destruction, gathering momentum as it goes on,

\textsuperscript{13}Ibid.

\textsuperscript{14}Ibid., p. 108.
rushes headlong to the final collapse." Bergson says that many droll situations can be referred to this basic type.

Read the speech of Chirnneau in the Paideurs; here we find lawsuits within lawsuits, and the mechanism works faster and faster—Racine produces in us this feeling of increasing acceleration by crowding his law terms ever closer together—until the lawsuit over a truss of hay costs the plaintiff the best part of his fortune.  

Hallowe' en presents a comparable "snow-ball," which is, moreover, terminated by a "jack-in-the-box" conclusion. The complete title of the work is, significantly, Hallowe' en (on the 1st of April), and Ives described the work as "A kind of April Fool piece for a Hallowe' en Party." The "snow-ball" situation of Hallowe' en is "wound up" progressively by the unfolding of numerous serial and modulatory schemes (see Chapters I, II and III). The progressive increase of sonority, dissonance, tempo and textural detail might well be intended to create the illusion of approaching phantoms in a Hallowe' en story around a bonfire. Ives instructs in the score: "The Hallowe' en . . . goes faster & louder with the bonfire." Then, as the pitch rises to its highest peak, the bubble is burst by a banal and grandiose nineteenth century cadence formula in C major, albeit somewhat distorted:

---

15Ibid., p. 113.
16 Ibid., pp. 113-14.
17See John Kirkpatrick, op. cit., p. 65.
19See John Kirkpatrick, op. cit., p. 65.
This "jack-in-the-box" punch-line is the inverse of that of Mozart's Musical Joke, where an atonal cadence punctuates the close of a tonal composition. Thus, Ives has deftly demonstrated his ability to express a classic situation joke within the context of his own musical style.
For our final example, we will examine The Unanswered Question, in which a particular application of the "snow-ball" effect is combined with the "dancing-jack" technique.

Bergson points out that it is characteristic of a "snow-ball," as, indeed, of all mechanical arrangements, to be generally reversible. "A child is delighted when he sees the ball in a game of nine-pins knocking down everything in its way and spreading havoc in all directions; he laughs louder than ever when the ball returns to its starting-point after twists and turns . . . of every kind. In other words, a conic situation becomes even more humorous, if it is circular, and all efforts, no matter how determined, merely bring the situation back to its starting point.

Bergson demonstrates this technique in a short light comedy by Labiche, *Un chapeau de paille d'Italie*. A horse has just eaten an Italian straw hat. There is only one other like it in Paris, and this duplicate must be found whatever the cost. However, this much sought-after hat keeps the main character perpetually on the run, since it always eludes him just at the moment he is about to find it. "And when at last, after all sorts of difficulties, the goal seems in sight, it is found that the hat so ardently sought is precisely the one that has been eaten." 21

The Unanswered Question unfolds a similar "reversed-snow-ball"

---

20 Henri Bergson, op. cit., p. 114.

21 Ibid., p. 115.
situation. The trumpet repeats, throughout the composition, in the same tempo and dynamic level, the perennial question "What is existence?"

Ex. 10.4 Trumpet

The music of the flutes consists of six "answers" to this question, each somewhat different, and each louder, faster, and more complex than the preceding. In other words, the "flutes and other human beings," as Ives called them, frantically offer answers with increasing fervor, but without success. Finally, and at the point when the music becomes loudest, fastest and most intense, the answer turns out to be precisely the original question that was asked:

Ex. 10.5

\[ \text{Largo Molto sempre} \quad \text{Allegro - accel to Presto} \]
Thus, the snow-balling answerers have made a full circle and returned to the starting point.

This "Question-Answer" situation also demonstrates what Bergson calls a "dancing-Jack" effect. The "dancing-Jack" is a character who "thinks he is speaking and acting freely, and consequently, retains all the essentials of life, whereas, viewed from a certain standpoint, he appears as a mere toy in the hands of another, who is playing with him." Bergson explains further that:

All that is serious in life comes from our freedom. The feelings we have matured, the passions we have brooded over, the actions we have weighed, decided upon and carried through, in short, all that comes from us and is our very own, these are the things that give life its oftentimes dramatic and generally grave aspect. What, then, is requisite to transform all this into a comedy? Merely to fancy that our seeming freedom conceals the strings of a dancing-Jack.

Thus, the search for the "invisible answer" is a very serious matter for the "flutes and other human beings" of Ives' composition; it is equally so for the listener until he steps outside, as it were, and views the mechanical arrangement of the situation. In other words, as Bergson would argue, there is no situation, however serious, that cannot be rendered comic at the mere suggestion that its characters are marionettes, whose strings are pulled by unseen or unknown force.

Summary

In this chapter we have examined instances of comedic techniques in works by Ives and have classified them according to Henri Bergson's theories of comedy and classifications of comedic types. These...

---

22 Ibid., pp. 111-12
classifications of the compositions and the comedic types they exemplify are summarized in the following table.

TABLE 10.1
COMEDIC TECHNIQUES IN WORKS BY IVES

<table>
<thead>
<tr>
<th>Composition</th>
<th>Comedic Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vote for Names</td>
<td>Contrast of Mechanism and Humanism</td>
</tr>
<tr>
<td>Scherzo: Over the Pavements</td>
<td>&quot;Jack-in-the-box&quot;</td>
</tr>
<tr>
<td>Hallowe'en</td>
<td>&quot;Snow-ball&quot; with &quot;Jack-in-the-box&quot; conclusion</td>
</tr>
<tr>
<td>The Unanswered Question</td>
<td>&quot;Reversed-Snow-ball&quot; and &quot;Dancing-Jack&quot;</td>
</tr>
</tbody>
</table>
The works of Ives frequently include certain freedoms in their execution which can be described as aleatoric. Henry Cowell discusses this aspect of Ives' compositional practices, and says:

He does not believe in laying down an absolutely rigid pattern for performers to follow, but believes that if the performer is great and adds his creative fire to the composer's in the rendition of the work, new and unexpected beauties will be born and the concept of the work will grow and flourish.

For instance, Cowell continues, there are passages in which, "if the player wishes, he may leave out certain notes or, if he wishes he may add still more! . . . In still other places, certain parts may be repeated at will. Many other similar and characteristic directions may be found." Ives discussed such aleatoric procedures with respect to his Concord Sonata, revealing them as a fundamental aspect of his philosophy of composition:

\[ \ldots \text{the Emerson movement} \ldots \text{this is as far as I know the only piece which every time I play it or turn to it seems unfinished} \ldots \text{It is a peculiar experience and I must admit a stimulating and agreeable one that I have had with this Emerson music. It may have something to do with this feeling I have} \]

---


2 Ibid., p. 134.
about Emerson, for every time I read him, I seem to get a new angle of thought and feeling experience from him. Some of the four transcriptions as I play them today . . . are changed considerably from those in the photostat, and again I find that I do not play or feel like playing this music even now in the same way each time.

Some of the passages now played have not been written out, and I do not know as I ever shall write them out as it may take away the daily pleasure of playing this music and seeing it grow and feeling that it is not finished and the hope that it never will be—I may always have the pleasure of not finishing it.3

Thus, Ives believed that a work of art can sometimes be more vital if certain details are left unspecified or indeterminate in the score, and are literally composed during the actual performance act. We will, in this chapter, examine instances of such aleatoric procedures in the following compositions:

1. In Re Con Moto Ft Al
2. Vote for Names
3. The Unanswered Question
4. In the Inn
5. Halloween

The Concept of Aleatoric Composition

While aleatoric features, by their very nature, are somewhat vague and problematic, some distinctions among aleatoric devices can be found which are of use to the analyst.

Elements of chance may be applied to the sequence of large formal units of a composition, while details on the micro-levels are specified with relative precision, as in the Third Piano Sonata of Boulez. Such a procedure is often called ossia form. On the other hand, the overall

3Quoted in Henry and Sidney Cowell, op. cit., p. 13.
form may be fixed, while the details are left to the performer, as in 
*Duo for Pianists II* by Christian Wolff. The composer Roger Reynolds
distinguishes three degrees of such aleatoric procedures applied to de-
tail: improvisation, indeterminancy and chance. In improvisatory mu-
 sic, detail is unspecified, but a "set of conventions" is assumed, as
in figured bass playing. However, in indeterminancy, "Categories of
events are expected, but exactly which will occur within known limits
is not determined before the fact. Indeterminancy, that is, involves
discrimination."  
Finally, chance is "An exceedingly general situation
within the limits of which all events are welcomed equally."  

The following table summarizes the categories according to which
we will classify the examples of aleatoric procedure examined in this
chapter.

---

1Roger Reynolds, "Indeterminancy: Some Considerations," *Perspec-
tives of New Music*, IV (Fall-Winter, 1965), p. 136, n.

5Ibid.
TABLE 11.1
CLASSIFICATIONS OF ALEATORIC ORGANIZATION

Ossia Form
1. Form Indeterminate
2. Detail Specified

Aleatoric Detail
1. Improvisation
   a. Categories of Events to be Realized
   b. Preferred Solutions Assumed
2. Indeterminacy
   a. Categories of Events to be Realized
   b. No Preferred Solutions within the Limits of the Categories
3. Chance
   a. Freedom to Extemporize
   b. No Rules

In Re Con Moto Et Al

The overall structure of In Re Con Moto Et Al is rigidly specified, indeed, according to an elaborate scheme of serial organization (see Chapter 1). However, the pitch and rhythmic organization of the string music suddenly becomes indeterminate in measure 60. Double-stop glissandos are indicated in all four instruments, in which the high and low points in pitch are only relatively notated. Moreover, the rhythmic subdivisions of the measure are numbered, but with no precise indication of durational values.
This measure occurs after a long crescendo and accelerando which Ives described in a marginal note in the manuscript: "gets faster & fff as possible to end: end Bang!" Moreover, rhythmic and pitch organization had become progressively complex throughout the work and this measure, thus, represents the culmination of this scale of increasing complexity: a complete break with determinate notation of pitch and rhythm.

Vote for Jonas

Vote for Jonas presents several applications of aleatoric principles

6See John Kirkpatrick, op. cit., p. 68.
to rhythm as well as to contrapuntal organization. The notation of the
music in the manuscript score is highly abbreviated, leaving many details
to be realized by the performers. One statement of the ostinato pattern
of each of the three pianos is given, with instructions to reiterate
the pattern throughout. The three piano parts are not superimposed in
score-fashion, but appear in successive order. This may imply that the
pianos enter successively, each entering after the initial pattern-
statement of the preceding piano.

The spoken portion of the text appears at the top of the score
with no indication of pitch or rhythm. A possible rhythmic realization
of this text, based on the rhythmic pattern of the second piano, was
offered in Chapter I. Nevertheless, the entrance point of the text
would still be indeterminate; it could possibly enter with the second
piano, or it might "answer" it canonically.

The portion of the text which employs fixed pitch and rhythm ap-
ppears at the bottom of the score on a separate treble staff. This part
is unbarred, and precise contrapuntal combinations with the pianos are
indeterminate. The following example, realized by the present writer,
indicates the indeterminancy of contrapuntal combinations.
Near the end of the song, the singer is given a pitch upon which to chant the words, but is given no indication of individual rhythmic values.

Ex. 11.3

The instruction to "chant" the text implies a rather even rhythmic realization, and thus a "preferred solution." The passage, therefore, constitutes improvisation, rather than pure chance, or indeterminancy.

Thus, \textit{Vote for Heaven} employs elements of indeterminancy and improvisation in the notation of pitch, rhythm, and contrapuntal combinations. The following is a schematic of the manuscript score.
The Unanswered Question

The Unanswered Question demonstrates several instances of features which are aleatoric in nature. One such instance does not specifically involve aleatoric notation, but is nevertheless indicated by Ives in his foreword to the score: "During some of the louder passages of the flutes, the strings may not be heard, and it is not important that they should be." In other words, the degree of audibility of one instrumental group—the strings—is dependent upon the manner of performance of another—the flutes. The occurrences of such passages of inaudibility in the strings are only approximately indicated by Ives in the performance note, and therefore constitute indeterminacy.

Ives also indicates that "'The Answers' may be played somewhat sooner after each 'Question' than indicated in the score, but 'The Question' should be played no sooner for that reason." In other words, the contrapuntal relationship between trumpet ("The Question") and
flutes ("The Answers") demonstrates what Serge Taneyev calls "horizon-
tal shifting counterpoint." That is, the temporal relationship between
the end of the trumpet phrases and the beginning of the flute music con-
stantly changes, as in the following three examples.

Ex. 11.4

\begin{music}
\begin{center}
\begin{musicexample}
\begin{music}(\vspace{0.5cm})
\section{Allegretto}
\begin{music}\\text{Flute I}\end{music}
\begin{music}\\text{Trumpet}\end{music}
\end{musicexample}
\end{center}
\end{music}

Ex. 11.5

\begin{music}
\begin{center}
\begin{musicexample}
\begin{music}\\text{Allegro molto}\end{music}
\begin{music}\\text{Flute III}\end{music}
\begin{music}\\text{Trumpet}\end{music}
\end{musicexample}
\end{center}
\end{music}

---

These shifts constitute indeterminate ordering since the degree of shift is only approximately indicated: the trumpet entrances are fixed and the flute entrances shift, relative to the trumpet, but according to indeterminate degrees.

Finally, the choice of instrumentation in The Unanswered Question is relatively free, as outlined in the foreword to the score by Ives. Moreover, the choice of instrumentation, in one case, determines the notes to be played. If oboe and clarinet substitute for the third and fourth flutes, Ives offers an alternate ending.

8Ives indicates in the score that oboe and clarinet may substitute for the third and fourth flute, and English horn may replace the trumpet.
Such an aleatoric procedure constitutes a simple example of indeterminate detail since it involves alternate choices of materials. More complex instances of indeterminacy are to be found in Ives' piano
arrangement of In the Inn.

In the Inn

Ives includes a piano arrangement of In the Inn in the published score of his Set for Theatre Orchestra. This piano arrangement includes certain aleatoric procedures which are not present in the orchestral version, probably due to the exigencies of ensemble performance. 9

Ives offers several optional manners of performing measures 122 and 123 of the piano arrangement, which constitutes indeterminate detail.

Ex. 11.8

*Either of these last 5/8ths beats may be left out—not both.

This piano arrangement of In the Inn also appears as part of the second movement of the First Piano Sonata.
The piano version of *In the Inn* also offers optional choices in the "Chorus." These choices constitute indeterminate detail.

Ex. 11.9 Original Version

The Chorus is an impromptu affair (as is also the rest to some extent) - and may be varied according to the tempo taken. The 2nd and 4th measures of Chorus may be changed each time, as suggested below, and also in the other measures the L.H. may change ten. "shifts" *ad lib.* The last measure may be extended in similar manner.
Ex. 11.10 Alternate Choices
Hallowe'en

Hallowe'en employs aleatoric procedures at numerous levels of organization throughout the course of the composition. These procedures are given in detail in the performance instructions which Ives included in the score. These instructions are given here in part:

It was intended that this piece be played several times, and differently each time, returning from the mark D.C., and playing the Coda, as is customary, the last time; but each time all strings play the measures before the bar D.C.

IF PLAYED FOUR TIMES

First time: Allegretto and pp. Second violin and cello only, until two measures before the D.C. which all strings play each time. No piano.
Second time: Allegro moderato—mp. First violin and viola only, until two measures before the D.C. No piano.
Third time: Allegro molto—strings f, but piano p. All strings and piano, which plays only outer notes of each chord, that is, the upper and lower notes only, in each hand.
Fourth time: Presto (or as fast as possible without disabling any player or instrument)—double ff. All play all notes and Coda.

IF PLAYED THREE TIMES

First time: Allegretto—pp. Second violin and cello, until two measures before the D.C. which all play. No piano.
Second time: Allegro—mf. All strings, piano may play; if so—pp. Only upper and lower notes in each hand; or piano may not play at all this time.
Third time: Presto—ff. All play all notes and Coda.

. . . A bass drum or a drum during the last time may play during the total rests in measures 3, 4, 5, and 6, and from then on may add his own part—impromptu, or otherwise.
Ives insists upon the aleatoric nature of this work and quips that these decisions "must be made by the players, regardless of the feelings of the audience."

Thus, Hallowe'en presents a variety of aleatoric procedures. The players are given a choice of two performance versions, hence two forms. Moreover, there are various freedoms of choice within each version, which constitutes aleatoric procedure. The following table suggests a possible categorization of some of Ives' instructions according to the aleatoric classifications applied in this chapter.

**TABLE 11.3**

**CLASSIFICATION OF ALEATORIC DEVICES IN HALLOWE'EN**

**Ossia Form**

The choice of playing Hallowe'en either three or four times constitutes ossia form.

**Aleatoric Detail**

**Improvisation**

The drum may play during measures 3, 5, and 8. However, there are "preferred solutions" since he may only play during the rests.

**Chance**

After measure 8, the drum may play anything he wishes, which constitutes free chance.

**Summary**

We have examined, in this chapter, instances of aleatoric organization of musical materials in works of Ives. In some cases these aleatoric procedures were simply described in a performance instruction, appended to the score. In other cases they involved special "aleatoric"
notation of various sorts. For instance, the optional variant ("ossia" passage) in The Unanswered Question was enclosed in a box with an explanatory footnote (see Ex. II.7). The "horizontal shifts" between trumpet and flute entrances were indicated by independent systems of scoring and barring (see Exs. II.4, II.5 and II.6). Finally, the passage of indeterminate pitch and rhythm in In Re Con Moto Et Al was indicated graphically by lines indicating pitch and rhythmic shapes (see Ex. II.1).

The following table summarizes the instances of aleatoric organization examined in this chapter.
### TABLE 11.4
CLASSIFICATION OF INSTANCES OF ALEATORIC DEVICES

<table>
<thead>
<tr>
<th>Composition</th>
<th>Aleatoric Classification</th>
<th>Element to Which Aleatoric Procedure Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Re Con Noto Et Al</td>
<td>Indeterminancy</td>
<td>Pitch and rhythm, meas. 60</td>
</tr>
<tr>
<td>Vote for Names</td>
<td>Improvisation</td>
<td>1. Continuations of ostinato patterns in pianos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Individual rhythms in chant section</td>
</tr>
<tr>
<td></td>
<td>Indeterminancy</td>
<td>1. Rhythm of spoken portion of text</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Entrance points of pianos and spoken text</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Contrapuntal combination of pianos and second part of text</td>
</tr>
<tr>
<td>The Unanswered Question</td>
<td>Indeterminancy</td>
<td>1. Vertical coincidences between instrumental groups</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Choice of instrumentation of &quot;Answers&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternating endings for &quot;Answers&quot;</td>
</tr>
<tr>
<td>In the Inn</td>
<td>Indeterminancy</td>
<td>1. Alternate choices in mm. 122-23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Alternate choices in meas. 126</td>
</tr>
<tr>
<td></td>
<td>Improvisation</td>
<td>Option of varying measures of chorus in manner similar to that indicated for meas. 126</td>
</tr>
<tr>
<td>Hallowe'en</td>
<td>Ossia Form</td>
<td>Alternate performance versions</td>
</tr>
<tr>
<td></td>
<td>Improvisation</td>
<td>Drum part mm. 3, 5, 8</td>
</tr>
<tr>
<td></td>
<td>Chance</td>
<td>Drum part after meas. 8</td>
</tr>
</tbody>
</table>
CHAPTER XII

GENRES OF MUSICAL REALISM

In this final chapter we will examine one of the most widely discussed aspects of Charles Ives' musical language: the realistic images associated with much of his music, even his most abstract works. This discussion will proceed in the light of Norman Cazden's theories of realism in abstract music. It is Cazden's thesis that realism exists in all music, even the most abstract, and that the evidence of a work's realistic references is to be found in the formal elements and compositional devices. He provides the following definition of realism in abstract music:

Realism in music is the totality of concrete reference to the common experience of human beings as embodied in all the formal elements of musical art.¹

Elsewhere Cazden says that realism lies "in the instantaneous connotations grown upon the musical forms themselves ..."² He argues that no music is entirely free of all attachment to a social function. For instance, the so-called "abstract" or "pure" music of the eighteenth century "... upon closer examination ... also serves, if not necessarily a higher ideal, then at least a higher social circle. The constant and unmistakably realistic reference

²Ibid., p. 36.
pervading all 'abstract' or 'pure' music is its place in the social function called a concert."

... This concert music emerged from its earlier service of entertaining the nobility in their lavish homes. The entertainment was composed for them of polite and stereotyped reminiscences of hunts, operatic extravagances, military marches, minuets, pastoral masques and stylized love lyrics, all of which were tacked together into serenades, divertimentos, nocturnos and even symphonies.3

And elsewhere he says:

The "numbers" at a concert or a recital, and also portions and sections of these "numbers", are jumbles of half-nostalgic reminders of every possible species of musical experience from outside the concert-hall. Theatre music, opera, religious or other institutional ritual, signal and fanfare music, street-cries, group-adherence music such as patriotic and student songs, music of work rhythms and antiphonies, camp-fire music, dinner music, narrative ballad music, "background" music, gondola music, pastoral and masque and charade music, circus and fair and carnival music, evening entertainment music—the list is endless, and "abstract" concert music imitates and derives from all these varieties.4

Many such realistic references can be found in the works of Ives, including some which are particularly indigenous to American culture. As Henry and Sidney Cowell have observed:

Indeed, no American hears the Concord Sonata, The Housatonic at Stockbridge, the Harvest Home Chorales, In the Inn, or The Unanswered Question without a shock of recognition.5

Ives himself revealed a concern with realistic qualities in

3 Ibid., p. 21.
4 Ibid., p. 25.
such remarks as, for example, the marginal note found in the manu-
script of his First Piano Sonata:

Impressions, Remembrances, & Reflections, of Country Farmers in Conn Farmland... Fred's Daddy got so excited that he shouted when Fred hit a Home Run & the school won the baseball game but Aunt Sarah was al-
ways humming—Where is my wandering Foy---after Fred an
John left for a job in Bridgeport—there was usually a
sadness—but not at the Barn Dances with its jigs boot
jumping and reels mostly on winter nights In the Sum-
mer times, the Hymns were sung outdoors, Folks sang—as
Ole Black Joe—& the Bethel Band—Quickstep Street
Marches, & the people like things as they wanted to
say and to do things as they wanted to do in their own
way—and many old times... there were feelings,
and... spiritual Fervency!

This chapter will examine instances of realism and the means
of its musical realization in the following compositions:

1. Hallowe’en
2. From the Steeple and the Mountains
3. The Gong on the Hook and Ladder
4. In the Inn

We further propose the following genres of musical realism for this
examination:

1. Play Music
2. Tower-Music
3. Street-Parade Music
4. Barn-Dance Music
5. Revival Music
6. Inn Music

__Hallowe’en__

_Hallowe’en_ provides an excellent example of play music, in which
each of the performers is actually a participant in a musical game.

In this game, the strings read their canonic materials in pairs and

---

6 See John Kirkpatrick, _op. cit._, p. 83.
then together, and the piano progressively adds his part. Structurally, this work as "play music" finds its prototype in the many catches and canons of previous centuries.

Ives suggests Hallowe'en as bonfire music in which "the playing gets faster and louder each time, keeping up with the bonfire." This reference to a bonfire may not have been meant to be taken literally, but merely for the realistic image it invokes. Nevertheless, Hallowe'en certainly reflects a performance situation other than that of the concert hall. Ives indicates the game-like nature of the work when he says:

> It has been observed by friends that three times around is quite enough, while others stood for four—but as this piece was written for a Hallowe'en party and not for a nice concert, the decision must be made by the players, regardless of the feelings of the audience.

---

**From the Steeples**

*From the Steeples and the Mountains* finds its precedent in the popular seventeenth-century German genre of "tower-music" in which brass instruments played "turmsonaten" in church or town hall steeples, signaling the time of day. A comparison of the brass music of *From the Steeples* with a typical *turnsonate* of Johann Pezel (1639-1694) reveals many similarities.  

---

7 Quoted from the foreword to the score.

8 Ibid.

9 See Arnold Schering, Geschichte der Musik in Devisen (Leipzig: Breitkopf & Hartel, 1931), Ex. 221, p. 283.
TABLE 12.1

RELATIONSHIP BETWEEN IVES' FROM THE STEEPLES AND IIZEL'S TURMSONATE

<table>
<thead>
<tr>
<th>From the Steeples</th>
<th>Turmsonate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumentation:</td>
<td>1. 2 cornets and 3 trombones</td>
</tr>
<tr>
<td></td>
<td>2. String quartet doubling indicated in a marginal note</td>
</tr>
<tr>
<td>Rhythm:</td>
<td>Prominent dactyl rhythms</td>
</tr>
<tr>
<td>Counterpoint:</td>
<td>Inclusion of Canons</td>
</tr>
</tbody>
</table>

Moreover, the most prominent recurring melodic motif of From the Steeples resembles the military time-signal "taps."

Ex. 12.1 Trumpet, Trombone

Perhaps equally significant features of From the Steeples as an example of "tower-music" lie in the music of the bells. The score calls for actual church steeple bells rather than orchestral chimes,

10 See John Kirkpatrick, op. cit., p. 38.
11 See Arnold Schering, op. cit., p. 283, n.
thus suggesting that the work is intended as "out-of-doors" music. Moreover, the cantus firmus of the bell music is a traditional chime tune.

Ex. 12.2 Chime: Cantus Firmus

From the Steeples is not merely reflective of this genre of German "Gebrauchsmusik." It is also reminiscent of the experiments made by Ives's father, in spatial music, in which the elder Ives stationed instrumental ensembles at various points around the town square, including nearby church steeples. Ives recalled, years later, "as a deep impression, the echo parts from the roofs played by a chorus of violins and voices." ¹² Whether or not From the Steeples was literally intended to be performed in such circumstances is a moot question, but the realistic connotations are, nonetheless, evident.

The Gong on the Hook and Ladder or Firemen's Parade on Main Street

Street parades on holidays and special occasions were an integral part of the social life in small American towns at the turn

of the century. This was especially so for the young Charles Ives since his father, as local handraster, was necessarily engaged in such activities. As a result, this particular genre of musical experience is reflected in many of Ives' compositions, notably in such works as Putnam's Camp from Three Places in New England and the second movement of the Fourth Symphony. The Gong on the Hook and Ladder or Firemen's Parade on Main Street presents, in microcosm, a musical picture of such a street parade, in such a way as to suggest that the listener is in reality a spectator of the parade.

Some of the devices of Ives' parade are purely representational, such as the scalar motif, with its accelerating and decelerating rhythms (see Chapter I) and its rising and falling pitch contour, which might well represent the siren of a fire wagon.

Ex. 12.3 Passes (half arco and half pizz.)

The gong of the fire wagon is played by an actual gong, supported by a piano and timpani, and the march beat is maintained throughout by the snare drum.
The march becomes progressively louder and faster, and then subsequently quieter, as if to approach from a distance, pass by the spectator and then recede again into the distance. While the parade is distant, Clementine can be heard in the high woodwinds, but as the band approaches, the familiar tunes and songs become more numerous and jumbled. Then again, as the parade passes, only Clementine can be heard, this time in the high strings.

Thus, the concept of a street-parade is conveyed by specifically representational devices, but in such a manner as to represent a spectator's experience, rather than a simple depiction of a band march. The somnigenic transformations of the quoted tunes (see Chapter IX) further serve to establish the dream-like quality of the image as well as to depict the frequently inexact playing in such parades.

In the Inn

In the Inn compresses a variety of examples of musical realism within the bounds of a single movement. The composition is a potpourri of familiar tunes, forms and musical images. Elements of ragtime, jazz, popular songs, barn dance rhythms and hymn tunes are
combined successively, as well as polyphonically. In the Inn finds its prototype in the quodlibets of the fifteenth through eighteenth centuries, such as those of the Clogauer Liederbuch. In such quodlibets, popular and folksongs are presented simultaneously in different voices, as well as in succession, as a "potpourri." Often the combinations of tunes seem apparently incongruous as in the joining of "Long have I been away from thee" and "Cabbage and turnips" in the quodlibet in Bach's Goldberg Variations.

Quodlibets were frequently improvised at inns and beerhalls, and it is in similar circumstances that Ives developed this aspect of his musical thought. While a student at Yale, Ives frequently played piano for the Hyperion Theatre orchestra. Henry and Sidney Cowell relate that:

The leader of the ..., orchestra was a friend and Ives was able to try out short things with its players. Some of these pieces, conducted by himself, had several simultaneous rhythms and were written in more than one key. He liked to 'spell' the regular pianist, and would then sometimes improvise a dissonant off-beat, or off-key accompaniment at the piano while students sang or stamped out a march. They got so they liked these 'stunts' and would call for them.13

Ives, as a young man at Yale, was also absorbed in the ragtime of local beer gardens and describes the virtuosity of a favorite pianist:

George could read a newspaper and play the piano better than some pianists could play the piano without any newspaper at all. When I was in college, I used to go down there and spell him a little if he wanted to go out and get a glass, or a dozen glasses.

13 Henry and Sidney Cowell, op. cit., p. 36.
of beer. There were black-faced comedians then ragging their songs. I had even heard the same thing at the Danbury Fair before coming to New Haven, which must have been before 1892—[Ragging was] throwing the accent on the off-beat and holding over,—a thing that so many people nowadays think was not done until jazz came along.

If one gets the feeling . . . of these shifts and lilting accents, it seems to offer other basic things not done, or done very little, in music of even beats and accents; at least it seems so to me.14

Thus, Ives was absorbed in a tradition of improvisation, based upon American musical idioms, and consciously applied this tradition in his own compositions.

The tunes used in In the Inn are always transformed somnigenically and are never quoted in full. Kirkpatrick has identified three,15 Henry and Sidney Cowell add two to the list,16 and the present writer suggests two more. The list of tunes in Ives' quodlibet is given in the following table.

| TABLE 12.2 |
| TUNES IN QUODLIBET |
| Kirkpatrick |
| 1. I Hear Thy Welcome Voice |
| 2. Bringing in the Sheaves |
| 3. Happy Day (How Dry I Am) |
| Cowell |
| 4. We Won't Go Home Until Morning |
| 5. Good Night Ladies |
| Additional |
| 6. Reuben Reuben I've Been Thinking |
| 7. (title?) "Ta-Ra-Ra-Boom-Dec-Ay" |

---

14 Ibid., p. 80.
15 See John Kirkpatrick, op. cit., p. 45.
16 Henry and Sidney Cowell, op. cit., p. 150.
Examples of these tunes, as they appear in *In the Inn* are given below.

Ex. 12.5  *I Hear Thy Welcome Voice* (Violin)

Ex. 12.6  *Bringing in the Sheaves* (Violin, Viola, Cello)
Ex. 12.7 Combined fragments of Happy Day and Bringing in the Sheaves (Piano)

Ex. 12.8 We Won't Go Home Until Morning (Piano)

Ex. 12.9 Good Night Ladies (Piano)
Ex. 12.10 Good Night Ladies (Violin)

Ex. 12.11 Reuben Reuben (Violin)

Ex. 12.12 "Ta-Ra-Ra-Boon-Dee-Ay" (Violin)
These tunes are not only transformed sonogenically; they appear in a variety of realistic idioms as well. In other words, they are employed, sometimes incongruously, in the creation of various genres of musical realism. For instance, the hymn *Happy Day* is set in a "blues" jazz idiom between measures 75 and 77.

Ex. 12.13 Happy Day (Piano)

Thus, this passage represents a mixture of hymn and jazz qualities. Moreover, tunes are sometimes set partially in one idiom and partially in another. For instance, the first part of "Ta-Ra-Ra-Boom-Dee-Ay" is set in blues-fashion, while the final half is set in barn-dance, or hoo-doo idiom, with the characteristic "scratchy" open fifths and rapid tempo (See Ex. 12.12).

The chorus of *In the Inn* employs the hymn *I Hear Thy Welcome Voice* (see Ex. 12.5), creating an overall verse-chorus structure, which is comparable to many revival hymns. Ives creates the realistic effect of a "prayer meeting," or "revival meeting," by imitating

---

17 In view of the beer-garden idiom of this passage, the fact that this tune is also known as "How Dry I am" may be intended as a pun by Ives.
the sound of a wheezy harmonium-organ, often used in such services,
both in the string doublings of the tune and in the plagal progressions in the piano.

Ex. 12.14 Violin, Viola, Piano

In addition to setting pre-composed tunes in various realistic idioms, Ives employs idiomatic devices in his original materials. For instance, Cowell observes that the work opens with a "Charleston" pattern, with its characteristic 3+3+2 rhythm and sustained note values.

---

18 Henry and Sidney Cowell, op. cit., p. 167.
The characteristic broken octave bass of ragtime piano style is also employed, as in the following example.

Ex. 12.16 Piano
The violin and viola suggest a possible "blues form" organization, with the characteristic lowered seventh degree, between measures 28 and 32.

Ex. 12.17 Violin and Viola

Key: F major
Phrase a

Moreover, the false relationships, created by the texture of parallel \( \frac{6}{4} \) chords create frequent "blue" notes. These "blue" notes, as well as the rhythmic independence, with respect to the notated meter, create an effect, common to amateur playing at barn dances, which Henry Cowell describes:

The fiddler [often] did not play in tune with the conventional notion—he did not want to, and it would have been wrong if he had. His idea of music was quite different, and through slips and slides, and slightly off-pitch tones, which could go loosely
under the title of "quarter-tones," he created the
right and proper music for the village dance.19

Thus, In the Inn is an example of a "quodlibet," containing a
variety of realistic references. These references fall into three
general categories: "revival music," "barn dance music," and "inn
music." "Revival music" refers to all instances of revival hymns
as well as activities and idioms associated with "prayer meeting"
circumstances. "Barn dance music" refers to any popular tunes
which are set in a "hoe-down" dance style, and particularly, pas­sages employing idiomatic "hoe-down fiddle" style. Finally, "inn
music" refers to all passages employing ragtime rhythms, "jazz"
harmonies and forms.

In the Inn mixes these categories freely, thus creating a quod­
libet potpourri of realistic references, as well as one of specific
melodies.

Summary

We have examined, in this chapter, several genres of musical
realism found in works of Ives. The occurrences of realistic con­
notations were found to result from the choice of structural organi­
zations as well as from the use of thematic quotations. Ives' use
of realism included not only references to aspects of American social
culture, but to past European musical practices, as well. The in­
stances of musical realism examined in this chapter are summarized
in the following table.
<table>
<thead>
<tr>
<th>Genre of Realism</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Play Music</td>
<td>Halloween</td>
</tr>
<tr>
<td>2. Tower Music</td>
<td>From the Steeples</td>
</tr>
<tr>
<td>3. Street-Parade Music</td>
<td>The Gong on the Hook and Ladder or Firemen's Parade on Main Street</td>
</tr>
<tr>
<td>4. Quodlibet Music</td>
<td>In the Inn</td>
</tr>
<tr>
<td>5. Inn Music</td>
<td>In the Inn</td>
</tr>
<tr>
<td>6. Barn-Dance Music</td>
<td>In the Inn</td>
</tr>
<tr>
<td>7. Revival Music</td>
<td>In the Inn</td>
</tr>
</tbody>
</table>
SUMMARY

This investigation was divided into three parts. Part I examined devices of serial ordering applied to the parameters of duration, pitch and intensity. The serial devices were based on precise systems of measurement as well as on systems of general change. That is, systems of durational and pitch ordering, and metrical and registral modulation are precisely measurable; modulations of tempo and intensity, on the other hand, are calculable only in approximate degrees. Finally, systems of atematicism consisting of diatonic and chromatic scale lines as well as cycles of fourths and fifths were examined.

Part II was concerned with aspects of polyphonic construction. Principles of counterpoint, both imitative and non-imitative, were seen to be applied to the parameters of pitch, rhythm and intensity. This concept of independent structuring of materials was then seen to be applied to entire musical textures, and systems of organization, thus creating a polyphony of groups, rather than of single strands. One of the principal applications of group polyphony was seen to be in the creation of a technique of spatial, or stereophonic composition. Finally, the concept of group polyphony was expanded into a system of compound group polyphony, in which entire polyphonies of groups were combined in counterpoint with other group polyphonies.
The final part of this investigation examined four additional, and somewhat broader concepts of music. First, structural devices of integrating borrowed materials revealed two specific concepts in Ives' compositional thought. His use of original materials in various compositions revealed a "patchwork" or centonic method. On the other hand, he integrated borrowed materials by other composers by means of motivic associations and somnigenic transformations. Finally, Ives occasionally employed somnigenically transformed quotations of other composers as centonic patches.

Comedy in the music of Ives was then explored, with respect to Henri Bergson's theory of comedy. It was seen that Ives builds comic situations comparable to those in literature by inserting incongruities and surprises into the systems of structural organization. Thus, by mildly thwarting musical expectations at incongruous moments, Ives fulfills Bergson's fundamental condition of comedy: that something mechanical be found in the normal organic flow of events.

Part III of this study also examined certain aleatoric procedures in Ives' music. Passages in which specific details were fixed, but where the overall ordering of materials was left indeterminate, were classified as instances of "ossia form." On the other hand, passages in which the detail itself was free were classified as instances of "aleatoric detail." Moreover, three degrees of such freedom were distinguished: improvisation, indeterminancy and pure chance. Ives' use of aleatoric passages was seen to be notated.
conceptually, in "graphic" notation, as well as conventionally, with appropriate instructional footnotes.

Finally, Part III examined instances of musical realism in the works of Ives. The meaning of the term "realism" was used in a restricted sense to describe references to indigenous American and European social and musical culture, past and present, by means of quoted themes, musical forms and structural devices. The genres examined included "play music," "tower music," "street-parade music," "barn-dance music," "revival music," and "inn music." This list is not intended to be exhaustive, but merely represents those genres found in the works of this investigation.

Commentary

Overview of the Categories of Classification in This Study

It was found during the course of this investigation that the conventional analytical classifications (rhythm, melody, harmony and form) were not sufficiently inclusive for precise descriptions of concepts found in Ives' music. Thus, three general categories of structure were chosen for the classification of his idiomatic practices: "serialism," "polyphony" and "broader idiomatic concepts." Aspects of rhythm, melody, harmony and form were then examined in each of these three parts. Part I involves individual and discrete systems of organization; Part II examines the combination of discrete systems; and Part III involves overall concepts of music. Thus, in a sense, the three parts represent expanded versions of
General Conclusions Regarding the Findings of This Study

One of the most striking characteristics to emerge from this study of Ives is his bold synthesis of diverse elements and frequent union of structural opposites, resulting in a broader conception of what constitutes musical unity. Ives once said: "...why tonality as such should be thrown out for good, I can't see. Why it should be always present, I can't see." This concept of relating the "antipodes" of music, which so occupied Ives' mind during the conception of his final large and unfinished composition, the Universe Symphony, seems to be characteristic of his music as a whole, and is perhaps best exemplified on a microcosmic scale in The Unanswered Question. In this short work, elements of comedy exist side by side with a serious philosophical problem; elements of complete consonance mingle with extreme dissonance; and finally, elements of stringent formal organization are combined with elements of chance.

Ives' experimentation in compositional devices also reflect his father's probing and inquiring mind in matters of musical sound and structure. The experiments in spatial composition have been mentioned earlier; the unusual chord structures and scale types used by Ives reflect similar experiments by the elder Ives; the polytonal combinations are reminiscent of the dissonant solfège exercises invented by George Ives for young Charles' musical training.

---

1 Charles Ives, "Some 'Quarter-Tone' Impressions," in Essays Before a Sonata and Other Writings, p. 117.
In fact, Charles Ives often justified his unusual works by the statement that they were intended to "stretch the ears." One might postulate that his works represent attempts to discover new ways to listen. It is interesting that so many of his titles begin with a preposition, as if to suggest that the listener imagine how things might sound in a given physical situation:

- From the Steeples
- In the Inn
- In the Night
- In the Cage
- On the Antipodes
- All the Way Around and Back
- In the Barn
- From Hanover Square at the End of a Tragic Day

Perhaps the most frequently discussed aspect of Ives' work is his anticipation of experimental devices found in other composers' music. He anticipated aspects of Schönberg's serial techniques as early as 1908, Stravinsky's polytonality even earlier, and even the total serialization of Boulez in such works as In Re Con Moto, where serial devices are applied to numerous parameters.

Nevertheless, these composers have pursued their courses with little awareness of the extent of Ives' experiments, and would most likely have pursued their individual courses without the advent of Ives. It is, rather, the generation of young composers working in the 1960's who appear to be the most directly influenced by Ives. Specific devices, such as serialism or group polyphony, do not always appear in the most recent music. Nevertheless, the idea of creating a music which is to be appreciated as much for its acoustical structure as for its thematic content, as in much recent electronic music, is an idea which finds its origin in the music of Charles Ives.
Perhaps it is this generation of the 1960's and 1970's that will decide the final place of Charles Ives in the history of musical thought.
BIBLIOGRAPHY


-. "Ives' Quarter-Tone Impressions." Perspectives of New Music, III (Spring-Summer, 1965), pp. 22-31.


Marshall, Dennis. "Charles Ives's Quotations: Manner or Substance?" *Perspectives of New Music,* VI (Spring-Summer, 1968), pp. 45-56.


