AN ANALYSIS OF GRAPHIC NOTATION AND ITS IMPACT ON CONDUCTING GESTURE IN SELECTED WORKS OF R. MURRAY SCHAFER

BY

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DISSERTATION

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Abstract

R. Murray Schafer has deliberately used a number of different compositional styles in his career, including both standard and graphic notation for both vocal and instrumental ensembles. It can be assumed that both styles of composition accurately represent his musical and aesthetic ideas. However, works written in graphical notation require new methods of interpretation by performers and conductors.

The first of Schafer’s compositions to utilize graphic notation was *Statement in Blue* (1964), written for a class of eighth-grade students. Compositions such as *In Search of Zoroaster, Apocalypsis I & II, Gita, et al.* followed. This dissertation will address three questions. First, how does the graphic notation reflect Schafer’s artistic concerns? Second, what musical parameters does Schafer incorporate into his graphical notation? Third, what are the implications of these works on conductors and performers?

The hypothesis proffered here is that the nature of Schafer’s graphical notation necessitates the development of new conducting gestures for the effective rehearsal and performance of these works. The first chapter of this dissertation will outline Schafer’s relationship with graphical notation. The second and third chapters give a basic analysis of these works with reference to sound and formal structures. Chapter Four compares and contrasts common compositional elements, while the fifth chapter discusses the implications of graphical works in performance and on conducting technique.
To Tracey and Mikayla
for their continual support,
unyielding patience and love
throughout this process.
Acknowledgements

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Chapter 1: The Impetus for Graphical Notation

Officially dubbed Schafer’s first graphical composition, *Statement in Blue* (1964) broke new notational ground. Indeed, it can be considered an experiment in notational design. The objective was to write a piece of music for a school orchestra made up of a number of eighth-grade students who had been playing their instruments for only one year. In order to do this, Schafer had some obstacles to overcome, namely, how to write a piece of music that could be taught quickly and was simultaneously an interesting and effective piece of music to perform. Above all, however, was his concern that the work have educational value, i.e. be capable of teaching creativity.

For years I have been insisting that when time is precious, as in the school curriculum, most of it should not be spent in the development of music reading skills; for penmanship and other silent exercises are inappropriate for a subject which sounds. What we need here is a notational system, the rudiments of which could be taught in fifteen minutes, so that after that the class could immediately embark on the making of live music. Several of my own graphic scores are engagements with this problem. Such scores may be less specific than those notated in a conventional manner, but this is in keeping with an important trend in modern education where the objective is no longer to give children exact recipes for execution but to set them free on discovery-paths of their own.¹

The last line of this quotation, “to set them free on discovery-paths of their own” outlines Schafer’s prime belief in the role of music education, namely the belief that students should attain a sense of creativity and imagination towards sound. He has a passionate interest in music education, revealed in the number of pamphlets and articles he has written on the subject, and subsequently compiled into the book, *The Thinking Ear*.² In it, he underscores his concerns


about the education of young students and older university students preparing to enter the profession of music education. Writing in the mid-1970’s, he disparages the way the Canadian public school system neglected music.

Many school administrators have no music in their bellies. It is not easy to show these people that great minds of the past have assigned music an educational role of the highest significance… But the cultural ‘guilt complex’ which prevents unmusical people from expelling music entirely from the curriculum also forces them into a justification of its presence without adequately understanding why it should be there.³

The intended purpose of The Thinking Ear was to bring relevance and creativity back into the process of learning music. Its contents consisted of a number of pamphlets written by Schafer in the 1960’s and 70’s: The Composer in the Classroom, Ear Cleaning, The New Soundscape, When Words Sing, The Rhinoceros in the Classroom, and Beyond the Music Room. Eventually, each of these became chapters concerned with theories of music education: an understanding of what music is, how music should be taught, and examples of ways in which these skills and techniques could be further developed. Schafer’s concerns remain clear: music needs to cast off the academic stuffiness that has held it captive in order to create a new understanding of what music really is.

Schafer explains that music is a sounding art form that exists in space; therefore, learning about conventional notation at the beginning of musical learning is not only counterintuitive but also unmusical.

I have always resisted music reading in the early stages of education, for reading too easily encourages a departure to paper and blackboards, which are not sound.⁴

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³ Ibid., 215.

⁴ Ibid., 262.
Conventional music notation is an organized system of symbols. These symbols have been refined over the centuries to be more exacting and precise toward musical meaning. All essential musical parameters have symbols that, by now, are nearly universal. These symbols allow all musical parameters to be articulated and the content of the music easily communicated to a degree that subsequent performances will remain similar. These tools, then, give the composer control over their composition down to the finest details. They can also communicate complex musical ideas without recourse to an exclusive set of symbols. When teaching musical creativity to a group of students, Schafer never begins with conventional notation.

Conventional musical notation is an extremely complicated code, and years of training are necessary for its mastery. Until it is mastered, it is an impediment to confidence… Ideally what we want is a notation that could be mastered in ten minutes, after which music could be returned to its original state – as sound.5

Schafer has found that the best way to teach notation to a group of students is to have them create their own notation that allows all the essentials of a musical composition—pitch, rhythm, texture—to be understood. He has found that this process leads to a stunning variety of interpretations of the musical work. Most of the time, the students need to rework some notational ideas because certain parameters were not thought out carefully enough.6

In this way, an interest in music theory begins to develop. This is the moment to introduce conventional musical notation, which is probably still the most adequate system for the communication of most musical ideas. Once students have discovered this, their desire to master it grows rapidly.7

Schafer is of course writing from personal experience and his prose reveals the freedom of his thoughts about what music is and how to convey it to an amateur audience.

5 Ibid., 263.
6 Ibid., 265.
7 Ibid.
Schafer’s earliest works are noticeably void of graphical notation. The neo-classical styles prevalent in the 1950’s were a model for his compositions from this period. Works by Stravinsky, Milhaud, and Poulenc and the other members of Les Six all influenced Schafer’s early music. During the early 1960s, he began to experiment with serial and avant-garde techniques that were heavily contrapuntal. The years 1960-65 were experimental years for Schafer, years when he truly found his own compositional style.

If I think back to that period of 1960 and the kind of ‘imitation Berio’ I was writing then, and I think of what I’m doing now, there have been enormous, staggering changes.⁸

According to Stephen Adams, some of Schafer’s best pieces from this time were Brébeuf (1961), Canzoni for Prisoners (1962), and Five Studies on Texts by Prudentius (1962).⁹ These works involved a variety of compositional devices in use during the mid-twentieth century. For example, Brébeuf relies solely on a hexachord and its permutations. The Prudentius songs for soprano and four flutes “combine quasi-serial or isorhythmic manipulations of pitch with canonic writing of great melodic and rhythmic intricacy.”¹⁰ Canzoni for Prisoners, Schafer’s first purely orchestral work, uses a series comprised of seventy-six different pitches. Adams explains that the work “is technically an ingenious extension of serial procedures and rhythmic manipulations combined with the medieval device of cantus firmus.”¹¹ Schafer remarks:

This work, and several other that immediately followed it, were very much influenced by my discovery of the music of the fourteenth-century composer-poet Guillaume de Machaut. Machaut’s techniques were rigorous and mathematical, but his music is daring and at times ecstatic, more so because of the constraints

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¹⁰ Ibid., 85.
¹¹ Ibid., 81.
out of which it seems to burst. I would like to think that this spirit invades
*Canzoni for Prisoners* – freedom bursting out of constraint.\(^\text{12}\)

These works show a remarkable affinity for compositional detail and the musical possibilities in composing within strictly imposed limits. Nevertheless, Schafer was about to embark on a completely different path, the genesis of which was a commission for a school orchestra.

It was not until 1963, after receiving a commission from the head of the Scarborough (Ontario, Canada) Board of Education, that Schafer wrote his first full graphical piece, *Invertible Material for Orchestra*.\(^\text{13}\) It was his first composition for young students and it used a number of aleatoric techniques. As Adams points out, “Schafer’s interest in chance was practical, resulting from his first contacts with students in a classroom”\(^\text{14}\)

*Invertible Material*, designated a ‘practice piece,’ assigns each player a single note to play according to certain rhythmic and dynamic specifications; the conductor then combines the parts at will.\(^\text{15}\)

Schafer subsequently withdrew the work because it was “…derivative of Earle Brown’s *Available Forms*, but wholly without his lambent touch.”\(^\text{16}\) *Statement in Blue*, which followed shortly after, has emerged as Schafer’s first graphical score.

Graphical notation by its very nature is imprecise and only works in the presence of indeterminate musical features. Conception of graphical music can therefore only be general in nature, allowing certain parameters to exist ambiguously. Graphical music can only deal with impressions, vague references to ideas, and in some cases exist only as mere novelty. However,


\(^{13}\) Adams, *R. Murray Schafer*, 89.

\(^{14}\) Ibid.

\(^{15}\) Ibid.

\(^{16}\) Ibid. From Schafer’s notes for *Loving*.
unlike many works by John Cage and Earle Brown, Schafer wrote many of his graphical pieces as an aid to music education. Therefore, they have an inherently pedagogical function.

Understanding that graphical notation is inherently less precise than conventional notation, Schafer has outlined four unique types of graphical scores. He cites *Statement in Blue* as an example of an indeterminate graphical piece, where “the pitches are left largely indeterminate for the performers to gather into tone-fields for themselves, though other aspects of the piece (instrumentation, dynamics, form) are controlled by the score.”

The second type of graphical score is one in which such a variety of possibilities of performance exist that no two performances may be alike, yet are no less effective. Schafer calls this the “form of possibilities.” His *Minimusic* exemplifies this stage in his development. Each page of the work has three different fields, each of which is performable as a nearly random sequence of events, creating thereby a seemingly limitless number of formal possibilities. Movement through the score can occur in a variety of directions, from right to left, up or down.

The final two types of graphical scores are action scripts and picture scripts. Action scripts are compositions that “employ graphic signs and shapes to indicate the general emotional climate of the composition.” *Epitaph for Moonlight* (1968) is a good example of an action script. The composer’s indications simply convey general notions of texture, mood, melodic direction, and dynamics. Some note indications are given, but the performers have freedom in realizing these pitch indications. The identity of the piece is, therefore, subject to the

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18 Ibid., 134.
19 Ibid., 135.
interpretation and creativity of the performers, even if the general outcome is still under the composer’s control. Picture scripts are the most imaginative works, for they rely on the performer to create music merely out of an interpretation of a visual work of art. The work only creates a musical image, the precise nature of which stems from the performer’s interpretation of the visual work. As Schafer has stated:

In picture scripts, graphic elements are completely emancipated from all traditional notational conventions. An observer might say that such scripts differ little from abstract drawing, and in fact many contemporary music scores have been exhibited in art galleries and on occasion have been sold as paintings.  

Schafer has written works that span all four types of graphical notation. His impetus for using graphical notation was his work with young student musicians. Claiming that students need to be able to hear and develop listening skills, he developed a notational style that allowed them to experiment with sound themselves. Through his use of graphical notation, certain stylistic conventions evolved that are evident across a variety of his graphical works.

Looking at all of the graphical music from a compositional perspective, however, one thing becomes clear: that the entire concept of graphical notation could not exist without viewing indeterminacy as an acceptable and legitimate compositional technique. Indeed, throughout the 50’s and 60’s, composers such as Earle Brown, Christian Wolff, Morton Feldman, and especially John Cage wrote music based on the principle of indeterminacy. Schafer’s compositional style, after exploring serialism and post-serial techniques, quickly turned towards an acceptance of indeterminate techniques, in which a number of musical parameters are undefined or left to chance, leaving the performer with the responsibility of filling in the gaps to the best of their ability. These musical parameters include everything that lies within the purview of

20 Ibid.
conventional notation—pitch, duration, register, tempo, meter, etc. An entire composition may be wholly or partially indeterminate, depending on the degree to which the composer leaves the musical parameters undefined.

In his *Theatre of Confluence* (1966), an essay that explores the combination of theater and music, Schafer comments on the new possibilities and limitations that chance can bring to music:

An equally important discovery for art was that of chance. Chance is a liberating force and a means whereby unforeseeable configurations of information can be brought into existence. Chance promotes new modes of perceiving. Delight in the unexpected — you asked me what path he followed, I’d say into the … But total chance? The pleasant serendipity that chance brings to over-organization ends in boring chaos when protracted indefinitely.21

*Statement in Blue* embodies a completely indeterminate work. Written without any definite meter, pitches, or rhythms, the work relies exclusively on the imagination and ability of the performers. Pitch indications are all relative and Schafer indicates dynamics with horizontal lines that widen and thin. There is no sense of tempo, since the requisite rhythmic structures are noticeably absent. The conductor, whose main purpose is to indicate the entrances of certain instruments and give the appropriate cues found in the score, must also determine the duration of the work.

*Statement in Blue* shifts the responsibility of musical performance from composer to performer. Instead of the performers following a script in the form of a conventional score (which can be adhered to, followed, and relied on), Schafer asks that the performers themselves search within their own facilities for those sounds to contribute to the work. In a sense, Schafer relinquishes control for the sake of educational purposes.

Music is, after all, an aural experience, completely dependent on our ability to hear and listen. Implicit within Schafer’s “Soundscape Project” is the notion that people should listen to and understand the sounds of their environment. Every environment has its own soundscape unique to that space, be it natural or cultural.

The importance of listening to our surroundings, becoming aware of everyday sounds, is not unique to Schafer; indeed, this aesthetic philosophy was not his invention. Among the other contemporary composers who shared this sentiment, John Cage’s 4’33” is a case in point; the silence of the work allows for the ambient sounds we all tend to ignore become primary aural stimuli. Pauline Oliveros has said that she used to be interested in listening to the static between radio stations instead of the actual stations themselves. Music increasingly became unstructured sound in the early- and mid-twentieth century, uprooting the very essence of music’s definition.

Conventional notation no longer sufficed to realize this new type of music, so new musical notation had to be developed that would allow these new sounds to become useful. This new notation was content to convey a sound instead of fully prescribing it. Music’s new definition embraced indeterminacy and indeterminacy ultimately led to the creation of graphical notation. *Statement in Blue*, despite being an expression of Schafer’s ideals of music education, could not have been written without the earlier influential work of composers like John Cage.

We may surmise by Schafer’s intentional use of graphical notation that it fulfilled a need for him that conventional notation could not. This statement applies not only to Schafer but also to composers who ventured into using alternate forms of notation for their works. Graphics allowed composers to create musical effects that were not possible using conventional notation. The visual characteristics of graphical notation helped realize the musical effects that Schafer
was interested in creating. Here, the educational and artistic merits of graphical notation combine into a new compositional technique.

By using a vast array of nonstandard notational practices, he seduces the performer into the editing/arranging/sorting attitude that is only a commitment away from the act of composition. In works for diverse types and ages of choral ensembles such as *The Star Princess and the Waterlilies, Sun, Snowforms*, and *A Garden of Bells* the performers juggle foreign languages and nonsense syllables (phonemes used for their sonic attributes) and many unusual rhythmic notations to yield passages of time that are "spongy" and directionless, moving in and out of mensural flows that would be impossible to suggest in more conventional notations.22

During his early years, Schafer’s efforts to teach young students about music led to the conviction that children must learn how to make music through sound and sensation before the strictures of musical notation can overwhelm them. Many of his early writings on music, particularly those contained in *The Thinking Ear*, are principally concerned with the topic of music education. The motivation to write graphic music may have sprung from new ideas about music education, but it did not solely drive the result. It was an array of graphical techniques designed less to teach than to create a particular sound effect that, if it were to be notated using conventional means, would discourage rather than promote performance.

Symbolic signs form a code of mnemonic aids. They must be learned in advance, but once learned they are capable of rendering a good deal of precise information in a highly compact space. We may call symbolic notation static and graphic notation dynamic, by which we mean that symbolic notation tells us a great deal about specific musical thoughts but little about how these thoughts are linked together, whereas graphic notation tells us less about specific thoughts but more about their general relationships and formal shapes.23

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The reasons for Schafer choosing either conventional or graphical notation may be practical (i.e., based on a specific performing ensemble) or functional (themes that are educational, environmental, etc.) It is possible that Schafer, for whatever reason, sought to prove the effectiveness of graphical notation. The notational style itself reflects Schafer’s philosophical views on music, and is an important development in the composer’s style. His use of graphic notation has allowed him to write works which otherwise would be far too complicated to realize in conventional notation.
Chapter 2: Select Works in Graphical Notation

Since the early 1960’s, Schafer has incorporated indeterminacy into a number of his compositions. Most of them were intended for performance by various student ensembles. His choice for turning toward graphical notation was mainly pragmatic, growing from his belief that graphical notation helped students to learn complex ideas more quickly than conventional notation. The following chapter will discuss and briefly describe several different graphical works in Schafer’s repertoire in order to define and compare recurrent notational elements.

Table 2.1: Selected works in graphical notation

<table>
<thead>
<tr>
<th>Title</th>
<th>Year Published</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement in Blue</td>
<td>1965</td>
</tr>
<tr>
<td>Epitaph for Moonlight (SATB)</td>
<td>1968</td>
</tr>
<tr>
<td>Minimusic</td>
<td>1969</td>
</tr>
<tr>
<td>Zoroaster (multiple choirs)</td>
<td>1971</td>
</tr>
<tr>
<td>Train</td>
<td>1976</td>
</tr>
<tr>
<td>Snowforms (SA)</td>
<td>1983</td>
</tr>
</tbody>
</table>

2.1 Statement in Blue

Schafer wrote his first completely graphically notated work for youth orchestra, *Statement in Blue*, in 1965. Although not a choral work, its graphic notation was an important turning point in Schafer’s compositional style. As with any graphical work, the inclusion of instructions and notes explaining some of the more unconventional notational symbols is customary. In some ways, the amount of instructions and/or their level of explicitness are critical in determining just how much control the composer is willing to cede to the performers. No notation is perfectly precise; hence, the subtle (or not so subtle) differences between various recorded performances of the same composition. Schafer’s attitudes about the precise musical re-creation are clear in the following instruction: “Anything in this score may be omitted or
changed if, in the opinion of the performers, it leads to an improvement.”

Therefore, his interest lies in having the students listen and participate in the music’s realization, rather than simply prescribing it for them. Here, the composer acts as a guide, merely giving suggestions for performance.

Despite the work’s graphic notation, its formal design follows the principles of tension and release found in much western music. Schafer varies the tension of the music by changing its texture, either by adding and subtracting instruments, changing the dynamics, or changing rhythmic content. The result is a formal structure shaped by changing dynamics and textures: soft entrances followed by an increase and decrease in dynamic level. This occurs five times in the work with the final time the longest and most impressive. This is the main climactic point of the work, which then ends with a slowly tapered fade to silence.

Statement in Blue is nothing if not purposefully vague. The amount of information the score communicates is minimal, resulting in a realization that is partly organized but mostly improvised. It contains no definite indications of pitch, duration, or rhythm/meter. The following points, given in the notes of Statement in Blue, reveal the design of the work and the necessary approach to performance; they are typical of Schafer’s vision of indeterminacy. In particular, the first points are principles that Schafer uses consistently in his later graphical works.

1. Pitch and duration are free throughout the composition. The thickness of the lines suggests dynamics.
2. The horizontal dimension gives only a vague idea of the duration of each section since the solos are free expression. The conductor should

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25 Ibid., 1.
calculate the length of each solo according to the abilities of the soloist to extemporize.

3. The vertical dimension of each section designates the relative pitch, but the performers must work out exact notes.

4. The solo instruments are all wind and brass. Suggestions are made as to which instruments might be most suited to the kind of solos given, but the performing groups may make use of whatever instruments are available.

5. The stringed instruments are numbered 1-15. If there are more than fifteen players they may double each line, but they should not play the same notes.

6. Give each string player a number regardless of his instrument and let him play when his number appears at the general pitch level indicated.

However indeterminate the score appears to be, it contains four compositional techniques that reappear in later works. These are; sustained cluster chords, compositional motives based on extra-musical references, randomized percussion, and sliding pitches in the form of glissandi and portamenti (see Example 2.1). A very simple musical score effectively communicates these four contemporary techniques to amateur musicians. The variation in the score really comes through its textural design, by adding and subtracting layers of instruments. Dynamically, the work begins soft, rises and decreases in volume. These changes, and the addition of ornaments like tremolos, combine to create an interesting work.

Statement in Blue is the clearest example of a work that does not rely, in any way, on the rigidity of conventional notation. No clear definitions of rhythm, meter, pitch or dynamics appear, only indications suggestive of these qualities. The result is a work that is pliable, molded by the taste of the performers while still being true to the composition. As Schafer explains, “Statement in Blue is a good example of an indeterminate score, despite comprising an organized
form, instrumentation, and dynamic values. The pitch material is completely indeterminate and subject to the talents of the performers.”

Example 2.1: Page 6 of *Statement in Blue*

2.2 Epitaph for Moonlight

*Epitaph for Moonlight*, one of the composer’s most popular works, represents another venture into the world of complete graphical notation. As described in Reginald Smith-Brindle’s article on the ‘new choralism,’ Schafer has used graphical means to explore the relationships of expression and sound.

In short, the new choral medium has become a highly powerful and expressive force with a whole armory of new effects. Once again, it is ‘effect’ and ‘color’ which are the key factors in the new choral exploitation. Composers are not so much interested in choralism for its age-old beauty of sound, as for the sensational

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vigor, stridency, and potency of some unconventional usages and the attractive color and imagery of others.\textsuperscript{27}

*Epitaph for Moonlight* first appeared in a pamphlet entitled *When Words Sing* in 1970.\textsuperscript{28}

In this document, Schafer encouraged students to find ways of equating sound with visual imagery. Since incorporated into *The Thinking Ear*, a compilation of writings by Schafer dedicated to the education of his students, this particular exercise asked students to draw a number of shapes and designs, and then perform them.\textsuperscript{29} Schafer then gives examples of his own creations. The chapter progresses from the idea of associating phonemes with certain sounds, to the use of onomatopoeia, and ultimately to music associated with words themselves.

Schafer includes *Epitaph* at the end of *When Words Sing* in order to highlight the music-text relationships discussed in the chapter. The work has its genesis in an exercise Schafer had originally given a number of eleven-year-old students. They had to invent words that conveyed their understanding of moonlight.\textsuperscript{30}

```
SLOOFULP
NESHMOOR
SHALOWA
NU-U-YUL
NOORWAHM
MAUNKLINDE
SHIVERGLOWA
SHEELESK
MALOOMA
SHIMONOELL
```
Schafer then used these words to create a graphical musical work.

The piece was written in graphic notation but it is also an ear training exercise, for the singers must pitch the notes by interval from the preceding notes, so that one performance does not differ from another to the extent one might expect. People who don’t read music are always delighted to discover that this is the first piece they are able to follow because the graphic shapes correspond so closely to the musical sounds.\(^{31}\)

These words for “moonlight,” and their various musical representations, are the driving force behind this work. It is well structured and not completely indeterminate, despite its graphical style. In fact, the composition is notated precisely enough that repeated performances by different (or even the same) ensembles should be quite similar. Schafer has given little opportunity for improvisation and has left little to chance. Pitch is relative rather than absolute, with clearly defined intervals in some sections. There are only six different choral entrances, all of which are *ad libitum* and, with one exception, occur at the beginning of a section. These unison entrances become reference pitches to which all the others must relate. For example, the opening entrances are a descending series of semitones (Example 2.2), the execution of which requires great listening skills from the choir. A strikingly similar section several pages later, at rehearsal C (Example 2.3), has its entrances a whole step apart. At rehearsal E (Example 2.4), what initially looks and sounds like random instances of note entries are very precisely composed motives using interval numbers. Duration and dynamic levels are also relative, with the composer utilizing approximate time durations for specific sections. Also, throughout the score are clear indications where conductor cues are required.

Structurally, *Epitaph for Moonlight* consists of several distinct sections, each with its own sonic design. Each rehearsal letter, from A to G, represents a discrete musical section. Despite

being a graphical work, Schafer still controls much of the pitch content by indicating exact intervals between voices.

Table 2.2 clearly indicates the compositional idea behind each section of the piece. Schafer effectively segregates these different ideas from one another by means of simple transitions, which are generally composed of gradual or abrupt decreases in vocal forces as well as reduced dynamic levels.

<table>
<thead>
<tr>
<th>Compositional Idea</th>
<th>Section</th>
<th>Brief Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromatic cluster chord.</td>
<td>A</td>
<td>The work opens with a descending sixteen-voice chromatic cluster. Once attained, solo voices create pulses of sound within the cluster, singing different “moon” words at randomly notated events.</td>
</tr>
<tr>
<td>Random sibilants</td>
<td>B</td>
<td>B begins with the end of the initial cluster, save for three voices, whose pitches happen to form a major triad. Over this sonority and its resolution to a tenor unison and glissando, the sopranos and altos sing ad lib, pitches to the letters [i] and [t] (drawn from the word “light”).</td>
</tr>
<tr>
<td>Whole tone cluster chord Graphic illustration of durations</td>
<td>C</td>
<td>Like the opening, this section begins with a descending sixteen-voice cluster, this time comprised on whole tones. Once formed, Schafer indicates graphically the quasi-random disappearance of certain parts for brief periods.</td>
</tr>
<tr>
<td>Examples of various ways to descend on a musical line</td>
<td>D</td>
<td>D is comprised of a stretto of different vocal articulations beginning with the soprano and descending through the remaining voice parts.</td>
</tr>
<tr>
<td>Graphic illustration of sequence and imitation</td>
<td>E</td>
<td>After the singing of the solo soprano, the sopranos and altos sing the text “shalowa malooma” in a repetitive sequence of intervals (down -2, down -3, up +2, up -2, and up -2).</td>
</tr>
<tr>
<td>Thin vocal texture and sustained sound</td>
<td>F</td>
<td>Contains two flurries of glockenspiel and metalophone playing, followed by an alto solo on the words “shiver glowa” built on a minor triad.</td>
</tr>
<tr>
<td>Concluding fade to silence.</td>
<td>G</td>
<td>An open fifth and a cluster chord in the percussion build the text “spelled moon.” This descends by semitone with some included suspensions, finally fading to silence.</td>
</tr>
</tbody>
</table>
Through Table 2.2 above, we can see how an initial compositional idea expands and develops into a musical form. Key signatures are irrelevant, and dynamics and durations of pitch are only approximate. The presence of major and minor triads provides a tenuous connection to the harmonic past. However, this is more an effect rather than a tonal marker. His instructions for the percussion surmise the importance of the musical effect.

Bells, glockenspiels, metalophones, vibraphones and suspended cymbal with a wire brush… can be added to the choir if desired. If used they play coloristic effects very softly and need not harmonize with the choir, except where indicated.

Example 2.2: Opening of *Epitaph for Moonlight*

![Musical notation diagram](image)

**EPITAPH FOR MOONLIGHT**

For Youth Choir with Optional Bells

Edited for book form by GRAHAM COLES

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Motivically, the work is more calculated than the graphic notation would appear to suggest. Despite several instances of pitch selection made *ad libitum* by solo voices, the pitch content of the work is quite controlled. After the slow chromatic descent through all sixteen voice parts (as seen in Example 2.2), Schafer retains three voices (alto 1, alto 4, and tenor 4), their pitches forming a major triad on an indefinite tonic.

Example 2.3: *Epitaph for Moonlight*, Rehearsal C

Rehearsal C (Example 2.3) is a near repetition of the work’s opening gesture; in this case, however, the replacement of the former’s semitone with whole tones results in a noticeably less dense cluster.
At rehearsal E (Example 2.4), we can see Schafer’s penchant for using simple, alternating intervals (notated by numbers denoting a quantity of semitones) to produce a melody performed in close canon (+ for major interval, - for minor interval).

Example 2.4: *Epitaph for Moonlight*, Rehearsal E

Schafer’s ideas of sound design are consistent and only slightly aleatoric: the chromatic and dissonant nature of each section is calculated and organized. Formally, the composition is a succession of various sections, each of which involves a unique compositional technique. It is a good example of an action script in which many of the musical elements are implicit in the visible notation. Despite Schafer’s control over the sound and design of this work, the visual impression allows for some creativity and interpretation for the performers. Performing and conducting considerations of this work will be the subject of chapter six.
2.3 Minimusic

Minimusic is Schafer’s experiment with open forms. Schafer takes aleatoricism to a new level by leaving the form of the work up to the performers themselves.

Minimusic is a chamber piece for five or six players. It is an extension of the work I had begun in music education by conceiving pieces that would stimulate creativity. The score consists of thirty-seven boxes, three per page. When they are cut loose one can proceed from box to box in a variety of directions. Each box specifies a special effect, sometimes a calculated improvisation, sometimes a response to another performer, so that the players or singers must be constantly listening to each other.33

Minimusic is another of Schafer’s “educational” pieces. The piece consists of a number of boxes, each of which contains instructions for improvising a musical phrase. Either soloists or a small ensemble then performs these boxes in an order chosen by following the arrows on any given page. The results are performances that can take on any form, no two of which will ever be the same. The intent of the piece is to stimulate creativity and to train the ears of the students.

As will become apparent, Minimusic is primarily an exercise in improvisation and ear training. During rehearsals it has been found desirable to stop periodically to check if each player can identify accurately the box being performed by each of the other players. They must learn to listen to each other that closely.34

The form of the work is entirely indeterminate, the composer maintaining little control over the direction in which performers move through the score. In this instance, the composer is only a guide, suggesting to the performer what may transpire. Many of the duration indications, which Schafer has placed (circled) in nearly every box, are only approximations.

The work is really a collection of small musical figures that appear in everything from graphic and conventional notation to simple written instructions. On their own, these musical

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33 Schafer, “Program Notes,” 32.

34 R. Murray Schafer, Minimusic: For Instruments or Voices (Scarborough, Ont.: Berandol Music, 1972), 2.
figures are not nearly as musically effective as when combined with others. The result is a work that sounds highly complex but very economically written.

The boxes contain very few standard notational elements, although Schafer does indicate some pitch intervals, such as +2 (major 2nd), and P5 (Perfect 5th). In box 10, long lines indicate sustained pitches, while crescendos and decrescendos appear in boxes 1 and 3 as the basis for improvisation. In box 11, Schafer indicates acceleration of the melody by means of fanned beams. Most of the work uses purely textual instructions such as in box 14, “Sustain as a pianissimo note a loud high note just played by someone else (about 9 seconds).” The glissando plays a prominent role with several boxes indicating slides of various kinds (box 2, 24, 32, and 36). Schafer even takes the opportunity to include the “Patria tone-row” as one of the boxes on which the students are to improvise (Example 2.5).

Example 2.5: Box 28 from Minimusic

![Example 2.5 Image]

The “Patria” tone row is a compositional design feature that permeates this work, as well as a number of his other works. The row derives its name from its use in Schafer’s Patria cycle, where it appears within nearly every piece. The Patria cycle is a collection of 12 large theatrical

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works, all independent, and all part of a unified mythology created by Schafer. He constructs the tone row by using all of the simple intervals of an octave, beginning with a semitone, and expanding to a M7. The result is the formation of a wedge-shaped structure.

Example 2.6: The *Patria* tone-row.

The formal design of *Minimusic* is a veritable “choose-your-own-adventure” of music, where performers can wander through the different sections of the work at will. The sound design therefore seems quite random and unorganized. The aural result is a tableau that contains an interesting variety of sonic timbres, each seemingly unrelated to the other.

**2.4 In Search of Zoroaster**

With *In Search of Zoroaster* (1971), Schafer created a very different type of work. In his notes, Schafer writes that it “is not so much a performance as a perpetual rehearsal.” The work is fashioned into many different layers, each layer prepared independently by one of several groups. These groups then come together to perform a communal ritual. “After each celebration the groups disperse, meditate on the performance, practice again in private, and then come together again at a later date.” In effect, the composition references Zoroastrianism by having the musicians come together to perform a complex ritual in worship of Ahura Mazda, the greatest god of the Zoroastrians.

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37 Ibid.
Zoroastrianism, one of the oldest religions known to man, is a religion founded nearly 3000 years ago in what is now modern day Iran. The religion takes its name from its first prophet, Zoroaster. The teachings go back to a time before the Achaemenid kings who followed his teachings. Evidence for this is the many reliefs and artifacts in the ancient Iranian city of Persepolis, where kings such as Darius I (522-486) and Cyrus (immortalized in the Old Testament for their conquest of Babylon that allowed the Jewish people to return to their homeland) worshipped Zoroaster. The belief system was based on a dualism of good and evil or, allegorically, light and darkness, righteousness and unrighteousness. Ahura Mazda was the Supreme Being worshiped by Zoroastrians. His opposite was Ahriman the god of evil (or the devil). This dualism was a key component of the religion, and, as such, served as the precursor of many later organized religions, including Judaism, Christianity, Manichaeism, and Islam.

The framework of the religion lies in the many Ahuras (spiritual entities) that were hostile to the cult of the evildoers. Zoroaster emphasized the importance of his god, Ahura Mazda, by surrounding him with other entities, or archangels, all arrayed against the forces of evil. These entities, of which there are six, fall into the category of Amesha Spentas – the “Beneficent Immortals.” These beings are listed as follows:

Table 2.3: The Amesha Spentas, or archangels, included in In Search of Zoroaster.

<table>
<thead>
<tr>
<th>Name</th>
<th>Character</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asharahisht</td>
<td>Truth and Right</td>
<td>Patron over fire</td>
</tr>
<tr>
<td>Kshathra</td>
<td>Dominion</td>
<td>Patron of metals</td>
</tr>
<tr>
<td>Haurvatat</td>
<td>Salvation</td>
<td>Patron of Perfect Health</td>
</tr>
<tr>
<td>Vohu Manah</td>
<td>Good Mind</td>
<td>Patron of the Ox</td>
</tr>
<tr>
<td>Spenta Armati</td>
<td>Holy Devotion</td>
<td>Patron of the earth</td>
</tr>
<tr>
<td>Ameretat</td>
<td>Immortality</td>
<td>Patron of waters and plants</td>
</tr>
</tbody>
</table>

The basis of the ritual Schafer creates is the conflict between Srosh, the principal celebrant of the ritual, and Ahriman, whose indirect presence embodies all that is evil. There are
six groups of performers, all given the name of one of the Zoroastrian Ahuras, and Srosh, sung by a baritone soloist. The only instruments used for this work are percussion instruments: triangles, wood blocks, tambourines, and the occasional vibraphone. Graphic notation is the mainstay of the work; there are very few conventional notational symbols. Indeed, much of the score actually consists of written instructions from the composer to the performer. Much of the notation is Schafer’s impression of sound realized graphically rather than by notation of absolute pitch or rhythm. Despite an initial visual impression of complexity, Schafer’s composition does not necessarily require specialist, professional musicians. The real difficulty performing the piece lies in controlling the flow of the performance since the performers are scattered across relatively wide distances. Schafer is conscious of this problem and includes many aural and visual cues to help the performers coordinate their performances.

With In Search of Zoroaster, Schafer has taken the main deities of the Zoroastrian religion and created a new ritual. It is likely that his idea for this theme came from his travels in Iran and Turkey where the Zoroastrian religion thrived centuries ago. The work is a vehicle for a broader experiment on theater and the existing relationships between performer and audience. In true theatrical form, the performers move about freely within the performing space, wearing robes and masks. Elements of light and darkness are also strictly controlled (using candles). Schafer describes the work as follows:

The work begins in total darkness. The choristers slowly enter, humming the tone of Cosmic Unity. As the work unfolds, the chief priest, Srosh, leads the singers in the worship of Ahura Mazda. Candles are lit to celebrate the coming of light. When Srosh collapses, the forces of the evil god Ariman temporarily take over, performing blasphemous rituals, but with Srosh’s return these are swept away in a final chorus of jubilant voices and bells.\textsuperscript{38}

\textsuperscript{38} Schafer, “Program Notes,” 39.
Both Stephen Adams and Istvan Anhalt have written detailed analyses of the work’s form, each analysis coming up with slightly different conclusions.\textsuperscript{39} There are, however, common elements, most notably the existence of five distinct formal sections, each introduced by twelve strokes on the wood block (or as is the case between sections four and five, eight strokes on the tambourine).

### Table 2.4: Form of \textit{In Search of Zoroaster}

<table>
<thead>
<tr>
<th>Sections</th>
<th>Rehearsal</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section One</td>
<td>A – C</td>
<td>Cosmic sound and Invocations</td>
</tr>
<tr>
<td>Section Two</td>
<td>C – J</td>
<td>Invocations and Exultations, lighting of candles</td>
</tr>
<tr>
<td>Section Three</td>
<td>J – N</td>
<td>Introduction of Ahura Mazda’s Son in the form of a lesson, followed by three hymns of petition.</td>
</tr>
<tr>
<td>Section Four</td>
<td>N – S</td>
<td>Corruption of Zoroaster’s teachings and the overthrow of Ahriman.</td>
</tr>
<tr>
<td>Section Five</td>
<td>S - V</td>
<td>The victory of Ahura Mazda and the exit of the participants.</td>
</tr>
</tbody>
</table>

The general form of each section is generally determined through texture and dynamics. All of the sections begin after a decrease in dynamics and in the number of forces used. None of the sections are of uniform length, and all of the musical material is unique to each section. The foundations for these sections are short motivic ideas, developed for a short period, then abandoned for the next idea. There is no consistently used motive throughout the work.

The first section is rather short and uniform using only one compositional idea. All voices are simply humming a unison note, called the “cosmic sound,” over which two soloists sing an overlapping chant as an invocation to Ahura Mazda.

Example 2.7: Solo Voices of the "cosmic sound"

At the end of the chant, the cosmic sound eventually fades away and the wood block indicates the beginning of a new section (Example 2.8).

Example 2.8: Transition between section 2 and 3 in *In Search of Zoroaster*
The second section is one of the largest in the work and is comprised of a variety of different motivic ideas. After a period of silence before rehearsal C, a range of voices sing a series of cluster chords at different times with a variety of added effects, such as trailing glissandi and staggered entrances. After this small period of dynamic intensity, Schafer changes the compositional idea to include rising spoken dialogue, whistles accompanied by bells, followed by sustained E major chords in the voices, and finally the simultaneous performance of a variety of short vocal effects such as tongue clicks, sustained pitches, rapid repetitions of phonemes and rising and falling glissandi. The section then ends with a gradual fade to piano, and the indicative wood blocks (see Example 2.8).

What is clear is the sometimes abrupt and sometimes gradual change from one compositional idea to another. Hardly any two or more pages of music look similar to each other. The string of ideas, while not random, attests to the fact that Schafer’s compositional interest keeps changing and is not fixed on thematic relationships.

To create this ritual, Schafer resorted to using spiritual or mystical compositional elements. These include the use of chant, a melodic style found in religions as diverse as Christianity, Islam, and Buddhism. Chant is confined to the opening of the ritual. A series of increasingly active musical motives decorates the simple universality of this music. Schafer’s use of chant makes In Search of Zoroaster unmistakably ritualistic.

Plainchant is liturgical music, music to be performed during the celebration of a divine service. The performance of the music is not, generally speaking, an end in itself, but part of a religious ritual…. Liturgical texts which are sung, whether chanted on a monotone or on a highly melismatic melody, are more solemn, inspiring, and impressive, and a more worthy vehicle for human prayer and praise to God, than spoken words.40

Other vocal elements include clusters, shouts or exclamations, vocal glissandi using indeterminate pitches, simple chord structures, use of parallel fifths or octaves, serial writing, short melodic motives, sequences and repetition, and the use of reciting tones or monotone lines. Schafer often uses phonemes or non-syntactic syllables, even hissing sounds, perhaps to invoke certain magical elements. For example, in the *Greek Magical Papyri*, which Schafer refers to for *The Fall Into Light*, there are many examples of magical spells consisting of specific vowel and word formations. Even the rhythmic instruments have an apotropaic (the power to ward off evil) or liturgical role to play. This rhythmic characteristic is something Schafer revisits again in later works.

Several important elements of sound design combine to create a truly compelling piece of music and ritual. Schafer’s use of unique motives plays a key role in this work’s composition. As previously mentioned, the composer is perpetually changing his compositional ideals, abandoning old ideas and developing new ones. Having already gone through the form of the second section, it may be good to view the motivic elements Schafer uses in the same section.

Table 2.5 is not an exhaustive list of motives, however, it does highlight some of the main compositional ideas Schafer uses in this section. These motives are repeated only a handful of times. They are short, immediate, and their purpose is to create an effect. The last item in the table is a good example of how Schafer can layer several compositional ideas together over several ensembles. These are rather simple compositional features, but combined and juxtaposed, they can sound quite complex and disjointed.

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Table 2.5: Sample motives in *In Search of Zoroaster*. From rehearsal C to J

<table>
<thead>
<tr>
<th>Motive Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster Chords</td>
<td>Cluster Chords with added soprano glissando. Used 17 times in several variations.</td>
</tr>
<tr>
<td>Homophonic parallel writing</td>
<td>Parallel writing used 12 times in several variations.</td>
</tr>
<tr>
<td>Imitative rhythms</td>
<td>Imitative rhythms used once.</td>
</tr>
<tr>
<td>Whistling sounds with brass chimes</td>
<td>Whistling sounds with brass chimes used once.</td>
</tr>
</tbody>
</table>
Table 2.5 (cont.)

<table>
<thead>
<tr>
<th>Triadic harmonies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used 5 times in several variations</td>
</tr>
</tbody>
</table>

Simultaneous motives performed by different ensembles.

All of these motives are used only once or twice.

Schafer employs not only simple motives, but also elements of serial technique.

Rehearsal K gives a short example of Schafer’s serial writing. The tone row and its inversion appear in the soprano and alto parts at the top of p. 22 of the score under the rubric, “Those of Ameretat.” (Example 2.9)

Example 2.9: 12-tone row
Schafer repeats this same row for “Those of Kshathra” and “Those of Haurvatat” using both forms. This example constitutes Schafer’s only use of serialism in the entire work.

Example 2.10: Use of the 12-tone row.

In composing In Search of Zoroaster, Schafer has created a contemporary ritual based on a modern interpretation of an ancient, nearly forgotten, religious rite. Neither Schafer nor any of the commentaries on his work explain the appearance of this piece at this particular time. However, it does seem safe to assume that this work would not exist were it not for his travels to Iran and Turkey. Other works, such as Divin I Shams I Tabriz and Beyond the Great Gate of Light (both part of his triptych Lustro) were inspired by his visit of the region.43 In his “Middle-East Sound Diary,” written during this visit, he writes on April 4, “Silence – a present for the ear. The Zoroastrians bury their dead in Towers of Silence. A gift for the body.”44 This physical journey precipitated the creation of a new work that reflects Schafer’s continuing quest for personal religious and spiritual truth.

43 Adams, R. Murray Schafer, 100.

44 Schafer, The Thinking Ear, 162.
2.5 Train

*Train* (1976), an instrumental work for string orchestra and percussion with optional wind and/or brass instruments, is another of Schafer’s educational works. Composed during a train trip from Vancouver to Montreal, it is another example of a graphic action script.

…the percussion punctuates each station stop between Vancouver and Montreal. Stations passed at night are played on bell instruments…and those passed during the day are played on drums and wood instruments. Generally the size of the city corresponds to the loudness of the percussion; but in other ways also, the composer has sought to give a subjective impression of the experiences from his train window: thus, ugly cities get dissonant chords, etc. All these effects for percussion are given in the form of graphic signals that resemble railway signals.\(^{45}\)

Three extra-musical references influence the compositional process in this work. One is the transformation of a train signal into a variety of novel musical notation symbols. The second is the transfer of the length of the actual train trip into the duration of the work. Finally, the elevations travelled during the trip influence the relative pitch content of the work.

The length of the journey (4633kms) determines the work’s duration, with each 1000kms taking up one minute of music. Within this framework, Schafer’s composition describes the experience of the entire journey in sound. This leads to a work which is completely through-composed and where different features of the Canadian landscape are the driving influences of its form and effects. As one minute of music represents one thousand kilometers, the various effects are fleeting and short-lived. It is the combination of these short bursts of musical effects that create the larger formal structure of the work. This is one of the clearest examples of content determining form.

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The formal structure of *Train* assumes some understanding of Canadian geography. There are really three different geographical regions between Vancouver and Montreal. There are the Rocky Mountains in the west, the extensive plains in central Canada, and the rocky Canadian Shield in the east. These features of Canada’s geography correspond to the three sections of *Train*.

The work begins with the climb into the Rocky Mountains, where the music for the strings steadily rises chromatically and eventually covers four and a half octaves. In the middle section, from Calgary to Winnipeg, there is a slow descent in the string sections. Soloists are required to come up with some unique rhythmic improvisations by using only those pitches that Schafer provides. Finally, from Winnipeg to Montreal, Schafer heightens the tension through a number of compositional devices; fanned beaming to articulate accelerandos, tremolos and sliding pitches to add much more tension and color in the music, and foot tapping and rolled percussion to end the piece. The devices are simple, and only exist in their respective sections. The motives appear to be clearly delineated ideas and programmatic in nature.

Example 2.11: Opening of *Train*. The rise into the rocky mountains.
Written for a student orchestra, Schafer does some remarkable things graphically to make the score both visually and musically interesting, while keeping the work relatively simple to perform. The score incorporates several unique graphic representations from tremolos to instrument taps, foot stomps, pizzicatos, and playing on the bridge, by using a variety of modified notational markings, such as a dashed line to indicate tremolos. The main symbol is that of a train signal, which Schafer uses for a variety of musical expressions:

- Top circle indicates dynamics
- Lines from the signal indicate that the sound is to be left ringing
- Bottom circle - either consonant (open circle) or dissonant chords (x in circle).
- Number of bars on the signal arm indicates how many notes are to be played. From 1 – 10
- Position of the signal arm indicates which register to use.
- Wavy lines from the signal indicate a tremolo or roll effect.
- The bottom of the signal indicates a cresc. or dim. during a tremolo or roll effect.

Example 2.12: Explanation of graphical symbols in *Train*
The work uses a time log to structure the timing of the work and forgoes barlines, a compositional technique Schafer is, by this point, accustomed to using. Despite the number of percussion instruments in use in this work, there are no structured rhythmic elements. The closest thing would be the notated accelerandos indicated at places around 2’35” of the score. At 4’15” Schafer has deliberately placed triplets in the music for the violins and violas (along with a tapping foot), but this is short-lived. It is more indicative of a general accelerando than a typical rhythm.

Pitched instruments such as strings are still written on a common staff with noteheads, but long lines proceeding after the notehead indicate sustained notes. Actual durations of notes can be determined by referring to the time log.

For all of its graphical representations, the string players have their music written in a semi-conventional manner. Most noteheads, as in many of Schafer’s works, do not have stems. Such things are not required when you are not writing in a particular meter. The graphics themselves pertain mainly to the percussion instruments and the piano, which plays ringing cluster chords at indicated times. At 3’05”, the strings play a series of random sliding tremolos depicting the terrain in northern Ontario (see Example 2.13). This is as indeterminate as the strings become. However, the percussion instruments have much more to interpret. Schafer requires the percussionist to interpret his symbolic notation and come up with appropriate realizations for them. He really only indicates the number of pitches which are to be played together (as on a vibraphone), the register they should use, and relative dynamics. Simpler percussion instruments have simpler notational symbols.
Example 2.13: Tremolos in string parts.

Schafer’s symbology clearly indicates dynamics, including crescendos and diminuendos. The string parts have articulated dynamic markings such as piano (p) or forte (f) as well as crescendos and decrescendos throughout. These dynamics are representative of the places the train passes through. In the program notes Schaefer writes that, “generally the size of the city corresponds to the loudness of the percussion…” With all of its graphic qualities, the work still adheres to a formal design influenced by a geographic landscape, and Schaefer differentiates each of these musical sections accordingly.

46 Ibid., 2.
2.6 Snowforms

Snowforms (1983) is one of the most purely graphical works in Schafer’s repertoire. The work is simple and very accessible, originally conceived for elementary school children. The work completely dispenses of regular staff notation in favor of a continuous line which curves, thickens, becomes jagged, pulses and morphs into a variety of visual impressions which can all be aurally perceived. The impetus for this work comes directly from Schafer’s desire to increase the ability for students to create music.

Snowforms is a graphic work influenced entirely by the unique form and shape of snow as it lies on the ground. In the notes to the score Schafer writes, “for it has been the habit of observing the soft foldings of snow from my farmhouse window in Ontario that has inspired Snowforms.”47 This is a good example of a work based on outside influences that shape the glissandi and contours of the melodic line. The thickness of the line indicates dynamics, a technique he has used in previous works.

Formally, the work follows an A B A’ pattern, with both A sections based on a Dorian mode on C. The B section is more dramatic and developed than the A sections. Different Inuit words for snow make up the text. These words influence some of the rhythmic portions, providing contrast to the slow moving waves of sound found throughout. It is therefore different from the free, through-composed works seen to this point.

Although there are no staff lines, the work is far from being indeterminate. Schafer has clearly indicated the absolute pitch at every falling or rising point on the vocal line by writing the letter names of the notes into the score. A time log in five-second increments indicates the

general tempo and relative durations of sound. The thickening or thinning of the vocal line indicates relative dynamics: the thicker the line, the louder the sound. The creative exercise for the performer lies in interpreting the various textural styles, such as glissandi and portamenti. Schafer has given written instructions in those areas where the graphic interpretation seems unclear, to help define exactly what the intentions are.

The curious nature of *Snowforms* as both a graphic work realized only with the help of the performer’s imagination, and a work that still adheres to the intentions and creative design of the composer, speaks to the inherent problem of combining indeterminate and novel techniques with a composer’s desire to retain some control of the musical process. Schafer wants to communicate the beauty of fallen snow not only aurally, but also visually. However, he is not willing to allow his compositional choices of graphic notation to move in the direction of organized chaos. Throughout the work, the musical intent remains abundantly clear.

Example 2.14: *Snowforms*
Chapter 3: Select Works in Hybrid Notation

Schafer’s interest with graphical notation did not limit him from producing works in conventional notation. There exists within these works a number of hybrid works which use both conventional and graphical notation, each to varying degrees. Examining this combination of notation will give us a better understanding of Schafer’s compositional process. A study of the musical contexts of Schafer’s variety of notation could also reveal some of the composer’s reasons for using either notational style.

<table>
<thead>
<tr>
<th>Title</th>
<th>Published Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gita</td>
<td>1967</td>
</tr>
<tr>
<td>Apocalypsis I: John’s Vision</td>
<td>1977</td>
</tr>
<tr>
<td>A Garden of Bells</td>
<td>1983</td>
</tr>
<tr>
<td>The Star Princess and the Waterlilies (SA)</td>
<td>1984</td>
</tr>
</tbody>
</table>

3.1 Gita

*Gita* was written on a commission by the Fromm Foundation and first performed at the Tanglewood Festival in August of 1967. It is written for 32 voice SATB choir, brass, and magnetic tape and lasts approximately thirteen minutes. The text comes from the Baghavad-Gita (II:55-64). The theme of the work is about the control of the senses.

The text describes how one should proceed in attaining serenity of spirit and details the dangers of egoism and passion. Breaking through the mysterious and omnipresent sounds of the choir and tape are occasional harsh intrusions from brass instruments. Their brutal interference with the mystical exercise really constitutes a second piece of music and certainly a different philosophy.\(^{48}\)

---

Most of the work uses precise notation, while using graphical notation rather sparingly. Therefore, we can assume Schafer’s use of graphical notation is necessary only where conventional notation would not have sufficed. Graphical notation is relegated to elements of indeterminate pitch and/or rhythm: whistling sounds, spoken phonemes, indeterminate cluster chords, randomly spoken texts, forced breathing sounds, and shouts. Schafer uses a variety of graphical devices to notate the accompanying tape part, designed to represent an impression of the underlying sound. Example 3.1 displays some of these graphic qualities.

The choral writing in Gita bridges the transition between the conventional serialism of the Tagore songs and the almost wholly graphic scores that follow. For the most part, Schafer writes definite pitches, making stiff demands on the accuracy of the choristers, but he also includes sections of indeterminate pitch and rhythm.49

Example 3.1: Graphic portion of Gita, pg. 27

Gita is divided into ten sections, each corresponding to the ten verses of the text. The role of the voices is one of serenity. They are the embodiment of the sense and mind. As a hindrance to this serenity, the brass is there to interrupt the voices with their obnoxious noise.

49 Ibid., 146.
The conflicting brass and vocal parts articulate this at the outset. Schafer wrote, “I imagined a choir, as serene as newly-fallen snow, being hectored by a group of brass instruments. The choir would sing in the original Sanskrit, aloof and victorious.”\textsuperscript{50}

The work begins with a rather chaotic brass fanfare, traversing a wide dynamic range from piano to forte within very short time spans. Low and meditative drones in the bass voices moderate this effect. It is clear that the voices and brass have different objectives. This interference becomes much more pronounced in the last three verses of the work where the text deals with the objects of sense producing attachment, desire, and then anger (Example 3.2). Schafer takes his musical cues from this text and transfers the text’s impression into the music. This is not, however, an exercise in onomatopoeia or representational writing. The aural imagery is more symbolic, but nonetheless present. Contrast this with the following section (Example 3.3) which is more subdued. This is reflective of the text’s imagery.

Table 3.2 illustrates the division of the work into its different sections. A verse of text defines each section. Notice the dynamic movement in each section. All sections begin with a soft dynamic, proceeding in various ways to a loud dynamic and then returning to a soft dynamic. This pattern is consistent until the ninth verse on the theme of anger, bewilderment, and the destruction of intelligence.

\textsuperscript{50} Schafer, “Program Notes,” 25.
Example 3.2: Gita, pg. 28

From anger arise, demolition...

Example 3.3: Gita, pg. 33

...who moves among the objects of sense, with the senses under control and free from attachment and aversion...

Nayadrecayaktena vibhije indriya vyayayya vyasyapramyo prakrtom adaigacet.

Note: The tape is soft throughout as though behind the choir. It should be faded out minimally throughout this concluding section.
Table 3.2: General dynamic movement of each verse in *Gita.*

<table>
<thead>
<tr>
<th>Section</th>
<th>Text</th>
<th>Dynamic Range: From beginning to end of section.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>When a man puts away all the desires of his mind, O Partha And when his spirit is stable in itself, He is called stable in intelligence.</td>
<td><strong>ppp</strong> ←<strong>ff</strong> ←<strong>pp</strong></td>
</tr>
<tr>
<td>2.</td>
<td>He whose mind is untroubled in the midst of sorrows And is free from eager desire amid pleasures He from whom passion, fear, and rage have passed away, He is called a sage of settled intelligence.</td>
<td><strong>pp</strong> ←<strong>ff</strong> ←<strong>pp</strong></td>
</tr>
<tr>
<td>3.</td>
<td>He who draws away the senses from the objects of sense On every side, as a tortoise draws in his limbs His intelligence is firmly set in wisdom</td>
<td><strong>p</strong> ←<strong>ff</strong> ←<strong>pp</strong></td>
</tr>
<tr>
<td>4.</td>
<td>His intelligence is firmly set Who is without affection on any side Who does not rejoice or loathe as he obtains good or evil</td>
<td><strong>pp</strong> ←<strong>ff</strong> ←<strong>p</strong></td>
</tr>
<tr>
<td>5.</td>
<td>The objects of sense turn away from the embodied soul, Who abstains from feeding on them, But the taste for them remains Even the taste turns away when the supreme is seen.</td>
<td><strong>pp</strong> ←<strong>ff</strong> ←<strong>p</strong></td>
</tr>
<tr>
<td>6.</td>
<td>Even though a man may strive for perfection And be ever so discerning His impetuous senses will carry off his mind by force.</td>
<td><strong>p</strong> ←<strong>ff</strong> ←<strong>pp</strong></td>
</tr>
<tr>
<td>7.</td>
<td>Having brought all the senses under control, He should remain firm in Yoga Intent on me, for he, whose senses are under control His intelligence is firmly set.</td>
<td><strong>pp</strong> ←<strong>mp</strong> ←<strong>p</strong></td>
</tr>
<tr>
<td>8.</td>
<td>When a man dwells in his mind on the objects of sense Attachment to them is produced. From attachment to them springs desire, And from desire comes Anger</td>
<td><strong>p</strong> ←<strong>f</strong> ←<strong>p</strong></td>
</tr>
<tr>
<td>9.</td>
<td>From anger arises bewilderment From bewilderment arises loss of memory. And from loss of memory, the destruction of intelligence And from the destruction of intelligence he perishes.</td>
<td><strong>f</strong> ←<strong>pp</strong> ←<strong>ff</strong></td>
</tr>
<tr>
<td>10.</td>
<td>But a man of disciplined mind With great expression and lyricism Who moves among the objects of sense, With the senses under control and free from attachment and aversion He attains purity of spirit.</td>
<td><strong>ppp</strong> ←<strong>f</strong> ←<strong>pp</strong></td>
</tr>
</tbody>
</table>
This type of dynamic writing is similar to that found in the graphic works of the previous chapter. Textural and dynamic changes, which the contrasting vocal and brass forces articulate, provide the work’s growth. Note that Table 3.2 simply indicates the dynamic range through a section, and it is not a complete dynamic picture of the respective sections.

Nearly all of the pitches of the work, for both the brass and vocal forces, come from the Patria tone row. Schafer uses the row in a number of different compositional variations – changing rhythms, textures, and forces used (such as soloists, brass instruments, and full choir). Octave displacement allows Schafer to change the interval order, either to maintain larger or smaller intervals between pitches.

Example 3.4: Further use of Tone Row

Example 3.5: Example of modified tone row
Example 3.5 shows a slightly modified tone row. The only change is that F# replaces F in the solo soprano 1 line, but it does appear in the soprano 2 solo.

Schafer finds ways to use the row for unique harmonic effects. The alto, tenor, and bass voices in Example 3.4 follow the pitch content of the row; however, Schafer has taken the liberty to change some of the ordering of the row to create particular harmonic events in these voices. Nevertheless, the content of the row remains. The alto soloist performs her part as a retrograde inversion of the short soprano passage. Example 3.6 shows the entire row used in the brass instruments. Some of the parts are transposed, as trumpets 2 and 3 are in B♭ and the horns are in F.

Example 3.6: Tone row in brass

\[
\begin{align*}
D &\equiv D \\
C & B \\
B &\equiv A \\
A &\equiv G
\end{align*}
\]

Gita is highly detailed, giving written instructions where the notational indications do not seem sufficient. A time log is included below the electronic tape notation to help the performers identify their cues in the score. Schafer, particularly in areas that do not have a specified meter,
indicates most of the conductor cues. This is one area where Schafer allows some freedom of expression. Despite writing in a seemingly controlled manner, he gives explicit instructions at the beginning of the score that:

Perfect synchronization between the tape and the live performers is not necessary except where marked and the conductor should work free of the time-log given with the tape allowing himself a certain amount of expressive freedom.\(^{51}\)

There exists within the work a certain amount of rhythmic and metrical ambiguity that Schafer fosters in his works, *Gita* being no exception.

When looking at the motivating influence of the music it becomes apparent that the imagery of the text is of heightened importance. The concern with the conflict between tranquility (voices) and material objects (brass) is the driving influence behind the work, which the underlying text suggests. Example 3.6 shows the agitated nature of the brass writing, with its short bursts of sound, while Example 3.4 shows the more sustained writing of the voices. The brass instruments keep the work interesting by providing a source of expectant surprise. Schafer does not try to imitate the meaning of the text in the music. Rather, the brass and vocal forces are representative of two different and opposing forces.

Schafer’s Patria tone row pervades the entire work, written in a variety of rhythmic and textural forms. Each section is unique and no repetitions of motivic ideas exist from one section to another. The sections are almost self-contained, beginning softly and then increasing in tension by both dynamics as well as by either an addition or subtraction of voices or instruments. Finally, there is a release of that tension, with the section ending in reduced simultaneous...

instruments and voices and a soft dynamic. This sectionalization of music is a common characteristic in Schafer’s works, as was previously noted in *Epitaph for Moonlight*.

### 3.2 Apocalypsis, Part One: John’s Vision

*Apocalypsis* (1977) begins to define Schafer’s compositional design choices clearly. Graphical notation is now serving a purpose beyond experimentation to becoming an integral part of the notational toolset, which exists alongside conventionally notated music. As will be observed, *Apocalypsis I: John’s Vision* still enjoys the rhythmic and metrical design elements consistent with earlier works, and the layering and sectionalization of compositional ideas becomes more apparent.

*Apocalypsis* is Schafer’s grand vision of the end of the world. *Part One: John’s Vision*, is based on the *Book of Revelation* by St. John of Patmos. It is the largest work Schafer had composed to this point in his career. *Apocalypsis* uses over three hundred performers to bring the world to an end. It is written for eleven soloists, five choirs of various configurations and sizes, groups of high instruments (such as recorders and flutes), brass instruments, Middle-Eastern instruments, and percussion (drums and xylophones, gongs and tam tams, snare drums and tenor drums, and other specially –constructed instruments). At least seven conductors, who must coordinate their efforts accordingly, guide all of these forces. An electronic tape also accompanies the entire performance.

The premiere performance was a giant undertaking with the Toronto Star’s music critic, William Littler, describing the 1980 premiere of Apocalypsis as “one of the most spectacular events in the history of Canadian Music. Not only St. John the Divine, but Cecile B. Demille
would have been impressed.” Speaking on the size of the project and its grand scale, Schafer remarks:

It seems to me it is only natural that as you develop more competence, and more confidence, that you want to try and do something larger, and see if you can handle a larger medium. After all that's what art is really all about - can you handle a larger and more daring kind of scale of things. And so I think it's just something that I've decided to set for myself, is these larger tasks, just to see if I can do it.  

*Apocalypsis* is one of a number of works on themes of religion and ritual in Schafer’s repertoire. In *Search of Zoroaster, From The Tibetan Book of the Dead, The Death of the Buddha, Threnody, Canzoni for Prisoners*, and later *The Fall Into Light*, not only deal with religious issues from a variety of influences, but they also deal mainly with the theme of death, one of Schafer’s most consistent thematic focuses.

I think they deal with one of the essential issues of existence that tends to be ignored most in our lives and particularly in our popular music culture and that is death. If you think about pop music culture it really just deals with puberty and cash, I don't think it gets any further than that. So it's basic theme is sex. As important as that is, I wouldn't deny it for a moment, there are other things in life that are equally compelling. One of them is the fact that our friends die, our parents die, our relatives die, and we will die. And religious works such as the texts that I've dealt with really are concerned with that issue, that existential issue, which is very important.  

The work is as theatrical as it is musical, incorporating spatial design elements, sound poetry, mime artists, dancers, ambitious decorations and props, and projected images. It is an uncompromising artistic endeavor.


54 Ibid., Track 7.
Just as part one proclaims the coming of the end of the world, part two, “Credo”, ushers in the new heavenly world. Instead of looking to the *Book of Revelation* for the text for part two, Schafer looked to the poet Giordano Bruno for inspiration. Bruno (1548–1600) was a Dominican Friar burned at the stake during the inquisition for heresy and his cosmological views. Schafer adapted the main tenets of Bruno’s belief, creating the text, “Lord God is Universe” as a more all-encompassing proclamation of the omnipresent God.

Although both *Apocalypsis I & II* are to be performed together, they are unique enough to be considered two complete works in their own right.\(^5^5\) Compared with part one, which is a large theatrical work, part two is almost void of all theatricality and is static by comparison. It uses a combination of twelve choirs, each named according to a precious stone as found in *Revelation* and wearing their own colored robes. Accompanied by a recording of church bells, the work takes on the significance of a spiritual journey.

I mean, where do we go, we anointed? Who will ascend? Where is it that we are going to go? Instead of treating John of Patmos’s text - he describes it of course - and he describes it as a place where there will be no more deserts, and there will be rivers flowing, and there will be trees blowing, and there will be houses for everyone. It sounds just like Don Mills in Toronto or something, you know. I didn't want to set something that just sounded like a modern scrubberb. And so I turned to another text by Giordano Bruno, who talks about the universe as being one, universe as “Lord God is Universe” is the basis of that text. So that was my second part - the elevation to the New Jerusalem.\(^5^6\)

*Apocalypsis, Part One*, is divided into nine sections, beginning with an “Introduction,” followed by “The Cosmic Christ,” and ending with “Lament Over Babylon and Transition to the New Kingdom.”

\(^5^5\) A performance of *Apocalypsis II: Credo* was given in Massey Hall in Toronto, Ontario, in November 2000.

Table 3.3: Sections of *Apocalypsis I*

<table>
<thead>
<tr>
<th>Section</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>15:00</td>
</tr>
<tr>
<td>2. The Cosmic Christ</td>
<td>7:00</td>
</tr>
<tr>
<td>3. The Court of Heaven</td>
<td>7:00</td>
</tr>
<tr>
<td>4. The Seven Seals</td>
<td>7:00</td>
</tr>
<tr>
<td>5. Psalm</td>
<td>7:00</td>
</tr>
<tr>
<td>6. Interlude</td>
<td>2:00</td>
</tr>
<tr>
<td>7. The Seven Trumpets</td>
<td>7:00</td>
</tr>
<tr>
<td>8. The Battle Between Good and Evil</td>
<td>7:00</td>
</tr>
<tr>
<td>9. Vision of the End</td>
<td>7:00</td>
</tr>
<tr>
<td>10. Lament Over Babylon and Transition to the New Kingdom</td>
<td>12:00</td>
</tr>
</tbody>
</table>

In the “Introduction,” all groups slowly enter the hall and “quietly recite texts in which the imminence of the apocalypse is described.”\(^{57}\) These texts are unique to the six performing groups and overlap each other. After some time, and after all performers have entered, the music for #2, “The Cosmic Christ” begins with a flurry of rhythmic activity.

Table 3.3 shows the significance of the number 7 and 12, which are of symbolic importance in the *Book of Revelation*. Seven of the sections are precisely seven minutes long, with the final section being twelve minutes. The tempos for the different percussionist and instrumental parts, given at the beginning of the second movement, are all in multiples of seven: 56, 63, and 49. They also play in various combinations of 7-beat patterns throughout the first section.

Example 3.7 shows the meticulous structuring of rhythm and meter, but to the listener the rhythmic patterns are very incoherent. It is highly unlikely that a listener would notice the numerological significance. The writing of this movement is not as random as it sounds to the ear. In fact, the notation it is quite orderly. Each group of instruments uses its own meter, its own unique tempo, rhythmic pattern, and its own conductor. The music is the product of a thoughtful compositional design in which short rhythmic motives are repeated numerous times, layered together with other repetitive vocal motives and spoken dialogue. The rhythmic intensity of the first movement builds through the addition of voices and spoken dialogue. The combination of all these elements results in an incoherent and chaotic sound for the listener.

Example 3.7: Percussion section at the beginning of “The Cosmic Christ”
Because of the obfuscated meter and rhythm in the work, as well as the need for multiple conductors (which are unlikely to remain exactly at the required tempi), the challenge for performance is to keep the work unified. Schafer understands the inherent difficulty of performing a work this large, and treats the principle conductor much more like a guide rather than a conductor. As the principle conductor of the premier of *Apocalypsis*, Simon Streatfield referred to himself more appropriately as the principle coordinator of the work, believing that title may more accurately reflect his true role.\(^{58}\)

One of the most important inclusions into the score is the use of various pitched gongs. These gongs provide aural cues at key points within the score where certain sections begin or end. They provide a reference point for all performers. This is particularly helpful during the tutti sections, and those sections that do not necessarily rely on firm meter or rhythm. During these moments, the only thing the principle conductor can really do is indicate time. Schafer does include a time-log at the bottom of the score that may relieve some of the ambiguity.

*Apocalypsis I* is very much a theatrical work, displayed in a large grand pageantry. It is a powerful telling of the destruction of the world, full of movement, dance, music, and visual spectacle. The score, which is greatly illuminated, is itself a visual work of art, which instills in the performer a visual impression of the entire experience. The overall sound structure and pitch content seem to take a backseat at times to the dramatic effects of this work. Despite this, several observations can be made regarding pitch content.

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Stephen Adams points out that Schafer’s pitch material comes really out of one source, an exotic scale that Schafer created specifically for the work. This seven-note scale first appears in the organ part in the first musical section at rehearsal B: F G๐ A B C D E๐ (group 1). These are the only pitches used in this section. The next section uses the remaining five notes of the octave in a chant for the boys choir: G A๐ B๐ D E (group 2). These note groups then alternate throughout the work, with the second note group indicative of the boy’s chorus. Schafer wrote the final section as an imitative chant based on the Mixolydian mode on F, with its characteristic lowered seventh (E๐).

Example 3.8: Apocalypsis I: “The Cosmic Christ”

Further inspection of these two note groups reveals other characteristics. Group one is a modified octatonic scale, with alternating whole steps and half steps. To keep the length of the scale to seven notes, the composer removes the A๐ from the scale: F G๐ (A๐) A B C D E๐. The remaining five notes make up the second group (with the added A๐), and a very good fully diminished seventh chord: G A๐ B๐ D E๐.

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59 Adams, R. Murray Schafer, 170.
With this in mind, we can begin to see some of Schafer’s compositional inclinations. The principle of the octatonic scale, with its alternating whole steps and half steps, is a staple in Schafer’s compositional output. The versatility of the scale allows him to write music devoid of any tonal center, while at the same time allows him the use of triads and diminished chords for harmonic effects in which the danger of any tonal roles are absent. Octatonic scales contain 4 major and 4 minor triads, 8 diminished chords and 2 fully diminished chords. Major and minor triads exist throughout this work, as do a variety of diminished seventh chords, all of which increase or decrease the amount of tension at any given moment. The quality of these chords then achieves an aural effect, which seems to be Schafer’s prime motivator.

As already mentioned, the work is highly graphical. All the graphic elements can fit into a relatively short list of categories.

1. Random Percussion
2. Glissandi and Portamenti
3. Lines indicating duration
4. Cluster chords
5. Chant or spoken dialogue, with or without indicated inflections
6. Dynamics
7. Ornaments, such as trills or percussive indications (as in “Psalm”)
8. Non-musical symbols or pictorial elements

What this list lacks is an alternate symbology for pitch. Despite the graphic nature of the work, the pitch content, aside from some adlib glissandi, is always written in staff notation. Graphical music symbols are therefore relegated to items that will not affect the pitch content of the work, and where a certain amount of improvisation is preferred to overly complex conventional notation (cluster chords, randomized percussion, etc.). “Psalm,” originally written before Apocalypsis I, but later included in the larger work, is the only piece to use graphic symbols for effects like clapping, snapping, thigh slapping, and stomping.
*Apocalypsis I* is a good example of Schafer’s compositional process of layered motives. Schafer’s compositional ideas manifest themselves in unique motivic constructions that generally last no more than two pages. Focusing on one compositional idea, perhaps layering it with another one, and then exhausting that idea before moving on, has become a part of Schafer’s compositional style.

Example 3.7 (pg. 53), the beginning of the work, is an example of this layered style. A simple compositional idea of a 7-beat rhythmic motive shapes the music for each of the three performing groups. The group for conductor 6 clearly articulates this, where the first note is followed by another note 2 beats later, then another one 3 beats later, then 4, 5, 6, and 7. All the other percussionists in the same group share this pattern, each beginning on a different part of the sequence. This motivic construction repeats sequentially several times. Both the brass and high instruments employ similar techniques. This is a layered texture from a simple compositional technique that results in a very complex sound. Adding and layering together everything from spoken dialogue, to choruses, to random notes for seven xylophones, increases and decreases the intensity of the movement.

The work follows this process of layered motives throughout. Some motives clearly delineate their respective sections. Others seem more through composed. The following table (Table 3.4) is not an exhaustive list of these unique motives. Rather, it indicates quite clearly the uniqueness of the motivic content in each section.
Table 3.4: Unique motives in *Apocalypsis I*

<table>
<thead>
<tr>
<th>Section</th>
<th>Sample Sound Gesture</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. The Cosmic Christ</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td>See also Example 3.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td>3. The Court of Heaven</td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
</tbody>
</table>
4. The Seven Seals

5. Psalm

6. Interlude
7. The Seven Trumpets

8. The Battle Between Good and Evil
9. Vision of the End

10. Lament over Babylon and Transition to the New Kingdom
3.3 A Garden of Bells

In *A Garden of Bells*, Schafer has envisioned a work full of sounds resonating from its namesake. What would this garden sound like if left subject to the whims of the blowing wind? This question intrigues Schafer and his compositional creativity. The work relies on onomatopoeia and the imagination of the listener. In the introduction, Schafer clearly articulates the impetus for the work.

In *A Garden of Bells* I have in mind a scene which does not really exist: a soniferous garden filled with bells of all shapes and sizes, through which the traveller might wander at leisure and be entertained by a tintinnabulation of sounds, not loud but beckoning, sometimes near, like flowers, but more often far, like the voices of distant friends, which soft breezes barely bring to our ears.60

Nine sections divide the work, each flowing freely together. The sections contrast in text (phonemes), rhythm, pitch content, and textural design. Imitative writing is prevalent throughout the work. Schafer expands and explores different motives, shaping one motivic idea before moving on to the next. The motives stem from underlying phonemes, as each section contains unique textual elements. The result is a series of mimetic sounds, gathered together to impress upon the listener the aural impression of being in a garden of bells.

The first section can be taken as an example (see Table 3.5, section A). The opening motive uses the words “Bvong” and “Bvang” with notes of long duration and pitches derived from a major seventh chord on C. The result is a slow and lumbering sound, and is the model for two more sections in the piece. It lasts roughly one minute, with slight rhythmic variation, at which point a new compositional idea takes over (Table 3.5, section B). This section, with its

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different words and accompanying motives repeat three times, lasting another minute and a half, before moving through a very short transition and into section C.

What differentiates these sections from more common forms of phrase development is that these sections are merely a series of connected effects of sound displaying one effect after another, and not harmonically or tonally related. The insertion of barlines separates these different compositional ideas. This clearly supports Schafer’s description of his rationale behind the work. Table 3.5 categorizes most of the existing motives in *A Garden of Bells* along with brief written descriptions of each.

Table 3.5: Sound gestures in *A Garden of Bells*

<table>
<thead>
<tr>
<th>Formal Section</th>
<th>Length</th>
<th>Text</th>
<th>Texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1:10</td>
<td>Bvong, Bvang, Hrong</td>
<td>• SSAATB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Slow steady half-note rhythm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>built on a MM chord in C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>B (3 times)</td>
<td>:54</td>
<td>Shang, Tititing, Yung</td>
<td>• SSSAATBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Do do du</td>
<td>• New quarter note rhythm in the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tenors, gradually overlapping by</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>moving out of phase with each</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>other.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 16th note rhythms in altos.</td>
</tr>
</tbody>
</table>

![Graph](image)
Table 3.5 (cont.)

<table>
<thead>
<tr>
<th>Transition</th>
<th>Time</th>
<th>Phrase</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tombaltom</td>
<td>:12</td>
<td>SSAATBB</td>
<td>“slight momentary excitement”</td>
</tr>
<tr>
<td>Baltom</td>
<td>:32</td>
<td>SSATB</td>
<td>New underlying harmony in ATB – GM+6</td>
</tr>
<tr>
<td>I~</td>
<td></td>
<td></td>
<td>Sopranos carry repeated motive.</td>
</tr>
<tr>
<td>Zvontom, Chung mung, Jering, Pele, Chinchera, Dekering, Zangula, Linglu</td>
<td>1:03</td>
<td>SSAATTBB</td>
<td>Accelerated rhythms, increasing dynamics, First time tutti voices in homophony.</td>
</tr>
</tbody>
</table>
### Table 3.5 (cont.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Singers</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1:09 | A` | • TTBB begins as the beginning with steady half note rhythm with MM on C.  
• SSSAAA are given particular motives that they repeat for set periods over the slow TB harmony. |

![TTBB Begins](image1)

<table>
<thead>
<tr>
<th>Time</th>
<th>Singers</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1:00 | C` | • SATB  
• The tenors receive the soprano motive from C, accompanied by a bass motive. This creates an ostinato pattern that lasts the duration of the section.  
• SA receives new through-composed melismatic material. |

![SATB Begins](image2)

<table>
<thead>
<tr>
<th>Time</th>
<th>Singers</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1:25 | E | • Begins SA as transitionary material.  
• Increases in tension with the addition of TB.  
• Layered ostinato motives in all voices. Increasing dynamic level throughout. |

![E Begins SA](image3)
Schafer employs a number of unique and varied textures throughout the work. We think of bells, particularly church bells, having a particular rhythm to them. Many of the ostinato passages use this steady, pulsing, rhythmic quality. Bells do not have to adhere to a set rhythm, and like wind chimes, they can be subject to the whims of the wind. Through overlapping lines
and different layers of bell-like sounds, Schafer is able to create this indeterminate rhythmic effect.

The composer also highlights another unique characteristic of bells. Their pitch is directly proportional to their size. Large bells ring slower and with a lower frequency than small bells that are higher pitched and can ring at a faster pace. *A Garden of Bells* reflects this by having higher voices sing in a quicker tempo than the lower voices. The low voices represent large slow bells, with their long durational ringing, while the soprano and alto voices accompany them with motives in a higher vocal range. The linking of rhythm and pitch creates a unique textural quality. (Example 3.9)

Example 3.9: Rhythm of bell sounds influenced by tessitura.

As with *Gita* and *Apocalypsis I*, some of Schafer’s rhythmic and metrical conventions rely on a certain amount of performance freedom. Example 3.9 shows some of this freedom in the soprano and alto solo phrases. Schafer writes in the score:
The tempo remains constant for each repetition, but the duration between repetitions may vary. The effect to be achieved is an irregular mosaic of small bells over the continuous ringing of deep bells in the distance.\footnote{Ibid., 6.}

The implication is that the effect of the music itself assumes the important role, and less the exactness of its rendering. One example can be found in section E (Table 3.5, section E). With a lack of barlines and exact rhythm, it is impossible to negotiate the gaps in the durational lines precisely. There is no choice but to improvise its performance to achieve the effect that those gaps imply.

Lastly, rehearsal D and E contain three separate repeated rhythmic motives on a vocally rolled ‘r.’ It is simply a series of 32\textsuperscript{nd} notes. Schafer writes that, “this could be performed various ways: either as a trilled “R” or as a fast reiterated “R” or as a combination of both. But it should be soft.”\footnote{Ibid., 3.} Conventionally speaking, 32\textsuperscript{nd} notes have definite durations. Therefore, there should be eight 32\textsuperscript{nd} notes in the space of a quarter note. However, this passage is an example of how repeated 32\textsuperscript{nd} notes can simply be symbolic of a desired effect.
Example 3.10: Rolled “R” in *A Garden of Bells*.

The 32nd note passages in the examples above are written with different numbers of 32nd notes for what appear to be repetitions of the same type of rhythmic motive. However, each example contains a different number of notes. Example a) contains 22 notes, b) contains 27, and c) contains 24 notes. Granted, it is a simple motive, essentially trying to notate a rolled “r” (which is problematic in itself), but it does indicate the type of generalism present in some of the composer’s compositional output. Without a doubt, the main concern here is the effect of the pitched rolled “r” and not its exact rhythm. Essentially, this is a notated ornament.

3.4 The Star Princess and the Waterlilies

*The Star Princess and the Waterlilies* (1984) is really a story set to music. Written for a narrator, alto soloist (the Star Princess), children’s choir, and percussion, the work is about a star princess who visits earth to find a place for her young stars to live. She manages to find some children and asks them to help her in her quest. The children are very excited to help the Star Princess and begin searching for a suitable place for them. After the children struggle and fail to find an appropriate place for the young stars, the star princess descends herself to find a place where they can be protected and live happily. The next morning the children are excited to find that the young stars are now living as white flowered water lilies floating on a large lake.
The work lasts approximately fifteen minutes and is much different than *A Garden of Bells* and certainly *Apocalypsis*. One of the problems Schafer has to deal with in this work is a text that is not poetic and therefore more difficult to place into musical form. Hence, much of the work contains narrative recitatives that move through the story interspersed with other musical events. Although the content of the work is different than what has been discussed to this point, similar compositional elements are still present.

The work is mainly through composed with only some referential treatment. It could be considered a children’s operetta, where all of the dialogue is sung. The work includes many recitatives that require the singers to come up with their own pitches. In these sections, the composer includes rhythms but leaves most of the pitch indications undetermined. Schafer instructs that the children are to write their own pitches, but to keep as much as possible to the outlined rhythms. In contrast to this, the Star Princess sings in recitative with her line clearly notated with little space for improvisation.

Example 3.11: Recitative writing in *The Star Princess and the Waterlilies*

The compositional design involves looking at two qualities of text. One is the narrative aspect, which propels the story forward. The other is the action of the story. Schafer treats these

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two elements differently. The narrative is written as recitatives while the actions are written as melodic phrases. The entire form is contingent on the story itself.

Another compositional technique that features prominently in many of Schafer’s works also exists here: the use of canon. The way Schafer implements canon writing goes back to his earliest compositions. Even *In Search of Zoroaster* contained canonic writing using short motives. These works may be described as merely imitative, as the motives seemingly bounce back and forth between vocal parts.

Three canons exist in the score: two on page 4, and one at the end of the work on pages 17-18. The first two canons show very similar qualities (see Example 3.12), both built on very short, imitated motives.

Example 3.12: Two canons from page 4 of *The Star Princess And The Waterlilies*

The last canon (Example 3.13) is at the end of the work and is indicative of the young stars finally coming to rest on the lake as waterlilies.
What makes these examples significant is that, like the glissando, they show Schafer’s predilection for layered and repeated motives, ultimately creating simple canons. These canons are short compositional ideas that develop directly out of the imagery of the text and are representative of a particular action (the first two canons symbolic of playing in a park and playing baseball, and the last one of the emerging waterlilies from the young stars).

Although Schafer writes without the use of key signatures, his use of accidentals in this work suggests some harmonic thinking. Tonal areas of C major (pg. 2), and particularly E minor (pg. 4) exist in the choral writing. The pitch material for the star princess revolves around the notes F# and B, F and B, and A. Schafer also incorporates the use of the circle of fifths in writing an imitative choral passage, moving from A up by fifths to D (C). A four-part descending pentatonic scale on D (D E G A B) closes the work. Other compositional elements include the use of indeterminate chords, various types of glissando, and an avoidance of barlines and meter.

With a nod to the works of Earle Brown’s Available Forms and the bird songs (le style oiseau) of Olivier Messiaen, Schafer also includes various bird songs that the choir performs randomly (see Example 3.14). Tempos, phonemes, and rhythms of each birdcall are given. However, pitches are all indeterminate, as there are no staff lines for the given note-heads.
Schafer explains that these birdcalls were “heard around my home near Bancroft – and include the white-throated Sparrow, the Whippoorwill, the Black-capped Chickadee, the Yellowthroat and the Red-Breasted Nuthatch.”

Example 3.14: Bird calls in *The Star Princess*

Graphically, there are similarities with other earlier works. The graphic notation is relegated to glissandi and portamenti, lines for duration, random rhythms, and inflected speech and repeated phonemes. The absence of staff lines suggests indeterminate pitches for the recitatives.

The general nature of some of Schafer’s compositional ideas are apparent in some of the instructions for the work. On page seven, as well as the last page, Schafer writes some curious instructions:

1. A few gongs might accompany here.
2. At this point, a cloud of tiny bells might be added, played by the singers.
3. Perhaps some deep gongs?

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64 Ibid., 3.
Words like “might” and “perhaps” make it clear that Schafer is open for interpretive suggestions in this piece, but it also affirms the fact that what matters is the final musical effect, and that the final written score is not absolute. In this respect, Schafer offers great freedom to the performers.

Generally, the sound design of *The Star Princess and the Waterlilies* is not of Schafer’s chromatic variety, and tonal considerations are definitely apparent. This is probably because the work was for children as the Toronto Children’s Chorus commissioned it. His educational concerns are apparent, and the work remains a wonderful way to spur creativity among children.
Chapter 4: Comparison of Works

Within these representative graphical works there exists a consistency of notational technique. Certain musical parameters receive more attention than others do in Schafer’s graphical notation. Two possible analytical approaches can determine his general compositional style when using graphical notation. The first approach is to determine the musical parameters that Schafer’s graphic notation fulfills: what does he require from his graphical notation? The second approach is to see what musical parameters are either absent or of diminished importance: what musical parameters does his graphical notation not address?

Table 4.5 (pg. 89) illustrates the type of graphics Schafer uses within his works and the role they play. Like music written in conventional notation, the construction of music using graphical notation requires the manipulation of a variety of musical parameters. The difference, however, is in the preciseness of the symbology. As the chart shows, Schafer’s graphic notation accounts for sound, harmony, dynamics, meter, and rhythm. Some symbols occur more frequently, but common to all these pieces is the use of a simple line to indicate sustained pitches, glissandi and portamenti, and durations.

4.1 Sound

When discussing Schafer’s symbology of sound and pitch, the most consistent notational device Schafer uses is a horizontal line. A simple graphic can easily indicate a sustained tone and relative pitch values in relation to other lines. While the horizontal line is an adequate symbol for pitch and duration, its real strength lies in its simplicity. In these works, the length of the line indicates durations, either with reference to a time log, or in relation to other notational lines. Whatever the line benefits from simplicity, however, it lacks in precision.
The use of the horizontal line as a notational tool reveals Schafer’s affinity for sustained tones. As the table shows, each of these pieces makes some use of sustained pitches. His fondness for sustained tones is evident as far back as Statement in Blue with its lengthy passages of sustained cluster chords. There are four ways in which Schafer indicates sustained tones in these works: 1) metrically, using conventional notes with long durations, 2) non-metrical, where duration is simply indicated by the length of a line following a note, 3) indeterminate pitches with only lines indicating duration, and 4) repetition of pitch in different rhythmic configurations giving the illusion of a sustained sound. The following examples show each of the above compositional practices.

Example 4.1: Gita. Pg15, rehearsal K. Sustained pitches in metered notation.

Example 4.2: A Garden of Bells, pg. 8, rehearsal I. Sustained pitches without meter.
The idea that sustained pitches comprise a unique compositional practice worth mentioning is perhaps rather unconvincing. After all, the entire western musical landscape includes music with large varieties of rhythmic values and sound sonorities. However, Schafer’s use of sustained sound in the form of drones, cluster chords, and consonant or dissonant intervals is quite pervasive and a significant part of his compositional output.

It may be helpful to determine just how pervasive the sustained sound is in Schafer’s graphic pieces. However, to try and do so is problematic. One typical question to address is: do sustained sounds written within a polyphonic framework have as much value as sustained sounds performed homophonically? A large sustained chord accompanying two melismatic vocal lines
holds much more weight than one sustained bass line accompanying an 8-part contrapuntal passage. In the end, the answer bears much subjectivity. Each piece is different and the quality and character of sustained sounds is unique to each work. Even so, the analysis itself may provide some useful insight into his compositional style.

The definition of sustained sounds garnered here simply includes those sounds that exist for a set minimum period of time, either single notes or chords. A concerted effort has been made to avoid increasing time values by counting overlapping pitches, as that would simply skew the results further. Sustained pitches, which sound polyphonically, are counted individually while those which sound homophonically are simply counted once, with overlapping notes added together for total duration. This obviously does not completely give a true impression of the value of those sustained sounds and their importance to the total work. Despite the attempt at trying, any attempt to define how much time sustained sounds exist in relation to the entire work is quite subjective and inherently inaccurate as each sound really assumes a unique level of importance. The following table, then, merely adds the significant amount of time taken to perform sustained pitches and classifies them according to length. For example, in *Train*, you can expect to hear sustained pitches between 8 and 12 seconds long 21% of the time, and sustained pitches longer than 12 seconds, 48% of the time. Of course, there is no context given for these sustained notes. Are they homophonic chords or simply accompanying drones? The table is of little value without any context, other than to affirm the fact that Schafer’s use of sustained sounds is significant.
Table 4.1: Sustained sounds in Schafer's works.

<table>
<thead>
<tr>
<th></th>
<th>Sustained sounds 8 &lt; 12 beats/seconds in length</th>
<th>Sustained sounds 12 beats/seconds or more in length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length</td>
<td>time</td>
</tr>
<tr>
<td>Statement in Blue*</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Epitaph for Moonlight</td>
<td>~4:10</td>
<td>0:10</td>
</tr>
<tr>
<td>In Search of Zoroaster</td>
<td>~45:00</td>
<td>Only seven brief places in the score exist where there is not a sustained tone of substantial length.</td>
</tr>
<tr>
<td>Train</td>
<td>4:36</td>
<td>:58</td>
</tr>
<tr>
<td>Snowforms</td>
<td>7:00</td>
<td>:37</td>
</tr>
<tr>
<td>Gita</td>
<td>~13:00</td>
<td>:38</td>
</tr>
<tr>
<td>Apocalypsis Part One</td>
<td>~78:00</td>
<td>4:04</td>
</tr>
<tr>
<td>A Garden of Bells</td>
<td>~10:00</td>
<td>2:32</td>
</tr>
<tr>
<td>The Star Princess and the Waterlilies</td>
<td>~15:00</td>
<td>1:03</td>
</tr>
</tbody>
</table>

As Table 4.5 also makes clear, every work in this study uses some form of the glissando. Schafer remarks that, “The flat line in sound produces only one embellishment: the glissando… then flat lines become curved lines. But they are still without sudden surprises.”65 Far from the insinuation that the glissando is only an embellishment of the flat line, Schafer has turned it into a device in its own right. When musical lines are free to meander from note to note, a new set of musical possibilities emerges. Schafer uses glissandi and portamenti in a variety of ways and he has embraced these traits and made the glissando an integral part of his musical language. As Stephen Adams points out,

The glissando, especially the slow semitone glissando, is one of Schafer's most distinctive fingerprints. It is related to his fondness for semitone clusters and for semitone groups in his tone rows, as well as to his use of drones.  

*Snowforms* would not exist in its current form, as a visual and aural representation of fallen snow, without the glissando. *Apocalypsis I* uses the glissando a number of different ways, most notably for the slow descent during the vision of the end and as notations for vocal inflections (Example 4.5).

4.2 Harmony

Using graphical notation presents unique challenges when writing harmony. *Epitaph for Moonlight* clearly articulates the intervallic distance between different pitches, thereby carefully creating consonant harmonies. *Snowforms* is able to include consonant harmonies because of its ubiquitous use of note names. The other works in this study use a variety of notational devices to derive harmonic structures. A variety of different graphical notation is used when writing cluster chords. Table 4.2 gives a number of different cluster chords examples.

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Table 4.2: Cluster Chords

<table>
<thead>
<tr>
<th>Indeterminate notes</th>
<th><img src="https://via.placeholder.com/150" alt="Cluster Chords" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Statement in Blue</em></td>
<td></td>
</tr>
<tr>
<td><em>Train</em></td>
<td></td>
</tr>
<tr>
<td><em>In Search of Zoroaster</em></td>
<td></td>
</tr>
<tr>
<td><em>Gita</em></td>
<td></td>
</tr>
<tr>
<td><em>The Star Princess and the Waterlilies</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expanding clusters built on staggered entrances.</th>
<th><img src="https://via.placeholder.com/150" alt="Cluster Chords" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Epitaph for Moonlight</em></td>
<td></td>
</tr>
<tr>
<td><em>Gita</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>As a block chord on a staff</th>
<th><img src="https://via.placeholder.com/150" alt="Cluster Chords" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Apocalypsis I</em></td>
<td></td>
</tr>
<tr>
<td><em>The Star Princess and the Waterlilies</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blacked out staff lines for sustained tone clusters</th>
<th><img src="https://via.placeholder.com/150" alt="Cluster Chords" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Apocalypsis I</em></td>
<td></td>
</tr>
</tbody>
</table>
Schafer uses a variety of approaches to relate these cluster chords to their context within the piece. In *Apocalypsis I*, it is clear that Schafer has a block of sound in mind on the organ, which slowly decreases in pitch content. In *Gita* and *Epitaph for Moonlight*, the cluster comes
because of an expansion of an initial note built on the all-interval tone row. In the end, Schafer considers the cluster chord a suitable sound for a variety of circumstances.

Within these works there is a progression from complete atonal writing to an increased use of triadic harmonies. Some works, such as *Gita, Statement in Blue* and *Train*, do not contain any use of triadic harmonies. However, *In Search of Zoroaster*, despite its abundant use of chord clusters, contains full measures based on major or minor triads and repeated rhythms on minor 3rds. Schafer tends to use these in sections requiring strength and stability. These harmonies do not have any tonal function, but as harmonies built on major or minor triads, they do give an impression of stability within the work. In 1976, Schafer remarked:

> I don’t think I ever threw away tonality entirely, because even if the music was serial, it was not serial in the conventional way, but in the sense of writing things with long extended series of rhythms, and using certain intervals, such as a minor second or a perfect fourth, in all their possible permutations. This kind of procedure gives a certain tonal quality to a piece. There was a tonal feeling in a lot of my music all the way through; there still is.⁶⁷

The tonal quality Schafer speaks of should not be confused with actual tonality. Rather, it is Schafer’s use of triads and repeated intervals that give the impression of some tonal influences. This impression, as Schafer suggests, is merely a product of a compositional procedure rather than any tonal thinking.

### 4.3 Meter and Rhythm

Somewhat related to Schafer’s use of sustained pitches is a third compositional characteristic already alluded to in previous pages: the nature of meter and rhythm. When using graphic notation, the rhythms are often more ambiguous, while with conventional notation they

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are starkly rigid. In either case, Schafer’s interest in creating sound sonorities through graphic notation directly influences the role of meter and rhythm.

As was already noted, Schafer’s graphic notation makes prevalent use of the straight line. A shortcoming of this notation, however, is that it does not adequately communicate clear rhythmic patterns. Example 4.6 shows a musical rhythmic pattern in graphic notation. To make this clearer than the notation can suggest, Schafer writes the desired rhythmic effect in conventional notation above the line of music. Thus, the rhythmic pattern is clearly understood within the context of the other information the graphic notation displays; i.e. pitches sliding from one note to the next.

Example 4.6: Rhythmic example in *Snowforms*

![Rhythmic example in Snowforms](image)

This characteristic also means that the line, as an indication of duration, is not bound to any particular metrical limitations. The implications of this are twofold: 1) organized rhythmic structures are noticeably absent in the graphical works (or at the very least inexact) and 2) the aural impression of sound becomes more important than its technical mastery. This second characteristic is one that seems to explain many of Schafer’s compositional choices throughout these works, such as improvised vocal lines in *Epitaph for Moonlight*, complete lack of durational values in *Statement in Blue*, use of train signals in *Train*, etc.
Rather than using traditional time signatures and measures to mark off time, these works often make use of a time log underneath the music (See Table 4.3 on pg.86). For example, the majority of *A Garden of Bells* is written without a time signature, despite using conventional notation. This also applies to *Star Princess and the Waterlilies*, where the solo passages are written more as unmetered recitatives, allowing for individual expression from the performers. What metered elements exist in *The Star Princess* are very rhythmic, usually polyphonic, and mainly written in canon. The importance of keeping the ensemble unified during these passages may have facilitated the decision for writing in conventional notation, where the notation also incorporates durations. Overall, the work still allows for freedom of expression through variations in tempo and rhythm.

Example 4.7: Ball game music from *The Star Princess and the Waterlilies*

![Musical notation](image)

Example 4.8: Rhythm and meter in *The Star Princess and the Waterlilies*

![Musical notation](image)

Probably the most striking use of rhythm and meter can be found in *Apocalypsis I* where the work begins with three different groups of instruments simultaneously performing in
different meters and tempi (10/4, 7/4, and 5/4 with tempi of 56 bpm, 63, and 49 respectively). The result is a cacophony of sound that is rhythmically unintelligible. What adds to the metrical ambiguity of the work is the fact that the work requires seven different conductors. These conductors all work independently at times, without much regard for the other ensembles, allowing for rhythmic freedom between them.

With the avoidance of clear metrical structures, the composer is free to write music not held captive by artificial metrical boundaries. All the pieces looked at in this study incorporate sections of music in free meter that results in a certain ambiguity of rhythm.

Table 4.3: Metrical indications in selected works

<table>
<thead>
<tr>
<th></th>
<th>Time Signature throughout</th>
<th>Mix of Time Signature and no time signature</th>
<th>No Time Signature throughout</th>
<th>Uses a Time log</th>
<th>Contains Tempo Markings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement in Blue</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Epitaph for Moonlight</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>Minimusic</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>In Search of Zoroaster</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Train</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>Snowforms</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>Gita</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>Apocalypsis Part One</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>A Garden of Bells</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>The Star Princess and the Waterlilies</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

Not all of Schafer’s compositions are void of clear rhythmic writing. In fact, there are many examples of ostinato and imitative rhythms that have become an important part of his compositional style. *The Star Princess and the Waterlilies*, for example, uses repetitive rhythmic
motives in canon to represent playing children. These rhythms are generally short and repeated in an antiphonal style. The result is that Schafer uses both clear rhythmic writing as well as techniques that tend to obfuscate them. Table 4.4 gives a number of examples of imitative rhythmic writing in his graphic works. The use of such ostinato rhythms is quite pervasive.

Rarely do these works use graphic notation to indicate exact pitches. *Epitaph for Moonlight* relies on adlib starting notes and then uses actual interval indications (+2, -2, etc.) for changing pitches. This is perhaps the most exact form of graphic pitch indication Schafer uses. *Snowforms* uses the actual letter names of the notes to indicate absolute pitches while relying on graphic portamenti and glissandi to move from note to note. In the other works, pitches are improvised through graphic indications. *Train, In Search of Zoroaster,* and *Minimusic* all use conventional notation to indicate absolute pitches when required.

Notationally, the hybrid works contain both similarities and differences to the purely graphical works. The most obvious difference is the fact that these works make much heavier use of conventional notation. Therefore, pitch indeterminacy is more infrequent. Regular rhythmic structures are also more prevalent in these works. Finally, harmonic thinking, both dissonant and consonant, is more prevalent. *Gita,* for example, with all of its freedom of meter and rhythm is quite strict in its use of pitch. *A Garden of Bells* is heavily reliant on exact notation. *A Star Princess and the Waterlilies* still uses pitch indeterminacy freely, but there are sections that do rely on the exact pitches. All of this is in some contrast to the graphical works, where the notion of pitch is, at times, more of a suggestion than a rigid demand, with *Statement in Blue* being the most indeterminate of all of them.
Table 4.4: Imitative rhythms in selected works

<table>
<thead>
<tr>
<th>Work</th>
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</tr>
</thead>
<tbody>
<tr>
<td><em>Epitaph for Moonlight</em>, pg. 8</td>
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<tr>
<td><em>Snowforms</em>, pg. 6</td>
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<tr>
<td><em>In Search of Zoroaster</em>, pg. 23</td>
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<tr>
<td><em>Apocalypsis I</em>, pg. 13</td>
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<tr>
<td><em>A Garden of Bells</em>, pg. 9</td>
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<tr>
<td><em>The Star Princess and the Waterlilies</em>, pg. 4</td>
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### Table 4.5: Types of Graphical Notation

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<th></th>
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<th>Epithal for Moonlight</th>
<th>Train</th>
<th>In Search of Zoroaster</th>
<th>Minimusic</th>
<th>Snowforms</th>
<th>Gita</th>
<th>Apocalypsis I</th>
<th>A Garden of Bells</th>
<th>The Star of the Waterlilies</th>
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<td>• Straight lines for sustained pitches</td>
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<td>• Relative height of a line is its relative pitch.</td>
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<td>• Wavy lines for trills or tremolo</td>
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<td>• Lines with dashes for tremolos</td>
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<td>• Slow vibratos with long wavy lines.</td>
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<td>• Dashed line for fades</td>
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Table 4.5 (cont.)

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<th>Train</th>
<th>In Search of Zoroaster</th>
<th>Minimusic</th>
<th>Snowforms</th>
<th>Gita</th>
<th>Apocalypse I</th>
<th>A Garden of Bells</th>
<th>The Star</th>
<th>The Waterlilies</th>
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<td>• Large waves for portamenti</td>
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<td>• Fading glissandi</td>
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<td>• Graphic for Improvisation</td>
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<td>• Graphic for consonant or dissonant chords</td>
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<td>In Search of Zoroaster</td>
<td>Minimusic</td>
<td>Snowforms</td>
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<td>The Star and the Waterlilies</td>
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Table 4.6: Parameters of Music Not Assumed by Graphical Notation

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<tr>
<th>Parameter</th>
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<th>Snowforms</th>
<th>Gita</th>
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<th>A Garden of Waterlilies</th>
<th>The Star of the Waterlilies</th>
<th>Princess and the Waterlilies</th>
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<tbody>
<tr>
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<td>• Exact Pitches using staff notation</td>
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<td>• Conventional Dynamic markings</td>
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<td>Meter and Rhythm</td>
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<td>• Use of meter and measures</td>
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<td>• Conventionally notated rhythms</td>
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<td>• Conventional Tempo Indications</td>
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<td>• Note Durations</td>
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Chapter 5: Conducting Considerations

Upon first glance, Schafer’s graphically notated works can seem daunting. However, one must keep in mind that Schafer’s original goal was to use graphic notation as an educational tool for young music students. In light of this, the system of notation intended to be straightforward, intuitive, and musically meaningful. Aside from the open form of Minimusic, these works are linear in their conception, moving from left to right on the printed page in measured or unmeasured time. These works provide unique challenges to those steeped in traditional musical forms, requiring both the conductor and singer to think musically in non-traditional ways.

Being one of Schafer’s most performed choral works, Epitaph for Moonlight is a particularly good example of his graphical notational style. The well-intentioned use of graphic notation as an educational tool to facilitate musical learning demands that conductors, in particular, concoct new methods of conducting and rehearsing. For this reason, it is beneficial to study the rehearsal and performance considerations of Epitaph for Moonlight.

One of the first tasks as a conductor when analyzing Epitaph for Moonlight is to become familiar with the visual detail of the score. An initial viewing will reveal that the work is divided into seven visually unique sections each marked by their own rehearsal letter. As previously mentioned, each section employs a unique compositional idea that generates a single phrase of music. How to negotiate through each of these sections individually is the conductor’s primary concern.

The work consistently uses several notational conventions:

- Straight lines as an indication for pitch
- Length of the line for duration
- Widening and thinning of the line for relative dynamic levels
- Time log to measure time
- Glissandi indicated as rising or falling lines
Randomly-placed noteheads for aleatoric rhythms
- Wavy lines for improvised vocal parts
- Intervals indicated by numbers (indicating semitones)
- Conducting cues marked with arrows

Questions of interpretation will invariably arise when faced with this new symbology.

The most pertinent questions will deal with:

- duration, since in many instances it is only relative
- meter and tempo, as the notation includes only a time log and no clear metrical divisions
- glissandi, either fast or slow, narrow or wide, etc.
- rehearsal methods, how can the music be taught effectively
- conducting gesture, how exactly will the performers be guided through the work by the conductor

The conductor must anticipate and answer these questions before the first rehearsal so that the choir immediately has a clear picture of how the work’s performance. Not only will this preparation benefit the rehearsal process, but it will also relieve the understandable anxiety of some singers.

For a conductor to rehearse and perform this work, it is important to have a firm understanding of the essential role of the conductor. Robert Demaree gives a clear definition of this role in *The Complete Conductor*, “Conducting is the act of communicating ideas through gesture.”  

Furthermore, he states that, “As a conductor, you must be, first of all, a superb communicator.” In Schafer’s graphic works, the conductor assumes the basic role of a guide, or, as Simon Streatfield mused, a coordinator. The creative interpretation of the graphical score challenges performing ensembles in new ways. As with any piece of music, graphic works require a conductor to be able to analyze the score in order to determine what relevant

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69 Ibid., 4.
information an ensemble needs to have communicated to it, and then find ways to communicate that information effectively through relevant conducting gestures. Traditional time-beating is only possible in these works where Schafer uses clear metrical divisions because the organizing principle in these works, such as *Epitaph for Moonlight*, *Statement in Blue*, and *Minimusic*, is not so much measured time as sound structures. Successful performances of such works must consider these issues.

*Epitaph for Moonlight* exemplifies how a contemporary score based on new graphic notational designs takes into consideration the logistical needs of performers. Most musical parameters are notated and the work progresses in a logical way. What follows is a basic conducting analysis of *Epitaph for Moonlight* and several issues that should be addressed for a successful performance.

**Rehearsal A and C**

The first section of the score of *Epitaph for Moonlight* reveals 16 individual lines (SATB divisi a4) each corresponding to one hummed voice part. It begins with an accelerating series of sustained entrances by each voice part spanning 20 seconds duration (See Example 2.2, pg. 19). This opening gesture may be conducted in a variety of ways.

<table>
<thead>
<tr>
<th>Table 5.1: Possible conducting gestures.</th>
</tr>
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<tbody>
<tr>
<td><strong>Simple 4-beat Pattern</strong></td>
</tr>
<tr>
<td><strong>Individual cues</strong></td>
</tr>
<tr>
<td><strong>Continuous motion from Soprano to Bass</strong></td>
</tr>
<tr>
<td><strong>Initial Cue</strong></td>
</tr>
</tbody>
</table>
In terms of clarity and precision, the first two options are preferable for conducting this opening passage. They effectively communicate to the choir when the entrances should occur, as well as the speed of the acceleration. However, the last option in the table may be an option with talented singers as more responsibility falls to the choir. The best way to rehearse this opening is through repeated practicing of descending chromatic scales – with notes both separated and sustained. Once the ensemble becomes adept at doing this, the addition of the accelerando completes the opening effect. The same can format can be taken at rehearsal C with whole-tone scales. The more the ensemble rehearses this, the less likely it is that the conductor needs to indicate more than the initial cue.

The second half of this opening section begins at rehearsal A (Example 5.1, pg. 97) and provides a good example of the trade-off between exact precision and musical improvisation. Throughout the 30 seconds of intended duration, no single gesture from the conductor will insure a perfect execution of this passage (aside from perhaps giving some indication of time). Schafer divides each of the eleven invented words for moonlight among sixteen solo voices – one for each vocal part. This also includes three parts that have only “oo,” “ah,” and “o,” and two parts, Soprano 1 and Bass 4, which simply hum.

Each of the words has unique dynamic indications that take into account its syllabic properties. The score shows that the texts are to be performed at different times, creating a kind of shimmering effect, but the notation only indicates this in relative terms. It would likely be too cumbersome for a conductor to try to cue each individual part in this section. If the conductor were to give one beat per second, then each vocal part could be given an approximate time in the score in which to sing. It is likely that Schafer’s intention was for each singer to take the initiative and perform their musical effect at approximately the right moment within the allotted
time shown by the conductor. This is the true benefit of graphic notation. It provides an opportunity for the performers to render a particular musical passage by relying on their own musical sensibilities. The conductor, then, can simply cue the beginning and end of the passage, indicating one or two-second intervals, while allowing the performers to sing without further input.

Example 5.1: *Epitaph for Moonlight*, Rehearsal A.

Rehearsal B

As in a number of his other graphic works, Schafer here uses a vertical arrow to indicate a conducting cue. Attention to this detail affirms that Schafer understands the difficulty of performing these works and, therefore, directs the conductor to cue key musical elements. This
particular section contains five such notated cues. Each of them corresponds to a particular motive performed by the singers:

1. the random percussive sibilants on “light”
2. the ascending glissando by unison voices
3. the two soprano solo entrances on the word “light” and,
4. the staggered whispering of the different words for “moonlight”

In addition, there needs to be one additional, obvious cue – the collective entrance to the unison tenor 4 note just after B. Aside from this one, the performers have all the information they need to render this section.

Example 5.2: *Epitaph for Moonlight*, Rehearsal B.

Sopranos and altos would benefit from rehearsing the sibilants on random pitches and rhythms. This is not difficult, but may require getting used to this new vocal technique. In addition, the two soloists would do well to become adept at singing their correct pitches in
relation to the tenor 4 note. The two intervals are an octave and a major 7th above the men’s note, which results in a sustained minor 2nd interval for the soloists.

**Rehearsal C**

This gesture resembles the opening moment of the work. However, the page turn reveals a completely new notational design—the addition of oval shapes sliced out of the score that indicate periods of silence; these require the singers to exit and enter at times only relatively indicated by the notation (Example 5.3). Unlike rehearsal A, Schafer helps the performers by including numeric indications of beats. For this reason, the section is written in 4/4 with an indicated tempo of ± = 60. Each of the vertical lines that run through the score from top to bottom corresponds to one second or one beat of music. A double line demarcates groups of four seconds. By conducting this section in a clear 4-pattern, the conductor should be able to help the singers execute their entrances and exits with a fairly high degree of accuracy. To facilitate this, the choir should not only be proficient in singing a sustained whole-tone scale, but should also have a good sense of pitch memory, which will allow them to exit and enter on the correct pitch. This task becomes difficult when combined with the sound of a dissonant cluster.
Rehearsal D

Schafer’s affinity for glissandi and sliding pitches shines through in this passage. Each of the four voice types (SATB) creates a unique musical effect based on a descending glissando. A set of instructions included in the score aids the performer in interpreting the passage in a way that notation alone cannot. Table 5.2 gives this list of included instructions.

The words Schafer refers to are those representing moonlight. The need for written instructions is one shortcoming of graphic notation. The gestures are not immediately comprehensible and must be thought through ahead of time to develop a successful pedagogy for instructing the choir what to do. Like rehearsal B, Schafer includes clear conducting cues for
both the voices and percussion. He gives no other indications to the conductor nor are any
needed to perform the first half of this passage.

Table 5.2: Instructions given at Rehearsal D

<table>
<thead>
<tr>
<th>Sopranos</th>
<th>Choose word and improvise on it melismatically, then rapid glissando down and fade out.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altos</td>
<td>Choose word. Sing only the vowels in rapid staccato descent, gradually slower and softer.</td>
</tr>
<tr>
<td>Tenors</td>
<td>Choose a sonorous consonant from one of the given words and execute it following the contours of the line given.</td>
</tr>
<tr>
<td>Basses:</td>
<td>Murmur several words, gradually lowering in pitch and fading away.</td>
</tr>
</tbody>
</table>

A soprano soloist sings the latter half of the section. It begins with a pitch chosen ad
libitum by a soloist from soprano four, followed by a melody clearly written in interval numbers
and straight lines. Schafer provides no time log for this passage. The only tempo indications are
the words “freely,” and “expressively,” which give the soloist license to sing at her own pace.
This leaves little for the conductor to do but follow the soloist, ready to cue the ensuing choral
entries. At the end of the solo line, the conductor cues the beginning of the next section
(rehearsal E).
Example 5.4: *Epitaph for Moonlight*, Rehearsal D

Rehearsal E

Despite the notational style, this passage is actually an eight-part canon for the women’s voices. They realize the canonic melody by using the numeric indicators of interval found in all parts. Written in conventional notation the theme would appear as:

![Music Staff with Canon Example]

The notation of the pitches is by lines of the same length, implying that all of them have the same duration. Each line must have the same duration and be sung in the same tempo in order for the canon to work.
As a conducting exercise, this passage poses a problem. Schafer gives two conducting cues within this section – one at the beginning and one at the end. What occurs between these two cues must be pre-determined by the conductor, but since there is no clear metric notation, the most plausible solution is to rehearse this section with the ensemble initially in unison and then in canon, without any assistance from the conductor. If a conductor wanted to retain control of this section, he/she would theoretically cue each entrance; while not impossible, this approach seems rather busy. The choir really is on its own after the initial cue at E. The intricacy of the resulting sound would not benefit by using a beat pattern. The choir has all the relevant information and the rest simply has to be rehearsed beforehand.
Rehearsal F

Here, Schafer gives cues for the percussion entrances and the collective bass hum. The solo that follows is *ad lib.*, requiring no cue from the conductor. Hence, Schafer does not write another conducting cue until the entrance of the sopranos, tenors, and basses just prior to rehearsal G. Aside from these cues, the conductor could assist the percussionists’ and singers’ sense of dynamic contrast.

Rehearsal G

This section is quite straightforward and very clearly marked by Schafer. After the continuation of the soprano one soloist’s pitch, Schafer notates two measures of 4/4 at a tempo of approximately $\pm=96$. The voices and percussion all enter in sequence (guided by pitch
indications). After the first measure, the soloist begins to oscillate and conductor cues the choral parts to initiate a hummed unison. The work concludes with a series descending glissandi, cued by the conductor (as well as the final two percussion sounds). The conductor should feel free to indicate dynamic changes in this section as well.

In rehearsal, the conductor must take pains to teach the two groups of each section to glissando down a half step producing temporary clusters that resolve to unisons. One method involves having the choir initially practice this passage in unison, being very aware of the semitone interval. Next, divide the ensemble into two groups and rehearse as one section with divided glissandi. Once the choir is proficient at this, recombine the four vocal sections, one at a time, until both groups in all four sections are included.

The creative methods of producing sound in *Epitaph for Moonlight* are not unique to this work but are really a quality of all Schafer’s graphic pieces. Not only are they new methods for realizing music, but they also force performers and conductors out of their comfortable
traditional roles to create an expressive musical experience. As in all of Schafer’s graphic pieces, the notation in *Epitaph* is not only creative and visually appealing but also highly functional. The information required for the conductor to teach and conduct the work effectively is well thought out. The notation Schafer uses leaves much less to chance than its appearance would initially suggest.

Each of Schafer’s graphic works, to the extent that it introduces original ideas, will require new approaches to score preparation and conducting. *Apocalypsis I* requires seven conductors to perform, most of whom conduct separate ensembles who sing in different tempi and meters.

At times, some of these conductors (notably 1 and 2) may require assistants. The score identifies how most of the logistical problems are to be conducted, but obviously the conductors need to plan their actions carefully in advance of any combined rehearsals.70

*Snowforms* in particular is a work that requires the conductor to devise an alternate conducting technique that can communicate effectively to the choir (see Example 2.14, pg. 40). The work contains a time log in five-second increments, but this is really a relative measure of time. Schafer makes clear in the notes that the conductor should not feel bound to the timing of the piece. As the vocal line in “continuous portamento”71 is the mainstay of the work, the most favorable conducting technique would be one crafted to the contour of the vocal line. Each hand gesture may communicate rising and falling portamenti without a reliance on measuring time. Sustained pitches, glissandi of variable lengths and intervals, changes of dynamics and intensity

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– all of these elements require inventive, yet appropriate hand gestures. Marcato gestures and rhythmic movement round out the gestural palette needed from the conductor.

A firm command of the suggested timing of the piece is not required for a successful performance. Schafer frequently remarks, “A time log is given to suggest durations but conductors should not feel enslaved by it.” Provided the conductor has a decent sense of time, the choir need not be concerned with its own metric precision. As is so often the case with Schafer’s music, the effect is what counts.

Schafer also allows room for the choir to create his desired effects by improvised motivic repetition. At three different points in the score, simple motives may be overlapped to create a murmuring effect. Beginning and ending cues to the choir by the conductor are enough to perform these sections.

Rehearsal procedures for *Snowforms* would include first learning the melodic material of the entire work without any portamenti. This is rather easy to do since Schafer notates all of the pitches. After these are learned, introduce portamenti while simultaneously allowing the choir to become familiar with the new conducting gestures. The conductor should treat the separate rhythmic and harmonic sections as extractable, separate exercises. Once learned, the choir needs

\footnote{Ibid.}
to reintegrate them into the work’s larger structural *Gestalt*. Just as Schafer provides instructions to assist the conductor with interpreting the score’s notation, the conductor, in turn, must communicate the nature of any new conducting gestures to the choir.

Other graphic works are approachable by following procedures similar to those outlined here. It is imperative that the conductor have a full understanding of the score – interpret its form, notation, pitch content, forces used, etc. Next, devise methods of rehearsal. As the ensemble likely has not had nearly as much time with the score, analyzing the score together with them will go a long way in not only learning the piece but also alleviating any hidden anxiety about it. Break down the music into manageable sections and learn it one section at a time. The conducting procedures used to communicate these to the ensemble will follow naturally from this process. The conductor must decide if he/she may conduct in the traditional way or whether a freer, less traditional approach is necessary.

While intended to reconnect music making with the process of education, Schafer’s graphic works are, by no means, easy to perform. The benefits of graphic notation are that a performer can receive an instant impression of the music in a score. The difficulty, however, is that each piece presents a new symbology that has to be mastered in order to interpret the music effectively. Written instructions only add to the time needed to learn a score. However, the benefits of graphic notation in achieving these unique musical effects far outweigh the difficulties.
Conclusion

The graphical works of R. Murray Schafer come out of his educational interests for young students. In this respect, he has succeeded in creating a notational style that is not reliant on previously learned notation. The works are visually stunning and can occasionally be viewed as works of art. Their success lies in their performability. Amateur and professional musicians still actively perform a number of these graphic works.

With these graphical pieces, Schafer has returned the focus of music making back to the realm of sound. Schafer’s compositional concerns have always leaned towards works which are influenced by some extra-musical reference such as the environment (Snowforms, Epitaph for Moonlight, A Garden of Bells), and spirituality (Gita, In Search of Zoroaster, Apocalypsis). This influence has filtered not only to the sound of these works, but also to their notation. Snowforms is a case in point. The look of the music is a direct result of the forms of snowdrifts outside Schafer’s farmhouse window. The large circle in the B section of Epitaph for Moonlight could be an image of the moon, with all its craters represented as random noteheads (see Example 5.2, pg. 98). And Train, with its symbol of a railway signal switch as a notation symbol.

Schafer’s notational method is largely consistent. Straight lines for pitch, abundant use of glissandi and portamenti, sound clusters, etc. His graphical works, however, do not explore the depths of aleatoricism as some graphic works have done. Schafer still maintains much control over many of the musical parameters (Statement in Blue being the obvious exception).

Even with the notational inventiveness, the largest departure for Schafer, compositionally, is in the area of meter and rhythm, which graphic notation often obscures. When using conventional notation, rhythm can be set very rigidly in the form of ostinato and canons. The works in hybrid notation favor rhythmic structures more than their purely graphical
counterparts do. This is the largest difference between the two types of pieces and may account for the reason Schafer will choose one notational style over the other.

Throughout all of this, Schafer is aware of the logistical problems some of these pieces will have and has provided pertinent instructions for some of these pieces. Schafer has written a large portion of his music for choirs and has conducted his own choirs. He understands what musicians need from the score for a successful performance: thoughtful conducting cues, prescribed pitch indications when needed, and the scoring of rhythmic and dynamic values (even if only relative). Even so, performers wishing to undertake these works must be willing to create new methods of communication between conductor and ensemble. The metrical ambiguity of these pieces necessitates a new approach to learning and performing these works. Just as Schafer broke new ground in creating these pieces, so to do performers need to find ways of interpreting these works in a manageable way.

These factors alone have allowed these works to achieve success as musical works. The contemporary performance of many of these works attests to that.
Bibliography


