IMAGES OF REMEMBERED EARTH

James Michael Floyd, B.M., M.M.

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APPROVED:

Thomas Clark, Major Professor
Paul Dworak, Minor Professor
Cindy McTee, Committee Member
William May, Dean of the College of Music
C. Neal Tate, Dean of the Robert B. Toulouse
School of Graduate Studies

*Images of Remembered Earth* is a musical composition scored for full orchestra. The composition was inspired by Georgia O'Keeffe's painting, *Light Coming on the Plains I* (1917), which depicts a sunrise over a flat and empty landscape. In the painting, the expanse of the sun's rays is expressed through an even-blended transformation of color from goldish-blue at the light's source to progressively darker shades of blue near the edges of the canvas. The progression of color is interrupted by thin gold bands which sectionalize the sunrise into seven concentric arches. The construction of the musical composition derives musical materials directly from elements found within O'Keeffe's painting, specifically the shaping of structure, expansion, and color in arch patterns.

Arch patterns, an integral element in O'Keeffe's painting, govern elements in the musical composition, including pitch selection, the overall tempo scheme, rhythmic activity, and formal shape. Pitch materials are expansive by design; this expansive quality is exhibited through the employment of wedge-shaped musical ideas and through the utilization of higher and lower registers. O'Keeffe's use of color in the painting influenced the orchestration of the music and is manifested in two ways: 1) gradual
transformation of timbral colors and 2) the juxtaposition of contrasting instrumental groupings.
ACKNOWLEDGMENTS

I am greatly indebted to Stephen Heyde, Julliette Buchanan, and Darryl Stuhr who served as advisors in regard to notation and orchestration issues.
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## II. *IMAGES OF REMEMBERED EARTH* ................................................. 1
ESSAY UPON COMPOSING IMAGES OF REMEMBERED EARTH

INTRODUCTION

Georgia O'Keeffe painted a series of watercolor paintings in 1917 depicting a memorable sunrise over the flat and empty Texas landscape.¹ In *Light Coming on the Plains I*, *Light Coming on the Plains II*, and *Light Coming on the Plains III*, the expanse of the sun's rays is expressed through an even-blended transformation of color from goldish-blue at the light's source to progressively darker shades of blue near the edges of the canvas. *Light Coming on the Plains I*, however, displays an aspect not found in other paintings within the series; thin gold bands sectionalize the sunrise into seven concentric arches.² The primary focus of this project is to derive musical materials directly from O'Keeffe's painting *Light Coming on the Plains I*. The arches play a vital role in the construction of the music in regard to structure, expansion, and color.

While composing the music inspired by O'Keeffe's painting, I discovered the following passage written by N. Scott Momaday:

> Once in his life, a man ought to concentrate his mind upon the remembered earth, I believe. He ought to give himself up to a particular landscape in his experience, to look at it from as many angles as he can, to wonder about it, to dwell upon it. He ought to imagine that he touches it with his hands at every season and listen to the sounds that are made upon it. He ought to


²As an appendix, a list of sources is provided to aid the reader locate art reproductions of O'Keeffe's *Light Coming on the Plains I*, *Light Coming on the Plains II*, and *Light Coming on the Plains III*. 
imagine the creatures there and all the faintest motions of the wind. He ought to recollect the glare of noon and all the colors of the dawn and dusk.⁵

In the excerpt above, Momaday expresses the shape, sound, feel, life, and color of the landscape. This eloquent passage reflects the concept of my musical composition. At first glance, O'Keeffe's painting *Light Coming on the Plains I* appears to be devoid of landscape, consisting merely of a horizon and arcs of light emitted from a single light source; on the contrary, the light itself--the arch shapes, the thin gold bands, the transformation of color from goldish-blue to darker shades of blue--is the landscape.

Momaday's descriptive language nicely compliments the art of O'Keeffe, and it is for that reason that I sought a title for my composition among his writings. The title, *Images of Remembered Earth*, refers to my conception of the work as a series of images depicting various perspectives of the landscape.

**PRELIMINARY MATERIALS**

**Distribution of Pitches**

I began by composing seven progressions representing each of the seven concentric arches (Example 1). The distribution of pitches in each progression is symmetrical. Sonorities 1 and 7 are single pitches; sonorities 2 and 6 consist of three pitches; sonorities 3 and 5 consist of five pitches; and sonority 4 contains seven pitches. The upper pitches of each progression form an arch shape; likewise, the lower pitches of each progression form an inverted arch shape.

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Example 1. Seven progressions.

<table>
<thead>
<tr>
<th>Arch 1</th>
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</tbody>
</table>
Example 1 continued.

Arch 6

Arch 7

Intervallic Structure of Sonorities

The intervallic structures of individual sonorities, specifically sonorities 2 through 6, are also symmetrical. In the first progression, hereafter known as Arch 1, sonorities 2 through 4 are constructed with intervals of major and minor seconds, pivoting around the pitch C; sonorities 5 and 6 are constructed with intervals of major and minor thirds, also pivoting around C (Example 2).

Example 2. Intervallic structure of sonorities in Arch 1.

Arch 1

Intervals: 2nds 2nds 2nds 3rds 3rds 3rds

The patterns of major and minor seconds used in sonorities 2 through 4 are intuitively constructed, avoiding chord structures that are identifiable as whole-tone,
chromatic, and octatonic; instead, each contains pitches that may be found in major and minor tonal scales. Sonorities 5 and 6 are constructed with patterns of alternating major and minor thirds. Two chords can be constructed with alternating major and minor thirds pivoting around the pitch C. Sonority 5 is constructed with a minor third below and a major third above pitch C; sonority 6 is constructed with a major third below and a minor third above pitch C. The tonal language chosen for the composition is pandiatonic with predominant use of melodic and harmonic structures that may be found in major and minor scales; the preliminary materials were designed to reflect this tonal language.

The second through seventh progressions, hereafter respectively known as Arch 2, Arch 3, etc., also contain symmetrical sonorities centered around pitch C (Example 3). Intervals other than major and minor seconds and thirds are employed, including sonorities constructed with perfect fourths, perfect fifths, major and minor sixths, and major and minor sevenths. As was the case in Arch 1, the patterns of major and minor sevenths used to construct sonorities in Arches 6 and 7 are intuitively constructed. Sonorities constructed with intervals of sixths employ the same pattern as sonorities constructed with intervals of thirds, namely the alternation of major and minor intervals.

Example 3. Intervallic structure of sonorities in Arches 2-7.
Example 3 continued.

Arch 3

\[
\begin{array}{c}
\text{2nds} & 3\text{rds} & 3\text{rds} & 4\text{ths} & 5\text{ths} \\
\end{array}
\]

Arch 4

\[
\begin{array}{c}
\text{3\text{rds}} & 3\text{rds} & 4\text{ths} & 5\text{ths} & 6\text{ths} \\
\end{array}
\]

Arch 5

\[
\begin{array}{c}
\text{3\text{rds}} & 4\text{ths} & 5\text{ths} & 6\text{ths} & 6\text{ths} \\
\end{array}
\]

Arch 6

\[
\begin{array}{c}
4\text{ths} & 5\text{ths} & 6\text{ths} & 6\text{ths} & 6\text{ths} \\
\end{array}
\]
Example 3 continued.

As is evident from examining sonorities 2 through 6 in each arch, sonorities or groupings of sonorities progress from those constructed with smaller to those constructed with larger intervals. The arch-shaped progressions are structured in this manner to reflect the expansive quality of the arches in O'Keeffe's painting. On a broader level, each arch is an expansion of the previous in regard to intervalllic makeup of successive sonorities and in regard to the registral span of each arch.

Relationship Between Successive Progressions

Pitches chosen for Arch 2 were derived from Arch 1 (Example 4). The central pitch of Arch 1, sonority 2 was extracted to create Arch 2, sonority 1. In a similar manner, Arch 2, sonority 2 derives its pitches from the three central pitches of Arch 1, sonority 3. Arch 2, sonority 3 consists of the five central pitches of Arch 1, sonority 4. Arch 2, sonority 4 draws its pitches from the five pitches of Arch 1, sonority 5; so that the sonority will consist of seven pitches, pitch D was added below and pitch B was added above, continuing the pattern of alternating major and minor thirds. Arch 2, sonority 5 takes its pitches from the three pitches of Arch 1, sonority 6; so that the sonority will consist of five pitches, pitch F was added below and pitch G was added above, continuing the pattern of alternating major and minor thirds. Arch 2, sonority 6 builds upon the pitch C of Arch 1, sonority 7; so that the sonority will consist of three
pitches, pitch G was added below and pitch F was added above to create a sonority constructed out of intervals of perfect fourths.

Example 4. Pitch relationship between Arches 1 and 2.

Arch 1

Common pitches between Arch 1 and 2

Arch 2

Arch 1 and Arch 2 are closely related with many common tones and similar chord structures; however, Arch 2 is more expansive in regard to registral span of pitches and the intervals used to construct sonorities. The remaining five arches are constructed in like manner. Arch 3 is derived from Arch 2, Arch 4 is derived from Arch 3, and so forth.

The seven arches serve as a beginning point for creativity and also as a means for structuring the composition. Materials are freely drawn from the progressions to create musical ideas. Imagery expressed through arch-shaped musical materials and through expansion in regard to register and interval structure plays a significant role in the composition.
Throughout this essay reference is made to the use of selected musical materials drawn from the seven preliminary progressions. It is necessary for clarity and convenience to devise a method for identifying the source of the materials. For example, music derived from a transposition two semitones higher of Arch 1, sonority 5 would be labeled Arch 1 / 5 / D (Example 5). The first portion of the label identifies the progression from which musical materials are derived. The second portion identifies the sonority or sonorities, each being numbered 1 through 7. The third portion indicates the transposition level by identifying the central pitch of the sonority or sonorities. Since the central pitch is shared among all sonorities in a single progression, it is therefore useful for identifying transposition levels.

Example 5. Method for identifying musical ideas.

<table>
<thead>
<tr>
<th></th>
<th>Arch 1 / 1-7 / C</th>
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<td>Arch 1 / 5 / D</td>
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**PITCH AND INTERVAL STRUCTURES**

It is not the intention within this essay to list and categorize every musical idea that is employed in the composition. The following discussion serves to demonstrate how the seven preliminary chord progressions are used to generate various musical ideas. The techniques discussed below are employed throughout the composition.
Measures 1-25

For the beginning of the composition, I chose to derive musical materials exclusively from Arch 1; materials derived from Arch 2, Arch 3, etc., follow in succession later in the composition. Measures 1-25 comprise a section with all musical materials derived from Arch 1. There are five musical ideas that may be briefly described as follows: 1) a chord scored for strings with piano and bells articulating entrances of pitches; 2) a recurring melody of five pitches, sometimes abbreviated, scored for woodwinds; 3) a succession of harmonic dyads scored for woodwinds, brass, and piano; 4) an arpeggio; and 5) a musical idea consisting of the alternation of two pitches a minor second or major second apart, much like a notated trill.

The composition opens with an arpeggiated chord consisting of wide intervals scored for strings with piano and bells articulating entrances of pitches, hereafter referred to as A1 (Example 6). Activity within this static sonority is created by means of tremolos and independent, rapidly-changing crescendo and decrescendo dynamics among the strings. In contrast, the oboe presents a five-note melodic line, hereafter referred to as B1, which emerges from the arpeggiated chord and slowly unfolds over several measures (Example 7).

The two musical ideas contrast and compliment one another. Whereas A1 exhibits wide intervals, B1 is stepwise with a skip of a major third near its conclusion. Both musical ideas share a common source; pitches are derived from a transposition of the upper pitches of the first five sonorities of Arch 1 (Example 8).
Example 6. Musical idea A1, measures 1-5.

Example 7. Musical idea B1, measures 1-11.

Arch 1 / 1-7 / C

Arch 1 / 1-5, upper pitches / D

A third musical idea is introduced in measure 5, hereafter referred to as C1 (Example 9). This idea consists of a succession of harmonic dyads derived from a combination of the upper and lower pitches of sonorities 2 through 5 of Arch 1 (Example 10). The dyads expand outwardly from a major third to a major ninth, reflecting the expansive quality of O'Keeffe's painting. Octave displacement is freely used in the orchestration.

The three musical ideas--A1, B1, and C1--are intuitively combined. As one idea emerges, rising to the forefront, the other two ideas withdraw into the background, giving emphasis to only one idea at a given moment. Choices were intuitively made whether to repeat or develop a musical idea or whether to create new ideas.

Musical idea A1 is repeated beginning in measure 6. In measure 11, however, variation was desired. Retaining the same rhythm and orchestration of A1, pitches derived from a transposition of the lower pitches of the first five sonorities of Arch 1 were substituted for the original pitches to create a transformation of A1, hereafter referred to as A2 (Examples 11 and 12). As was true of A1, distribution of pitches within the chord A2
purposely exhibits wide intervals. The specific size of interval is not a concern, only that the intervals are wide.

Example 9. Musical idea C1, measures 5-11.
Example 10. Source for musical idea C1.

Arch 1 / 1-7 / C

Arch 1 / 2-5, upper and lower pitches / D


Glockenspiel

Piano

Violin I

Violin II

Viola
Example 12. Source for musical idea A2.

Arch 1 / 1-7 / C

Arch 1 / 1-5, lower pitches / D

A fourth musical idea is presented beginning in measure 15, hereafter referred to as D1 (Example 13). This idea is an arpeggio that advances by intervals of major and minor thirds. Pitches are freely derived from a transposition of the first five sonorities of Arch 1 (Example 14). All nine pitch classes (C - C# - D - E - F# - G - G# - A - B) from Arch 1 / 1-5 / D are present; however, this is not characteristic of every occurrence of D1 found in the composition. D1 is influenced by sonorities 5 and 6 of Arch 1 which are constructed with major and minor thirds.


Arch 1 / 1-5/ D

A fifth musical idea is presented in measure 22 found among the strings, hereafter referred to as E1 (Example 15). This musical idea is a notated trill exploiting the interval of a minor or major second, though more often a major second. E1 reflects sonorities 2 through 4 of Arch 1 which are constructed with major and minor seconds.

Example 15. Musical idea E1, measure 22.

To summarize, measures 1-25 consist of musical materials derived from Arch 1. Only sonorities 1-5 were used because these sonorities reflect expansion, whereas sonorities 6 and 7 reflect contraction. With few exceptions, most all musical ideas are derived from a single transposition of Arch 1, specifically the transposition with D as the central pitch. My goal was to establish a "flat and empty horizon"4 upon which I could further expand musical materials; it is for this reason materials are derived from a single

4Eldredge, Georgia O'Keeffe, p. 28.
transposition of Arch 1. The five musical ideas are freely developed and are intuitively combined.

Measures 26-65

Measures 26-65 comprise a section in which recurring musical ideas from the previous section are freely developed and intuitively combined with four new musical ideas. The new ideas may be briefly described as follows: 1) an arpeggiated chord modeled after A1 and A2; 2) a melodic idea derived from the new arpeggiated chord; 3) sustained pitches spanning a major second, a development of the E1 idea; and 4) a complex ostinato texture scored for strings.

The section begins with an arpeggiated chord consisting of wide intervals, hereafter referred to as A3 (Example 16). The arpeggiated chord is reminiscent of the opening measures of the composition, specifically musical ideas A1 and A2; however, in this passage, the chord is presented with augmented rhythmic values and pitches are derived from Arch 2, rather than Arch 1. Also, notable is the orchestration which varies from the A1 and A2 ideas heard previously in the composition; the passage is scored for vibraphone and orchestral bells with selective pitches sustained by woodwinds, brass, and strings (Example 17).

Musical idea E1 is developed further in this section. E1 may be described as an alternation of two pitches a minor or major second apart, much like a notated trill. The interval of a major second is most often characteristic of E1. In measures 26-40, rather than the alternation of two pitches, the interval of a major second is presented as two sustained pitches, hereafter referred to as E2 (Example 16). In Example 16, selected pitches of A3, specifically pitches E and F#, are isolated and sustained by woodwinds, brass, and strings.

Example 17. Source for musical idea A3.
Example 18. Comparison between the upper notes of the first five sonorities of Arches 1 and 2.

Arch 1 / 1-5, upper pitches / E

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Arch 2 / 1-5, upper pitches / E

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Further expansion of the E1 idea, hereafter referred to as E3, occurs in measures 38-41 when two instruments present the E1 idea simultaneously at different pitch levels (Example 19). Violin II alternates pitches F# - G# and the violas alternate E - F#. Together, the pitches span the interval of a third (E - F# - G#), which is an expansion of the interval of a second.


In following measures, specifically measures 45-114, the E3 idea is extended and transformed into a texture consisting of as many as four simultaneous E1 musical ideas (Example 20). Scored for upper strings, the combination of various transpositions of the E1 musical ideas creates an intervallic span between the highest and lowest sounding
pitches that fluctuates from a major second to a major tenth in measure 52, to a major sixth in measure 54, to a major seventh in measure 55, and so forth. Overall, the idea expands from the original interval of a second to a variety of intervals spans (Example 21).

Example 21. Registral spans of musical idea E3, measures 45-114.

\[
\begin{align*}
\text{Example 21. Registral spans of musical idea E3, measures 45-114.}
\end{align*}
\]

To summarize, a sense of expansion is created in the selection and combination of musical materials and use of transposition levels. Materials presented in the second section, measures 26-65, are derived from both Arches 1 and 2. Also, transposition levels other than the transposition with D as the central pitch are employed. Expansion is a result, not only because materials from two arch sources are utilized, but also because Arch 2 is in itself an expansion of Arch 1.

Concentric Arches

The seven preliminary progressions served as a pallet from which I could derive musical ideas. My goal was to create interesting musical ideas which related to one another with a consistency of sound. I found some sonorities and pitch combinations more fruitful than others for composing.

The painting, *Light Coming on the Plains I*, exhibits thin gold bands which are arranged in seven concentric arches. The concentric arches directly influence pitch selection and employment in the composition. As previously discussed, in the first section of the composition, measures 1-25, musical materials are derived exclusively from Arch 1; whereas, in the second section, measures 26-65, materials are derived from both Arches 1 and 2. As the composition progresses, materials derived from Arch 3, Arch 4, etc., are introduced and combined with musical ideas previously presented in the work.

An example of a musical idea with pitches selected from Arch 3 occurs in measures 184-188 (Example 22). Scored for woodwinds, this brief chord progression is formed by combining selected sonorities from Arch 3 (Example 23). The first chord
derives its pitches from Arch 3/5/D; the second chord derives its pitches from Arch 3/6/D; the third chord derives its pitches from Arch 3/3/D; and the fourth chord derives its pitches from Arch 3/5/D. Not shown in example 22 is that the progression is combined texturally with musical ideas derived from Arches 1 and 2 through means of juxtaposition and superposition.

Example 22. Chord progression derived from Arch 3, measures 184-188.

Example 23. Source for chord progression derived from Arch 3, measures 84-88.

I used the *mapping* technique in various ways throughout the composition, and example 22 is a suitable illustration of this technique. A few measures earlier in the
composition, measures 172-176, a similar chord progression is presented orchestrated for brass (Examples 24 and 25). A comparison of the two progressions, examples 22 and 24, demonstrates the *mapping* technique.

Example 24. Chord progression derived from Arch 2, measures 172-176.

Example 25. Source for chord progression derived from Arch 2, measures 172-176.

In both chord progressions, the pitches are selected from sonorities 5, 6, 3, and 5, in that order, from two different arches--Arch 2 for the progression scored for brass and Arch 3 for the following progression scored for woodwinds. Initially, the order of sonorities was an intuitive choice, but it was a deliberate choice to have the chord progression scored for woodwinds mirror the progression scored for brass. Rhythm in both progressions is similar with the pattern of long-short-long-long-long durations. The
mapping technique and orchestration are used to create variety; rhythm and relative adjacency of the progressions preserves an audible relationship between the two progressions.

The method used for mapping of pitch material is as follows: I created a sketch derived from measures 172-176 using the mapping technique (Example 26). I replaced each pitch derived from Arch 2 / 3, 5-6 / G with the corresponding pitch of Arch 3 / 3, 5-6 / D. For example, the pitches of trumpet 1 (D - C - B - D), which are the upper pitches of Arch 2 / 3, 5-6 / G, were replaced with the pitches (C - A - A - C), which are the upper pitches of Arch 3 / 3, 5-6 / D; this may be observed in staff 5 of example 26. I continued this process for each of the melodic lines.

Example 26. Sketch created using mapping technique.

Once the sketch was created, I used the sketch to compose measures 184-188. In some cases, pitches are redistributed in the score in comparison to the sketch. Rhythm
is also altered. The technique of using *mapping* to create a sketch and then to make alteration to the sketch to produce the final version found in the score is commonly employed throughout the composition.

An example of a musical idea with pitches selected from Arch 4 occurs in measures 256-263 (Example 27). In example 27, music derived from Arch 1, Arch 2, Arch 3, and Arch 4 are presented in succession. The pitches in measures 238-242 are derived from Arch 1 / 1-6, upper pitches / Bb for the violins and viola and from Arch 1 / 4-6, lower pitches / Bb for the tuba, violoncello, and contrabass. Employing the *mapping* technique, the following measures, measures 243-247, are derived from Arch 2 / 1-6, upper pitches / C for the violins and viola and from Arch 2 / 4-6, lower pitches / C for the tuba, violoncello, and contrabass. Employing the *mapping* technique again in measures 248-256, the music is derived from Arch 3 / 1-6, upper pitches / C for the violins and viola and from Arch 3 / 4-6, lower pitches / C for the trombone, tuba, violoncello, and contrabass. The *mapping* technique is employed again in measures 256-264; here, the music is derived from Arch 4 / 2-6, upper pitches / D for the violins and viola and from Arch 4 / 2-6, lower pitches / D for the trombone, tuba, violoncello, and contrabass.

The choice of transposition levels is intuitive. The choice to juxtapose short progressions, each derived from a successive arch, was planned with the intention of creating a passage which is expansive. Since each successive arch is an expansion of the previous arch in regard to registral span, the music progressively utilizes higher and lower registers and grows more intense.
Example 27. Music derived from Arch 1, Arch 2, Arch 3, and Arch 4 in succession, measures 238-263.
Example 27 continued.

Tbn. 3

Tb.

| Arch 2 / 1-6, upper pitches / C |

Vln. I

Vln. II

mf

f

Vla.

| mf |

f

Vcl.

| Arch 2 / 4-6, lower pitches / C |

Cb.

| f |

f
Example 27 continued.

Arch 3 / 4-6, lower pitches / C

Arch 3 / 1-6, upper pitches / C

Arch 3 / 4-6, lower pitches / C

Arch 3 / 4-6, lower pitches / C
Example 27 continued.

Arch 4 / 2-6, lower pitches / D

Arch 4 / 2-6, upper pitches / D

Arch 4 / 2-6, lower pitches / D
Example 27 continued.

The concept of concentric arches is expressed two ways within the composition. The first, as discussed above, is by introducing musical ideas derived from arches in succession--Arch 1, Arch 2, Arch 3, etc.--and combining these musical ideas with musical ideas derived from other arches. A second way is through the layering of arches. This may be observed in measures 480-503. I began by layering Arches 1 through 4, sonorities 1-5, offsetting each successive arch progression by one sonority (Example 28). As discussed earlier in this essay, there is a close relationship between pitches of successive arches; therefore, there are many common tones between each. By layering the four arches, a composite progression of pitches results (Example 29). This composite
progression was used to compose measures 480-487 of the composition (Example 30). In like manner, I layered Arches 2 through 5 and used the composite progression to compose measures 487-494. For the conclusion of the composition, I layered the first five sonorities of all seven arches. The composite progression was used to compose measures 494-503.


Example 29. Composite progression of Arches 1 through 4.
ARCH-SHAPED MUSICAL IDEAS

There are many arch-shaped musical ideas found in the composition. In some respects, it is a natural course to compose arch-shaped musical ideas when the source of the ideas originate from arch-shaped preliminary progressions. The numerous occurrences of the arch shape were deliberate, for the arch is an integral part of O'Keeffe's painting, and therefore became an integral structure, on both a small-scale and large-scale level, in the composition. The arch-shape musical ideas can be classified into three categories: 1) upward slope of the arch shape; 2) downward slope of the arch shape; and 3) full arch shape. The following are a few selected examples (Examples 31-37).
Example 31. Upward slope of the arch shape, measures 18-20.
Example 32. Upward slope of the arch shape, measures 1-5.

Orchestra Bells

Piano

Example 33. Downward slope of the arch shape, measures 181-184.

Orchestra Bells

Vibes.

Harp

Piano
Example 34. Downward slope of the arch shape, measures 291-308.

Example 35. Full arch shape, measures 15-16.

Example 36. Full arch shape, measures 181-183.
Example 37. Full arch shape, measures 194-195.

Example 38. Metric modulation, measures 117-120.

TEMPO

The composition begins with a moderate tempo of $j = 108$. In measure 119, the tempo changes to $j = 162$. I used metric modulation, a technique often associated with the music of Elliott Carter, to increase the tempo. The use of metric modulation can best be demonstrated in the flute 2, harp, and viola parts, measures 117-120 (Example 38).
In measures 117-118, the quarter-note beat is subdivided into triplet eighth notes, evident in the harp's arpeggios. In measures 119-120, the tempo changes to \( \dot{J} = 162 \), and the quarter-note beat is divided into two eighth notes. There is a relationship between the two tempos, \( \dot{J} = 108 \) and \( \dot{J} = 162 \); a triplet eighth note within the tempo \( \dot{J} = 108 \) is equal in time value to an eighth note within the tempo \( \dot{J} = 162 \). Therefore, all of the notes in example 38 are equal in time value. The beat, however, is redefined; the beat, equal to three pulsations within the tempo \( \dot{J} = 108 \), is redefined to be equal to two pulsations within the tempo \( \dot{J} = 162 \). This results in an increase in tempo.

In measure 181, the tempo changes to \( \dot{J} = 88 \) as the music grows with intensity. The change of tempo is approached with an accellerando to facilitate a smooth transition. Beginning in measure 315, although the tempo remains the same as in previous measures, \( \dot{J} = 176 \), the music introduces longer and longer notes values, thus providing the effect of slowing the music down. By measure 386, the beat, formerly a quarter note, isaurally redefined as a half note. In measure 480, as a matter of convenience, the tempo marking is halved, \( \dot{J} = 88 \), and the music progresses with broad rhythms.
Overall, the tempo scheme is arch shaped. The music progresses from \( j = 108 \) to a faster, more rhythmically active \( j = 88 \), then back to a slower tempo \( j = 88 \) near the end of the composition.

**RHYTHMIC AND METRIC STRUCTURES**

Rhythmic and metric structures are intuitively constructed for the most part throughout the composition. I adjusted rhythms, making selected notes longer or shorter as I desired. This resulted in melodies and melodic fragments that are composites of durations, resulting in rhythms free if rigid metric association (Example 39). As may be observed in the following example, I was continually aware of the beat as I composed, however, meter was often merely a convenient framework on which I could drape diverse musical materials.

Example 39. Solo violin, measures 289-312.

Ostinato

The use of ostinato is prevalent throughout the composition. In measures 66-105, the harp unfolds a twelve-and-a-half-beat ostinato that is constructed with five pitch classes (C# - D# - E - F#- G#) (Example 40). The pitch set is derived from Arch 2 / 3 / E
(Example 41). The beginning of the ostinato marks the beginning of the second section of the composition. Since musical materials in the previous section are derived exclusively from Arch 1, the harp ostinato is fashioned out of material derived from Arch 2. Intuitively, I found sonority 3 within Arch 2 fruitful for composing.

Example 40. Harp ostinato, measures 66-69.

Example 41. Arch 2 / 3 / E.

The harp ostinato moves with uniform eighth-note rhythm. To create variety within this passage, I transposed sections of the ostinato down the interval of a perfect fifth, which may be expressed as Arch 2 / 3 / A. This occurs in measures 78-80, 86-87, 89-90 (Example 42).

The ostinato, because of registral groupings of pitches, is a composite of varying melodies and melodic fragments. One particular melody, utilizing the lower notes of the ostinato, is given more significance through means of orchestration. In measures 75-90, selected lower notes of the ostinato are doubled by the violoncellos (Example 43).
Example 42. Harp ostinato, measures 78-92, showing transposition shifts between Arch 2/3/E and Arch 2/3/A.

Harp

\begin{align*}
\text{Arch 2/3/E} & \quad \text{Arch 2/3/A} & \quad \text{Arch 2/3/E} \\
\text{Harp} & \quad & \\
\end{align*}
Example 43. Harp ostinato with violoncello doubling of selected pitches, measures 75-90.
Example 43 continued.

The ostinato returns in measures 181-193 scored for orchestra bells, vibraphone, harp, and piano (Example 44). As was the case in its previous presentation, the rhythm is uniform, progressing in quarter-notes. The ostinato is not presented by any one instrument; instead, single pitches or small groups of pitches are scored for changing combinations of timbres. The first two pitches are scored for orchestra bells and piano; the third pitch is scored for orchestra bells alone; the fourth pitch is scored for piano alone; the fifth pitch is scored for vibraphone and harp in octaves and for piano; the sixth and seventh pitches are scored for piano in octaves; and so forth. In this passage, octave displacement is used to create downward sweeping lines, representing musically the descending latter half of an arch shape. The ostinato is percussive with the intention of creating excitement and propelling the music forward.
Example 44. Ostinato scored for percussion, harp, and piano, measures 181-184.

Near the end of the composition, measures 362-415, the ostinato returns scored for piano with strings doubling selected pitches (Example 45). Once again, the rhythms are uniform with quarter-note movement for the most part; however, in this passage, the ostinato is interrupted by pauses—intervals of rests in the piano part and sustained notes in the string parts. A comparison between this passage and a transposed example of the harp ostinato reveals the source of the pitches. The piano ostinato is drawn from selected sections of the harp ostinato (Example 46).
Example 45. Ostinato scored for piano and strings, measures 362-380.
Example 46. Harp ostinato, transposed.

The harp ostinato is used to generate other musical materials found within the composition. In measures 133-135, a melodic idea is presented scored for bassoon and violins I (Example 47). The pitches are derived from the harp ostinato; the rhythms are intuitive. I composed this melody in four steps. First, I notated the harp ostinato. Second, I added a staff beneath the harp ostinato in the same manner as the example below and selected pitches from the ostinato for the melody, retaining the same durations found in the ostinato. Third, I intuitively altered the rhythm of the newly composed melody. Fourth, I removed the harp ostinato, leaving only the new melody.

Example 47. Violin I melody derived from harp ostinato, measures 133-136.

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Seven-Voice Canon

In measures 315-361, a canon of seven independent voices unfolds, representing each of the seven concentric arches. The canon uses a descending F# major scale spanning approximately three octaves. Durations for the canon are additive; each successive duration is a quarter note longer than the previous duration (Example 48). One exception to the additive durations can be observed in the first voice scored for violin I, measures 291-293, where the rhythm is intuitively changed.

Example 48. Pitch and duration of the canon theme.

There is a pattern for the entrances of voices: the entrance of the second voice coincides with the fourth note of the first voice; the entrance of the third voice coincides

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with the sixth note of the second voice; the entrance of the fourth voice coincides with the eighth note of the third voice; the entrance of the fifth voice coincides with the tenth note of the fourth voice; the entrance of the sixth voice coincides with the twelfth note of the fifth voice; the entrance of the seventh voice coincides with the fourteenth note of the sixth voice. Because of this plan for the entrances of voices, the interval of time between successive entrances becomes greater as the canon progresses.

Embedded within the canon is the melody presented by the oboe in the opening measures of the composition (Example 49). The following musical example demonstrates the relationship between the oboe melody, measures 1-11, and the beginning of the canon, measures 291-296.

Example 49. The pitch relationship between oboe 1, measures 1-11 (transposed) and violin I and II of the canon, measures 291-296.

This passage represents a specific scene to me. I imagine the ascent of a bird in flight in relationship to clouds and mountains and the sun. The progression of additive
durations and descent of the canon’s melodic line represents a widening distance between
the bird and the landscape that surrounds it.

The placement and purpose of the canon is significant: the canon is the climax
of the work. It is the first music that I wrote for the composition, and I planned the rest of
the composition around this passage. The descending lines of the canon reflect the descent
of the latter half of an arch structure which mirrors previous musical ideas depicting the
upward slope of the arch structure. The additive rhythms aid in slowing down the
momentum created in preceding passages, leading to broader rhythms and eventually to a
slower tempo for the conclusion of the work.

**ORCHESTRATION**

*Images of Remember Earth* is scored for full orchestra: piccolo, two flutes,
two oboes, English horn in F, two clarinets in Bb, bass clarinet in Bb, two bassoons,
contrabassoon, four horns in F, three trumpets in C, three trombones, tuba, percussion
(orchestra bells, vibraphone, crotales, suspended cymbals, chimes, xylophone, tam-tam,
and wind chimes), timpani, harp, piano, and strings (violin I, violin II, viola, violoncello,
and contrabass). A full orchestra provides a pallet of timbral colors through the
combination of instruments, use of solo instruments, and timbral effects.

**Timbral Effects**

Common orchestration effects, such as pizzicato in string writing, string
harmonics, and mutes for brass, are used in the composition to create timbral variety. A
few other timbral effects are employed and are described below.

In the opening measures, measures 1-15, the violins and viola play tremolos
with the marking *sul ponticello* which instructs the players to bow at or near the bridge of
the instrument. This produces a glassy effect which I felt appropriate for the opening of
the composition and which represents to me the first appearance of light over the horizon.
The marking is used elsewhere in the composition when the music is reminiscent of the beginning.

In measures 265-303, the violins play tremolos with the marking *sul tasto* which instructs the players to bow over the fingerboard. This results in a softer, less resonant sound, occurring in a section that is relatively soft, yet building with tension in preparation for the climax in measure 291.

There are two passages where solo string instruments are used. In measures 75-91, a solo viola is employed, and in measures 289-311, a solo violin emerges from the texture. In each case, variety in timbre was desired.

**Klangfarbenmelodie**

*Klangfarbenmelodie*, a pointillistic orchestration technique where each pitch of a melody is scored with different timbres or timbral combinations, is employed in several passages of *Images of Remember Earth*. In measures 39-43, for example, the first two pitches of the melody are introduced by the horns and violins; the third pitch is scored for English horn and violins; the fourth pitch is scored for English horn; the fifth and sixth pitches are scored for clarinet, harp, and violins; the remainder are scored for flute and clarinet (Example 50).

In measures 125-141, the orchestration is inspired by Arnold Schoenberg’s use of another *Klangfarbenmelodie* technique in the third movement of *Fünf Orchesterstücke*, op. 16 [Five Orchestra Pieces]. The third movement of Schoenberg’s work, originally named "Farben" [Colors] and later renamed "Summer Morning by a Lake", is characterized by a gradual succession of chords animated by alternating changes of instrumental timbre. In *Images of Remembered Earth*, through the progression of changing timbres and through the rearticulation of individual pitches, a harmonically static structure becomes more active (Example 51).
Example 51. *Klangfarbenmelodie* technique, measures 125-141.
Example 51 continued.
Example 51 continued.
Example 51 continued.
Beginning in measure 125, a dyad (D# - C#) is scored for flute, bass clarinet, muted trumpet and trombone, and violins. This timbral combination is answered in measure 127 by a chord (B - D# - C#) scored for flute, oboe, two clarinets, and bassoon. Both sonorities are supported by the pitch B played by violoncello and contrabass. The pitch content, including the B pedal in the lower strings, is the same for both sonorities; the orchestration of the two sonorities differs. The flute is a member of both sonorities; however, the flute is scored in its mid register in the first sonority and in its low register in the second. Bass clarinet is utilized in the first sonority; a pair of clarinets are members of the second sonority. Violoncello and contrabass are common to both groups. The timbral groups contrast and compliment one another.

In measure 130, the dyad (D# - C#) is reiterated with its original orchestration. The sonority is answered in measure 132 by a chord (B - D# - C#) with its original orchestration and the addition of English horn. The sonority to follow in measure 135 contrasts with previous sonorities in regard to pitch and orchestration. The dyad (D# - E#/F) is scored for bass clarinet, stopped horn, and open trumpet. All the while, the lower strings continue to sustain pitch B as a pedal.

In measure 138, the sonority (B - D# - E#/F - C#) is scored for flute, oboe, English horn, stopped horn, and trumpet, supported by the pitch Bb among the lower strings. With enharmonic respellings, the pitches (A# - B - C# - D# - E#) are derived from the upper pitches of Arch 1 / 1-5 in which the pitches are presented in retrograde-inversion (Example 52). Each of the three pitch sets (D# - C#), (B - D# - C#), and (A# - B - C# - D# - E#) are derived from a single source. Pitch C, played by violoncello in measures 139-141, is an intuitive addition in relationship to the pitch set.
Example 52. Source for pitches, measures 125-141.

Arch 1 / 1-5, upper pitches / C

Arch 1 / 1-5, upper pitches / retrograde inversion, transposed

The passage, measures 125-141, is expansive in pitch content, progressing from pitch sets (B - D# - C#) to (B - D# - E#/F) to (A#/Bb - B - D# - E#/F - [C] - C#). Likewise, the passage is expansive in regard to timbral color, beginning with the alternation between two small timbral groups and progressively introducing new colors. Near the conclusion of the passage, measures 138-141, eight instruments and six different pitch classes sound simultaneously as compared to the beginning of the passage, measures 125-127, where only five instruments and three pitch classes sound simultaneously.

Adding to the color, individual pitches within the sonorities are rearticulated in succession at irregular intervals. There is no pattern for the rhythm except that I deliberately sought to limit the simultaneous occurrence of rearticulations among the different instruments. The purpose of the irregular rhythms is to create an overall composite of rhythmic activity. The expansive qualities of the passage and the successive rearticulation of pitches creates movement and propels the music toward a point of arrival in measure 144.

Color

O'Keeffe did not use great variety of color in the painting *Light Coming on the Plains I*; however, color is an integral part of its structure. There are two aspects of color in the painting: 1) transformation of color from goldish-blue at the light's source to progressively darker shades of blue near the edges of the canvas and 2) thin gold bands...
that interrupt and sectionalize the transformation of blue. Within the composition, I felt that a colorful orchestration was needed to convey various perspectives of the landscape. Despite the economy of color in O'Keeffe's painting, her use of color influenced the orchestration of the music.

One influence of O'Keeffe's use of color is expressed in the music through a gradual transformation of timbral colors. Recurring ostinatos in the composition often exhibit this characteristic, realized through variant orchestration of recurring musical ideas. Examples discussed previously in this essay display transformation of timbral colors (Examples 43, 44, and 45). In example 43, the ostinato is scored for harp and violoncello playing pizzicato. In example 44, the ostinato is scored for percussion, harp, and piano. The harp is common to both examples, and all sounds are percussive, created by means of striking a percussion instrument or striking or plucking a string. In example 45, the ostinato is scored for piano and strings. The piano is common to both examples 44 and 45; however, the strings sustain pitches and are, therefore, not percussive in nature. The variant orchestrations of these three passages create timbral transformation.

A second influence of O'Keeffe's use of color is expressed in the music through the juxtaposition of contrasting instrumental groupings. An example of this occurs in measures 224-233 (Example 53). In example 53, a brief progression orchestrated for woodwinds is juxtaposed against a progression orchestrated for brass; the brass progression, in turn, is juxtaposed against another progression orchestrated for woodwinds. The alternation of contrasting instrumental groupings expresses the thin gold bands that sectionalize the transformation of color in the painting.
Example 53 continued.
FORMAL SHAPE

The overall shape of the composition is an arch, reflecting the shape of O'Keeffe's painting. The music is divided into several sections and the sections can be grouped into larger units:

Section 1  Section 2  Section 3  
mm. 1-25  mm. 26-65  mm. 66-118

Section 4  Section 5  Section 6  Section 7  
mm. 119-180  mm. 181-205  mm. 206-237  mm. 237-264

Section 8  Section 9  
mm. 265-314  mm. 315-385

Section 10  Section 11  
mm. 386-479  mm. 480-510

The first three sections, measures 1-25, 26-65, and 66-118 respectively, are introductory. Musical ideas are introduced and freely developed and combined. Sections 4 through 7, measures 119-180, 181-205, 206-237, and 237-264 respectively, are characterized by an increase in rhythmic activity, dynamic levels, density of orchestration and greater use of brass instruments. Sections 8 and 9, measures 265-314 and 315-385 respectively, prepare for the climax and includes the climax itself. Sections 10 and 11, measures 386-479 and 480-510 respectively, are relatively slower in tempo, softer in dynamic levels, thinner in orchestration, and bring the composition to a conclusion.

SUMMARY

It was not my intention simply to write music representational of a sunrise, although I believe the music does convey the shape, sound, feel, life, and color of a
sunrise landscape. My goal, while composing *Images of Remembered Earth*, was to derive musical materials drawn from elements found within O'Keeffe's painting.

**Structure**

I began by constructing seven arch-shaped preliminary chord progressions from which I derived much of the pitch material used in the composition. I deliberately fashioned some of the musical ideas into arch shapes as well. I used the arch shape to govern elements of the composition, including the overall tempo scheme, rhythmic activity, and formal shape of the composition.

**Expansion**

The seven preliminary progressions are expansive by design. This characteristic is also an important element in the composition. Expansion is evident in a variety of ways, such as employing wedge-shaped musical ideas, progressively utilizing higher and lower registers, and juxtaposing musical ideas derived from successive arches where the expansive nature of the progressions is exhibited.

**Color**

Although O'Keeffe's painting, *Light Coming on the Plains I*, does not exhibit great variety of color, her use of color influenced the orchestration of the music. This is manifested in two ways: 1) gradual transformation of timbral colors and 2) the juxtaposition of contrasting instrumental groupings.
APPENDIX

SELECTED BIBLIOGRAPHY OF ART REPRODUCTIONS
OF GEORGIA O'KEEFFE'S
LIGHT COMING ON THE PLAINS SERIES

LIGHT COMING ON THE PLAINS I


LIGHT COMING ON THE PLAINS II


*LIGHT COMING ON THE PLAINS III*


BIBLIOGRAPHY

BOOKS

