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ANALOGICAL OBSERVATIONS:
GUNTHER SCHULLER'S SETTINGS
OF ARTWORKS BY PAUL KLEE

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CAROL VanRANDWYK COWEN

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ANALOGICAL OBSERVATIONS: GUNTHER SCHULLER'S SETTINGS OF ARTWORKS BY PAUL KLEE

By

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ABSTRACT

ANALOGICAL OBSERVATIONS:
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The present thesis observes analogous theoretical relationships between the elements of art and the elements of music as they are evidenced in Gunther Schuller's Seven Studies on Themes of Paul Klee and the seven artworks of Paul Klee upon which Schuller based his music. Terminology from the writings of Paul Klee is applied to both visual and musical elements, and parallel interelationships and effects are considered. The elements termed Measure (line, rhythm), Weight (tinting, shading, timbre, tessitura, dynamics), and Quality (color, pitch) are considered within three basic areas of analogical phenomena, which are termed 'complementary pairing,' 'tripartite equidistance,' and 'modes of expression.' The analogical phenomena of complementary pairing and tripartite equidistance deal exclusively with the element of Quality, i.e., relationships between color and pitch. These relationships are observed in a theoretical context and then applied to the actual works. The area of analogical phenomena termed 'modes of expression' considers interelationships and effects of each and every element.

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I. INTRODUCTION

Analogy is defined in Webster's dictionary as "An agreement of likeness between things in some circumstances or effects when the things are otherwise entirely different." Although visual art and music are entirely different art forms, philosophers, artists, and musicians through the centuries have recognized the essence of analogy between them. Musical compositions are often given visual titles, while visual compositions have been denoted by musical titles. Visual art is at times described in musical terminology, while music is similarly spoken of in terms of visual art. And of course the philosopher goes beyond the cosmetics of the analogy, in his search for the underlying realities to explain various uncertainties.

The word analogy is derived from the Greek word 'analogia'; the prefix ana- meaning according to, and logia from 'logos', meaning ratio and proportion. Visual art and music are two art forms which are constructed according to ratio and proportion. They are two entirely different languages of creativity, although the forms of ratio and proportion within each language can be translated from one to the other. Certainly not all elements and meanings will speak equally well within the other art form, just as literature translated from one language to another loses some of its original meaning.

Analogous elements, dimensions, and parameters of ratio and proportion will be studied in this thesis as they reveal themselves in Gunther Schuller's Seven Studies on Themes of Paul Klee. Paul Klee himself was a philosopher and musician as well as a visual artist. He was widely read in the sciences, giving his writings an

empirical quality, as Klee finds himself analyzing the absolutes of art. On January 26, 1924, Klee gave a lecture at the opening of an exhibition of his work at Jena Kunsterein[1] in Bavarian Germany. He prepared a short treatise on modern art as the basis for this lecture. The treatise was not published until 1945, but had an immediate effect on the artistic community, which has continued to the present time. This study will use Paul Klee's observations and terminology from the Jena lecture and other writings to describe the basic elements of art, inasmuch as he is well qualified, and his are those works upon which Gunther Schuller constructed music.

Elements of art combine to make partial structeres, shapes, and total forms as do the elements of music. Klee begins his discussion of these elements with those which he terms "the more or less limited formal factors."[2] These are line, tone value, and color. He gives these three elements a broader scope through the respective alternate terminology of Measure, Weight, and Quality. Klee explains that line is the most limited element, since it is "a matter of simple measure."[3] One can measure angles, curves, lengths of radius and focal distance of and through line. In music, this theoretical element of Measure is rhythm. The temporal length of sounds and silence, and the distance between any number of musical events can be measured.

The second of the basic elements of art which Klee discusses is tone value. This tone value, or Weight, consists of the many degrees of shading between white and black. He dicusses the possibility of a color

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[1]Jena Art Society--Jena being a city

[2]Paul Klee, On Modern Art, (London and Boston, Faber and Faber, 1979), p. 21

[3]Ibid., p. 21

being "more or less rich in white energy, or more or less weighted towards the black."[1] These various shadings between white and black, i.e., gray, may interact with each other through blend or juxtaposition. Tone value, or Weight, achieves the lightness or brightness, or the heaviness or darkness perceived in a work. In music this element of Weight, or tone value, relates favorably to the timbre of a sound; an instrumental sound is often described as dark or bright, as colors may be described as loud or soft. Musical tone value, or Weight, may also be the dynamic level of a sound, or perhaps it relates most favorably with the pitch class (octaval register) of the tone or tones sounding. The importance of pitch class becomes clearer when the third element of color, or Quality, is considered in detail. Let it suffice to point out here that as a color, for example blue, is still blue, whether it be lightened or deepened by white and black; a pitch, for example E, is still E, whether it is e_4 or great E.

Klee conceptualizes color as more unique in its nature and variations than Measure and Weight. He states that color "can neither be measured or weighed."[2] Certainly we can find a color's place in the spectrum, or find a scientific label for its content, but we can not measure yellow's yellowness any more than salt's saltiness. We can only compare salt to sugar, or yellow to red, and thereby further understand its singular quality. The aesthetic effect or affect of color is beyond the scope of measurement in the graphic sense. Aesthetic sensitivity is intuitive in essence. The scientific dogma of measurement is of little value in apprehending aesthetic quality. So to Klee, color, beyond line (Measure) and tone value (Weight) demands aesthetic sensitivity to perceive its

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[1] Paul Klee, On Modern Art, (London and Boston, Faber and Faber, 1979), p. 21

[2] Ibid., p. 21

quality. Therefore, Klee terms the element of color as Quality. A pitch's frequency can be measured, or its place in the overtone series can be located; but what is then measured is not the pitch's aesthetic sound, which is its Quality, and the essence of music. To comprehend or apprehend a pitch's meaning, intuitive sensitivity, not graphic measurement is needed.

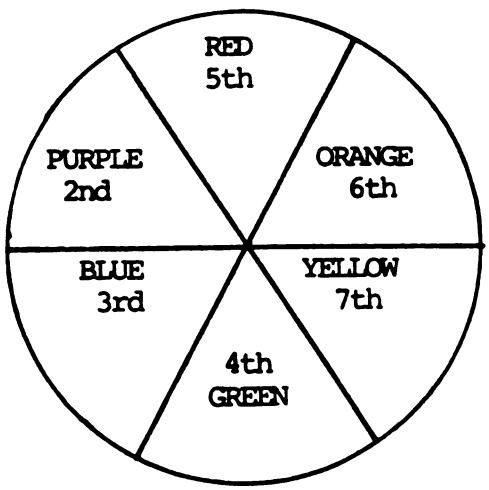
In art theory the color wheel exists to show the relationship of six colors--three primary and three secondary--which are arranged diametrically in three complementary pairs about the circle. Each pair of diametrically arranged colors, when mixed in equal parts, destroys the quality of the other and results in gray. When diametrically arranged colors are mixed in unequal parts a muted (grayed) version of the color in majority will appear. This aspect of complementary pairing is evident in music in that complementary intervals, when combined, diametrically, will produce the octave--a single quality different from the original qualities.

Inversion also applies to complementary pairs in both art and music. In music, a reference pitch is needed from which to measure a given interval in one direction on the keyboard, and its complement or inversion in the other direction on the keyboard. In doing so the same pitch is located an octave apart. For instance, if the key a perfect fifth above middle C is located (g_1), as well as the key the inverse interval of the perfect fourth below middle C (g), the pitch G will have been located twice in consecutive octaves. The same is true of thirds and sixths, seconds and sevenths, with the added condition that a minor interval inverts to a major interval and vice versa. For example, a major third up from middle C to E will be inverted downward a minor sixth to reach the E an octave lower. To see the inversion of a color, a plain white or black surface is needed as a visual reference point, analogous to the starting pitch from which an interval and its

inversion are figured. If the normal eye gazes at a color intently for approximately a minute, the image of the colored object will appear in its complementary color; in other words, in inversion.[1] (This experiment is particularly successful with a red object and a white surface.)

The complementary color pair with the highest degree of contrast is yellow and purple. Corresponding to this in degree of contrast, within the seven note scale is the interval pair of the second and seventh. The contrast referred to is between brighter or darker, higher or lower. The least contrasting pair of colors is red and green; therefore analogous to the intervals of the fourth and the fifth. The intermediate contrast of blue and orange relates to the intervals of third and sixth. The figure below shows the relationships of complementary colors and related complementary intervals.

Figure 1: Circle of Complementary Pairs



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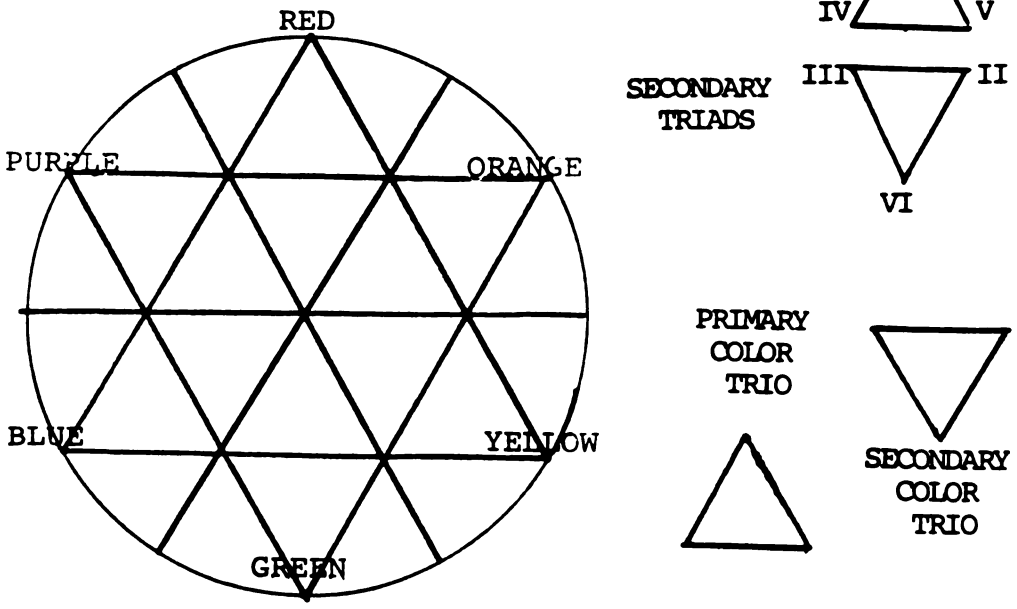
[1]The physiological explanation for seeing color inversions involves the color sensitive cones of the eye's retina. These cones become fatigued while looking steadily at one single color, and so will not respond to that color's rays within white light. Otto Bluh, Principles of Physics, (Interscience Publishers Inc., New York, New York, 1955), pp. 411-413.

These complementary interval dyads are not representative of vertical harmony, although they may be simultaneously realized as such. But they are representative of the phenomena of complementarianism in art and music.

An aspect of harmony becomes apparent when two equilateral triangles are superimposed on the color circle to delineate the three primary colors from the three secondary colors. These two triangles connect the trio of primary colors and the trio of secondary colors. In music, the three primary triads and three secondary triads may be considered as analogous to these primary and secondary color trios. This phenomena of tripartite equidistance exists in art within the equilateral color triangles, and in music within the equidistance of dominant and subdominant triads to the tonic, and supertonic and mediant triads to the submediant. Discussion of the triad built on the seventh scale degree is not necessary since its qualitative function is that of the dominant triad, and it is not a substantially stable triad. The following diagram portrays two equilateral triangles connecting primary and secondary qualities of visual art and music.

Figure 2: Tripartite Equidistance



Beside interaction among the elements and dimensions of Measure, Weight and Quality there are also what Klee speaks of as "definite interelationships."[1] He explains that while color is primarily Quality, it is also Weight since each color has its own brilliance or depth. The same is true of any pitch and its dynamic and tone qualities. Quality (color), is also Measure (line), inasmuch as it has its boundaries and extents which limit it and thus may be measured. In music, pitch is also Measure insofar as it is limited or extended by rhythm. Only line and rhythm remain solely Measure, although Measure may be superimposed on all the other elements.

In addition to the "definite interelationships" between the three basic elements of both art and music, the contents of each dimension carry expressive means that go beyond what is physically present. Klee explains this important phenomena:

> "Certain proportions of line, the combination of certain tones from the scale of tone values, certain harmonies of color, carry with them at the time quite distinctive and outstanding modes of expression. The linear proportions can, for example, refer to angles: movements which are angular and zigzag--as opposed to smooth and horizontal--strike resonances or expression which are similarly contrasting."[2]

It is apparent from Klee's choice of words that these modes of expression are as likely to appear in music as in art. And it is certainly not impossible to conceive of an angular or smooth line of a painting as translatable to an angular or smooth melodic line. These angular or smooth lines or shapes could be the form of single melody, a section, or an entire work.

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[1]Paul Klee, On Modern Art, (London and Boston, Faber and Faber, 1979), p. 23

[2]Ibid., pp. 38-39

When speaking, in any way, of compositional procedure in art or music, the idea of form is encountered at once. Discussion of the elements and structures which combine to make a total form can be a nebulous and abstract task. Modes of expression, conveyed through compositional elements are the outcome of the formal process. Klee makes clear that he is aware of the analogy of form in art to form in music with this statement: "This choice of formal elements and the form of their mutual relationships is, within narrow limits, analogous to the idea of motif and theme in musical thought."[1] Inasmuch as Klee's art is abstract art, the forms he portrays in his compositions are not predefined or clearly representational of the recognizable. Schuller's musical forms, and indeed a great many of compositional forms of twentieth-century music are not a recognizable, predefined representation of a type which can be traditionally labeled. The music theorist Adele Katz states:

> "Form is not an artificial or superficial garb that can be imposed on a musical idea. It is an integral part of it and evolves side by side with the growth and expansion of the musical idea."[2]

It is enlightening to compare this to a statement of Klee:

> "With the gradual growth of such an image[form] before the eyes an association of ideas gradually insinuates itself which may tempt one to a material interpretation. For any image of complex structure can, with some imagination be compared with familiar pictures from nature [predefined forms]."[3]

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[1]Paul Klee, On Modern Art, (London and Boston, Faber and Faber, 1979), p. 31

[2]Adele Katz, Challenge to Musical Tradition: A New Concept of Tonality, p. 387

[3]Paul Klee, On Modern Art, (London and Boston, Faber and Faber, 1979), p. 31

As we review the basic elements of art and music, their interaction and interelationships, we find three primary analogical phenomena. Two of these analogies, that of complementary pairing and tripartite equidistance, deal with the element of Quality, i.e., color and pitch. A third analogical phenomena, the "modes of expression," is concerned with all interactions and interelationships of each and every element. These three primary analogic phenomena are those which will be considered as Gunther Schuller's music is analyzed. Therefore it should by helpful to review them now.

The first analogy to be reviewed, that of complementary pairing includes the circumstance of complements combining to become gray, and complementary intervals combining to become the octave. This analogy is also evidenced in the phenomena of a pitch remaining in its pitch class no matter which octave it is transposed to, and a color remains that color no matter how much it is tinted or shaded by combinations of black and white. Evidence of the analogy of complementary pairing will be born out in the compositions. For example, a piece of music which contains much significant movement by second and seventh is likely to represented in visual art by hues of purple and yellow. More movement by second than seventh will coincide with more purple than yellow.

The second area of analogical phenomena to review is the area of tripartite equidistance. This area includes the primary and secondary color trios and the primary and secondary triads. One should recall the equilateral triangles superimposed on the color circle, and the triangles representing the intervallic equidistance between the three primary and secondary triads. It may be assumed that if a painting uses purely primary colors, this will be evidenced in the music by a limited harmonic language of primary and/or secondary triads.

It also follows that a painting of limited color will correlate to music of limited harmony. Of course, this is rare in twentieth-century art and music. Chromaticism in music, anywhere from twelve-tone technique to chromatically altered tertian chords, is analogous to the hues of color between the primary and secondary colors on the color circle, i.e., orange-red, blue-green, and the various tints and shades of each color. The more various and numerous the tints, shades and hues in an art work, the more complex and extensive the chromaticism will appear in the correlating musical composition. As a chromatic hue of color brings about an essential change to the original color, a chromatic inflection of a pitch brings about an essential change of the original pitch. This is unlike the tinting or shading of color, or octave displacement of pitch, which leaves the initial color or pitch's essence unchanged. The presence of much movement by half step in connection with a limited variety of other intervals will be evidenced in visual art by many tints, shades, and hues of a limited color palette. When Klee spoke of chromaticism in connection with his artwork it was in reference to the many hues made possible by blending the colors in a given color palette. At this point it may be of interest to note that there are colors termed 'analogous colors' in art theory. A set of three analogous colors includes one of the six basic colors of the color circle and two adjacent hues, i.e., yellow-green, yellow, and yellow-orange. The term 'analogous' is applied since the colors are alike in that they have one color ingredient in common, yet are "otherwise entirely different."

The last and most enigmatic analogical phenomena is that which Klee terms "modes of expression." It is here that the proportions of Measure, Weight and Quality combine, interelate and overlap to convey specific moods,

aural images, impressions and reactions; and it is here that the aesthetic intuition and ingenuity of the artist and composer come into play.

If perhaps there are absolutes in art theory or music theory, one may surmise that these analogical phenomena will occur within compositions whether consciously or unconsciously on the composers' part. This is the hypothesis of the present thesis.

II. Paul Klee: A biographical sketch

Paul Klee was born into a musical family on December 18, 1879. His parents, Hans Klee and Ida Maria Frick lived near Bern, Switzerland in the town of Munchenbuchsee. Klee's father taught music theory and voice at the State Teacher's College in Hofwil, Switzerland. His mother was a vocalist and had studied voice in Stuttgart. The Klee family moved to Bern in 1880. There, beginning at age seven, Klee was taught to play the violin by Karl Jahn, a respected music professor and concertmaster. Klee became an accomplished violinist, and performed with the city orchestra as an associate member from 1903 to 1905. He played the violin every morning of his life up until his final illness.

Klee's maternal grandmother encouraged his interest in art while he was still very young. His violin teacher was also expedient in developing this interest as he allowed the young Klee to study the many art books in his possession. However, it was not until just before Klee's university entrance examination that he made a final decision in favor of art rather than music. In October of 1898 he began a three year program of art study in Munich. Klee studied with both Heinrich Knirr, at the Knirr School of Art and Franz von Stuck at the Academy of Fine Arts.

After completing his schooling Klee visited Italy for six months and then returned to Bern for two years. Following this he made his first visit to Paris. In 1906 Klee married the pianist Lily Stumpf after a six year engagement, and settled in Munich "alone in the midst of 5,000 artists," as he wrote in his diary. The couple had only one child, Felix, born in 1907.

In 1911 Klee helped in founding the organization, Sema, which included the modern artists Kubin and Scharff. It was during this time that he also met Wassily Kandinsky, Franz Marc and Hans Arp. Kandinsky and Marc organized the group known as the "Blaue Reiter" (Blue Horseman). Klee became a part of the group and exhibited with them in Munich in 1912. During this same year, the Sturm Gallery in Berlin exhibited Klee's work, and five years later this same prestigious gallery sold several of his works. At this time Klee was serving in the German Army after being drafted in 1916. By 1919 Klee was selling many paintings and publishing his theories. The following year he exhibited 362 works at the Hans Goltz Gallery in Munich. Klee's reputation had become well established in Germany.

During the year of 1921 Klee became a professor at State Bauhaus in Weimar. The Bauhaus was founded by the eminent architect Walter Gropius for the purpose of uniting the study of architecture, sculpture, painting, photography and other artistic disciplines. Lyonel Feininger and Klee's good friend Kandinsky also joined the staff at the Bauhaus. Klee founded the "Blauen Vier" (Blue Four) at Weimar in 1924 with Kandinsky, Feininger and Jawlensky. This was also the year of Klee's influential lecture "On Modern Art" at Jena, and the year of his first American exhibition in New York. In 1924 the Bauhaus was taken over by the city of Dessau. Meanwhile the "Surrealists" had organized themselves and held their first exhibition in Paris. Klee was a part of this event and displayed works along with Picasso, Miro, Arp and Max Ernst. The following year Klee paid a second visit to Italy, and soon after traveled to Egypt, in 1928, on a grant from a Brunswick art collector. This visit to Egypt had a profound effect on Klee's use of color, and on his basic philosophies of art and life.

The Flechtheim Gallery of the Museum of Modern Art in New York exhibited Klee's work in 1930. Klee was now recognized as an artist of international importance. By 1931 Klee resigned from the Bauhaus and became a professor at the Dusseldorf Art Academy. This appointment was short-lived, however, as the Nazi's commenced to attack Klee as a "degenerate artist." He was dismissed from the Dusseldorf Art Academy. At the end of that year Klee bade a final farewell to Germany and returned to Bern. Within that same year Klee contracted measles, which triggered the disease, sclerodermia, of which he was to die five years later, in 1940.

Throughout his lifetime Klee maintained an active interest in music. Many titles of his paintings denote his affinity to that other art. Such titles include Fugue in Red, Voice Cloth of a Singer, Heroic Strokes of the Bow (violin), Chromatic Triad, Overtones, Recital on the Branch (preliminary drawing for the Twittering Machine), Drummer, and Rhythmic Tree Landscape. Klee enjoyed the ability to read and interpret scores and was at home with Stravinsky's new music as well as Arnold Schoenberg's twelve-tone works. His favorites, though, were Bach, Mozart and Haydn. Klee often attempted to solve the problem of polyphony within his paintings, and was preoccupied with the relationship of form to ideas. He strove to find an underlying order to artistry. A statement Klee made in the Bauhaus-Zeitschrift, 1928, shows this disposition.

> "What had been accomplished in music by the end of the eighteenth century has only begun in the fine arts. Mathematics and physics have given us a clue in the form of rules to be strictly observed or departed from, as the case may be. Here salutary discipline is to come to grips first of all with the function

> of forms, and not with form as the final result . . .In this way we learn how to look beyond the surface and get to the root of things."[1]

Klee had a profound respect for observable order, yet this respect was modified by his belief that "nothing takes the place of intuition," and "Genius is the inconsistencies within the system."[2]

Will Grohman, a personal friend of Klee, and the foremost scholar on Klee's life and work often reflects on Klee's dual artistry. Grohman gives a rather concise verbal portrait of Klee's musical and painterly sides in these words:

> "At times Klee's works are so full of symbols that they resemble musical scores. In the same way that one reads musical scores and hears them with the inner ear, one can read Klee's pictures and see them with the inner eye--not arbitrarily, but in accordance with the 'directions' he gives the eye. Concrete things are rendered so fluid, so reduced and transfigured, that they can be written down, for not only did Klee achieve complete mastery of painterly media but he also developed a compositional technique of his own. Music was more advanced in this respect he often observed with regret, because it can look back on centuries of tradition. He was, to say the least, the initiator of a similar tradition in painting and in his works one finds counterpoint, harmonics, modulation, tonality, and other musical analogies of the same kind. All the music that was in him he utilized as a foundation on which to build a science of artistic form."[3]

Klee was a thinker, a painter and a musician. Artists and composers of all sorts can glean something valuable from his life's work.

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[1] Will Grohman, Paul Klee, (Harry N. Abrams, Inc., New York, 1954), p. 372

[2] Ibid., p. 375

[3] Ibid., p. 162

III. Gunther Schuller: A biographical sketch

Gunther Schuller was born in New York on November 22, 1925. His father was a violinist with the New York Philharmonic Orchestra for thirty-eight years. Schuller grew up in an environment saturated with music. He states, "I heard music from the day I came out of the hospital."[1] Schuller recalls that at age six, he and his brother would amuse themselves by singing the whole of the "Tannhauser Overture," imitating all the instruments. The discovery of Schuller's good boy soprano voice led to his enrollment in the Saint Thomas Church Choir School in New York. There his sightreading ability proved to be remarkable. Schuller submits that this ability was a result "not of learning the cold and new but of recognizing things I had known subconsciously all along."[2]

Schuller's first instrument was the flute, which he played in his early teens. His father insisted that he not play the violin as there was an over-abundance of violinists in New York at that time. The shortage of orchestral wind players led a family friend to suggest that the the young Schuller take up the French Horn. After studying French Horn for two years Schuller obtained his first orchestral job at age eighteen with the Ballet Theater Orchestra of New York. He quit high school to take the job and never returned to complete the requirements for a diploma. The next year Schuller became the principal horn player for the Cincinnati Symphony Orchestra. It was with

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[1]Sammy Mitchell, "Third Stream Visitation: A Talk with Gunther Schuller," Downbeat, p. 20

[2]Ibid., p. 20

this orchestra that he made his debut as both soloist and composer, playing his own Concerto for Horn and Orchestra at age nineteen.

Schuller's interest in jazz also began in Cincinnati where he heard Duke Ellington and his band. He began familiarizing himself with this music by annotating entire scores of Ellington's recordings. Schuller's interest in jazz has persisted and resulted in the authorship of a book entitled Early Jazz: Its Roots and Musical Development, and in the development of "third stream music." Third stream music involves the collaboration of music and musicians from both jazz and classical realms. Schuller coined the label, and his own compositions along this line include the Concertino for Jazz Quartet and Orchestra (1959), Variants on a Theme of Thelonius Monk (1960), and Journey into Jazz (1962). In the composition, Seven Studies on Themes of Paul Klee, the study entitled "The Little Blue Devil", combines jazz and classical elements. Schuller has said, "I hope that classical music will get from jazz a spontaneity and naturalness it no longer has."[1]

Schuller began his teaching career in composition at the Manhattan School of Music in 1950 and continued to teach there until 1963. Beginning in 1963, he taught at Berkshire School of Music in Tanglewood, Massachusetts. In 1965 he assumed the position of head of contemporary music activities at Tanglewood and four years later became artistic co-director. Also during this time, from 1964 to 1967, Schuller taught composition at Yale School of Music. He left Yale in 1967 to become president of the New England Conservatory, a position he held until 1977. Schuller has been an active conductor as well as prolific composer throughout his musical career. His compositional technique draws from many sources and amalgamates many influences.

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[1]Robert Henderson, "Third-Stream Music," The New Yorker, December 9, 1961, p. 43

Schuller's works show evidence of Webern's orchestration, Stravinsky's rhythms, and Schoenberg's serialism.[1] He draws from a number of historical styles, especially that of contemporary jazz.

Schuller's ideas and attitude toward form and the creative process, i.e., the role of the intellect and organized superstructure, parallel those of Paul Klee in many ways. Like Klee, Schuller believes that order is fundamental to creativity and the creative process. He writes:

> "The assumption that restrictions upon intuitive creativity (such as improvisation) are inhibiting is I think not tenable, as is demonstrated by all successful art. A great masterpiece, for example, grows out of the interacting stimulus of constant friction between freedom and constraint, between emotion and intellect."[2]

Yet Schuller, like Klee, also regards creative intuition above order and constraint. This is apparent in his thoughts concerning form in the creative process. He writes:

> "It has become increasingly clear that 'form' need not be a confining mold into which the tonal materials are poured but rather that the forming process can be directly related to the musical material employed in a specific instance. In other words, form evolves out of the material itself and is not imposed upon it. We must learn to think of form as a verb rather than a noun."[3]

So we see that both Schuller and Klee feel that creativity takes precedence over creative process.

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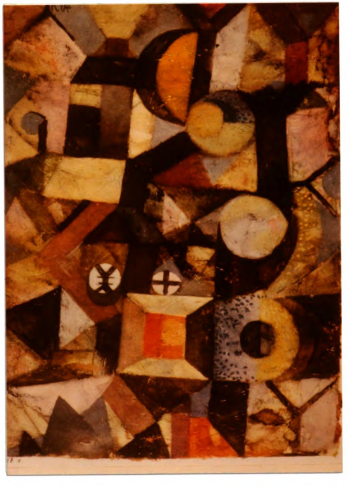
[1] Austin Clarkson, "Gunther Schuller," in Grove's Dictionary of Music and Musicians, (4th edition, 1950), Vol. 16, p. 818

[2] Gunther Schuller, "The Future of Form in Jazz," The American Composer Speaks, ed. Gilbert Chase, (Louisiana State University Press, Baton Rouge, 1966), p. 233

[3] Ibid. p. 218

ANTIQUE HARMONIES



IV. "Antique Harmonies"

Gunther Schuller selected at random seven paintings from the works of Paul Klee to inspire his own orchestral settings of those pictorial themes. He entitled the whole of his composition Seven Studies on Themes of Paul Klee, and retained the titles Klee had given his paintings for each of the separate studies. The paintings span from 1912 to 1933 of the artist's career, though the majority were done in the 1920's during the years Klee taught at the Bauhaus.

The first musical setting in Schuller's Seven Studies on Themes of Paul Klee is entitled "Antique Harmonies", which Klee painted in 1925. In regard to his musical interpretation of the Klee painting, Schuller states, "I tried to preserve not only Klee's amber, ochre, and brown colors, but also the block-like shapes with which, in constant variation, Klee builds this remarkable painting."[1] Schuller's musical form is block-like in that each instrument or instrumental group is limited to one, two, or three designated pitches within a setting where almost the entire universal set of pitches is consistently present--at least ten different pitch classes are sounding throughout most of the work. These static limitations are maintained as an integral part of the piece as each player supports a specific part in this architectural distribution of pitches within aggregates. The facade of this dense pitch structure is altered only by the superposition of various rhythmic and articulation changes upon the carefully distributed pitch material.

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[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

A hint of motivic material occurs through the suggestion of a fourteenth century step cadence. This cadential-type movement evidences the Phrygian characteristic of downward motion by half-step in the upper outer part and upward motion by whole-step in the lower outer part.

Musical Example 1

The most non-static, almost melodic, moment in "Antique Harmonies" is found in measure fifteen. Here the three trumpet parts contract from their $\frac{8}{5}$ vertical arrangement to the $\frac{6}{3}$ chord found in each of the cadence-like statements. The trumpets then descend immediately to a new $\frac{8}{5}$ vertical structure, delaying the expected Phrygian-type movement back up to the initial $\frac{8}{5}$ formation.

Musical Example 2

If cadential movement can be considered motivic material, Schuller's opening musical study might possibly be considered somewhat motivic. Yet it appears to be more reasonable to regard this short work as virtually non-motivic.

"Antique Harmonies" consists of only twenty-five measures in $\frac{4}{2}$ time with the metronomic marking for the half note at forty-eight. However, during a quarter of the length of the work the string section is written in $\frac{12}{4}$ meter while the winds and brass maintain $\frac{4}{2}$ meter. There is one

irregular measure (m. 7) in which all parts are written in $\frac{7}{4}$ meter. This measure is a structurally significant event within the whole of the form by virtue of the fact that there occurs, in the trombone parts, a statement of the cadence-like material with the addition of an accented Landini (under-third) embellishment. This deliberate Landini embellishment conveys a more definite feeling of cadence than those cadential-type passages without this added embellishment. It appears that a true sectional division has been articulated as almost immediately following this the trumpets restate the cadence-like movement for the last time during the piece. The effect is that of an understated recapitulation preceding the close of the work.

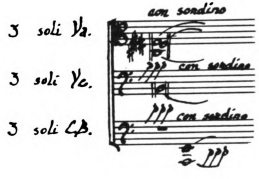
Observation of the colors in Klee's Antique Harmonies reveals that brown is the basic color of the work, although there are small areas of yellow and orange. Brown is not found in the circle of complementary pairs since it is a mixture of the primary, secondary, or all colors. If many colors are mixed together they will invariably produce some sort of brown color. As the combination of all or most colors in the circle of complementary pairs produces brown, so the combination of all or most musical intervals in the circle of complementary pairs produces a sonic brown analogous to visual brown. Schuller's use of high pitch class density to "preserve" Klee's many shades and hues of brown, is a most reasonable analogous representation.

When yellow and orange are located in the circle of complementary pairs, it is found that their analogous intervals are the seventh and sixth, respectively. The interval of the sixth is significant as a part of the cadence-like statements found mainly in the brass parts. (A part of the string section plays this cadence-like material in measures sixteen to seventeen.) The use of $\frac{6}{3}$ chords in these 'cadences' stands out by contrast of tertian sound and pitch change to the static blocks of

pitches surrounding them. A more noteworthy manifestation of the importance of the sixth and seventh in "Antique Harmonies" is found in the first measure. Here, three soli violas and three soli cellos state the opening sonority of B, C♯, F♯, and G♯; two major second dyads within the intervallic span of a major sixth. Half way through the first measure two string contrabasses are added to play sub-contra A and great E. The total sonority created spans a major seventh form sub-contra A to small G♯. These two initial foundational sonorities are perpetrated during the course of the work. There are no changes in pitch or temporal breaks. More strings are added to maintain these sonorities as a solid background over which the foreground of winds, brass and piano or harp, play or remain silent. There are only two rhythmic realizations of these string sonorities, while the wind and brass parts contain considerable rhythmic variation.

The subsequent musical example is taken from the first measure of the piece, though this same sonority is present as a sonic foundation for the whole work.

Musical Example 3



The first and second areas of analogical phenomena, those of complementary pairing and tripartite equidistance, have been discussed as being related to the element of Quality, or color and pitch. In this work, which is principally and uniquely based on the mixture of

all colors or the combination of all intervals, differentiation between these first two analogic phenomena is simply impossible. For example, in Schuller's music there is no way to separate harmony and melody since the piece is built upon the structural ideal of high pitch class density. In Klee's Antique Harmonies there are just two colors--sparingly used--other than brown that can be related to intervals in the circle of complementary pairs. Brown is by far the pervasive color into which others are absorbed.

The third area of analogical phenomena, that of "modes of expression," brings to light the aspect of stylistic and formal parallels between the works of Klee and Schuller. One interesting similarity between the two works is seen in the fact that while Klee's painting lacks a central subject, or even a primary eye-catching shape, Schuller's work also neglects the feature of central subject, main theme or motive. The afore-mentioned block-like shapes found in both works are given depth and differentiation only through the element of Measure. In Klee's work this element is, of course, expressed through line. The lines Klee uses separate one shape from another and cause some to appear more to the foreground while others seem to recede to the background. Rhythm is the realization of the element of Measure in Schuller's work. The various instrumental blocks of sound are stratified and contrasted with others by subtle differences in rhythmic articulation. The relative rhythmic activity between the instrumental parts gives shape and depth to the music by allowing various timbres to come forward or to recede in interest.

Schuller's "Antique Harmonies" is certainly a stylistic coextension of the Klee painting. Klee's various shades of brown evoke thoughts of old oxidized metals, sepian photographs, objects soiled by time in the melancholy twilight of their existence. Schuller retains this feeling for the ancient and antique through devices of his

choosing. He states, "A repeated cadence common in fourteenth century music and the organum-like open fifths establish the 'antique' quality of the 'harmony'."[1] Schuller employs these two features for the specific purpose of reinterpreting the 'antique'. These features in addition to translation of brown, yellow and orange from visual art to music embody the analogous phenomena present between the two works of art entitled, "Antique Harmonies."

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[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

ABSTRACT TRIO

V. "Abstract Trio"

Paul Klee painted the original Abstract Trio in 1923. The painting contains three animated linear forms which can ultimately be interpreted only in a subjective manner, yet strongly suggest the idea of three musical instruments in action. Gunther Schuller in turn builds the structure of his composition on the idea of preserving groups of three instruments as an aural focal point. He states;

> "'Abstract Trio' is played almost entirely by only three instruments at any given time. But the three instruments differ during the course of the piece, changing from the bright color of woodwinds through the grainier texture of muted brass and bassoon to the somber hues of low woodwinds and tuba."[1]

Schuller uses five major instrumental trios to achieve the tone values he feels to be appropriate. These various instrumental trios at times overlap, elide or blend to produce a through-composed, contrapuntal texture --a sort of twentieth-century 'seamless polyphony' with equality of voices. The following list gives the instrumentation of these five major trios and the measures in which they occur.

Figure 3

Trio I-Flute, Oboe, Clarinet	mm. 1-15a, 24, 35-37, 38
Trio II-Bassoon, Trumpet, Trombone	mm. 14-23. 38. 44-45
Trio III-Bass Clarinet, Contra-Bassoon, Tuba	mm. 25-28, 38, 39-40
Trio IV-English Horn, Clarinet, Horn	mm. 28-32, 38, 44-45
Trio V-Two Flutes, Oboe	mm. 28, 41-42, 44-45

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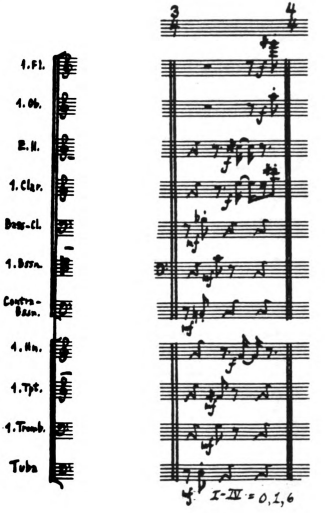
[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

This listing also shows that some measures within the piece contain up to four of these trios simultaneously or in succession. For instance, in measure thirty-eight, four of the trios appear in succession, each having the duration of an eighth note. The successive order of the trios in the musical example is III, II, IV, and finally I.

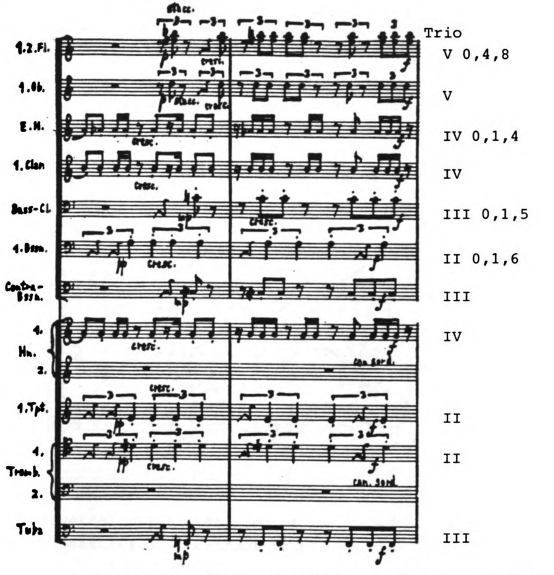
Musical Example 4



In measures forty-four and forty-five, trios II, III, IV and V are each given a specific two-measures rhythmic configuration. These four rhythmic patterns occur simultaneously as a climax to close the piece. While the rhythms are non-coinciding in their metric divisions and

create an incomprehensible conglomerate of rhythmic structures, the familiar timbres of the instrumental trios help the listener to separate and apprehend aurally each rhythmic configuration's part within the total structure.

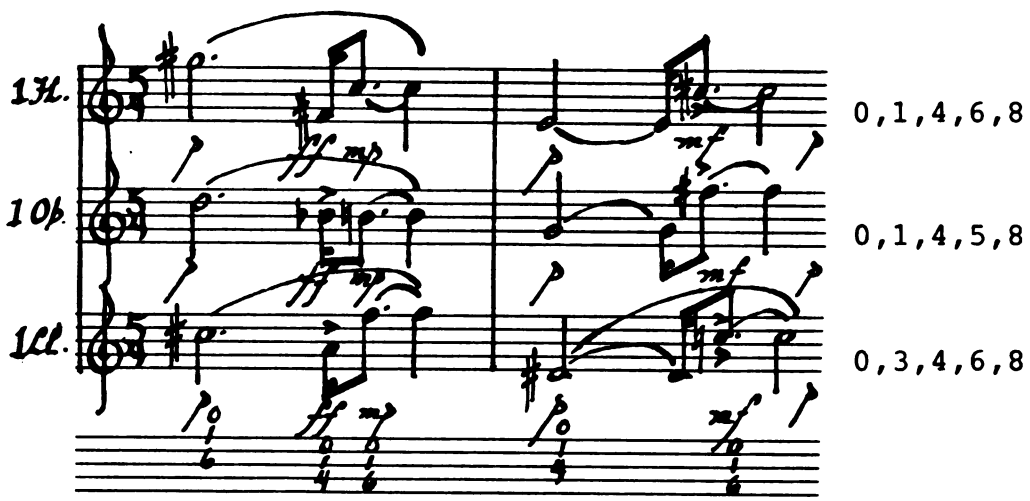
Musical Example 5



Schuller's "Abstract Trio" contains an abundance of distinct, related melodic lines. These melodies consist of a great deal of pitch class variety. The use of twelve-tone and serial technique is evident on both the horizontal and vertical planes of the music. Each instrument of the trios generally maintains melodic interest of its own,

even when homophonic rhythm is employed. It is difficult to decipher whether the musical texture is homophonic or polyphonic in many instances. The first one and one-half measures of "Abstract Trio" exemplifies these aspects. Here the flute, oboe, and clarinet play five notes with coinciding rhythm, articulation and phrasing. The vertical structures created alternate between the pitch sets 0,1,4 and 0,1,6 while each of the melodies are unique in their intervallic structure and pitch content. There seems to be a struggle for predominance between polyphony and homophony within these measures, yet together the horizontal and vertical comprise the universal pitch class set and actuate its integral distinctiveness in the total composition.

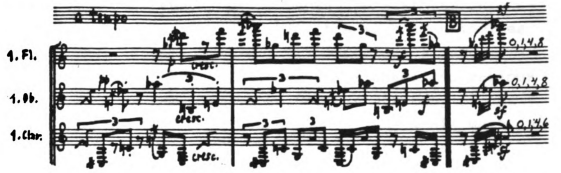
Musical Example 6



The universal pitch class set is contained within several single measures of "Abstract Trio." A particularly interesting example presents itself in measures thirteen through fifteen. Here the twelve-note set is divided into three tetrachords--one tetrachord for each instrument of the trio. The three instruments play only the notes of their designated tetrachords, with each pitch class appearing in only one specific octave. (This is certainly evidence of Webern's influence on Schuller.) Measure fourteen is

particularly remarkable in that the flute and clarinet parts both contain pitch palindromes.

Musical Example 7



The universal set minus one as well as the universal set itself are both found frequently whether the music is imbricated by measure or by obvious phrase groups, as in measures one and two. Each musical example presented so far contains the universal set. This aspect of pitch class density is a common denominator between "Abstract Trio" and the preceding piece, "Antique Harmonies." It is therefore not surprising that the analogous shades of brown--the combination of many colors--are to be found in Klee's Abstract Trio as well as Antique Harmonies. However, "Abstract Trio" has other structural features that result from its contrapuntal nature which "Antique Harmony's" singular form does not have. The intervals of the tritone and major and minor sixths are pervasive within the melodies and vertical structures. Sets imbricated from phrases and vertical structures show the predominance of these intervals. They are also seen in the intervallic patterns of the melodies themselves. The sets imbricated from the vertical structures and phrases of preceding musical examples are noted with those examples. It is evident that the tritone, 6, in set numbering, or the minor sixth, 8, in set numbering, are usually the intervallic span of the sets as a whole. The large, striking angular leaps within

the melodic lines of "Abstract Trio" are most often either the major or minor sixth or the tritone. Major and minor sevenths also play a significant, yet lesser role. The circle of complementary pairs shows the sixth to be analogous to the color orange, while the seventh coincides with yellow. Klee's Abstract Trio displays a large amount of muted orange. The orange is shaded to various degrees by gray and also brown. Close scrutiny of the painting also shows a yellow glow over the whole work, as if Klee may have possibly applied a yellow wash as a compositional afterthought.

The interval of the tritone is not found in the circle of complementary pairs, and additional discussion is needed to clarify its analogous color quality. Firstly, it is necessary to recall that when a color is added to its complement in equal parts, gray is theoretically the result. (When mixing pigment, a nebulous gray-brown is the usual result.) If an unequal part of a color's complement is added to a color the result is a graying, or muting, of the original color. Secondly, it is noteworthy that the tritone is its own complement, i.e., it is the only interval which divides the octave into two equal parts. The complementary intervals of the perfect fourth and the perfect fifth are situated on either side of the tritone. A chromatic lowering of the perfect fifth results in a diminished fifth, and a chromatic raising of the perfect fourth results in an augmented fourth. This altering of the two complementary perfect intervals immediately goes a step beyond the usual major or minor chromaticism. Perhaps the tritone's instability is more pronounced because of its close relationship to the stable perfect intervals that surround it, and to the octave which it divides in two equal parts. The stability of these perfect intervals has a basis in acoustics and mathematics. Beside the fact that these perfect intervals exist as the first three harmonics (overtones) in the harmonic series,

it is also noteworthy that the mathematical ratios of their frequencies are of orderly proportions, unlike other intervals. The ratio for the perfect octave is 2:1, for the perfect fifth, 3:2, and for the perfect fourth, 4:3. The tritone's ratio is 7.07:5.

Throughout history the tritone has been considered unstable. This is especially true of the Middle Ages, when the intervals of the perfect octave, fifth, and to some theorists also the perfect fourth, were established as the most consonant, on the basis of their acoustical and mathematical properties. At this time the tritone was scrupulously avoided in melodic lines, and appeared in vertical structures only within prescribed cadences. The tritone was described as "Diabolus en Musica;" translated "the devil in music." Anonymous IV, the author of the ninth-century theoretical treatise, Musica Enchiriadis, constructed a scale in which all the fifths were perfect. The scale starting from great G follows:

Musical Example 8

He then allowed for alterations of this scale, within the music to avoid the resulting augmented octaves and fourths. This practice shows the extreme deference given to the perfect intervals, and the contempt held for the tritone.

In the atonal music of the present century the tritone plays a significant role. It lends itself well to twelve-tone music, where equalizing the tonal hierarchy is one significant aim of the technique. Although the tritone may seem to be but one more chromatic interval, it is a truly gray area within the chromatic scale. As noted previously, it is a step outside of what may be considered merely major or minor, intervallically. The tritone

defies the stability of the perfect fourth, fifth, and octave which it divides equally. The dividing of the octave into two equal parts to produce a musical gray has its analogy in the adding of two equal parts of complementary colors to produce pure gray.

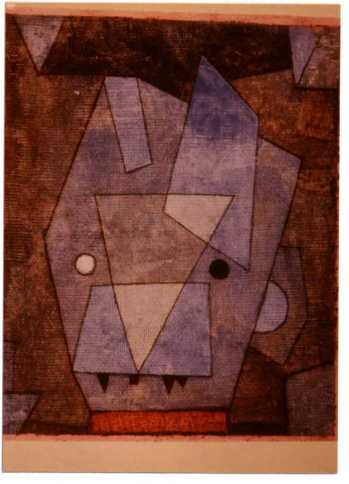
In Klee's painting, the area surrounding the muted orange oval where the forms of the 'abstract trio' are placed is primarily gray. The translucent yellow and opaque brown paint was apparently applied to an underlying gray background. There is a primitive grayness about the whole composition, as if it were an occurence in a smoke-filled cave. The canvas has depth since the viewer can see color through the gray and over the gray, yet precisely what the dimensions of foreground and background are is not clear. The abundance of tritones in Schuller's work has a somewhat parallel effect. There is no clear tonal center to the piece, still the music has depth, motion and distinct formal dimensions. The tritone has a primary part in all the theoretical dimensions of Schuller's piece, as gray is a part of all the dimensions in Klee's painting.

Chromaticism is as pervasive as the tritone in the horizontal and vertical structures of the music. This chromaticism is also seen in Klee's work within the infinite variety of chromatic hues created between orange, brown, yellow and gray. Klee blends the colors of his palette into a perpetually graduating flux of hues. The restless transition of the color also lends mobility to the linear figures of the abstract trio.

The analogical phenomena of complementary pairing and tripartite equidistance have been dealt with. Modes of expression, the third area of analogical phenomena remains to be pursued, though some aspects of this area have been brought up in the course of the preceding discussion. The expressive correlation between Klee's and Schuller's "Abstract Trio"s lies within the energetic contours contained in the forms of each. Klee's three

animated, angular shapes resemble musical instruments and are translated into the angular melodies of Schuller's instrumental trios. The lines Klee employed to create the three figures in his painting portray an attitude of nonsensical frolicking. There is a strong sense of differing movements among the three figures, but the directions of those movements are disputable. Since rhythm and line are jointly representative of Measure, it is reasonable to assume that the unpredictable quality of Klee's lines be paralleled by the quality of Schuller's rhythms. These rhythms are precise and energetic in articulating various metric divisions and accented syncopations, yet the underlying rhythmic structure remains obscure as a result of ever-changing meter signatures. There are nineteen changes of meter in the piece, with a total of six different meter signatures. The element of Measure in both compositions is at once precise and defined while being obscure and undiscernable. Rhythmic energy is the catalyst of direction in both works, though the beginning or end of that direction remains indeterminate. The overlapping seamless polyphony (not unlike that of Josquin) in Schuller's "Abstract Trio" may be seen as analogous to Klee's use of overlapping watercolor washes. The polyphonic voices of the musical trios maintain equality of interest--no one melodic line comes to the foreground to leave the others to function as accompaniment. Klee's water color washes portray this same equality since the viewer can detect each separate color wash, yet finds that it is extremely difficult to discern which of them was applied first. The fathomless quality of the water color washes also has the effect of obscuring whether the abstract trio figures are within or overtop of the washes. Klee's unfathomable background succeeds in providing a visual parallel for Schuller's use of overlapping polyphony with equality of voices.

THE LITTLE BLUE DEVIL



VI. "The Little Blue Devil"

"The Little Blue Devil" is the one piece among Schuller's Seven Studies on Themes of Paul Klee which is representative of "third stream"[1] music. The jazz-like use of extended tertian harmonies and octatonic scale resources in combination with extreme chromaticism, lying somewhere between polytonality and serialism, demonstrates the possible complexity of the style. Schuller comments on "The Little Blue Devil" in this way:

> "'The Little Blue Devil' is transformed into a kind of jazz piece. A perky, angular theme (my subjective musical impression of the geometrically conceived head in Klee's painting) is combined with a blues progression, altered to nine bars instead of the conventional twelve, and occasionally distorted assymmetrically."[2]

The rhythmic character of the piece is also jazz-like in its syncopation and succession. Rhythms are varied through permutations of placement within the bar lines, and through simultaneous utilization of borrowed and non-borrowed divisions of the beat. Off the beat accents occur frequently at different places in a given voice within a single measure, adding to the complexity and forward motion of the work.

The opening bar of "The Little Blue Devil" is a tutti, double forte, accented chord constructed of the superposition of various triads and extended tertian

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[1]Robert Henderson, "Third-Stream Music", The New Yorker, December 9, 1961, p. 42

[2]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

structures distributed among separate instrumental groups. This emphatic chord constitutes the universal set, although it is composed of tertian structures; a characteristic feature of the harmonies employed within the total work. (See musical example 9) The tertian structures of "The Little Blue Devil", when combined, preclude that they have a specific tonal function. Schuller created an amalgamation of tertian structures and high pitch class density, simple and complex rhythms, and blues progression structure and classical sonata form. Figure 4 provides a brief overview of "The Little Blue Devil's" sonata form features, which will be elaborated on in subsequent discussion.

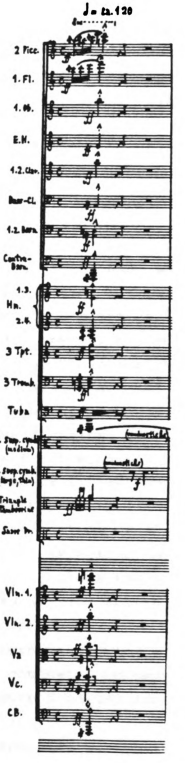
Figure 4: Sonata Form in "The Little Blue Devil"

Opening: mm. 1-4
First Theme: mm. 5-11
Transition: mm. 12-14
Second Theme: mm. 15-32
Development: mm. 34-63
- Section I: mm. 34-43
- Section II: mm.44-54
- Section III: mm. 55-63

Retransition: mm. 63-64
Recapitulation: mm. 65-75 (return of Theme II)
Closing: mm. 76-79

Since "The Little Blue Devil" is not a tonal work, the reader may question how or what it is that makes each formal component recognizably related to sonata form. Another question which may arise is how does Schuller's nine-bar blues progression fit into the scheme. Firstly, the opening and closing four measures are distinguishable in that they parallel each other by dually consisting of an emphatic tutti chord followed by three measures of leisurely jazz percussion material. After the opening tutti chord, the percussion plays alone until the first theme enters in measure five. Schuller follows this pattern in the closing four measures with two slight modifications: the string pattern holds its chordal notes to

Musical Example 9



the end while the solo string contra-bass plays it first theme material.

The first theme is rather abstract in that it consists of the interpolation and juxtaposition of quick, angular string 'riffs,' spasmodic percussion patterns, fragmentary string contra-bass motives, and accented brass and horn chords. These elements disappear at the transition to the second theme, but reappear in the development section, true to sonata form. Since no tonal modulation may take place between the first and second themes, the transition must be effected in another way. Schuller uses three independent bars of string contra-bass progression to move forward smoothly from first to second theme. These three bars are seen to be independent in retrospect as they are not part of a nine-bar progression, as are the eighteen bars which follow. These eighteen bars are delineated into two groups of nine by repetition of three twelve-note sets having the duration of three bars each. All notes in the string contra-bass progressions are quarter notes, excepting occasional triplet divisions of the beat, true to jazz stylization. The first nine-bar progression begins on the second beat of measure fifteen and continues to the first beat of measure twenty-four. It is immediately repeated, ending on the first beat of measure thirty-three. This repetition is strict excepting the final four notes of the last twelve-note set, where the succession of Eb, A, C, C# becomes C, F#, G#, G. The entire eighteen bars begins and ends with the second theme.

The pattern of changes in the contra-bass progression logically accomodates the sectional changes in the sonata form. Figure 5 on the following page shows the correlations.

It is important to note that all the progressions from the development to the closing, end on the pitch B. It is also noteworthy that whether the cardinal number of

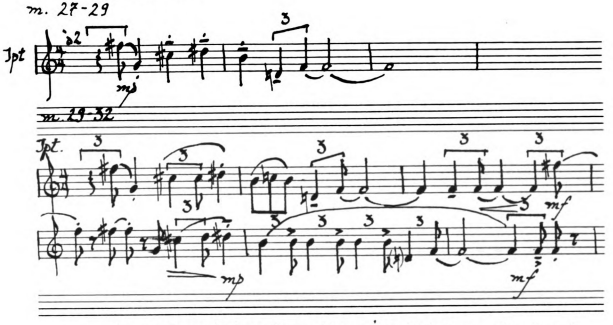
the set used is eight, as in the two measure components, or twelve as in the three measure components, pitches are rarely duplicated.

Figure 5

SONATA FORM SECTIONS	BASS PROGRESSION DIVISIONS
Opening	Tacet
Transition	Contra-bass fragments
Transition	Independent three-bar progression
Second Theme	Two nine-bar progressions
Transition notes: E, Eb, D, C#, C	Five descending chromatic
Development	
Section I	Ten-bar progression 2-3-3-2 (2=2 mm. or 8 notes; 3=3 mm. or 12 notes)
Section II	Seven-bar progression 2-3-2
Section III	Nine-bar progression 3-3-3
Retransition	No solo contra-bass. C.B. section plays five ascending notes: C#, E#, F#, A#, B
Recapitulation (Second Theme)	Eleven-bar progression 2-3-3-3
Closing	C.B. section on the pitch B Solo C.B. plays first theme fragments

The second theme of "The Little Blue Devil," that which Schuller acknowledges as the primary theme of the work, is stated initially in fragments played by the trumpet. The three fragments appear in Measures fifteen, eighteen, and twenty-two, accompanied by a thinned texture of string bass, cymbals, and chords played by the horns. The theme is reiterated completely and without interruption in measures twenty-four through twenty-six on the same pitch level. It is stated twice more, without pitch alteration, but with cumulative rhythmic complexity in measures twenty-seven through twenty-nine and twenty-nine through thirty-two. (See musical example 10)

Musical Example 10



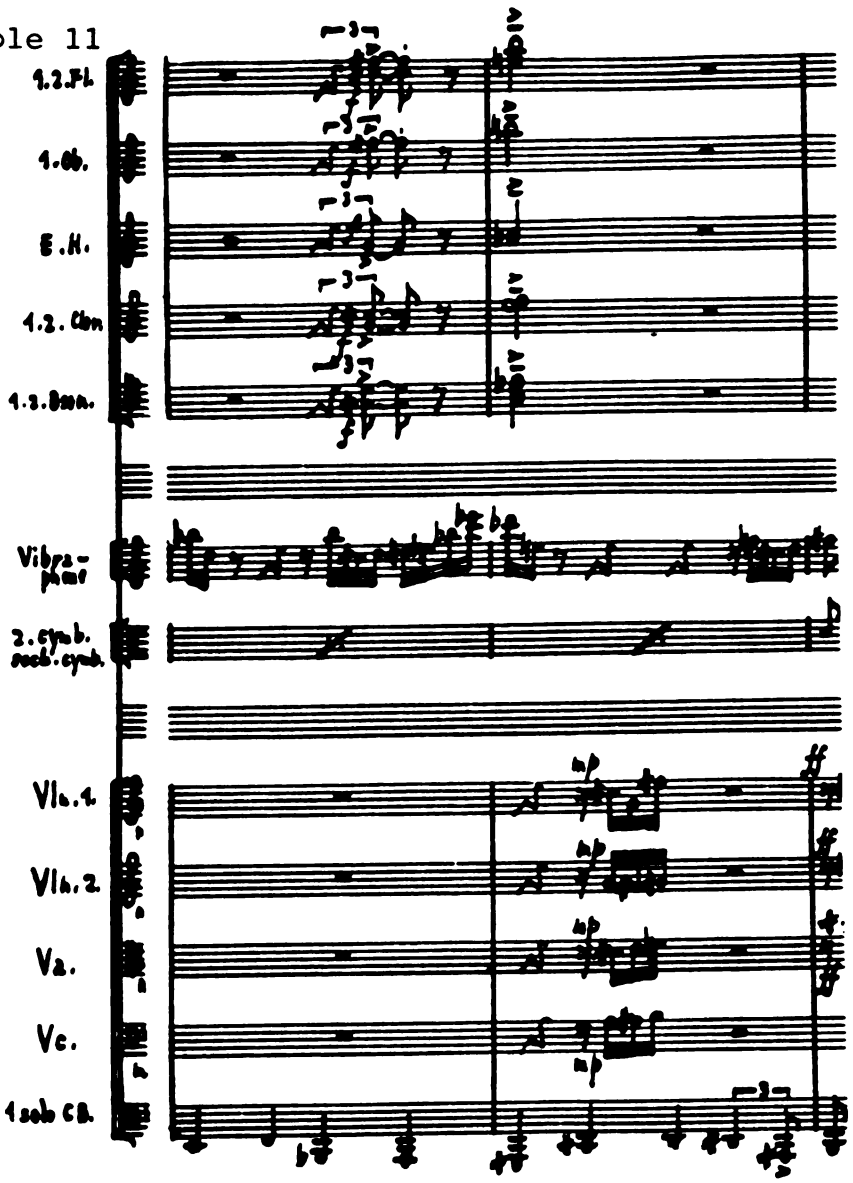
As a transition from the exposition to the development section, the string bass plays six descending chromatic notes, from E to B, while the rest of the strings play a flurry of notes reminiscent of their first theme material. The string bass arrives at the pitch B as the development section begins. Each string bass progression throughout the remainder of the work is delineated by ending on the pitch B. Schuller also uses B as the bottom note in the chord which sounds for the closing four measures of the piece.

Within all three sections of the development, the initial two or three notes of the second theme are utilized frequently. The first section (measures forty-four to fifty-four) contains numerous major sevenths, many of which maintain the original pitches and descending motion of the opening two notes in the second theme. The middle section of the development is for the most part a vibraphone solo with sparse accompaniment. In both solo and accompaniment material, falling and rising major sevenths are plentiful. The configuration formed by the first three notes of the second theme is also apparent in

this section's vertical and horizontal structures. Once again these notes appear most often at the original pitch level.

Musical Example 11

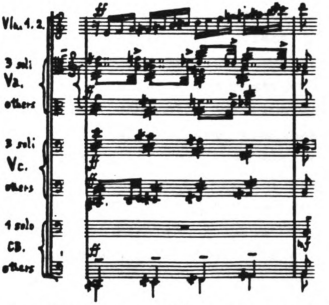
Mm. 47-48



The vertical configuration of a minor second and tritone (0,1,6) is profuse in the third section of the development. This configuration often appears on the original pitch level of the second theme from which it is derived. Octatonic scale resources are also apparent in the jazz-like melodic lines which flow through the string, trumpet and vibraphone parts. The retransitional measure before the recapitulation of the second theme contains the

most distinct use of octatonic scale resources within the piece. Schuller employs an ascending sequence of sixteen notes of an octatonic scale beginning on E, accompanied by chromatically rising vertical configurations of 0,1,6, also an octatonic scale derivative. The entire orchestra is involved in this measure with many unison doublings, although only the strings are shown in Musical Example 12. Another noteworthy feature of this measure is the string bass section's ascending symmetrical five-note pattern. This pattern ends on the pitch B, as the recapitulation begins--a free inversion of the six-note transition into the development.

Musical Example 12



In the recapitulation, Schuller restates only the second theme at the original pitch level and with the orchestration of the first unfragmented statement. Again, as in the exposition, he varies the rhythm and phrasing with each reiteration. Within the final two statements of the theme the last three pitches are reordered from B,D,F to D,B,F.

Paul Klee's composition The Little Blue Devil was painted in 1933, seven years before the artist's death, and is the latest of those works chosen by Gunther Schuller. Since blue was chosen to color the painting's

subject and to appear as part of the work's title, it is apparent that this color and its analogous interval from the circle of complementary pairs will most likely be the outstanding parallel between Klee's and Schuller's works. The circle of complementary pairs shows blue to be analogous to the major or minor third. The analysis of Gunther Schuller's "The Little Blue Devil" relates that the third, or tertian structures and contours are a major feature of the music. Even the use of the octatonic scale involves tertian structuring to a degree.

Klee's The Little Blue Devil presents many hues, tints, and shades of blue. The blues are primarily tinted toward the lighter side, though the dark umber of the background has a deepening and solidifying effect on the translucent light blues. Since the string bass part is the background or bottom of Schuller's sonic structures, it relates favorably in formal and color correlation to Klee's dark brown background. As discussed previously in the analysis of "Antique Harmonies" and "Abstract Trio," the color brown, as a mixture of many colors, is analogous to high pitch class density. The string bass progression is certainly representative of high pitch class density in that it is basically a succession of twelve-tone rows. The blue intersecting and overlapping geometric shapes which make up the blue devil's head are a fitting parallel to the overlapping tertian triads and extended tertian structures which appear above the string bass progression in Schuller's composition. The angular nature of the devil's head is not only portrayed by the intervallic leaps of the second theme, as Schuller suggests, but is noticeable in accentuated leaps which appear in all sections and voices.

The many alterations in the quality of blue within the geometric shapes of The Little Blue Devil correlate well with the chromatic alterations of the tertian structures and melodic lines of the music. Both the

horizontal and vertical aspects of Schuller's music convey a feeling of tonal or tertian solidity and chromatic restlessness. For instance, after the exposition, the string bass progression moves from the pitch B through its series of notes and returns to the pitch B, time and again. Although the pitch B is a type of tonal center, the fact that each series is usually a twelve-tone row makes it nearly impossible to detect tonal direction at any given moment. Another example of this combination of solidity and instability is seen in the numerous distinctly tertian structures in the piece, which give no feeling of tonal center as a result of chromatic succession or simultaneity.

Many triads and extended tertian chords in Schuller's music occur in inversion, so that the resulting major or minor sixth appears in those structures. The circle of complementary pairs correlates the sixth with orange. As the sixth is the inversion--or complement--of the third, orange is the complement or inversion of blue. It is both visually pleasing and analytically fitting that blue's complement, orange, should appear in the painting as the counterpart to inverted tertian chords. This accounts for the long rectangular strip of orange at the blue devil's throat at the bottom of the painting.

The area of analogous modes of expression, brings to light an enigmatic sort of dualism within both works. In the painting we see a contrast between the humorous and serious, as well as the earthly and the spiritual. The title, "The Little Blue Devil," conjures up an image of an humorous or cute prankster. On the other hand Klee's angular abstraction of the little devil's head is rather ominous and haunting. The viewer may wonder what deeper meaning or other-worldly message Klee is attempting to convey. This same, almost paradoxical, aspect of dualism appears in Schuller's music in the simultaneous use of solid tertian structures and extremely active chromaticism, as well as in the combination of jazz and classical

elements. Schuller seems to weave in and out of the three octatonic scales in both melodic and harmonic perimeters as a means of intuitively avoiding a tonal center, while maintaining an aesthetically pleasing balance. Both compositions hold much more than meets the eye or ear in substance and complexity.

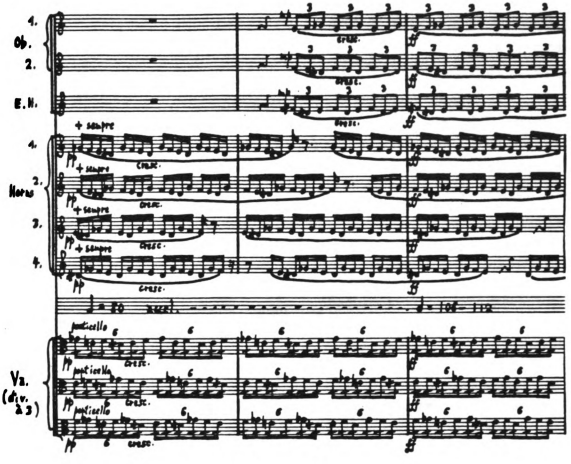
THE TWITTERING MACHINE

VII. "The Twittering Machine"

A study of Gunther Schuller's "The Twittering Machine" reveals that the work consists of two important alternating sections. The form of the piece is that of an asymmetrical five-part rondo. Each time an A or B section returns it is reduced in length. Although the material which makes up the A sections is considerably shorter by comparison to the B sections, it is of primary importance as an organizational factor. The A section material provides a stable point of reference to contrast with the pointillism of the B sections. This foundational material consists of three layers of ostinati made up of short repetitive motoric rhythms. The ostinati begins in only two layers, the first played by divisi violas and the second by the horn choir. Horizontally, the pitches which constitute both layers of ostinati are D#,E,F, and Gb. The pitch content in all three layers of ostinati is invariant. Vertically, the pitches found in the viola parts are E,F, and Gb on each division of the half masure into sixteenth-note sextuplet figures. In the ostinato that is played by the four horns, the vertical structures again consist of D#,E,F, and Gb on each division of the four sixteenth-note groupings present. In the uppermost layer of the ostinati, played by oboes and English horn, both the horizontal and vertical pitches presented are E,F, and Gb, on each division of the quarter-note triplet figures. The only intervals present in the ostinato layers are those of the second and third, both horizontally and vertically. (See Musical Example 13)

The circle of complementary pairs shows that the intervals of the second and third correspond to the colors purple and blue respectively. The colors predominant in

Musical Example 13



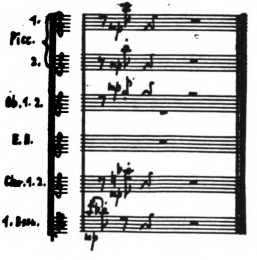
Klee's painting are indeed purple and blue. A tinge of red is also evident, and as red is analogous to the fifth in the circle of complementary pairs, it is noteworthy that the perfect fifth appears periodically in the pointillistic sections of the music. These pointillistic sections are non-melodic and rhythmically obscure--beginning with thin, sparse pointillism and growing denser through the use of quicker successive rhythms, then returning to sparsity through a thinning of the vertical texture. When the pointillistic material is imbricated measure by measure to determine the presence of a consistent pitch structure, it is found that the intervals of the second and third are again predominant. In the thirty-five measures of the

first B section the pitch class set 0,1,2 or 0,1,2,3 are present in thirty-three of the thirty-five measures. (These two sets are realized in the A section as E,F,Gb and D#,E,F,Gb.) Many of the larger pitch class sets present are combinations of 0,1,2 and 0,1,2,3 separated by the interval of the third, such as the set 1,2,5,6,7 or 0,1,2,3,5,6,7. The interval of the fifth, or 0,7 in set numerology is present in thirty of the thirty-five measures of the first B section. A particularly articulate occurence of the perfect fifth is found in measures twenty-five to twenty-six in the piccolo part.

Musical Example 14

The last return of the A section is condensed into one measure in the penultimate measure of the work, while the last measure contains the pitch class set 0,1,2,3,6,7 as a type of final cadence chord for the whole piece. (This set may be considered a nexus set for the work, since it bears strong relationships to the pointillistic sections as well as the ostinati.)

Musical Example 15



The figure below shows the organization of the A and B sections within the total form of "The Twittering Machine."

Figure 6

Section A Ostinato of three motoric rhythms
Measures 1-8

Section B Pointillism Measures 5-40
b1--sparse pointillism
Measures 5-16
b2--becomes denser horizontally
i.e., quicker rhythms
Measures 17-34
b3--thinning vertically
i.e., diminishing successive density
Measures 35-40

Section A Return (simultaneous with b1 pointillism)
Measures 41-43

Section B Return of b2 material
Measures 44-50 are a literal return of measures 21-32
Measures 51-54 are a modified return of measures 33-36
Rhythm remains intact accepting a few absent notes
Pitches are altered by various intervals
Return of b3 material
Measures 54-59 Texture thins vertically

Section A Measure 60
Measure 61 Set 0,1,2,3,6,7

Consideration of the analogical phenomena of tripartite equidistance reveals that the harmonic language of both Klee's and Schuller's compositions is that of limited chromaticism. Klee once spoke of the "chromatic keyboard of the adjacent watercolor cups."[1] Evidence of

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[1]Will Grohman, Paul Klee, (Harry N. Abrams, Inc., New York, 1954), p. 372

this chromaticism can be seen in the various hues of purple, blue and red used in The Twittering Machine. He limited his chromatic palette to these three colors in much the same way Schuller limited the number of pitch classes in his chromatic ostinati patterns.

Within the third area of analogical phenomena, modes of expression, there exists interesting stylistic relationships between the two compositions. The aspect of chromaticism superimposed on a limited pitch or color palette extends itself in both works. Schuller's ostinato of three layers is limited to four chromatic pitches, as Klee's background of watercolor washes is limited to blends and hues of three basic colors. The layering and blending of the three different motoric rhythms may be seen to correspond to the layering and blending of the purple, red, and blue water color washes.

The Twittering Machine, like many of Klee's paintings, portrays a sketch-like, youthful drawing style. The composition almost seems to have become structurally coherent through some unlikely happenstance, yet compositional organization and control are the outcome of its elements. The visual impression of Klee's painting is that of a whimsical and angular mechanical contraption. One might certainly contend that Schuller's use of musical pointillism evokes a similar visual image of a multitude of cacophonous birds singing at melodic odd angles to each other. The aspect of the mechanical may also be detected in the rotating pitches and symmetrical rhythms of Schuller's ostinati. This mechanical impression of a sort of controlled randomness is also sensed in the pointillism of the B sections. The repetition of certain pitches, and the gradual quickening and thickening to slowing and thinning of the texture, gives the listener a feeling of balance and control within the sounds of erratic and quick melodic leaps. An aura of improvisatory creativity and mechanical ingenuity is present in each of the works.

ARAB VILLAGE

VIII. "Arab Village"

The fifth of Gunther Schuller's musical settings of Paul Klee's work is entitled "Arab Village." The painting was completed by Paul Klee in 1922. Schuller gives a description of the painting in the following words"

> "Arab Village is an abstracted aerial view of a town baking in the bright North African desert sun. A beholder of such a scene--floating, as it were, above the village, might hear the often simultaneous chant of Arab melodies: The melancholy distant flute, blending with throbbing drums and the nasal tunes of the oboe."[1]

The form of Schuller's "Arab Village" is similar to that of the "Twittering Machine" in that it is an asymmetrical five-part rondo, with the return of A sections becoming shortened in subsequent appearances. In "Arab Village," repetition is an integral aspect of both small and large structures of the music. For example, the first A section within the A B A' C A" form consists of six melodic phrases for offstage solo flute, of which the last two phrases are a repetition of the first two, while the second phrase is a repeat of the first with minor rhythmic changes and embellishments. The repetition extends further in that the third phrase also parallels the first, though with greater rhythmic change and pitch modifications. The fourth phrase, in contrast, begins on the pitch B, and closes on F#: a reverse of the beginning and closing pitches of the first three phrases. This third phrase seems less final as it closes on what could be considered

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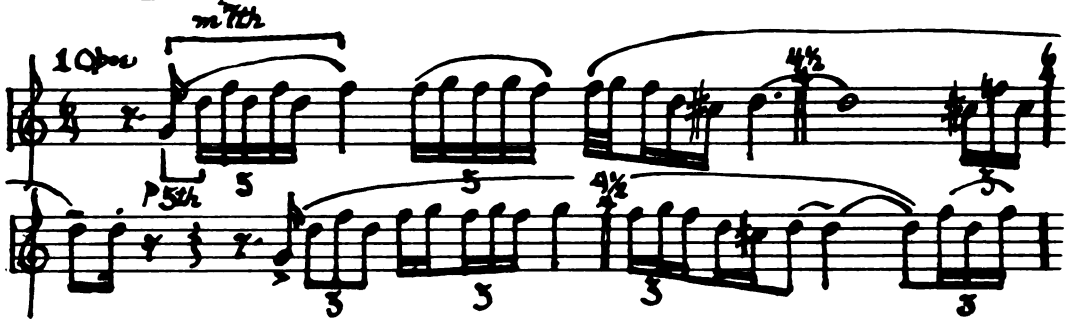
[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

the dominant pitch of a scale contained in the preceding phrases. The antecedent-consequent function of these phrases seems to have been reversed. This arrangement leaves the listener suspended on the open ending, which is not unlike a half cadence. As the flute fades into silence at the end of the A section. Schuller transfers the melodic interest to solo oboe for the duration of the B part. The oboe is accompanied by a dense static drone of the string section--which entered with the repetition of the first two phrases of the A section--and by two tuned tom-toms, which entered during the fourth phrase of the A section. Within the oboe melody, repetition is apparent on the level of two to five note segments.

Musical Example 16



The first return of the A section is a strict replica of the original solo flute melody (measures one to eighteen) excepting rhythmic augmentation and minor note changes in the final three measures of the fourth phrase. The string accompaniment becomes mobile, though these slow-moving changes are also repetitive.

The C section is a distinct contrast to the preceding sections by virtue of its quicker tempo (MM=136 rather than 50), its length (127 measures of the total 200) its orchestration, use of quarter tones, and limited pitch material. The compositional feature of repetition reaches it zenith within this section of the piece. It is played by solo oboe, harp, and solo viola in unison, above a perpetual cello drone on the pitch A in the octaves above and below middle C. Only five pitches--A,B,C,D,E--

beginning on A 440, are used within this chant-like, hypnotic melody, with the pitches B and E consistently lowered by a quarter tone.

The final return of the A section further abbreviates the original appearance by including only the first and the fourth phrases. Schuller reverses the first three measures of the fourth phrase to become the last three in this closing statement. The following diagram gives a capsule overview of the content and length of formal sections.

Figure 7

Section A	Solo flute mm. 1-28 First phrase mm. 1-4 Second phrase mm. 5-8 Third phrase mm. 9-12 Fourth phrase mm. 13-18 Repetition of first and second phrases mm. 19-28
Section B	Solo oboe mm. 29-40 Accompanied by strings and tuned tom-toms
Section A'	Solo flute mm. 41-59 Repetition of original four phrases accompanied by strings and timpani tuned to major seventh mm. 55-59
Section C	Unison oboe, harp and solo viola mm. 60-188 Accompanied by cello drone
Section A"	Solo flute mm. 189-200 First phrase--no accompaniment Second phrase--string accompanimnet

The painting, Arab Village, is tinted with various hues of yellow and tinged with deep red. In the circle of complementary pairs the colors red and yellow coincide with the intervals of a fifth and seventh, respectively. These two intervals hold a major functional role in the contours and structures of the melodic lines within Schuller's music. These melodies contain characteristics of harmonic minor scales as well as certain church modes. A study of the pitches contained within the first phrase of the solo

flute melody may be interpreted as a seven-note scale beginning on either B or E. In both interpretations, a step and one-half from lowered sixth to leading tone seventh, suggests the harmonic minor scale. These interpretations, however, are complicated by the presence of both C and C# in the melody. As the listener assimilates the melody, most likely the pitch B will sound like the final or tonic note of the melodic structure. The scale constructed from the melodic notes starting on B is as follows:

B,C#,D#,E,F#,G,A#,B,A#,G,F#,E,D#,C,B

The descending version of this scale resembles what might be called an E hypo-harmonic minor scale. If E is used as the tonic of final tone of the same melodic notes, the following scale is constructed:

E,F#,G,A,B,C#,D#,E,D#,C,B,A,G,F#,E

This scalar construction is an unusual combination of melodic and harmonic minor scales, though it is more characteristic of common practice Western music theory than the scale constructed on B. The step and one-half leading to the penultimate note followed by another half step (D# to C to B) in the descending form of this scale is not characteristic of any long-established Western scale or mode. However, the scalar resources of "Arab Village" melodies are not drawn from ordinary Western resources. Schuller states:

> "In preparation for the piece, I consulted numerous musicological sources on Arab music (including works by Bartok and Hornbostel), and used either authentic Arab folk material or very close adaptations thereof."[1]

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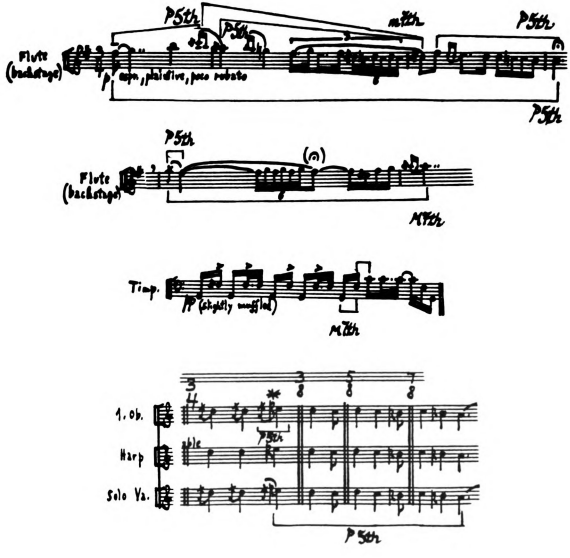
[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

It is evident that relationships of the perfect fifth (such as B to F# or E to B) play a major role in Arab melodies. It is also apparent that the seventh scale degree, or leading tone function is employed to a large extent. These relationships are conspicuous in many melodic constructions within the piece. The previous musical example is marked to show these structural features. Additional examples, including the flute phrase discussed previously are shown below.

Musical Example 17



The dark brown lines of Klee's Arab Village seem solid and stable in comparison to the ethereal yellows and reds which seem to be floating above the village structures. In the music, the dense harmonies underlying the haunting flute and oboe melodies are analogous to these brown lines in formal function as well as quality. Again, a dense mixture of several colors, producing brown, parallels a dense combination of several pitches. In measure twenty-three, the string section combines to produce a dense seven-note structure. The static sound of this pitch conglomerate provides a stable understructure over which the melodies seem to float.

Expressive parallels between the two "Arab Village" compositions can be seen in the feature of repetition found in both works. Repetition of large and small patterns in the music may be considered analogous to the repeated parallel lines and duplicated linear shapes of many sizes which portray the Arab town. Klee gives the viewer an aerial perspective through bright, though translucent, colors. These features give the impression of thin atmosphere above the scene, and distant images shimmering below in the intense heat of noon-day sun. Schuller captures these impressions of thin air and distant floating shapes with the haunting sound of the offstage flute, the thin nasal tone of the oboe, the suspending quality of the scalar resources used in the melodies, and the generally sparing orchestration employed throughout the work. Both compositions are successful in taking the viewer or listener on a journey to the mideast via the mind's eye or mind's ear.

AN EERIE MOMENT

IX. "An Eerie Moment"

The sixth piece in Schuller's Seven Studies on Themes of Paul Klee is based on a Klee pen drawing rather than a painting. The drawing, An Eerie Moment, was done in 1912, early in the artist's career. Since the drawing is black ink on a white surface, the first two areas of analogical phenomena (complementary pairing and tripartite equidistance) are not applicable since they exist only in relation to the element of Quality. Parallels between analogous colors and pitches, combined colors and harmonic structures have no place in a discussion of this piece. However, the third analogical area, that of modes of expression, is pertinent. Schuller comments that, "The music of 'An Eerie Moment' is a musical play more on the title than on Klee's actual pen drawing." It is interesting and perhaps no coincidence that Schuller chose to compose a setting based more on Klee's title than the artwork itself, since the sole area of analogical phenomena which may function between the two works is that of modes of expression.

The original German title which Klee gave to his drawing is Ein unheimliche Moment. Schuller explains,

> "The German word 'unheimlich' is practically untranslatable by a single English word, having a connotation of 'eerie' but also of 'unearthly' and 'terrifying'."[1]

Schuller's music is not totally unrelated to the content

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[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

of the artwork, which can be attested to by his comment;

> "I have also tried to convey the atmosphere created by the slinking shapes of the picture. The strange ominous tension of the opening finally finds sudden release in two terrified outbursts, only to sink back into oblivious calm."[1]

The two terrified outbursts, as alluded to above, occur in the last four measures of the eighteen-measure work. Extremes of dynamics and register add an awesome force and brilliance to the moment. Within the penultimate measure two piccolos double with violins on b_4, while tuba, contra-bassoon and string bass sink to sub-contra Eb. The contra-bassoon plays a sub-contra D in the final measure. Double forte to subito piano entrances occur in the winds and strings, only to return to double forte and join forces with blaring brass attacks. This is all followed by an "oblivious calm" mezzo piano, to piano, to a double piano ending. (See musical example 18)

Throughout the preceding fourteen measures the "strange, ominous tension" Schuller speaks of is acheived through the use of special string effects, sudden dynamic changes and accents, imaginative percussion orchestration and employment of the extreme registers of the instrumental choirs. In this work Schuller's string writing often consists of soft pizzicato and simultaneous non-vibrato playing. Both natural and artificial harmonics play a significant role in portraying the desired eerie, unearthly effect, as well as bowing on the bridge of the instruments. One particularly interesting moment in the string section consists of a brief motive which employs simultaneous sul ponticello and pizzicato articulation in overlapping

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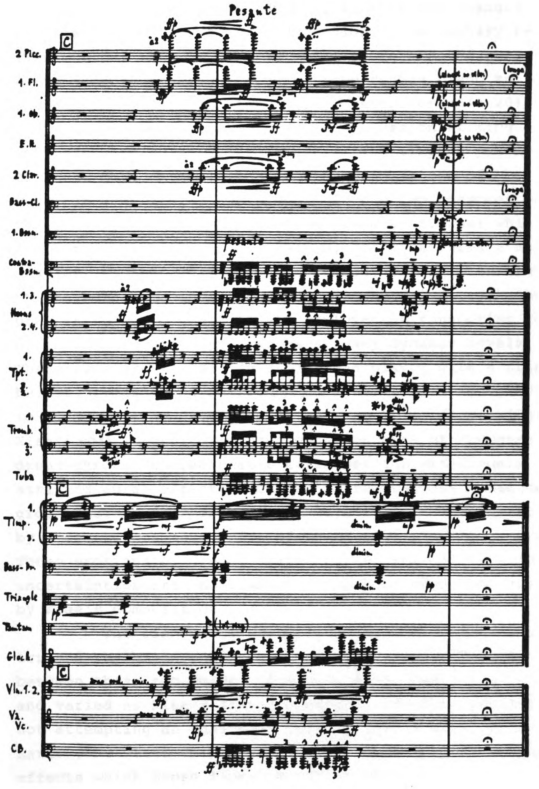
[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

Musical Example 18

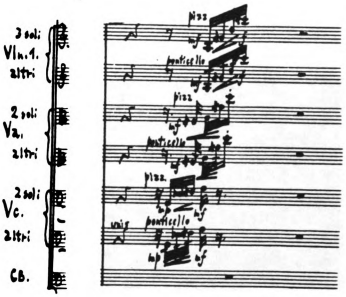


instrumental pairs. This short phrase grows from a mezzo piano to forte dynamic level within a few seconds. Schuller uses many sudden dynamic accents and changes such as this to provide both added tension and momentary release. (See musical example 19) In measure eight muted brass plays three tenacious accents growing from double piano to forte in less than a single beat. (See musical example 20)

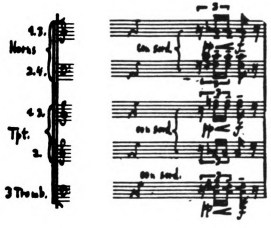
Many examples of unusual percussion writing are apparent within "An Eerie Moment." Tne timpani provides a constant menacing roll on E and F# for sixteen of the eighteen measures of the piece. In the two measures where the roll is absent Schuller adds two more timpani which are tuned to middle C and great G, and constructs a soft angular, rhythmically irregular melody before returning to the roll. The bass drum part is unusual in that the drum is tuned to great C# and employed in thundering rolls which make erratic appearances at many dynamic levels. The claves are placed 'on a pad' and played with a triangle beater, producing a sharp, severe articulation which brings to mind the stark severity of the two human forms within Klee's work. Schuller communicates an aura of suspense and dread through unpredictable entrances and withdrawals of striking aural effects occuring in the various instrumental groupings. A fear of the unknown and alien is suggested by a continuous succession of sound events within the work. These emotions of dread, suspense, and fear of terrifying uncertainties are those which are portrayed so intensely by Klee's composition.

The element of Measure, exemplified by line in art and rhythm in music is the basic analogical correlation between these two works. Schuller's rhythms are as diverse and varied as Klee's linear figures. However, Schuller is not attempting an analogous portrayal of Klee's lines. Rather, he attempts and succeeds in capturing the expressive effects which those lines initially convey.

Musical Example 19



Musical Example 20



PASTORALE

X. "Pastorale

The last of the Seven Studies on Themes of Paul Klee is entitled "Pastorale"--Klee also subtitled his work Rhythms. Therefore, it is fitting that Schuller describes the structure of his music as a variation form on rhythms. He states, "As in Klee's painting, several rhythmic-melodic shapes occur on various register and speed levels."[1] In the painting, circles, arches, crosses, X's, diamond shapes, tree-like and star-like patterns in a variety of repeating configurations, cover the canvas from top to bottom. The impression is that of an excercise in hieroglyphics, with each successive line being a repetition of a different pattern of symbols. Schuller, like Klee, uses differing patterns on several simultaneous levels. Both compositions contain broad and curvilinear patterns, broad and angular patterns, and smaller patterns which are simply decorative shapes.

In both the horizontal and vertical structures of the musical "Pastorale", the intervals of the perfect fourth and the tritone are seen to be fundamental to the structure of the total work. They are prominent in the foreground melody of the clarinet, and in the vertical configurations of combined underlying accompanimental levels of rhythmic-melodic materials.

The minor second plays and important role as a chromatic connecting interval--though not a fundamental one--and appears as a link between melodic perfect fourths, tritones and major or minor thirds. Schuller's music also

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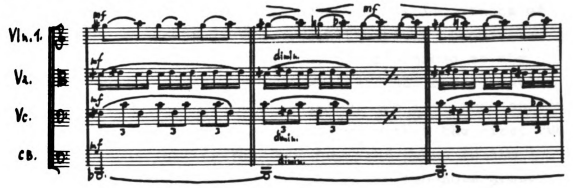
[1]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC)

contains continuously oscillating two-note figures consisting for the most part of minor seconds. These two-note figures are treated sequentially to create rising and falling melodic lines. The rise and fall of these arches, and their vertical relationship to simultaneous rhythmic-melodic patterns, take precedence over the presence of the interval itself. These arching patterns blend with each other, so that the vertical or collective structures absorb the independent content of each separate line.

Collectively, the levels of arching rhythmic-melodic patterns seem suspended, or in some way rhythmically disconnected, since the beginning and/or ending of each pattern does not always coincide with that of other simultaneous patterns--nor with the bar lines. The layers of rhythmic-melodic lines are rhythmically independent of each other, inasmuch as each of the two-note patterns divides the beat into either two, three, or four parts. When all of these divisions are played together, they seem to be moving counter to each other, since they are not synchronous between any two levels. Of course, the combinations of these various rhythmic-melodic materials do create harmony. Yet the harmonies of the combined levels are constantly fluctuating, as each level oscillates within and between its own two-note groupings. Neither the independent separate layers, not the harmonies created at any instance by their combination, seem to be of great importance. Thus, the total effect of the combined levels is unique. The patterns mesh together to make a new rhythmic-melodic pattern; a sort of motoric counterpoint, not unlike the A sections of the "Twittering Machine." (See musical example 21)

The circle of complementary pairs shows that the musical "Pastorale's" fundamental interval, the perfect fourth, corresponds with the color green. The tritone and its analogous color quality, gray, was discussed at

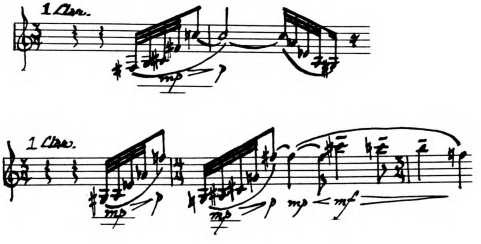
Musical Example 21



length in chapter V. As the tritone's quality coincides with gray, and tritones are profuse in the music, it is sensible to relate the muted--or grayed--greens of Klee's Pastorale to the tritone in Schuller's music.

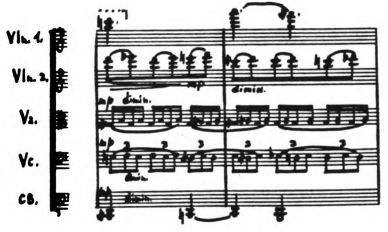
The integral function of the perfect fourth and the tritone can be seen more clearly with a close examination of the music's solo and accompanimental materials. The clarinet part contains the most intervallically varied and angular material within the piece. This idyllic melody is basically a series of perfect fourths and tritones connected by half steps. A recurrent rising or falling five-note motive occurs on a number of tonal levels with a variety of slight modifications.

Musical Example 22



The vertical structures occuring in the layers of rhythmic-melodic material also evidence the importance of perfect fourths and tritones within the piece. Several vertical tritones and perfect fourths are formed as the two-note rhythmic patterns move against each other. At times, simultaneous two-note groupings are a tritone and/or a perfect fourth apart. For instance, within the first two beats in measure thirty-four the two-note group in the second violin part is D and Eb, while the two-note group in the viola part is G# and B, a tritone away. In the following musical example there are several occurrences of the perfect fourth and tritone among the three inner voices --these intervals are also formed between the outer voices and inner voices as well.

Musical Example 22



The major and minor third also play a part in Schuller's "Pastorale." The role of the third and its analogous color, blue, is comparatively small, yet significant within both "Pastorale" compositions.

As in many of Schuller's musical settings, the harmony of "Pastorale"is extremely interrelated with melodic materials of the piece. Within both melody and harmony, the tritone-fourth, or so-called "Viennese fourth chord" appears in either a disjunct or reordered fashion.

The many minor seconds--or extreme chromaticism of the music, is relative to the varying mixtures of green and gray in the painting. As motives and patterns of the music are transposed by minor seconds to various levels of pitch and interest, the many different chromatic hues of green and gray give Klee's limited palette seemingly limitless variety.

In the analogical area of modes of expression, it is interesting to consider what it is that creates the aura of a Pastorale in these two compositions. A definition of Pastorale in the Harvard Dictionary of Music is, "An instrumental of vocal piece written in imitation of shepherds and their pipes."[1] Webster's Dictionary gives this more general definition: "Pertaining to shepherds; rustic, rural; description of the life of shepherds or of a country life. . .[in regard to music] a simple melody in six-eight time in a rustic style."[2] In commenting on his music, Schuller states, "The pastoral quality of the clarinet, French horn and English horn underlines the suspended mood of the music."[3] To Schuller, the shawns and pipes of sheperds are echoed in the meandering melodies and pensive phrases played by clarinet, French horn and English horn. The "suspended" nature of the pastoral scene is portrayed musically through the atonal content of the melody and harmony, and through the layers of unsynchronized rhythmic patterns. The continuous undercurrents of rhythmic-melodic patterns may be heard to

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[1]Don Michael Randel, "pastorale," Harvard Concise Dictionary of Music, p.374

[2]Article "pastoral," The New Webster Encyclopedic Dictionary of the English Language, (edited by V. Thatcher and A. McQueen, 1971), p. 607

[3]Gunther Schuller, jacket notes for Schuller, Seven Studies on Themes of Paul Klee, (RCA LM/LSC 2879)

represent time and gentle breezes passing quietly together. The music is at once static and suspended, uneventful, yet pleasantly engaging. It easily evokes the image of a shepherd daily going out to the pasture to tend his docile, predictable flock. The music reflects an uncomplicated lifestyle, involved only in meeting the basic needs of living. Klee's Pastorale portrays this same simple, rustic routine of country life through the carelessly duplicated designs in the layers of repeated patterns. The strip of blue and many shades and hues of green bring to mind a verdant pasture with the clear blue sky overhead. Klee's symbology also portrays aspects of nature. Stars, trees, and bushes appear in the rows of configurations. The repeated arches may bring to mind architecture seen in many idyllic Italian Renaissance paintings. The structure of Klee's work expresses a feeling of suspension, much like that of Schuller's work. The deep green lines superimposed on a fathomless background, a lack of calculated perspective, and the transparency of the watercolors all produce an effect of ethereal openness.

Together, the two "Pastorale" compositions skillfully translate pastoral scenes into poignant artistic statements.

CONCLUSION

Though the analogies discussed in a theoretical context and within the context of the works themselves may not be proven as absolute, there is substantial evidence that these same analogies are not a mere coincidence. However, it may be noted that within the works of Schuller and Klee, a distinction between the elements of complementary pairing and tripartite equidistance is difficult to discern. This may be accounted for by the fact that twentieth-century harmonic content is often organized by the same procedure as melodic content; or is the outcome of multiple melodic processes. Although certain theorists (Schenker, Forte, Kraft) hold this same view in regard to common practice period harmony, most view common practice harmony as a process separate from the melodic process. The lack of differentation between color harmony and melody in Klee's works and analogous musical harmony and melody in Schuller's works may serve as support for the Schenkerian view, or simply as evidence that composers of twentieth-century music generally differentiate little between melody and harmony in their formal procedures.

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