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I hereby recommend that the thesis prepared under my supervision by Peter Leonidas Cokkinias

entitled THE ROLE OF THE CLARINET IN SELECTED 20TH CENTURY COMPOSITIONS

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Approved by:

Ellsworth Millum

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THE ROLE OF THE CLARINET
IN SELECTED 20TH CENTURY COMPOSITIONS

A Thesis Submitted to the
Division of Graduate Studies
of the
University of Cincinnati

In Partial Fulfillment
of the Requirements for the Degree of
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by
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PREFACE

The 20th century is a period of music history in which the most radical changes, with respect to musical techniques, notation, effects, and instrumentation, occur. The literature of the clarinet reflects clearly these changing attitudes and trends. This study seeks to illustrate the role of clarinet techniques during the fifty-year period 1918 to 1968 through examination of a select number of compositions.

In order to carefully delineate an obvious acceleration and turning point in the changing role of the clarinet, the study will be divided into two chapters. Chapter I will deal with works from 1918 to the early 1950's. During this period, clarinet techniques remain essentially traditional or "classical" with respect to range, devices employed, specific effects, et cetera.

Chapter II, on the other hand, will be concerned with a discussion and illustration of the substantial changes which have occured during recent years. Newer notations, special coloristic-timbral considerations of the post-Webern era, multiphonics and micro-tones are a few of the factors which have necessitated a re-examination of the technical capabilities of the clarinet.

LIST OF ILLUSTRATIONS

* These are rehearsal numbers extracted from the score. They refer to specific music studied which is listed in the bibliography under Music.

CHAPTER I

Traditional Role of the Clarinet (1918 - early 1950's)

Igor Stavinsky: L'Histoire du Soldat

L'Histoire du Soldat, composed by Igor Stravinsky in 1918, is scored for the following instruments: clarinet in A and bassoon (woodwinds), cornet in A and trombone (brass), percussion (eight instruments), and violin and contrabass (strings). Stravinsky recommends a specific seating arrangement for his orchestration which, because of timbral considerations, represents the "high and low" instruments of each section of the orchestra. His choice of the A clarinet in particular reflects his need for the low C#. His use of this deeper tessitura will be pointed out in the following.

Stravinsky's approach to notation in L'Histoire is basically traditional with respect to articulation, dynamics, tempo, meter changes, phrasing indications etc. However, there is present an extreme attention to detail of expression of all the preceeding musical notations in all the instrumental parts.[1] There is no attempt at any

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[1] The violin part, by far, is given the most impressive set of directions from where to place the bow to how to perform difficult expressions, i.e. "Tango" [4] - [6].

experimental use of serialization in any of the parameters: pitch, rhythm, or meter. There is an experimental usage of sprech-stimme in the narrator's role in "The Soldier's March" at 2 and in "The Devil's Song".[2] In addition, the complexity of solo percussion writing has never been seen before. In the "Triumphal March of the Devil" from 8 to the Fine, the percussion emerges with continued prominence and, in part, foreshadows its "golden age" in the 20th century.

A clarinetist preparing to perform L'Histoire must have a stable and "unconscious" command of his technique, not to mention the necessary full vocabulary of articulative nuances. One of the most difficult technical demands placed upon the clarinetist occurs in the opening, "The Soldier's March". At [7][3], the clarinetist must display the agility of a piccolo with his fast awkward manipulations in the altissimo register (Ex. 1A). Then also an intonation problem occurs among clarinet, bassoon, cornet, and trombone beginning at 10 (Ex. 1B). These high a'''''s on the A clarinet, along with the

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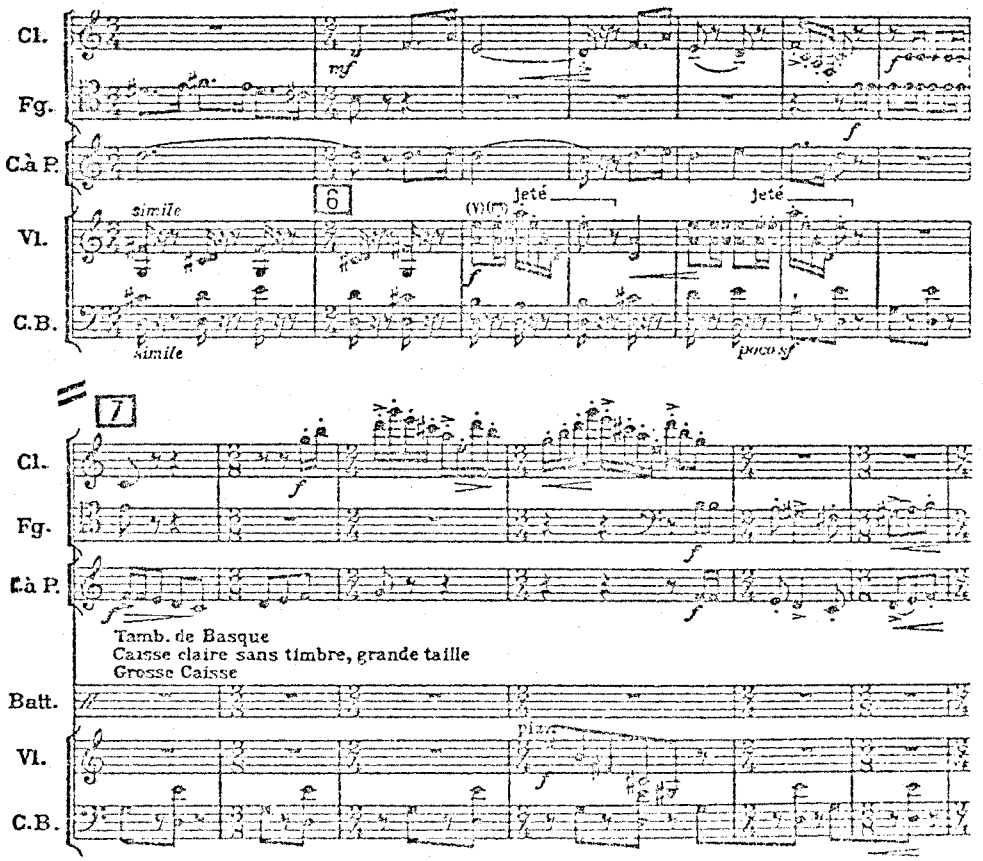
[2] This usage was possibly influenced by Schonberg's Pierre Lunaire of 1912.

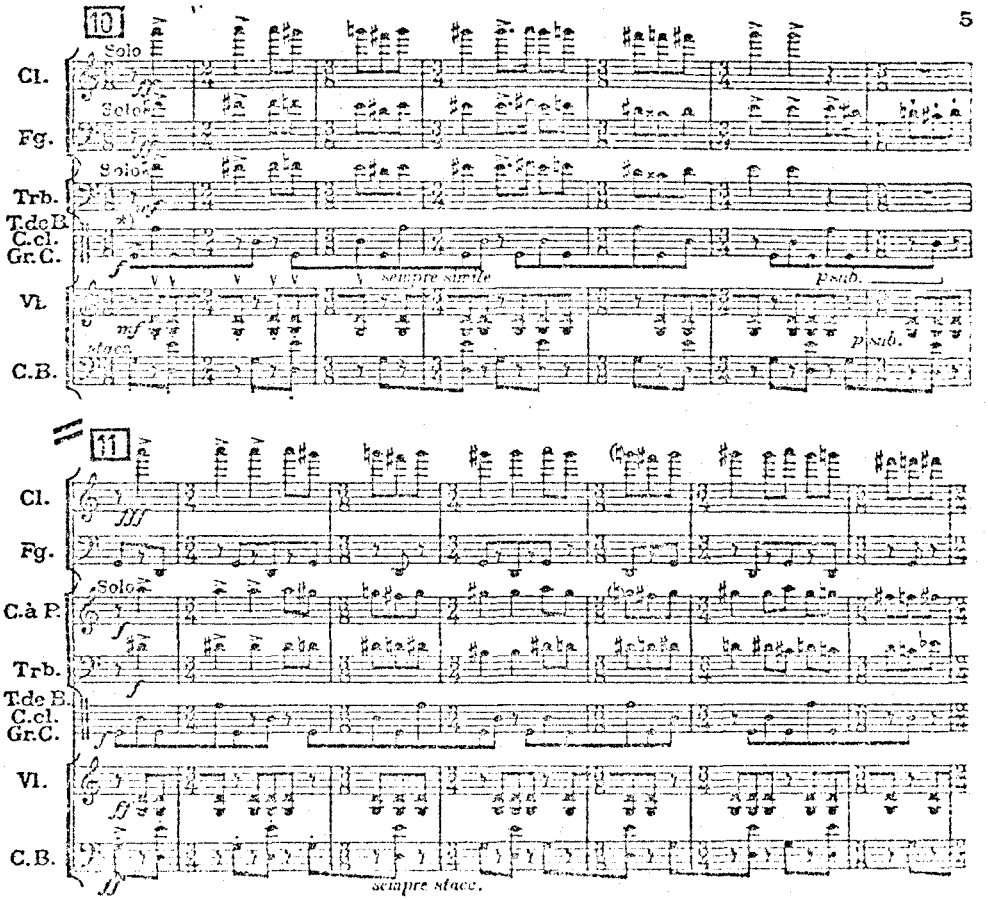
[3] Numbers placed in boxes refer to rehearsal numbers in the score. Please see L'Histoire: Music under Bibliography.

Ex. 1A Stravinsky: L'Histoire du Soldat



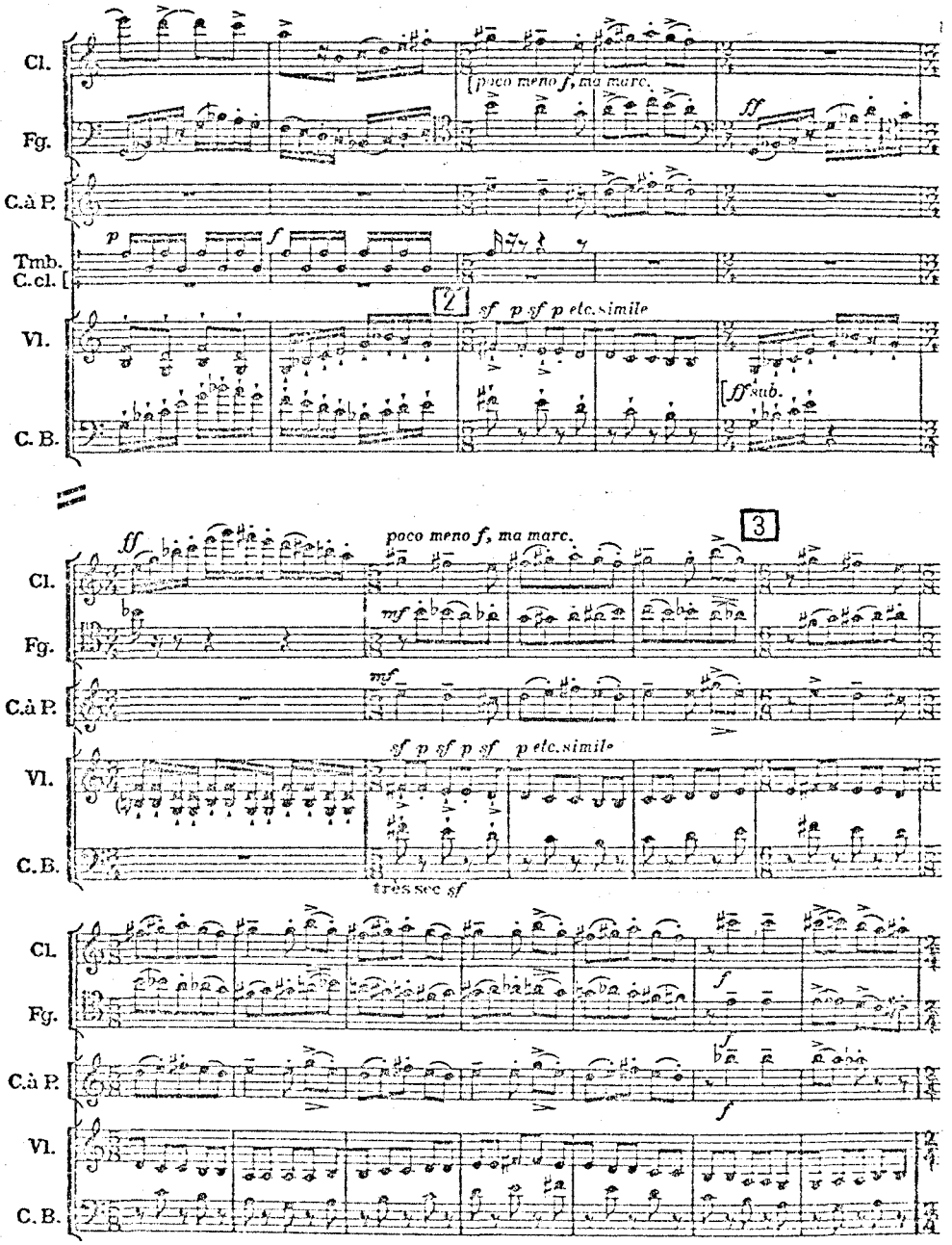
following pitches in the extreme high register, tend to be inconsistent and out of tune. One has to work carefully to keep the instrument in tune with itself and follow the tendencies of the octave tunings in the other instruments. Meanwhile, all instruments must maintain a solid fortissimo which presents additional pitch considerations for each instrument. In "The Devil's Dance", four measures before [3], the rapidly soaring clarinet gesture requires either a clumsy use of standard fingering

Ex. 1B Stravinsky: L'Histoire du Soldat



or a slightly more comfortable fingering for the high g'''. The passage immediately following this gesture contains seven different articulation combinations which must be present in the clarinetist's working vocabulary (Ex. 1C). There are many effects which Stravinsky has employed in L'Histoire. The first group has to do with timbral qualities. In the "Little Concert"[4] a rapidly ascending scale, beginning with a c' trill, predates almost the

Ex. 1C Stravinsky: L'Histoire du Soldat



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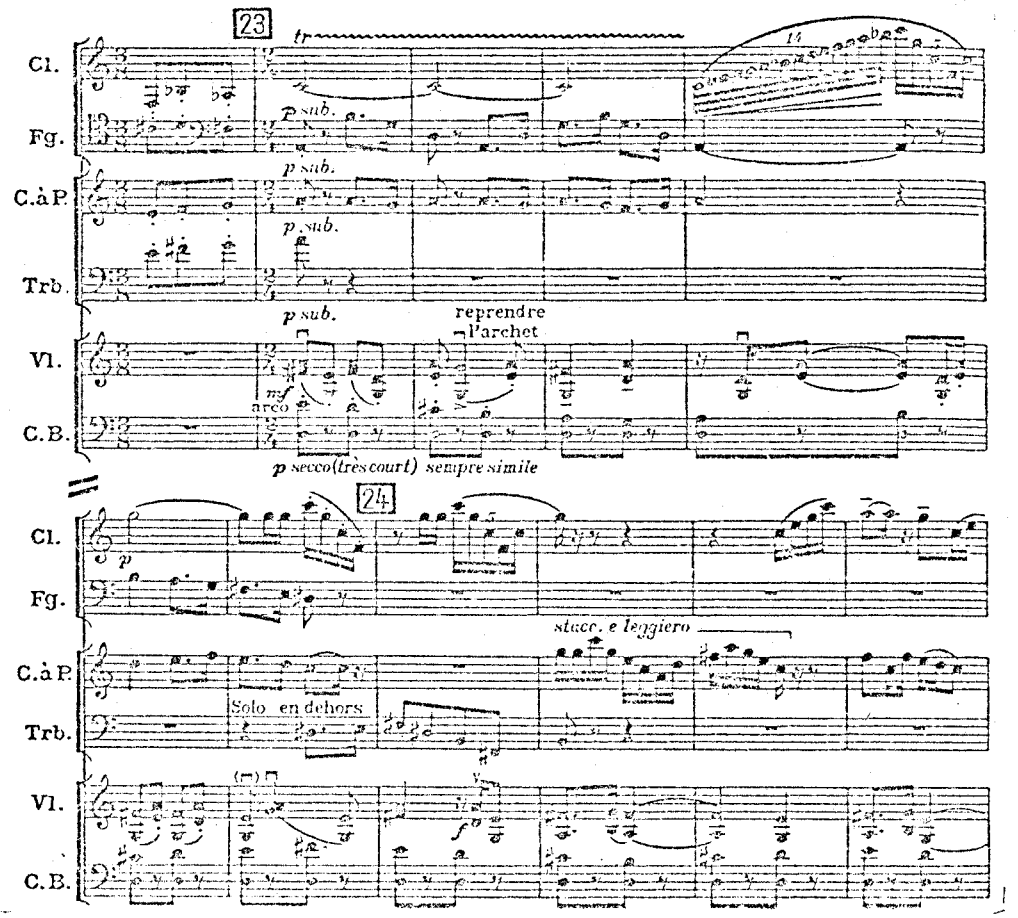
[4] This is the musical center of L'Histoire in which all melodies are collected with a foreshadowing of certain melodic fragments to appear later in the piece.

same expression as the opening clarinet cadenza to Gershwin's Rhapsody in Blue; but, in L'Histoire a c' trill is substituted for a g trill, and the glissando follows (Ex. 1D).

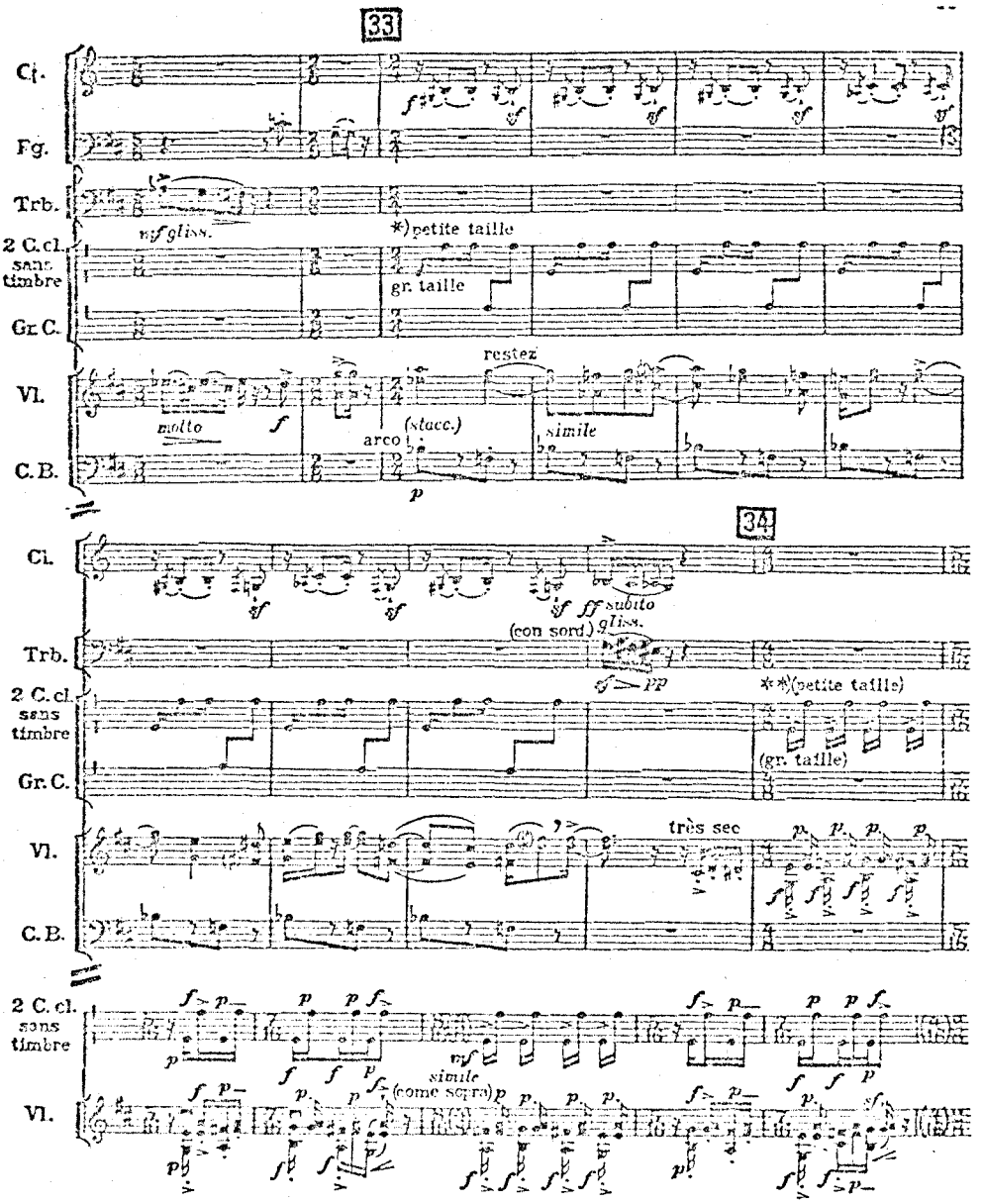
Ex. 1D Stravinsky:L'Histoire du Soldat



A similar glissando effect minus the trill appears in the "Devil's Dance" at 5 . Here the clarinetist is beset with a rapid descending scale passage immediately turning and ascending within the space of seven notes. This is a total of twenty-nine notes laden with accidentals. Later,

coupled with the trombone at one measure before 34 in "Ragtime," the clarinet preduces an effect sounding like a smear. Just a few measures earlier Stravinsky, by carefully placing grace notes, accents, and syncopated rhythms in the clarinet part 33 to 34 , adds a guitar or cello effect to his ensemble (Ex. 1E). Grace notes

Ex. 1E Stravinsky: L'Histoire du Soldat



are not only numerous in "Ragtime" but also through the entire work. Other places are "Music to Scene 1" which helps to illustrate the rolling stream and "Music to Scene 2" which evokes solitude in rustic surroundings. Although a clarinet staccato by itself does not suggest any particular effect in L'Histoire, when combined with the violin's grace notes and bass pizzicato at [14] in the "Waltz," it simulates a string pizzicato.

Rhythmic effects occur naturally because of numerous meter changes. Shifting accents, rapid dynamic changes, jagged rhythms, and swift gestures add to the early ragtime-New Orleans jazz influence of [26] - [29] in "Ragtime". In this movement the meters explored are: 3/4, 4/8, 2/4, 8/16, 7/16, 3/8, 5/16, 2/8, and 3/16 (Ex. 1F).[5]

The tessitura of L'Histoire pushes the clarinet to its extreme ranges. Illustration (Ex. 1B) shows the strident quality of the high a'''s at a fortissimo level. Then the "Tango" has the clarinet maintaining a bass-like ostinato in its lowest register on low e.

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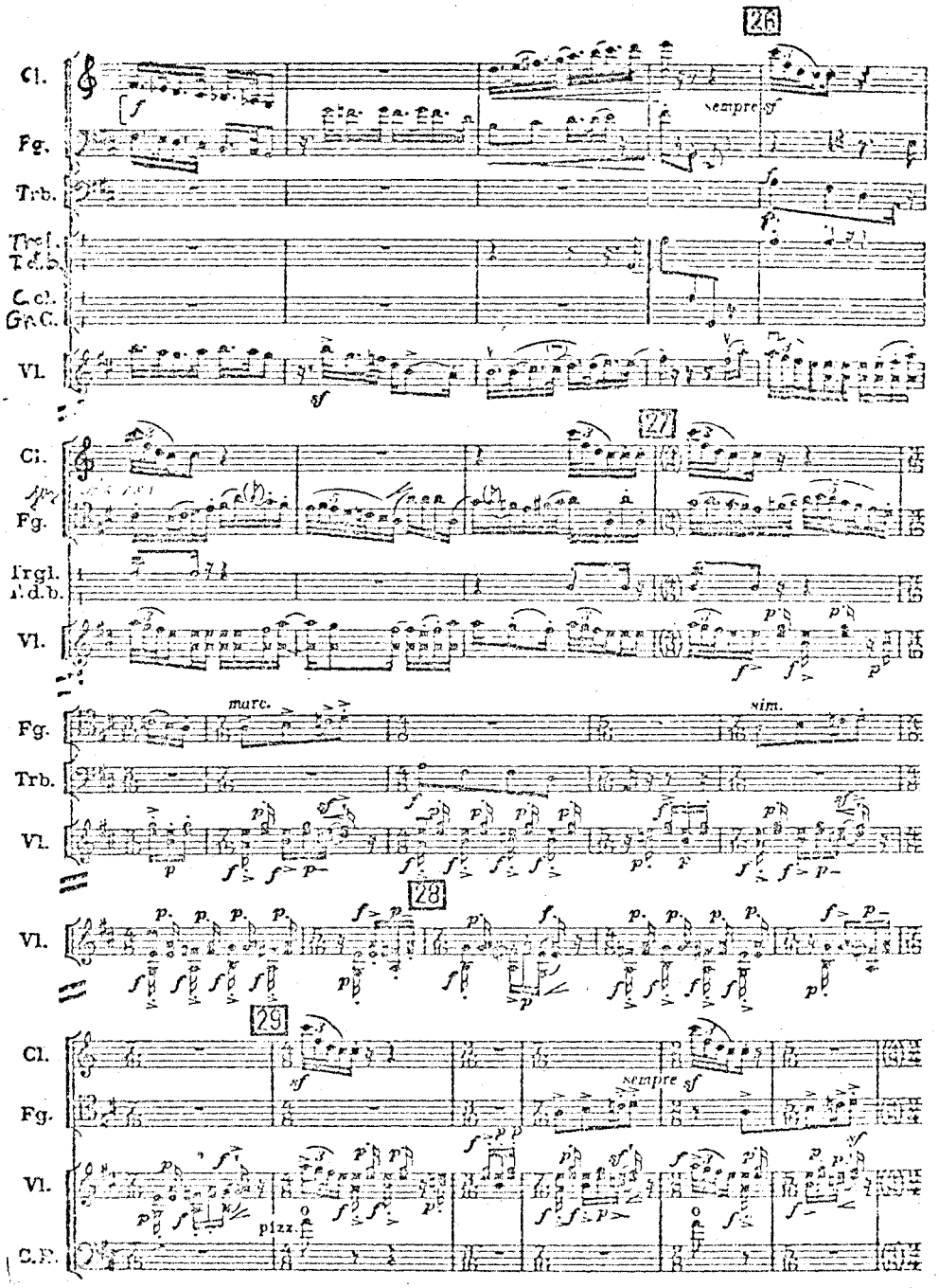
[5] "Ragtime" is the only movement of L'Histoire with a key signature. Here it is D major. "Waltz", the second dance, is the only movement with a steady meter throughout, 3/4, except for a few bars of hemiola in 6/8.

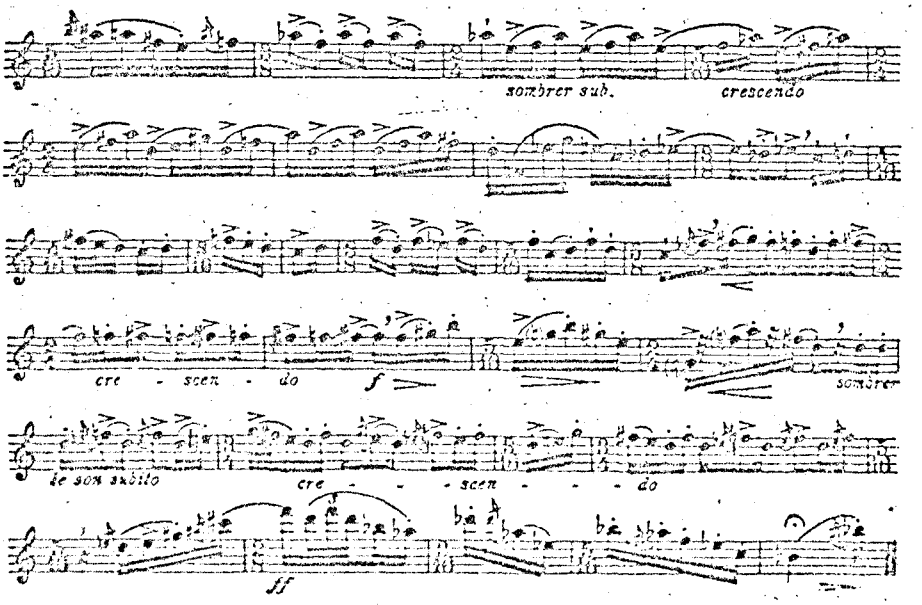
Ex. 1F Stravinsky: L'Histoire du Soldat



Igor Stravinsky: Three Pieces for Clarinet

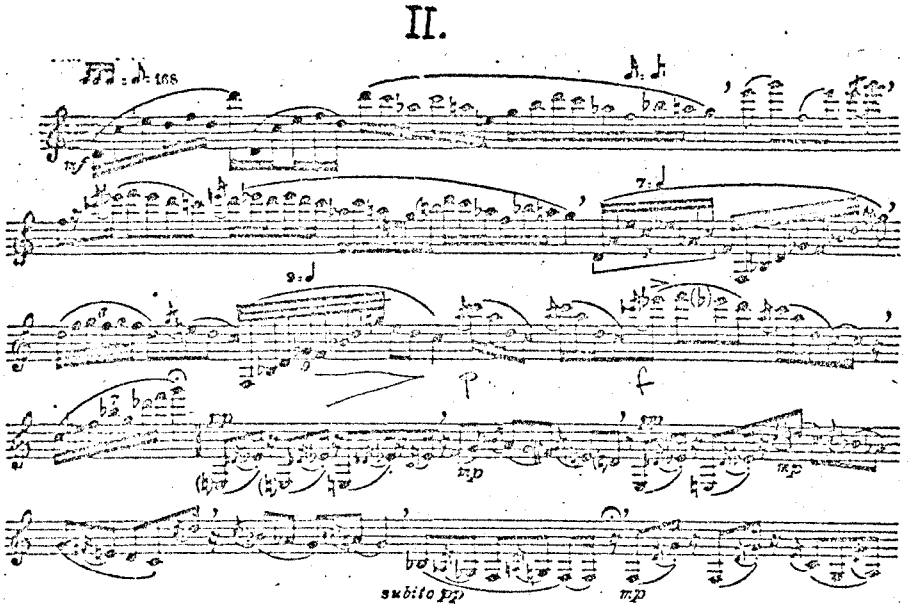
Quite a contrast to L'Histoire is Three Pieces for Clarinet composed in 1919 for Stravinsky's benefactor, Werner Reinhart, an amateur clarinetist. The three movements contrast greatly with each other. The first is a Russian folk melody based on the Volga Boat Song, the second is basically a modified cadenza, and the third is influenced by early American jazz. However, with all the seemingly experimental devices of the 20th century, Three Pieces employs traditional notation. Nevertheless, there is an attempt to destroy any sense of meter, as in other of his works. No more than three measures occur simultaneously with a constant meter (Ex. 2A).

Ex. 2A Stravinsky: Three Pieces for Clarinet



Stravinsky employs changing meters, shifting accents, syncopation, and abrupt dynamics to achieve this end. In addition to a lack of consistent meter[6], there are no key signatures, only tonal centers and modal implications[7]. Within these relationships, there is an increasing use of grace notes which pregressively become numerous in the third movement. Although the grace notes appear singly, their rapid bursts and clumsy fingering combinations, as exemplified in the second and third movements, present special technical demands for the clarinetist (Ex. 2A and Ex. 2B).

Ex. 2B Stravinsky: Three Pieces for Clarinet



[6] Stravinsky indicates this in changing meters and , inducing shifting metric accents.

[7] The first movement employs both Dorian and Lydian modes, while the third has changing tonal centers on G, D, and E.

Awkward rapid sequences in the altissimo register are difficult and require diligent attention to clarity and intonation. But by far the most difficult gesture of the entire piece is, of course, saved for the last five measures (Ex. 2A). Particular reference is made to the fourth measure from the end; no matter if an alternate "false" fingering or a traditional fingering is used, the d''' f''' d''' combination remains notoriously difficult.

Stravinsky was quite aware of the timbral possibilities of the clarinet. The entire first movement is set in the chalumeau register. There are references to the clarion register here, but these are merely bridge passages upward or downward. However, the third movement is set squarely in the clarion register with the difficult passage mentioned earlier just at the upper "break" between registers, middle and high (clarion and altissimo).

The second movement is interesting for two reasons. There will be two devices employed with greater frequency in later compositions of the 20th century; first, rapidly rising gestures laden with accidentals and second, jagged leaps of seventh and octave combinations. These observations can be seen in (Ex. 2B), first three lines.

Sergé Prokofiev: Quintet Op. 39

Sergé Prokofiev composed his Quintet Op. 39 for violin, oboe, clarinet, viola and contrabass in 1923. The notation is expressed generally by traditional means. Both key and time signatures still prevail. Their usage is regular throughout the work with the exception of the third movement. Here Prokofiev introduces some experimental approaches to meter. The movement generally employs 5/4 meter; however, meteric accents and pulsations vary from measure to measure by instructive groupings of rhythms over measures.[8] Pulsations of five beats are indicated ( ), those of three beats ( ), and of two beats ( ) (Ex. 3A). The last six measures change meter almost one per measure. But, if the clarinetist and the ensemble find this notation too difficult, Prokofiev supplies an alternative simplified version immediately following. This movement numbered III a (simplified) employs multiple changing meters which use only traditional notation[9] (Ex. 3B) Although this simplification does not alter the original sound, it does create an image of a visual puzzle for the clarinetist.

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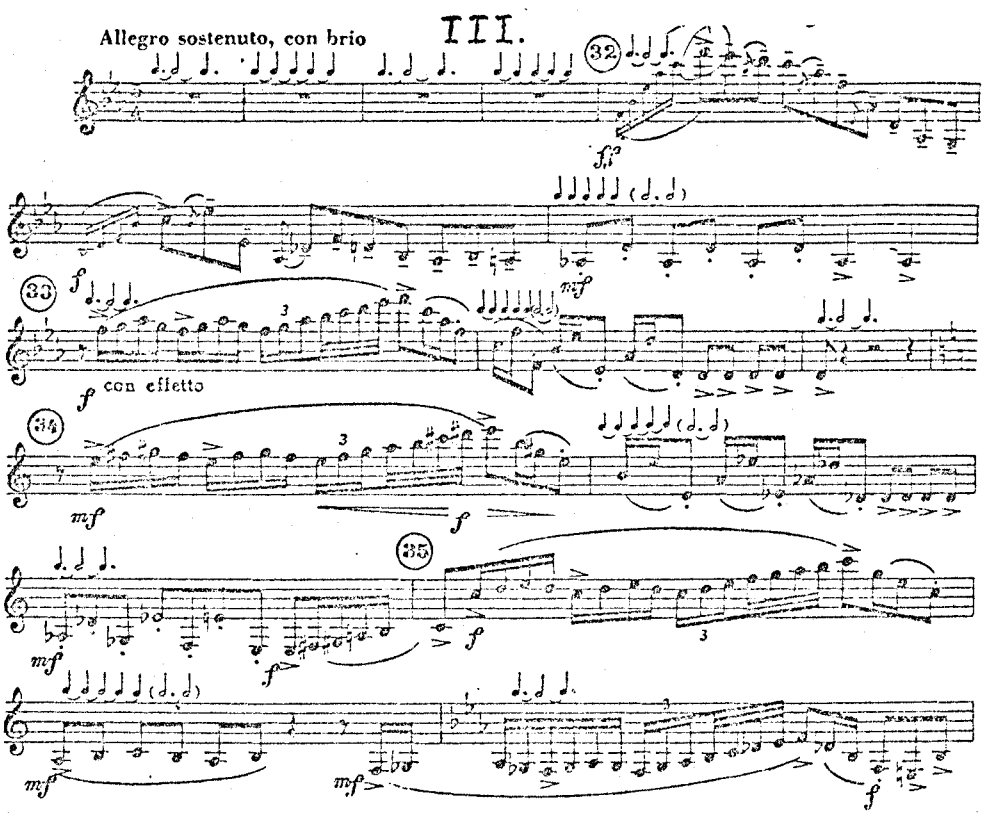
[8] This experimental device of indicating metric divisions is further developed later by Béla Bartók in the contrasts (1938).

For this reason, the original seems preferable.

Ex. 3A Prokofiev: Quintet Op. 39



In the fourth movement, Prokofiev is bound by traditional notation. Yet he seeks a better means to express the varied timbral colors of the clarinet in the repeated

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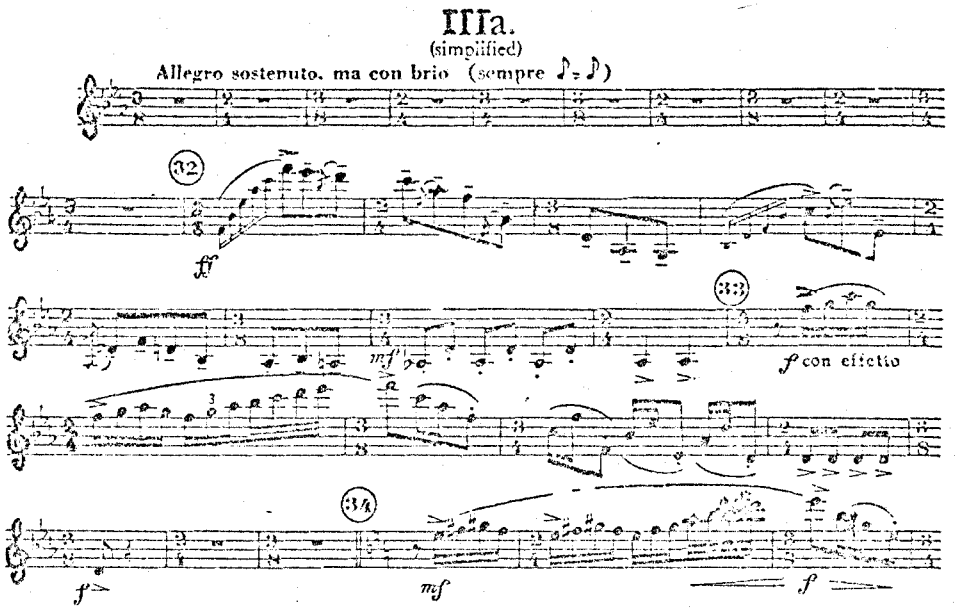
9 Musicians, however, prefer the original version because it is visually easier to read and uncluttered with multiple meter changes.

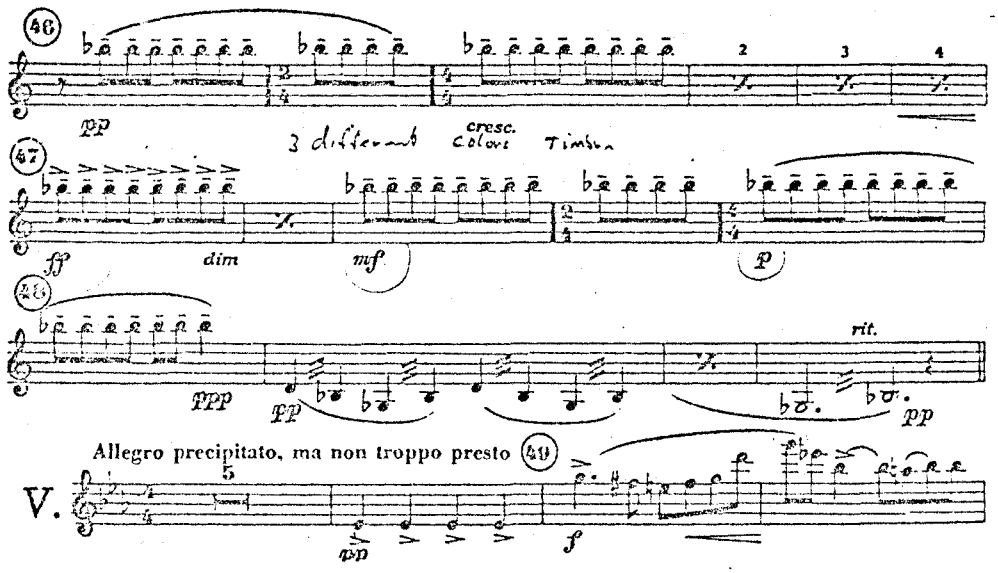
Ex. 3B Prokofiev: Quintet Op. 39



$b^{b'''}$ eighth-note ostinato. Between rehearsal numbers (46) and (48), there are four different articulations requested over the twelve measure ostinato (Ex. 3C). In keeping with Prokofiev's expression of detailed nuances, dynamics play an important role. The four varied articulations coupled with a changing progression of dynamics express the changing timbral textures of this ostinato section.

Technical demands which confront the clarinetist unfold with equal difficulty throughout the work. Each movement seems to investigate certain technical problems for the clarinet. In the first of the six movements, numerous accidentals and wide skips between clarion and altissimo registers are executed at rapid, soft dynamics.

Ex. 3C Prokofiev: Quintet Op.39



Between (25) and (26) of the second movement, twenty-four three-note groupings (♫) of alternating major thirds on G and G^{b} are centered in the "throat-tone" area and "break" of the clarinet.[10] This particular passage requires a nimble dexterity and a keen alertness against the fatigue of so many repetitions. The experimental center of the work seems to lie with movement III. The very first gesture in the clarinet is reminiscent of a combination of motives in the second and third movements

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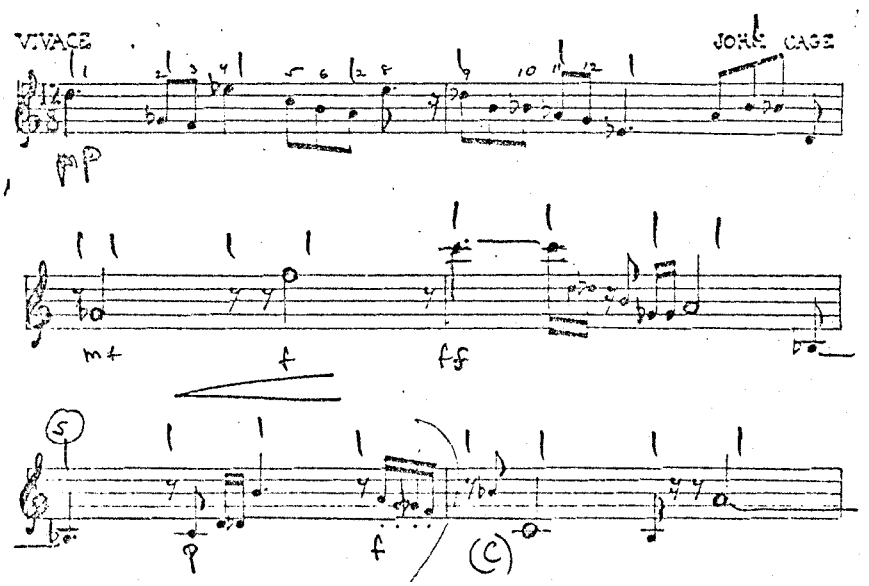
[10] The "break" refers to an area of the clarinet where the fingering undergoes an abrupt radical change with regard to the number of fingers used. This area lies between the chalumeau and clarion registers i.e. b^{b} to b'.

of Stravinsky's Three Pieces. But here, Prokofiev has combined both the sweeping grace-note gestures covering two octaves with metric changes fraught with accidentals. For the first time tremolos are used in movement IV. Interestingly enough, they relate to the triadic combinations of movement II. However, the tremolos appear in major thirds with its alternation an inversion of the former (g^b - b^b followed by b - g). At (57) in movement V, wide leaps of ninths and sevenths appear between the chalumeau and clarion registers. Once more, rapid triplet figures with numerous accidentals move with unpredictable skips and leaps weaving themselves among all three registers at (63). Finally, in movement VI between (67) and (68) a disordered diatonic-chromatic passage of thirty-second notes marked con brio presents the most complicated gesture of the work. There are no patterns and no repetitions to assist the clarinetist, thus adding further to its difficulty. Despite all the activity throughout the work, the tessitura remains within the standard three and a half octave range d - f'''.

John Cage: Sonata (1933)

The Sonata for solo clarinet written by John Cage in 1933 represents a radical departure from the previous norm. Traditional notation includes all the standard symbols except articulations, dynamics, and phrasing marks. After Cage indicates, for instance, the meter and tempo in the first movement, it is the responsibility of the clarinetist to manipulate the music. In other words, Cage is experimenting with a free form in which each performance should yield yet another variety ---- in effect, a different composition (Ex. 4A).

Ex. 4A Cage: Sonata

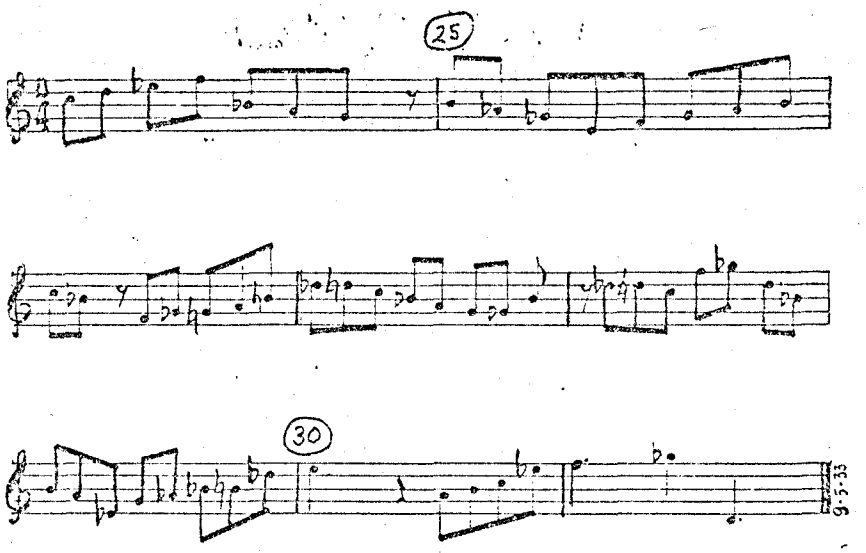


This experimental notation requires that accidentals apply only to those notes which they immediately precede. Since phrasing and dynamics are left to the discretion of the performer, clarinetists who have perofrmed the work suggest a kind of rough sketch-in of dynamics and phrasing once one has accustomed himself to the music as I have done in Ex. 4A.

There are no key signatures in any of the three movements. However, tonal centers do vaguely appear through prolonged duration of certain structural pitches. These pitches in the first movement are c, f, g, and a, in the second movement e, d, and g, and in the third movement c, a, g^b and d. Perhaps these observations are a bit speculative since the work demonstrates early influences of the Viennese twelve-tone technique. A twelve-tone row is presented in the opening measures of the first movement, but the row disintegrates as the composition progresses. A rather startling discovery at first was that the third movement is a complete retrograde of the first movement with adjusted octave displacements (Ex. 4B). In addition, Cage employs retrograde in isolated secions within each movement.

From the technical standpoint there is an even more interesting contrast between the first and third movements, the first movement, marked Vivace, is

Ex. 4B Cage: Sonata



technically far more difficult to execute than the third. Jagged figures, sweeping upward gestures, and semi-pointillistic motives abound. On the other hand, the third movement is calmer and the writing is considerably more linear.[11] The second movement, marked Lento, offers sustained playing in the extreme high register on $a^{b'''}$, g''', and $g^{b'''}$. This immediately alerts the clarinetist to the problem of endurance and intonation.

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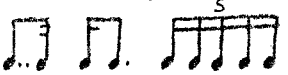
[11] The very first gesture in the movement contains the following notes C, B^{b}, B, A. This is important for two reasons: first these are the only notes of the entire work which are noticeably surrounded by a substantial number of rests on either side, and second and perhaps more important, unscrambled these notes spell B A C H. In German B is B^{b} and H is B♮.

Ornamental effects such as grace notes appear only in the last movement, but metric effects through shifting accents and pulses make this movement rhythmically exciting. Although the meter expressed in 4/4, Cage groups notes for a variety of metric pulses, such as: (♩ ♩. ♩.), (♩. ♩ ♩.) or (♩. ♩. ♩) in addition to the standard duple divisions. This is rather reminiscent of Prokofiev's third movement of the Quintet. The tessitura of the Sonata is disguised somewhat in the second movement. The lowest note of the work, e, appears as the final note while the highest note is $a^{b'''}$. However, the highest note of the work is a''', in the first movement. This is the same tessitura as L'Histoire.

Béla Bartók: Contrasts

Bartók's Contrasts, composed in 1938, is quite unlike Cage's Sonata, but is similar in many respects to Stravinsky's L'Histoire and Three Pieces. Both Bartók and Stravinsky share similar concepts of tessitura, timbre, and rhythm for the clarinet. Contrasts is composed for violin, clarinet, and piano.[12] Notation is traditional with respect to the standard symbols: clef, meter, dynamics, articulations etc. There are, however, some experimental uses of rhythm and meter. Because of Bartók's keen ear for his ethnic Hungarian folk music, the notation of Contrasts contains quite irregular metric groupings resulting in rhythmic complexities such as:  (Ex. 5A). In effect, Bartók has made use of twentieth century experimental rhythmical complexities with the use of traditional notation. These advances were soon to break out of their restricted boundaries within the next twenty years and develop into an entirely different notation.

Other innovations of Bartók's notation deal with

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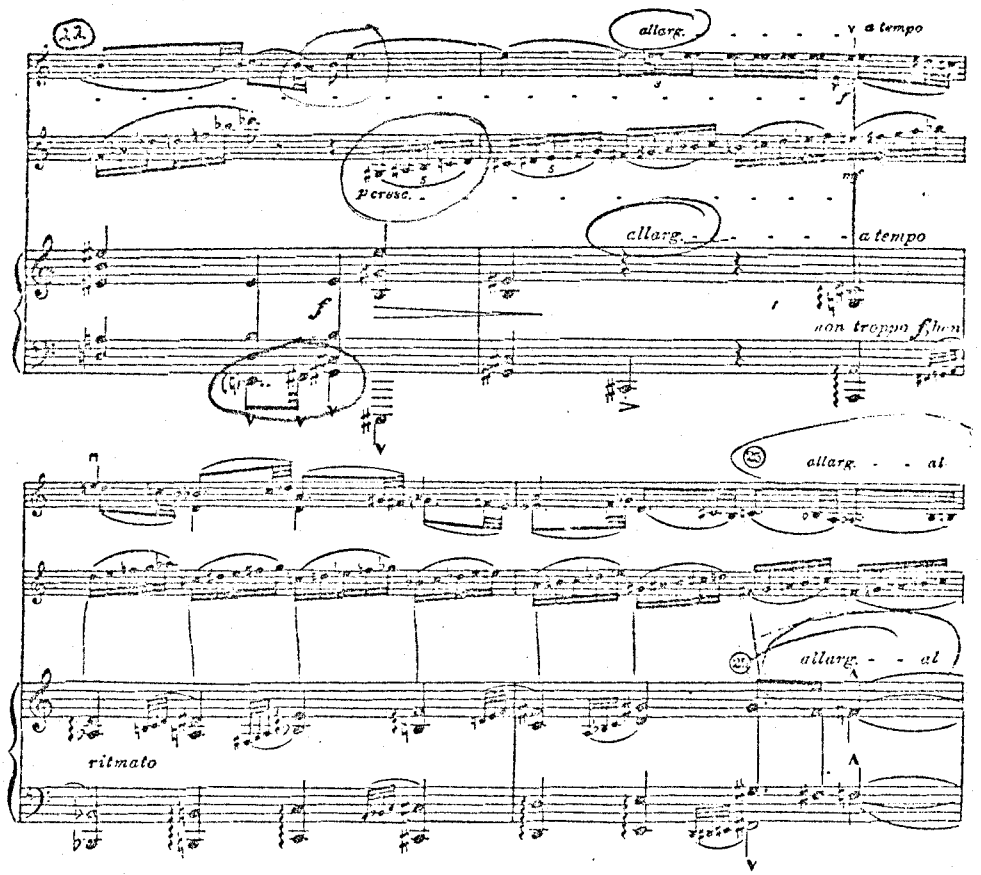
[12] Two violins are necessary for the violinist. Bartók indicates a second violin tuned scordatura for the folk song passage of the third movement. It would be almost impossible to retune one instrument during the performance.

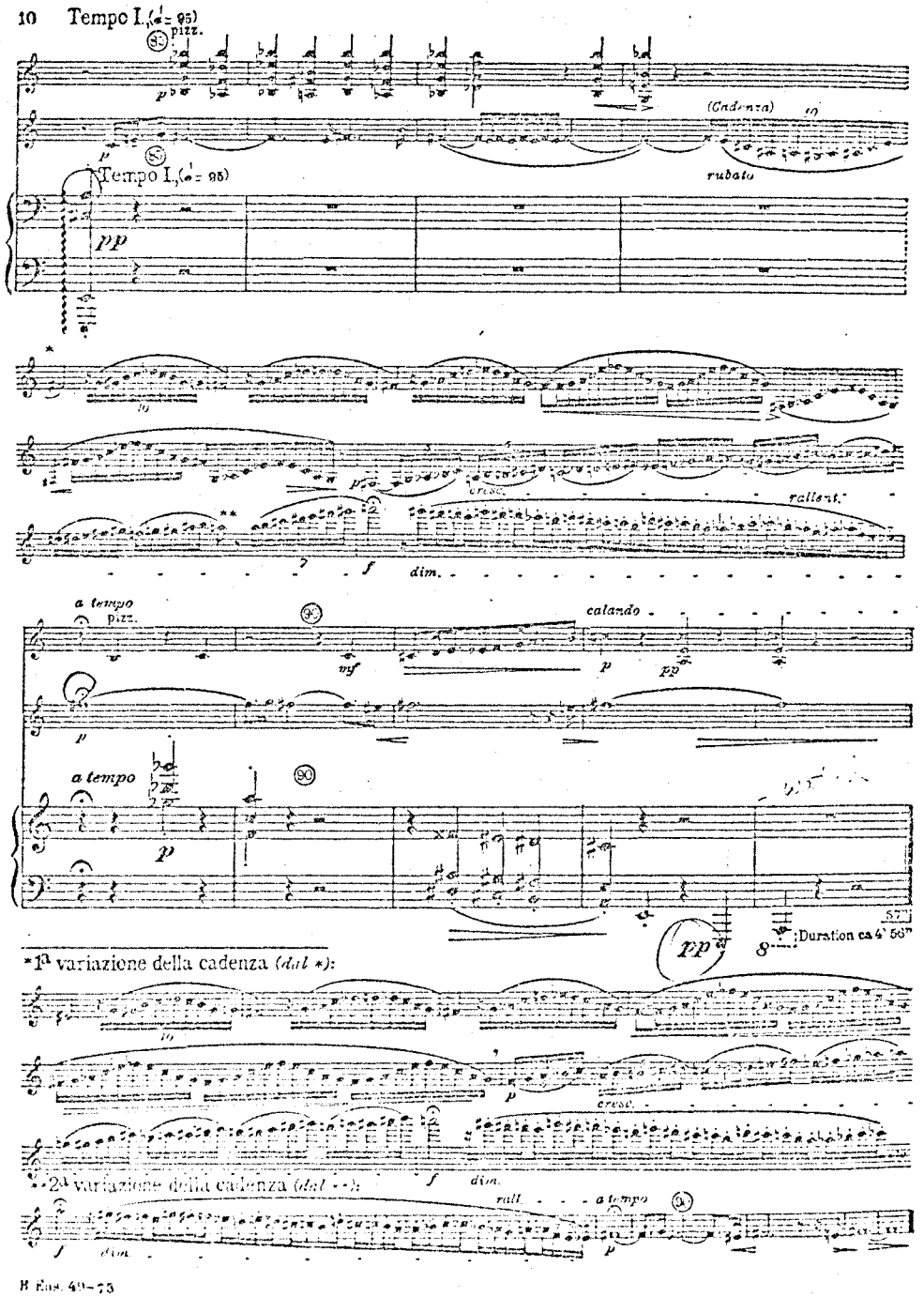
Ex. 5A Bartok: Contrasts



the clarinet cadenza, timings in seconds, and complicated meters. First, the clarinet cadenza of the first movement is unusual in that nothing quite like it appears before 1938 for clarinet. The unusual rhythmic groupings of fives, sevens, and tens in addition to the two alternate cadenzas make it unique. The descending articulated passage after the fermata presents great difficulties in both the original and first alternate cadenza. It involves a rapid descent from $g^{\#''''}$ in the extreme altissimo resgister through a

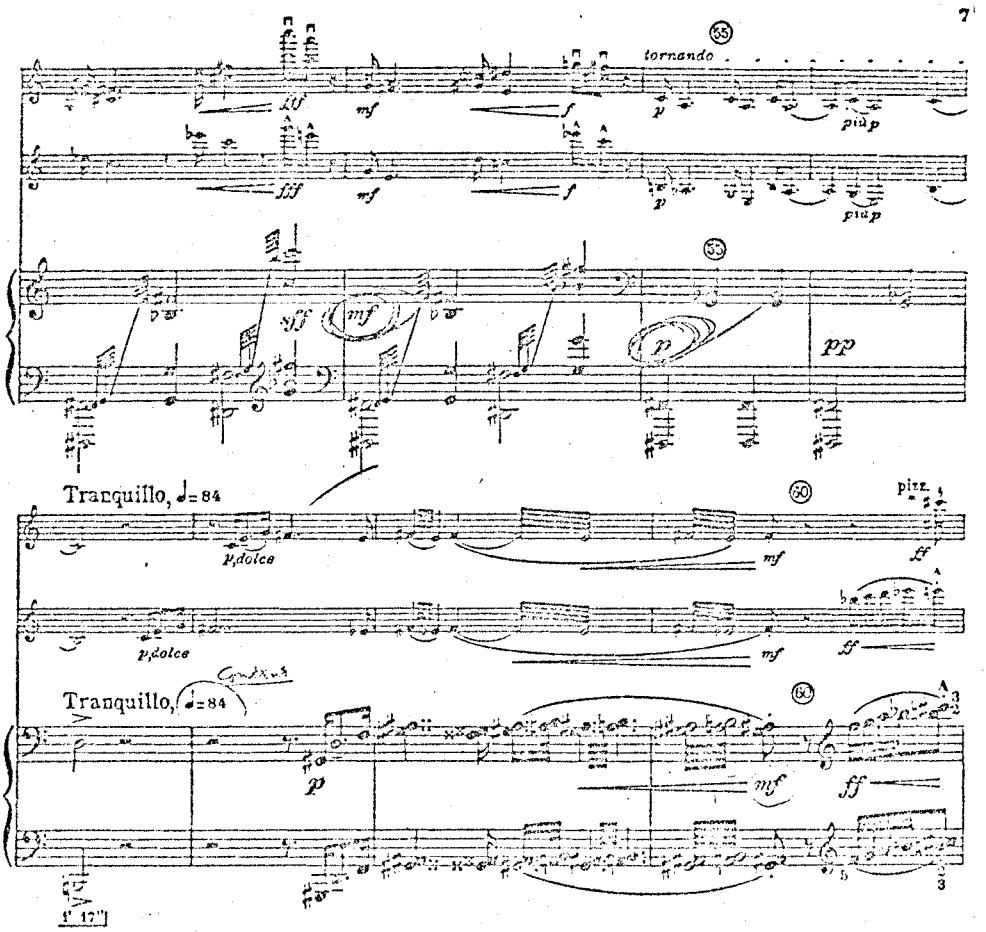
passage laden with accidentals with neither intervalic pattern nor repetition (Ex. 5B).

Ex. 5B Bartók: Contrasts



With respect to tempo Bartók seems very concerned that a specific amount of time elapses between sections of the work. Consequently, periodically throughout the work, carefully placed timings in seconds signals the performer to respect proper performance tempo in measure (57) (Ex. 5C).

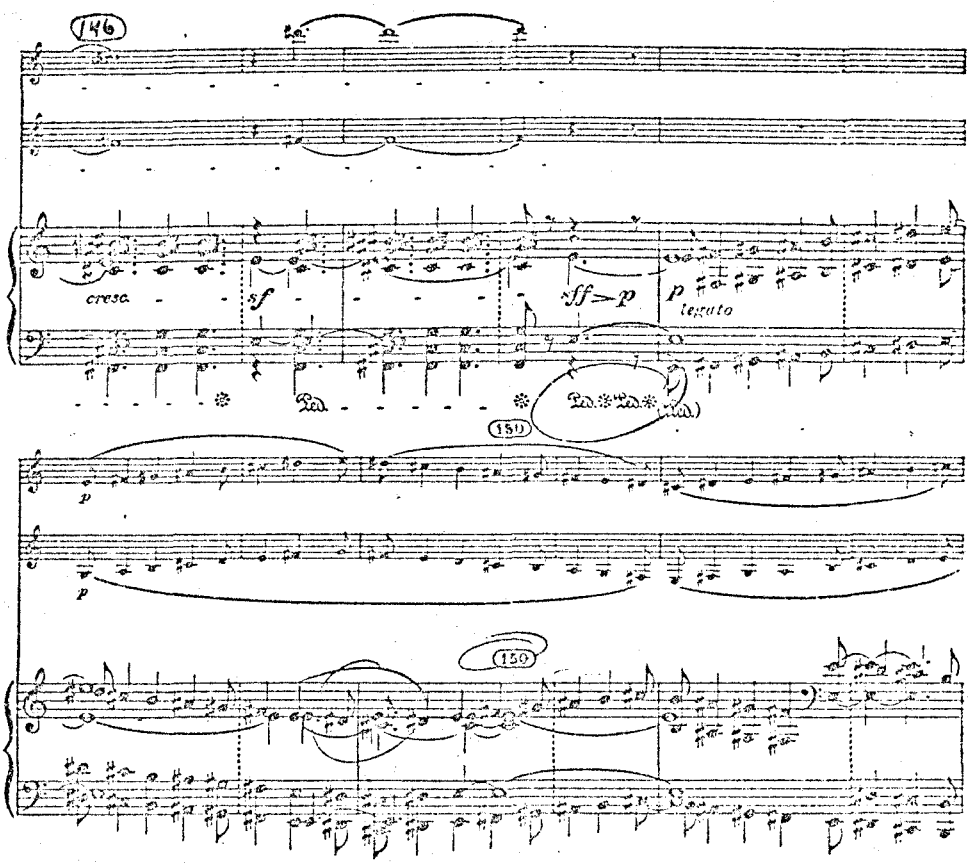
Ex. 5C Bartók: Contrasts



Tempo, in itself, although undergoing numerous transformations, is diligently altered through metric modulation. On the other hand, rhythm in the third movement is based on the

ostinato (Ex. 5D).

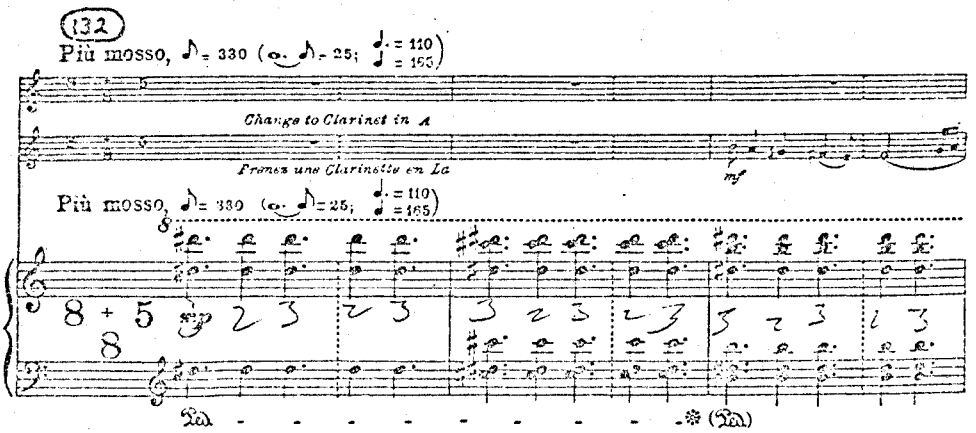
Ex. 5D Bartók: Contrasts



Although Prokofiev placed symbols above the pitches to indicate complex rhythmic groupings in the Quintet, Bartók indicates a similar intent but has a different procedure, the ostinato. It is a complex structure, but a vertical dotted line in the score groups specific units together,

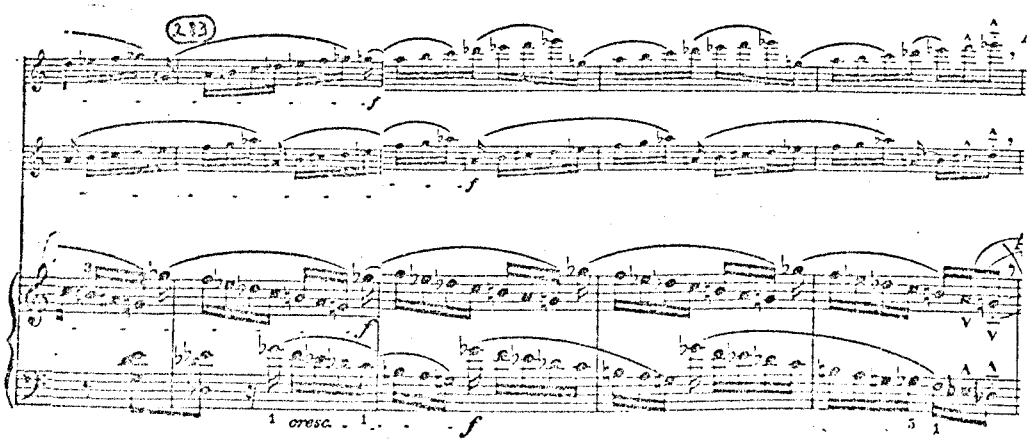
(Ex. 5D and Ex. 5E). This passage causes rhythmic difficulties for the ensemble.

Ex. 5E Bartók: Contrasts



For instance, in measures 166-168 the violin and clarinet have the same rhythmic pattern simultaneously in imitation of the piano. The ostinato now appears in its truncated form as compared with its inception in measure 132. In a quite similar nature measures 283-286 reveal a sequence of paired voices in imitation simultaneously with contrary motion. Combining these devices with the element of syncopation, both difficult technical and synchronizational problems of this passage result (Ex. 5F).

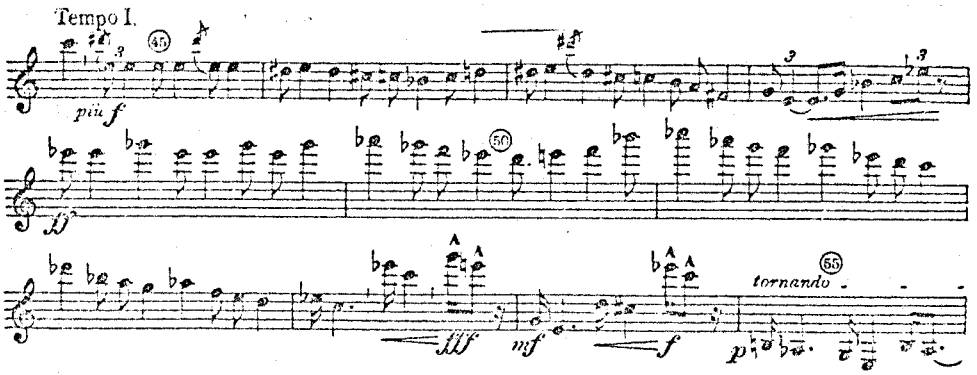
Ex. 5F Bartók: Contrasts



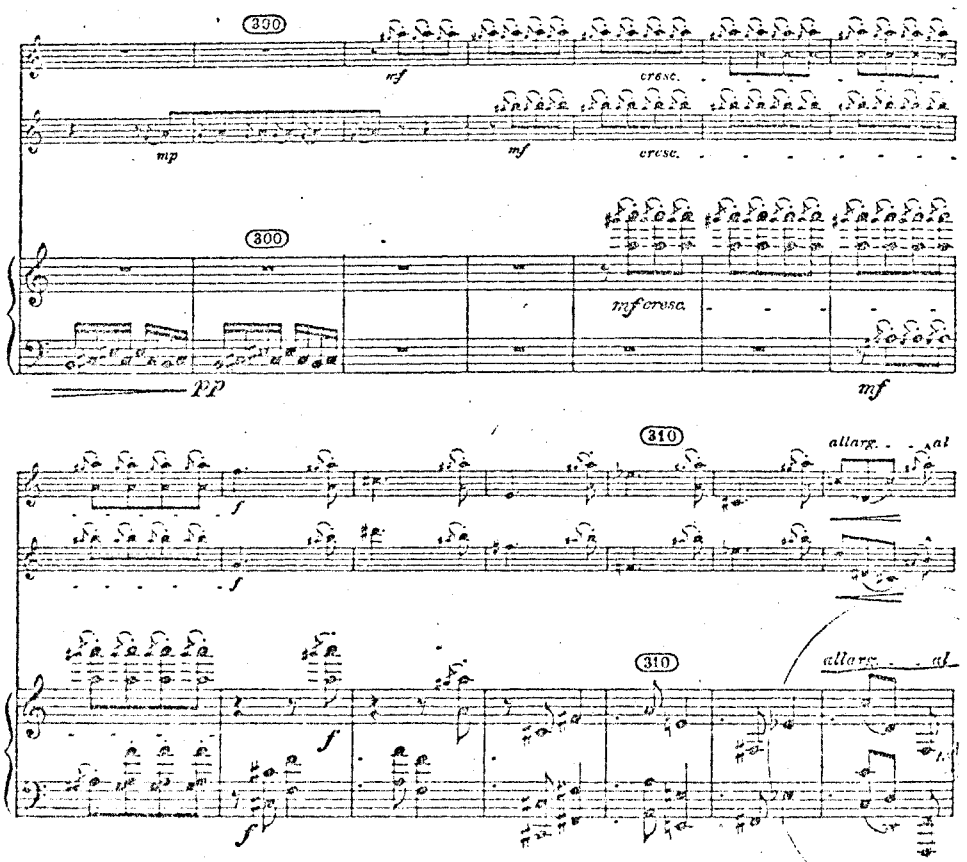
In the second movement, awkward trills exist if one chooses to play this movement on B^{b} clarinet. In as much as Bartók writes for two separate clarinet parts, the A clarinet part doubling with B^{b} on the same part is preferable. After careful observation, the clarinetist will note that the low e of measures 55-56 (Ex. 5C) written for the A clarinet is impossible on the B^{b} clarinet part. Bartók makes a pitch adjustment for the B^{b} clarinet. This change does not serve the original descending melodic line, but merely satisfies the instrument's range. Because of awkward fingering combinations for the A clarinet, Bartók carefully indicates where the clarinetist should change between the B^{b} and A clarinets in the third movement.

A snappy, sharp chain of grace notes is difficult to articulate clearly and to sustain with rhythmic clarity. This chattering effect occurs in the coda section of the third movement measures 300-306. Bartók achieves distinct timbral effects by utilizing the extreme registers of the clarinet. The wave-like motion of the first movement swells over all three registers with jet-like sweeps. The passage beginning at measure 49 sends the clarinet soaring to its farthest height since the Cage Sonata, $c^{b'''}$ (Ex. 5G). Intonation with the violin has to be watched carefully here. In measures 59-64 clarinet and violin tremolos heighten the wave-like agitation of this movement. Quite in contrast

Ex. 5G Bartók: Contrasts



to this is the drone-like timbre of pedal tones in the chalumeau of the second movement. The third movement begins with a peasant dance with rustic sounds imitative of bird chatter. These are provided by the grace note passage (Ex. 5H). Ex. 5H Bartók: Contrasts

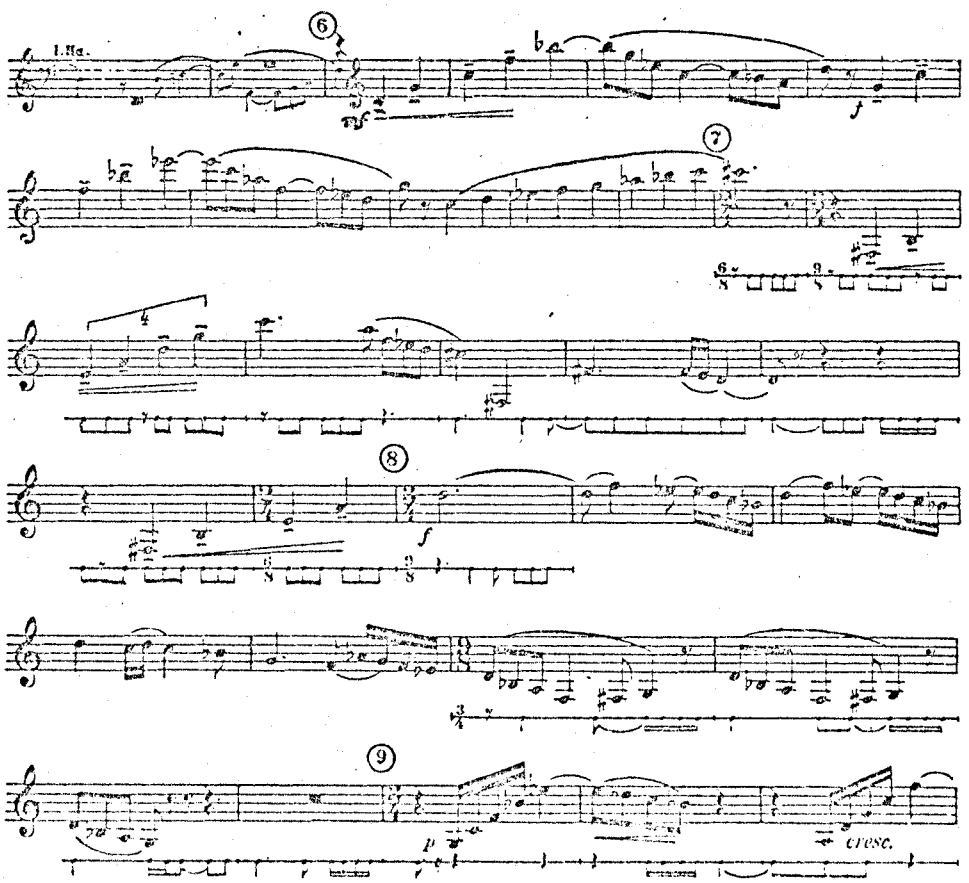


The tessitura of the Contrasts is truly implied in the title: from e to $c^{b'''}$ using the A clarinet. Not since Stravinsky's L'Histoire has any of the composers examined approached the variety of timbre, exploration of range, and complexities of rhythm as Bartók.

Paul Hindemith: Sonata (1940)

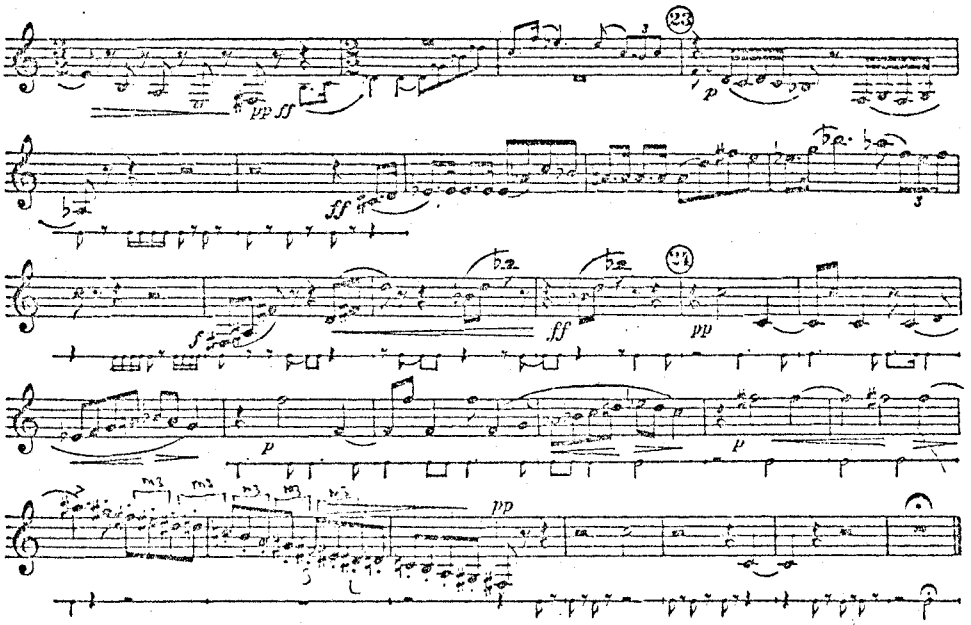
Paul Hindemith composed the Sonata for clarinet and piano in 1940. The notational setting of the piece is essentially traditional. Rhythm, meter and pitch are all parameters of the work which have been treated experimentally. First, because of the rather complicated and changing rhythmic nature of the piano part, Hindemith diligently indicated the piano's rhythms beneath each line in the clarinet part (Ex. 6A). These markings precisely

Ex. 6A Hindemith: Sonata



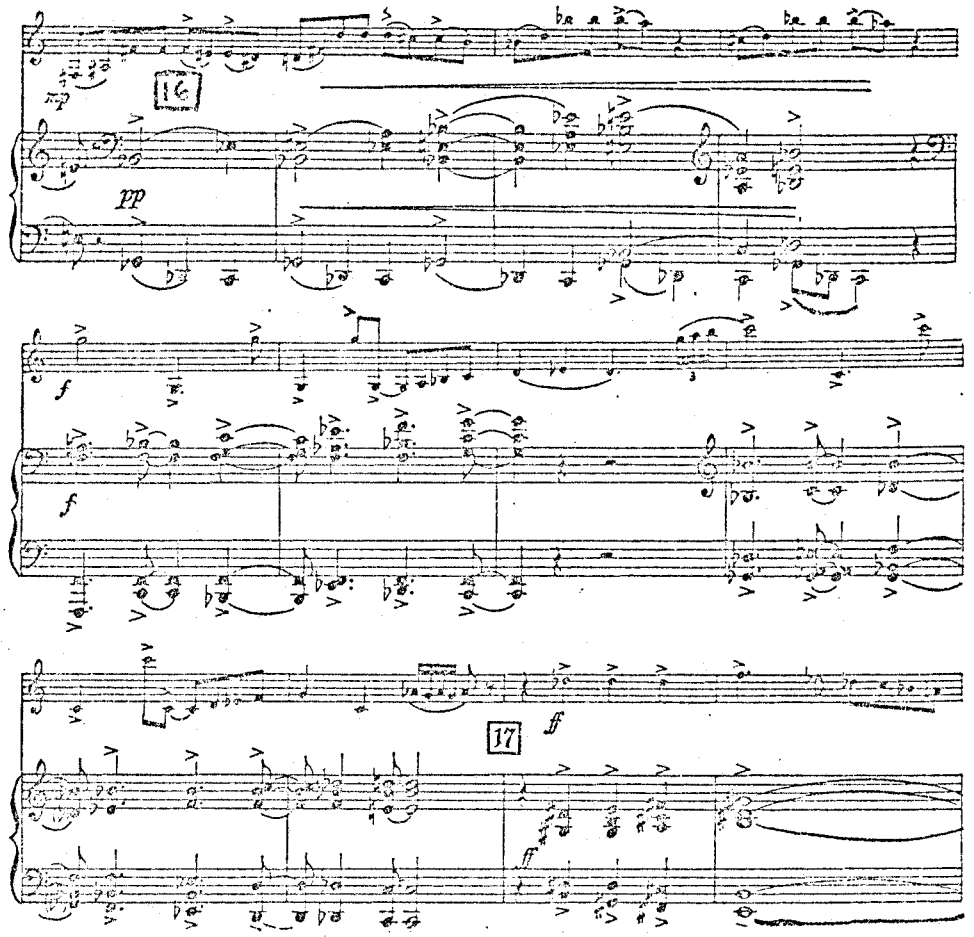
show moments when rhythmic difficulties arise between the clarinet and piano or when pedal points or other static gestures in the piano part would tend to obscure the motoric element in each movement.[13] With the aid of this new rhythmic score on his part, the clarinetist can, with a greater degree of rhythmic confidence, negotiate these awkward passages (Ex. 6A, 6B, 6C). In the third measure of 7

Ex. 6B Hindemith: Sonata



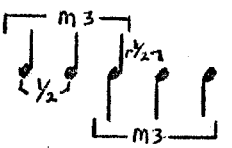
[13] Hindemith was keenly aware of proper rhythmical performances of his music as can be seen in his sight-singing book Elementary Training for Musicians (1946). This book covers the gamut of rhythmical complexities for the performer.

Ex. 6C Hindemith: Sonata



(Ex. 6A) an experimental adoption of polymeter, 3/4 and 9/8 simultaneously, is used for the first time in the works studied, and further calls for the execution of four notes within the space of nine. The complexity of four against nine is further compounded in that the clarinetist has to execute three against four in his own part, again simultaneously. In other words the clarinet is metered in 3/4 and the clarinetist must execute a perfect quadruplet in that time. This polymeter is suggested earlier in the piano

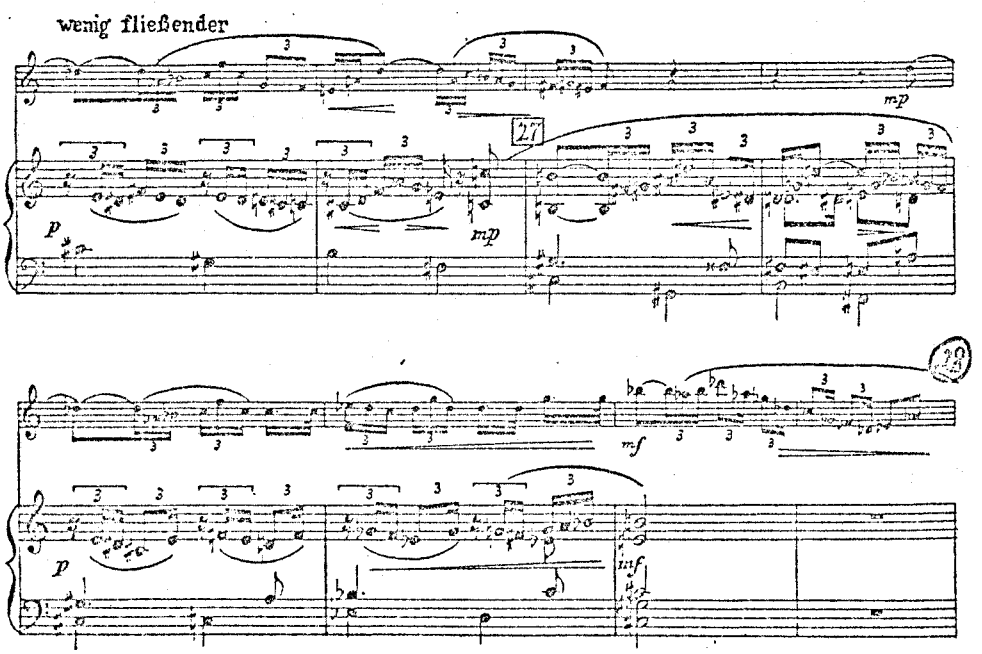
by triplet figures at [4] , but [5] is the point where the piano meter changes to 9/8 against the 3/4 meter of the clarinet. There are other instances of polymeter in the form of 2/4 against 6/8 in the first movement, but they are not as significant.

The final parameter experimetnally treated is pitch. Numerous accidentals beset the clarinetist in the piece. Just seven bars from the end of the second movement, a descending passage is composed of both diatonic and chromatic tones. This unwieldy looking passage is essentially a sequence of overlapping minor thirds enharmonically spelled at times, but rigidly adhering to the prescribed pattern throughout the passage. The tone between the minor third always appears a half-step below the upper tone in each series of three, i.e.  etc. (Ex. 6B). However, since Hindemith indicates a rather brisk ♩ = 92, the passage becomes technically worthy of attention. Although the passage is imitative at the lower octave, the clarinetist must use a new set of fingerings for each register.

Since the range of the Sonata (d to $e^{b'''}$) is not technically demanding, Hindemith combines pitches, rhythm, and intervals in such a manner as to make the clarinetist's role stimulating. In Ex. 6C the clarinetist must manipulate

two-octave, jagged leaps, which progress in rhythmic diminution and which are repeated a fourth higher in the following two bars. Moreover, rhythm, which is perhaps the most essential parameter of the piece, has particular significance in the third movement. Since the tempo indication is sehr langsam, the third movement is the most demanding with respect to the detailed execution of all the rhythmical problems present and to the endurance necessary to sustain long phrases (Ex. 6D).

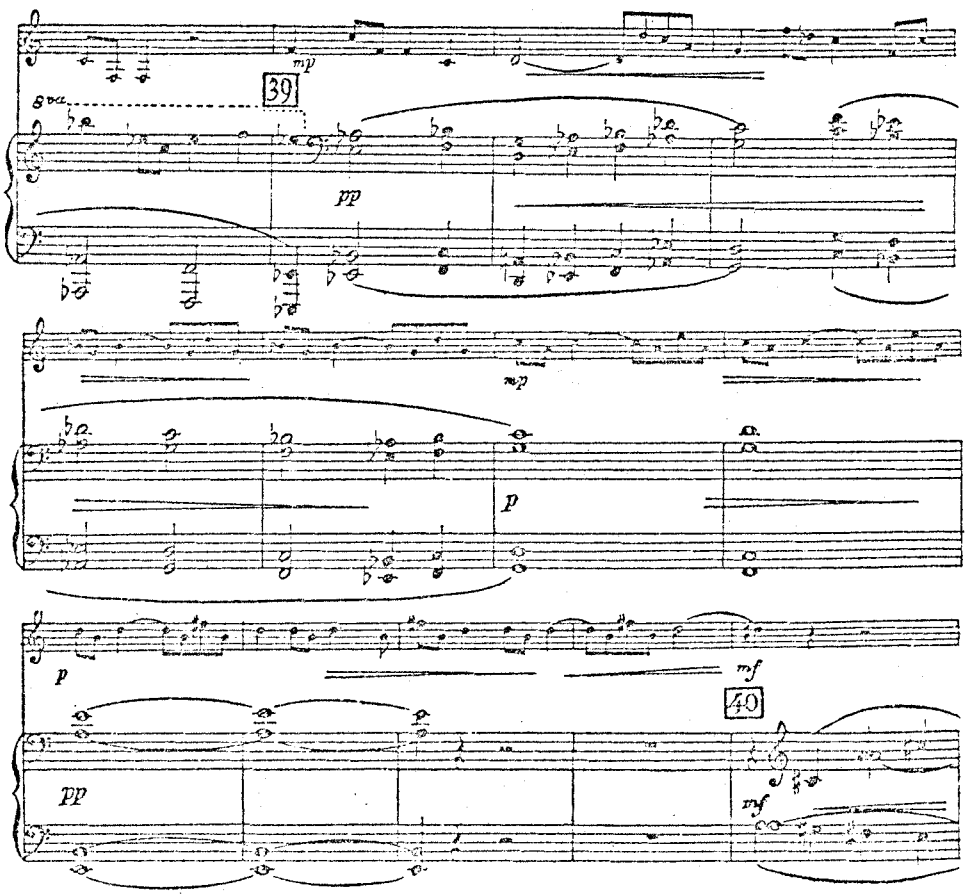
Ex. 6D Hindemith: Sonata



As far as the use of special effects is concerned, there are no trills, tremolos, grace notes etc. However, rhythmic patterns used as ostinatos appear in 28 and 29

of the third movement and 39 - 40 in the fourth movement (Ex. 6E). Hindemith uses these rhythmic ostinatos in

Ex. 6E Hindemith: Sonata



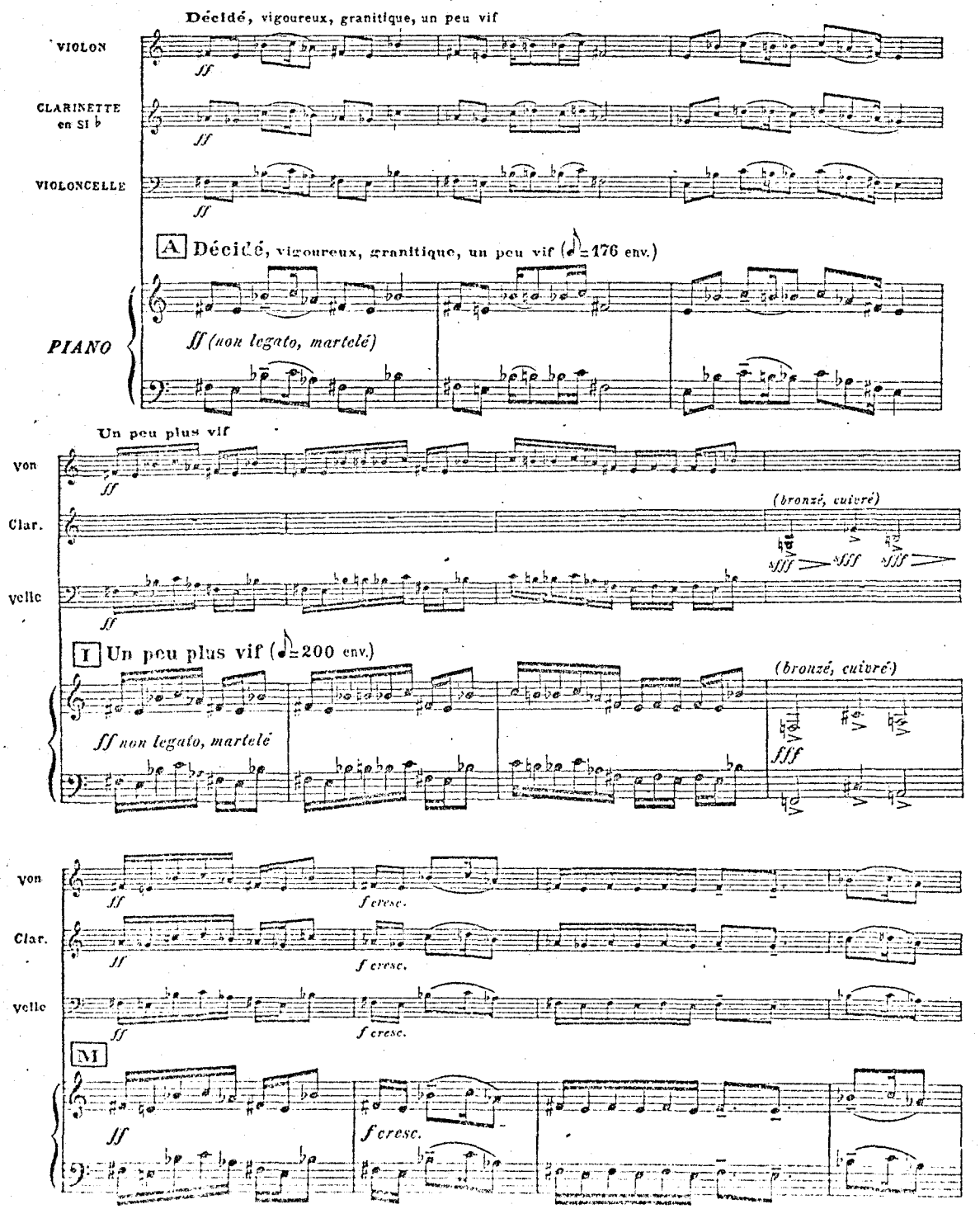
combination with syncopation, which produces yet an additional rhythmic effect.

Olivier Messiaen: Quatuor pour la Fin du Temps

Olivier Messiaen composed Quatuor pour la Fin du Temps while in a German concentration camp in 1941. The work, composed for violin, clarinet, cello, and piano, is based on Revelations X of the Bible and demonstrates Messiaen's fervent religious feelings. These religious feelings translated into musical terms take the form of exotic melodic and rhythmic influences. Eastern melodic motives, rhythmic ostinatos, and synthetic scales are focal elements of Messiaen's musical vocabulary. Although traditional notation is practiced throughout Quatuor, a very detailed expression with respect to articulations, dynamics, tempos and silences is presented. Experimental notation within this structure is influenced by the rhythmic notational technique which Hindemith employs in his works, i.e. Sonata for clarinet and piano. However, with Messiaen, complete instrumental cues both preface and accompany (on a separate staff) the clarinet part in difficult organizational measures. Secondly, a loose bar line and metric structure exists in both the third and sixth movements. This is due primarily to the influence of the complex rhythmic structures, ostinatos, which are in turn combined with their respective transformations from diminution to augmentation. For an example of diminution compare [A]

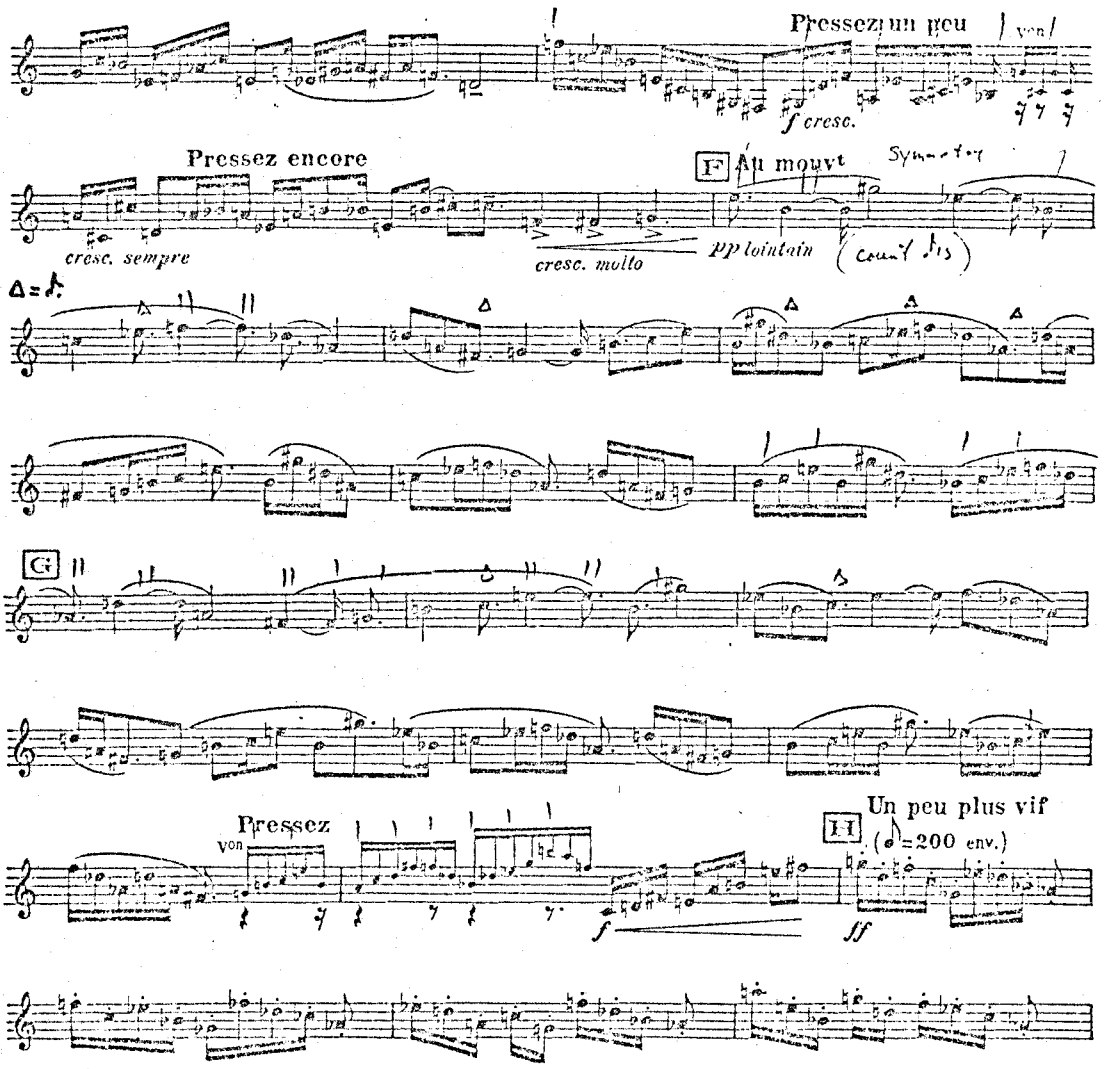
with M in the sixth movement (Ex. 7A). Augmentation,

Ex. 7A Messiaen: Quatour pour la Fin du Temps



on the other hand, can be seen in the fourth measure of I in the same movement (Ex. 7A). The section at G is a tonal inversion of the material of F along with the same unaltered ostinato (Ex. 7B). The inversion, however,

Ex. 7B Messiaen: Quatour pour la Fin du Temps

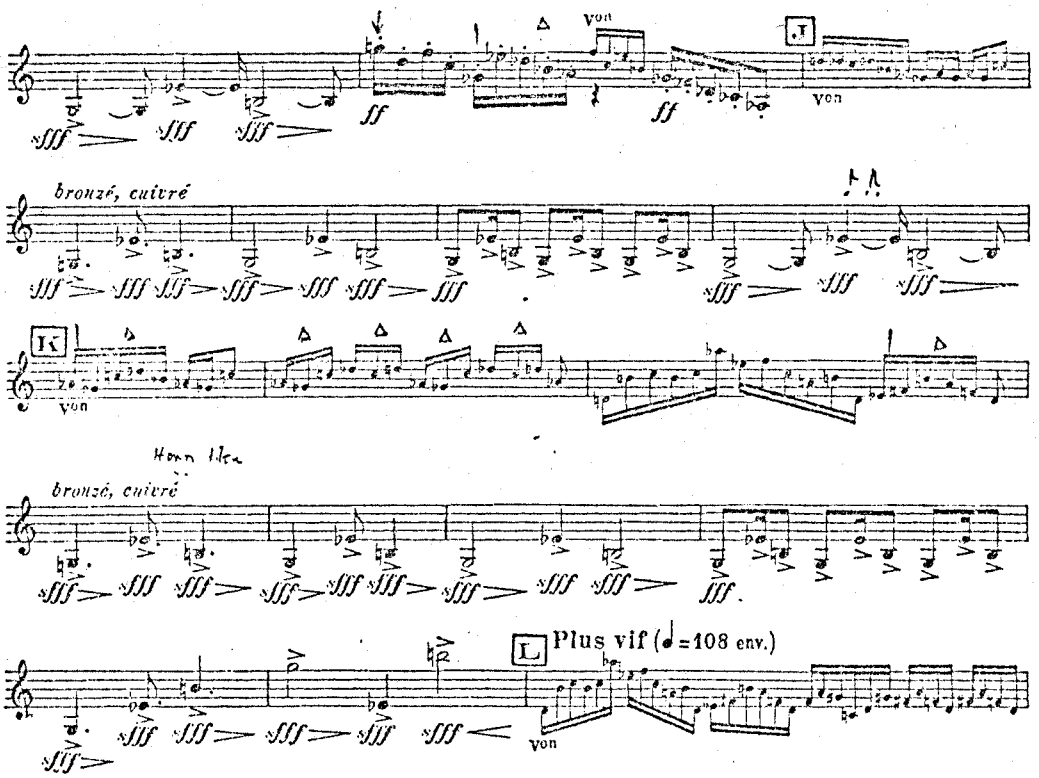


is not strict and remains unstable to [H] (Ex. 7B). A sense of unity and form, however, exists in the movement through the frequent coincidence of the ostinatos and colors (melodic repetitions). This ostinato treatment contrasts with its earlier usuage by employing a more sophisticated music vocabulary. The technique, in itself, still lends a sense of ease for the listener who is able to follow and comprehend the sequence of musical events regardless of the complexity of the ostinato.

Another experimental use of notation is the adoption of certain terminology applied to the clarinet customarily reserved for other instruments. Terms such as bronzé and cuivré normally characterize a specific heavy, metallic, brassy quality of tone in the brass family. At [J] and [K] in the sixth movement both terms occur coincidently in the clarinet part where the three note melodic fragment undergoes five consecutive alterations. This notation forces the clarinetist to produce his most powerful and fullest tone to act both as a tuba and a bass drum in the depths of his chalumeau register (sfff) (Ex. 7C).

The difficulty of the clarinet part (as well as those of the other performers) makes strong demands on the understanding and physical strength of the performers. A special rhythmic attitude must be developed by the clarinetist in order to negotiate not only the substantial

Ex. 7C Messiaen: Quatour pour la Fin du Temps

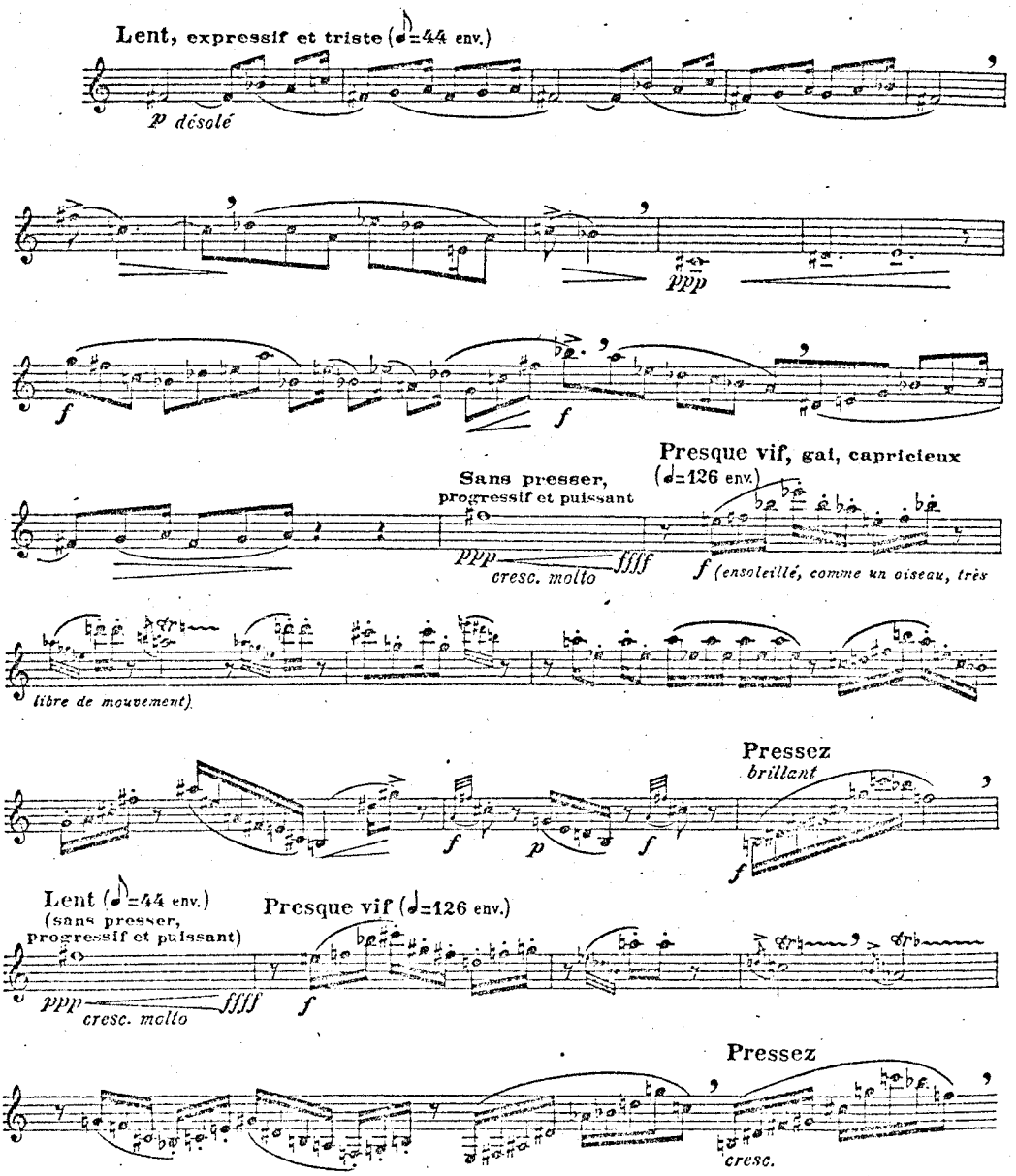


subdivisions accurately but also to negotiate diligently the complex interplay of rhythmic elements among the other instrumental parts. In that the first movement contains purposeful elements of this rhythmic attitude, some clarinetists employ Hindemith's concept of rhythmic aids; here it entails notating the piano's rhythmic patterns above the clarinet part. This insures a more stable rhythmic approach to the music and assists the clarinetist in staying with the other performers.

With reference to the second aspect, physical strength, the clarinetist's technique must be excellent

in order to endure both physical and mental strain of the work. In keeping with the fervent religious overtones of the work, Messiaen creates and maintains long lines of intense movement with very few interruptions of silence. Therefore, there are few rests in five out of the eight movements for the clarinetist to refresh himself. Consequently, movements one, three, four, five and six, because of their lack of rests, are very taxing on the clarinetist's embouchure, saliva control, and physical stamina. The other performers in the quartet are less likely to experience certain of these physical problems which are peculiar especially to wind players. The third movement is of particular interest since it incorporates all of the above problems plus a few new ones. Entitled "The Abyss of the Birds", the third movement approaches three long tones on e'' evenly spaced throughout the movement. After a slow opening of the movement each long tone must begin hardly perceptibly (ppp) and gradually intensify to a tremendous full tone (fff). This takes one full breath or approximately thirty seconds. However, between these long tones, rapid and quite technically difficult birdcall effects covering wide intervals laden with accidentals, changing tempos, and echo patterns line the path (Ex. 7D). These birdcalls utilize grace notes, trills, varied articulations and dynamics, and abrupt tempo changes, which add a unique timbral

Ex. 7D Messiaen: Quatour pour la Fin du Temps



palate to the flute-like chatacter which the clarinetist has to portray. Messiaen makes the following explanations before the passage: ensoleillé, comme un oiseau, très libre de mouvement. Another timbral effect mentioned

earlier was the brass timbre of the cuivre passage in the sixth movement.[14] Messiaen obviously envisioned a brass instrument here but because of the lack of resources when he composed and first performed the Quatour, this was impossible (Ex. 7C). A difficult balance problem exists between the piano and clarinet furing this passage. First, both are marked (fff). Second, the power of the low range in the clarinet is no match for the piano. Consequently, the piano, the stronger of the two, must adjust its sound to match the clarinet. In a following passage at O , still in the sixth movement, the clarinet has gained yet another forte; now the dynamic appears (ffff) and the same in the other parts. Although there is an apparent difference in volume level, there is not a significant balance problem between clarinet and piano or among the other instruments. This is due to the clear and definitive timbral changes over the clarinet's three octave melodic displacement. Another significant effect related to timbre occurs during the long tones of the third movement. During the approximate thirty second length of each long tone, the timbre changes from a warm dark sound to a bright strident sound. However, in the unison passage work at the opening of the

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[14] The term, cuivre, usually applies to the French horn.

sixth movement, all four instruments collectively seem to imitate a Hindu Vina, "stick zither". The tone is truly unique.[15]

Rhythm is another area which utilizes specific effects. Rhythmical motives used especially in the third, fourth and sixth movements are reminiscent of oriental dance influences. These show traces of Hindu, Greek, and Arabian music. However, dance-like motives in Quatour do not remain in steady repetitive patterns or in the same meter as simple dance pieces do. The first movement entitled "Crystal Liturgy", for example is based on a juxtaposition of three Hindu rhythms: ragavardhana, candrakala, and lakskmica. Specific effects used are various rhythmical changes, added note values, rhythmic augmentation and diminution, and overlapping rhythmic patterns. As cited earlier, because of the rhythmic complexity and diversity of syncopations in the four instrumental parts, the clarinetist should mark the pianist's rhythm in his part to insure good ensemble (Ex. 7E). Messiaen employs a rhythmic palindrome in the sixth movement from F to H (Ex. 7B). Each measure has perfect rhythmic symmetry, non-retro-

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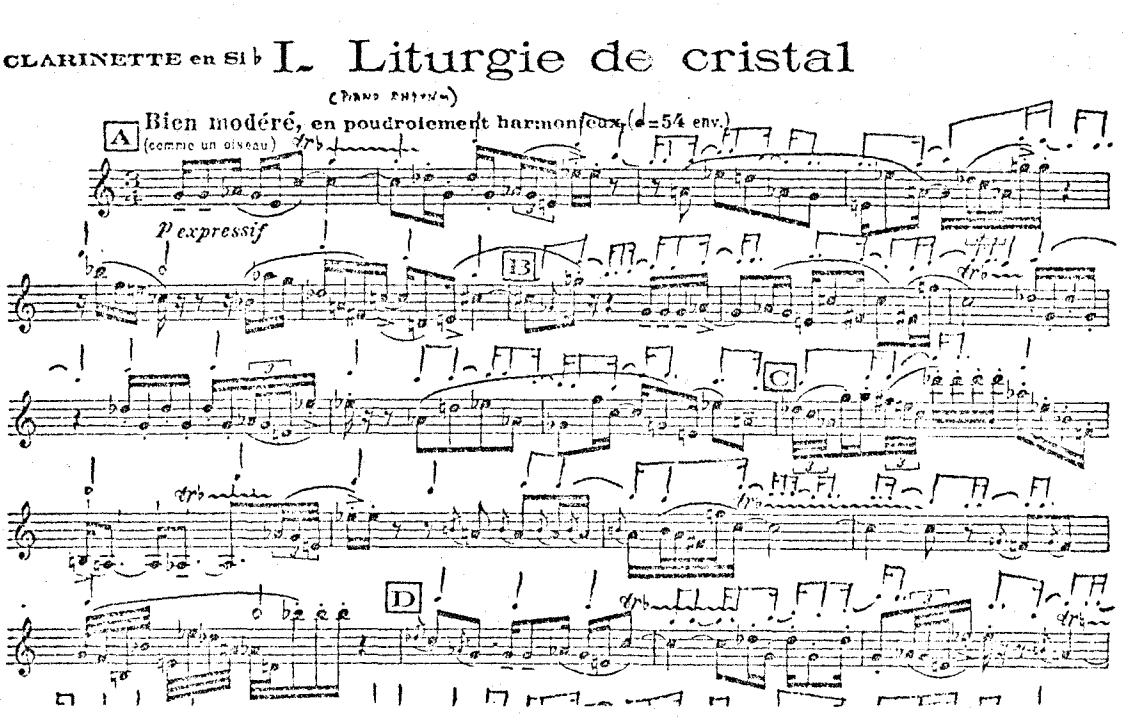
[15] Gunther Schuller has a similar perception in combining oboe, viola, and harp in the Seven Studies on Themes of Paul Klee.

Ex. 7E Messiaen: Quatour pour la Fin du Temps



gradable rhythm.

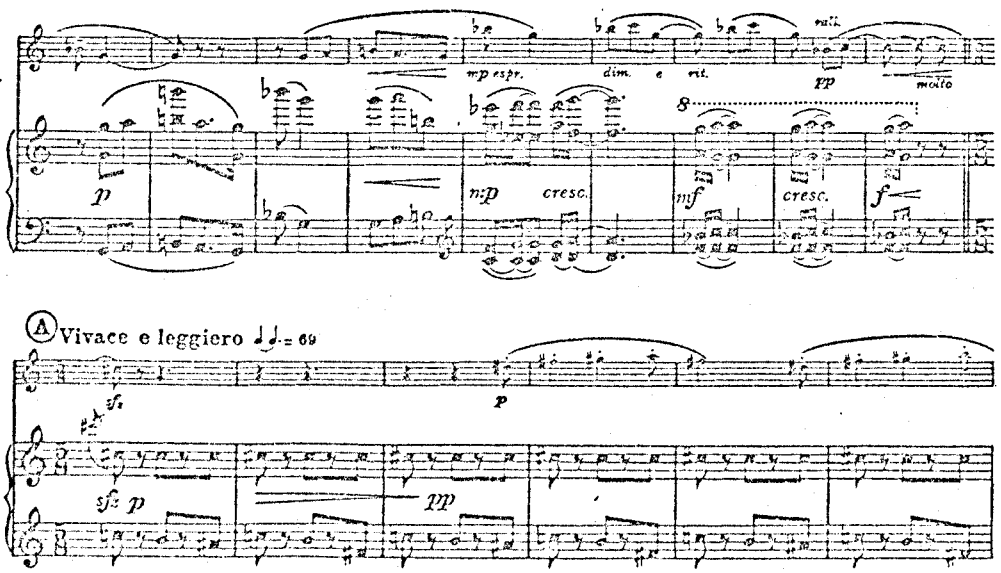
Rather remarkably, out of the entire work only the fourth movement has a 2/4 meter unaltered throughout the movement. Moreover, this movement entitled "Interlude" is scored for a trio minus the piano; the clarinet part collects melodic fragments prominent in other movements. The tessitura is practical and covers a three and a half octave range, e to g''' throughout the Quatour. The third movement encompasses this entire range within the space of four notes at the tempo indication, Modéré. This passage is particularly taxing because the same notes are repeated as an echo (pp). The wide leaps and full tone (ff) follow-

ed by its quiet repetition (pp) add to its plaintive chant. This is repeated twice in succession.

Leonard Bernstein: Sonata (1943)

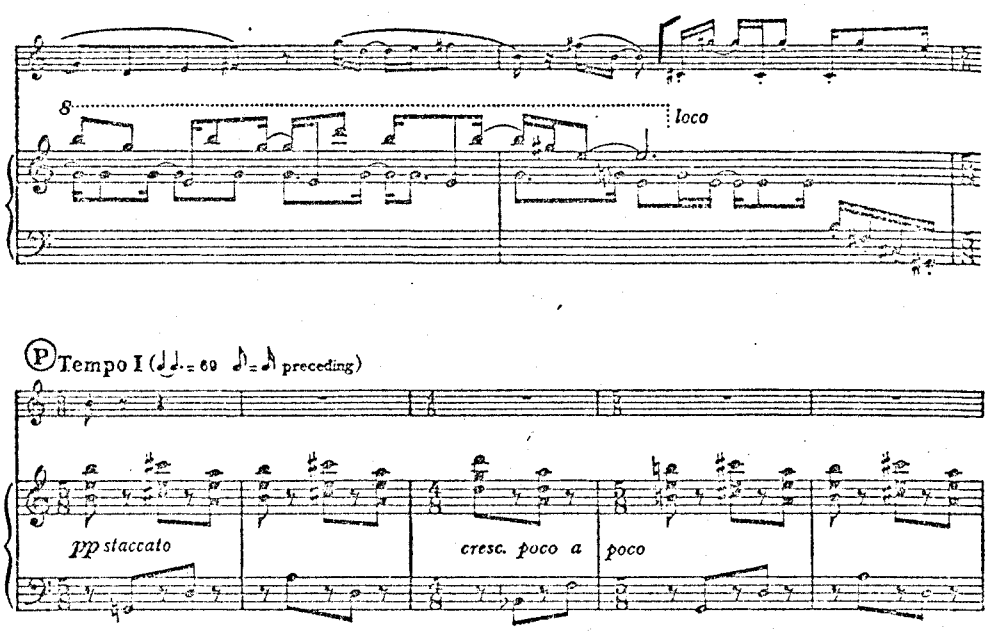
In 1943 Leonard Bernstein composed the Sonata for clarinet and piano. The work adopts a traditional approach to notation; however, there are certain rhythmic-metric devices and effects experimentally used and the employment of experimental notation show the metrical influence of both Stravinsky and Bartók. In the second movement, for instance, 3/8, 4/8, 5/8, 6/8, 7/8, 8/8, 9/8 and 2/4, 3/4, 4/4 meters operate under specific rhythmic procedures. From the opening to (J) of the second movement, the eighth note remains the constant rhythmic unit amid shifting pulses and accents. At (A) , on the other hand, a rhythmic modulation occurs (Ex. 8A). The opening is

Ex. 8A Bernstein: Sonata



indicated ♩ = 69 and at (A), ♩♩. = 69. This technique accomplishes two things: a faster tempo and a smooth transition. A slightly modified rhythmic modulation occurs at (P). Bernstein indicates ♩♩. =69, but more important he directs and guides the performer to a new goal and tempo by simply indicating the following relationship: ♪ = 𝅘𝅥𝅯 preceding (Ex. 8B). The passage just preceding (P) is marked ♩ =84.

Ex. 8B Bernstein: Sonata

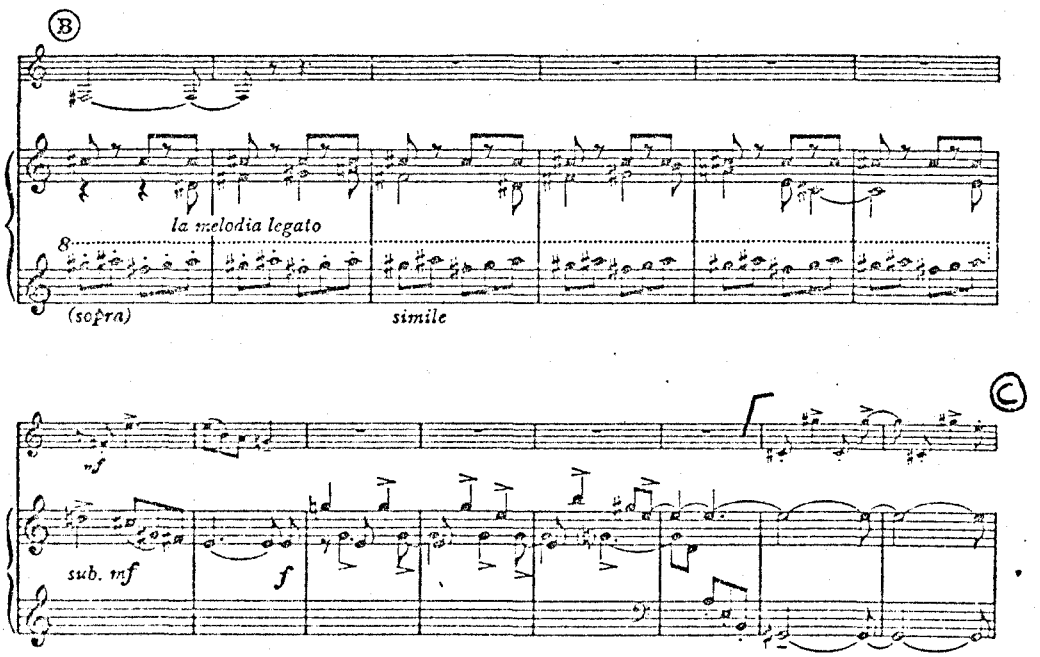


In this Sonata as well as in Contrasts or L'Histoire du Soldat, particular attention is paid to the quality and shade of articulation and dynamic employed.

Perhaps because of its jazz rhythm influence, the second movement presents the most exact notational symbols

for the clarinetist to execute. The first movement's mood is basically one of quiet lyricism while that of the second is rhythmic vitality, and this vitality contributes to the predictably greater technical demands for the clarinetist in the second movement. Bernstein, it seems, understood the basic overtone series of the clarinet, which overblows at the twelfth and produces the odd-numbered partials. Two bars before (C), and likewise one bar before (P), a rapid execution of twelfths $c^{\#'}$ to $g^{\#'}$ occurs (Ex. 8B). Although these figures contain the same notes and maintain similar internal relationships, their respective rhythms differ; compare Ex. 8B with Ex. 8C.

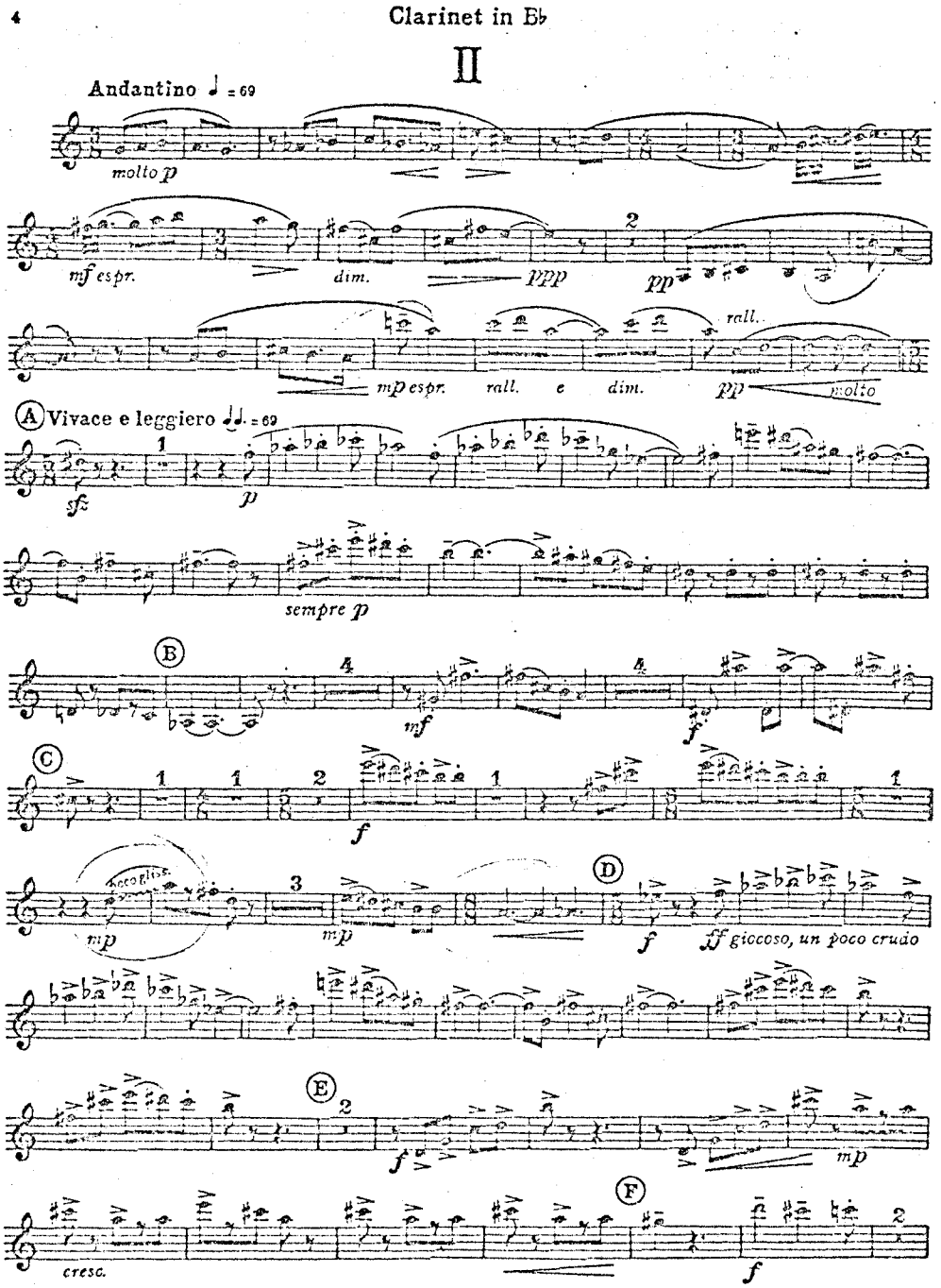
Ex. 8C Bernstein: Sonata



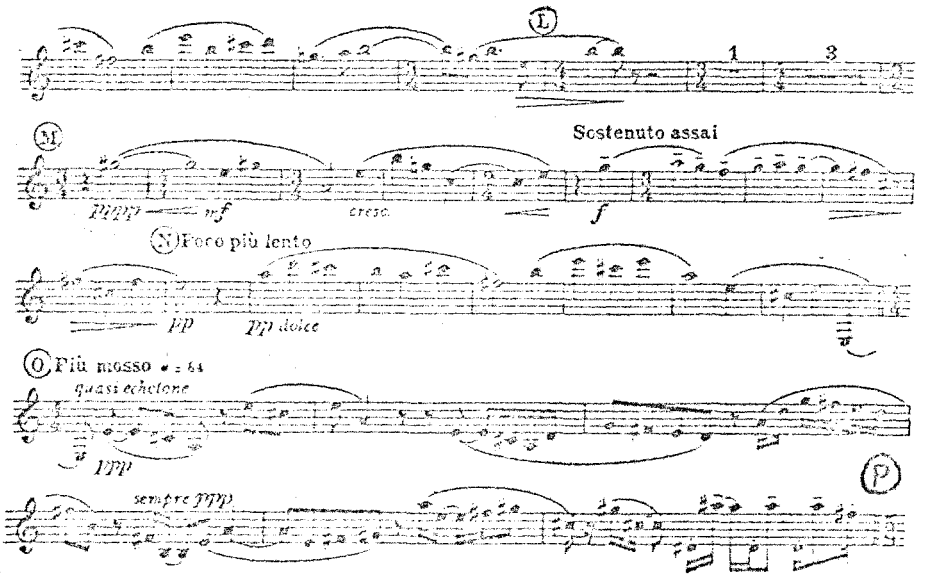
Another difficult technical demand follows one bar before (O) , an unusual two octave downward leap from d'' to d. Other awkward leaps occur in the first movement at two bars before (B) and at its repetition before (K) . On the other hand, upward leaps of minor tenths appear in the ninth and fifth bars before (A) of the second movement (Ex. 8D). The pianissimo section from (N) to the Fine of the first movement and the quasi echotone (ppp) from (O) to (P) of the second movement with its jazz influenced twelfths require good breath control from the clarinetist in order to maintain an even tonal balance. In order to confidently phrase the music, facilty with changing meters with varied articulations and dynamic changes must be a kind of second nature to the clarinetist.

Effects which Bernstein employs fall into three categories: timbre, rhythm, and tessitura. First, timbral effects are employed through the pianissimo dynamics of the chalumeau register at (N) in the first movement and at (O) quasi echotone of the second movement (Ex. 8E). Pedal tones on low d combined with the "flautando" character of the muted echo tones produce a great contrast to the loud activity of surrounding measures. At (D) (Ex. 8D) of the second movement, for instance, the terms giocoso, un poco crudo (ff) add accented, sharp tones to the work quite in

Ex. 8D Berstein: Sonata



Ex. 8E Bernstein: Sonata



contrast to (O). Also the high pedal e''', four bars before the finale of the second movement, climax the accelerando sin'al fine with a biting sffz - p sub articulation. Immediately following, a crescendo molto drives the piece to a close. In this great crescendo, the clarinetist must be careful not to let the pitch of the e''' go out of tune.

There are no grace notes or trills employed in the Sonata. However, a glissando appears twice, first at the fifth bar before (D) and at its repetition, before (Q) (Ex. 8D). Second, rhythmic effects are achieved through rhythmic modulations, jazz influences, shifting accents, and metric changes. Irregular metric patterns such as 5/8 in the

second movement are generally subdivided - (2+3); there are several variants (3+2) but these are governed by the melodic line. Tessitura, the third category, divides the three registers of the clarinet into overlapping pairs. The first movement emphasizes the chalumeau and clarion registers while the second movement emphasizes the clarion and altissimo registers. The tessitura itself is standard d to f''' with no attempts at any form of upward extension.

Alvin Etler: Sonata (1952)

The Sonata for clarinet and piano was composed in 1952 by Alvin Etler. There are four movements whose tempo indications approximate a slow, fast, slow, fast sequence. This work, through melodic lines, rhythmic usage, and other aspects of his vocabulary, suggests a strong influence of Etler's model, Paul Hindemith.

The notational expression is confined to a rather basic traditional approach. On the other hand, the non-use of key signatures and use of detailed notational expression are traces of a new approach. Since there are no key signatures, the work is full of accidentals. Furthermore, the third movement shows traces of a twelve-tone technique still unclearly defined at the moment[16] (Ex. 9A).

From a technical perspective, the Sonata is basically not very difficult. However, numerous accidentals and successive repetitions of rhythmic patterns may cause moments requiring close attention. The number of repetitions has to be meticulously attended to; a passage of this nature

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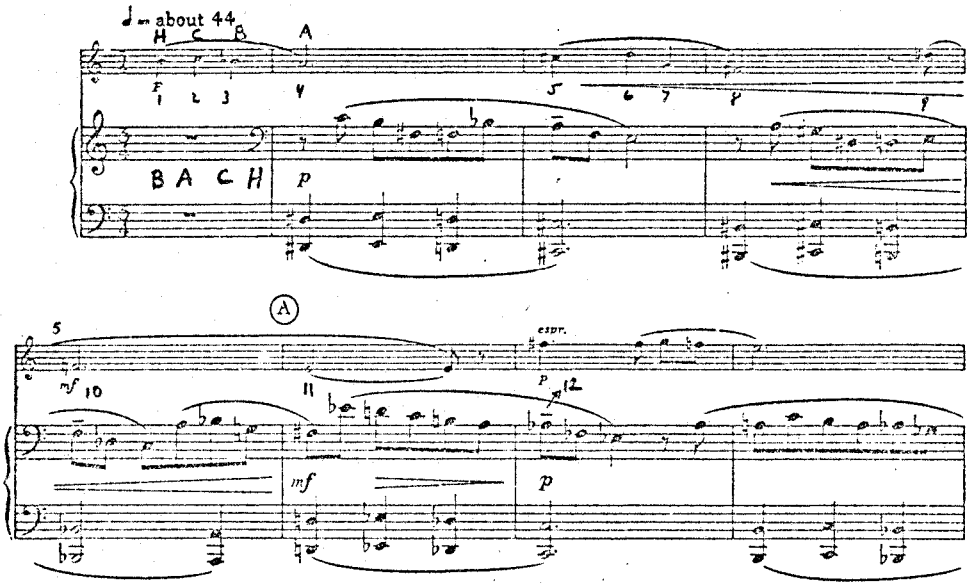
16 The twelve-tone theme is based on a tetrachord whose components comprise an inversion of the name BACH. The following material is used in variation and transposition of the tetrachord.

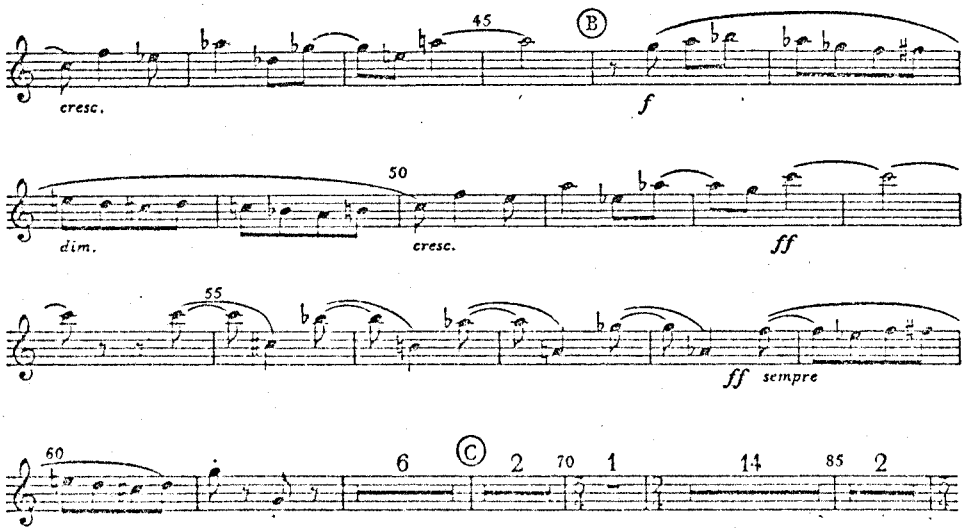
Ex. 9A Etler: Sonata



can be seen in Ex. 9A.

Most of the melodic writing in the Sonata is linear. There is, however, passage work with wide leaps and syncopation, for example, the diminished octaves at measures 55-58 in the fourth movement (Ex. 9B).

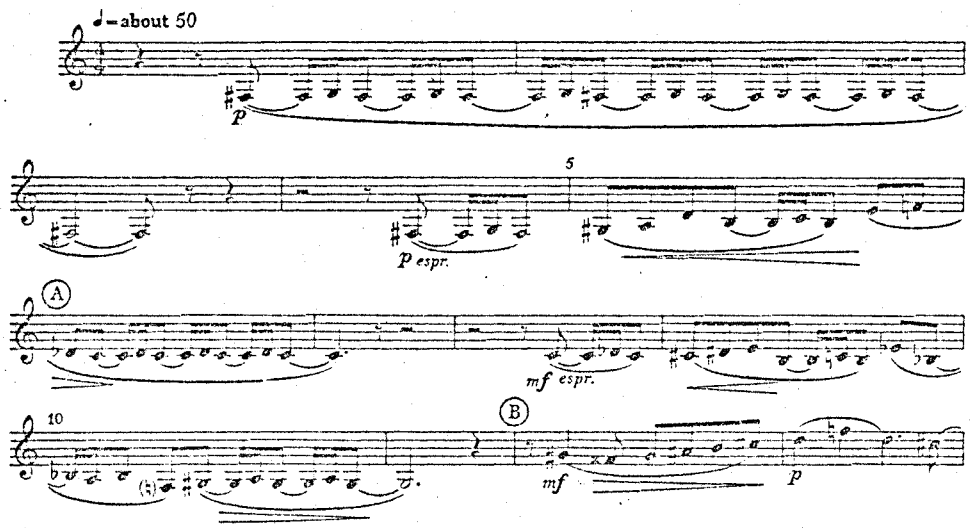
Ex. 9B Etler: Sonata



With regard to clarinet effects used in the work Etler employs a layered compositional technique. That is, in respect to the timbre of the clarinet, the music unfolds in sections or layers from one register to the next. The entire composition lies essentially in the chalumeau and clarion registers. Nonetheless, the second and fourth movements investigate the altissimo register while reaching the highest note of the piece twice. The high note is $e^{b'''}$ and is approached at measure 166 in the second movement and of measure 249 in the fourth movement. In both cases, the $e^{b'''}$ is approached from below by stepwise movement in the same direction. Etler avoids the use of the throat-tones throughout the Sonata. They are occasionally filled in to satisfy a diatonic or chromatic moving line, but otherwise neglected. In respect to rhythm, the work is motivically based on the four note element  with modifications. These modifications include truncation, syncopation, and repetition. The syncopated rhythmic ostinato  becomes a drone in the first movement (Ex. 9C).

Finally, the tessitura of e to $e^{b'''}$ is treated very conservatively. Neither the lowest note d of the clarinet nor the highest $f^{'''}$ (accounting for the standard written range) is demanded of the clarinetist.

Ex. 9C Etler: Sonata



Chapter II

Contemporary Role of the Clarinet
(Mid 1950's-1968)

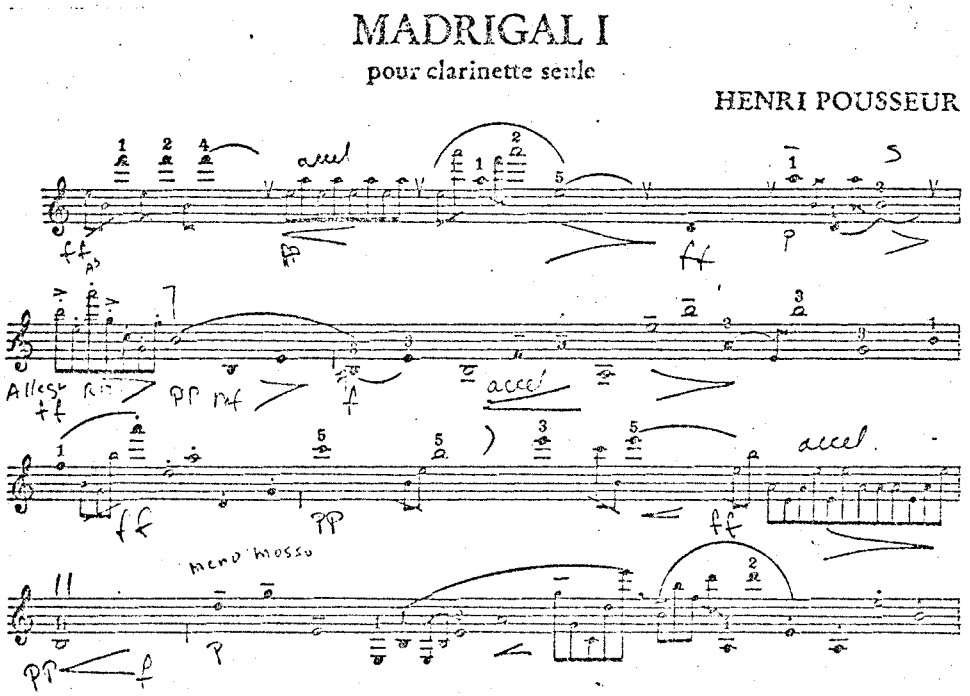
Henri Pousseur: Madrigal I

Madrigal I, composed in 1958 by Henri Pousseur, is a work for solo clarinet. It is written "at pitch" and can be played on any clarinet whose tessitura is suitable. In order to clearly delineate the use of traditional notation in the sense that has been presented in Chapter I, the following list of what is used and what is not used is given. First, aspects of traditional notation which are employed are: the use of treble clef with appropriate pitch designation for black (filled in) notes only, few articulations (legato, staccato, portato), and ornaments (grace notes - either single or double). Second, aspects of traditional notation which are not employed are: meter indications, dynamics, key or accidentals, and silences (rests).

On the other hand, the employment of experimental notation now has a very significant meaning and satisfies some of these neglected areas. As noted from Chapter I, experimental usage of notation had been partially adopted in the areas of meter, key signature, and detailed ex-

pression. However, beginning with Pousseur in this study, experimental notation influences four areas in the works examined: duration, dynamics, and pitch alteration. In the first area, Pousseur divides the use of silences into two types: one, a very short silence indicated [17], and the other, a longer silence ad libitum, indicated V (Please see the first two systems of Ex. 10A). Duration,

Ex. 10A Pousseur: Madrigal I



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[17] This sign has traditionally been used by wind players to take a breath in a musical phrase. Francis Poulenc in his Sonata (1924 - revised 1945) for clarinet and bassoon indicates the symbol [9] which has two interpretations. The first is to take a quick breath and proceed, and the other, to make a short pause enough to upset the metric continuum.

the second area, is noted by numbers above certain notes. These indications enumerate the strokes of a beat which may be chosen by the performer so long as it is between 120 and 240 M.M. per minute and remains constant throughout a given performance, i.e. $\overset{4}{o}$ or $\overset{8}{\bullet}$. Moreover, notes of normal size, without a figure, are of free duration but may not be shorter than one beat of the pulse mentioned above. The small shaded (black) notes are to be performed as quickly as possible. On the other hand, the small unshaded (white) notes may undergo fluctuations such as rallentando, accelerando, or combinations of several of these. Nevertheless, the melodic movement starts from or moves toward "as quickly as possible".

A short stroke extending from a note means that it is to be held on until the next sign, note, or silence. All symbols such as staccato, portato, and legato have their usual meanings. Pousseur further states:

> The notes which have no attack signs are to be played ad. lib., except the small shaded notes which are automatically slurred.[18]

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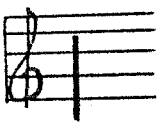
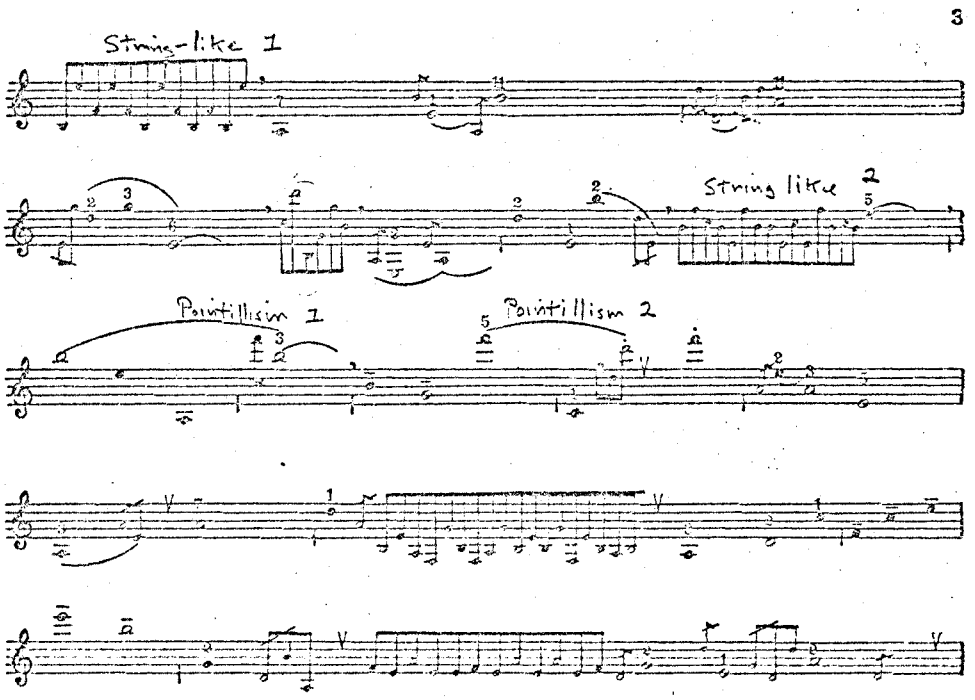
[18] In his explanatory notes "Meaning of Marks", Pousseur explains his performance practices in English, French and German.

In regard to the third area, dynamics, Pousseur remarks:

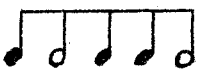
> Ad. lib., all the progressive fluctuations are allowed throughout. Abrupt modifications can be made at this sign  and are compulsory when it appears (Ex. 10B).

Ex. 10B Pousseur: Madrigal I



The most unusual feature of the work occurs in the last category, pitch alteration. This is the adoption of a black and white notation for altering pitches. Black notes  or  indicate a normal pitch while white notes  or  indicate a flattened tone. The assumption that

a flattened tone is always a half step does not necessarily hold true, because upon examination of Madrigal III, the flageolot  , placed over a note, is Pousseur's term for the only symbol specifically designating a lowered pitch of a half-step. In Madrigal I, however, Pousseur never states to what extent a pitch should be flattened and since all other symbols are specifically spelled out, the white notes should be treated as variations of microtone alterations. These alterations when approached by the clarinetist in the rapid context of the work are visually difficult to decifer with only a few readings. In contrast to traditional music, where the traditional employment of accidentals simplifies the reading of a work, Madrigal I possesses particular reading problems for the clarinetist in that confusion may arise between traditional notational symbols and the experimental approach to the same symbols. For example, the traditional symbol for a half note  is treated in Pousseur's work both as an altered pitch and as a pitch with a durational value of a maximum of one beat since it has no numerals above it. In a passage which contains an irregular sequence of black and white notes, the clarinetist must develop a new technique that involves the ability to interpret these experimental symbols with the greatest of ease. Otherwise, the technical barriers will supercede the performer's musical involvement.

Technically speaking, Madrigal I is the most difficult and complicated of any of the works examined. The employment of pointillism, rapid arpeggiated note clusters, and experimental symbols for pitch alteration, duration, and silences by Pousseur, makes the clarinetist more aware of the moments of freedom and strict control. Freedom in the work exists in the personal decision of the performer to accelerate or ritard figures marked  , i.e. under adjoining beams. However, each of these moments must more toward or away from "as fast as possible", hence acceleration or ritard, respectively. Strict control is maintained by the dominating pulse of the whole work set at its outset by the metronomic marking which the performer chooses within the limits prescribed by the composer.

The first two systems of Ex. 10A are good illustrations of pointillism. More examples of these difficult skips can be seen in Ex. 10B. Rapid arpeggiated note clusters lace the chalumeau and clarion registers. These oscillating figures can be observed in the first gesture of Ex. 10B. A second gesture across the "break" and through the throat-tones of the clarinet can be found in the last gesture in the second system of Ex. 10B.

In addition to clarinet effects in the areas of timbre, rhythm, and tessitura, micro-tone alteration is a new area. This particular area is left to the discretion

of the performer to establish a criterion for the flattened tones (O). Timbre is exploited by the emphasis placed on the altissimo and clarion registers. Arpeggiated clusters more suitable for execution by stringed instruments occupy primarily the middle register of the clarinet with rapidly alternating passages. Flute-like passages occupy the altissimo register with rapid tritone tremolo gestures. The lower chalumeau is neglected for the brilliance of the upper registers. The tessitura is d to $g^{b'''}$, but the low d is used only twice in the entire piece, in the fourth system of Ex. 10A. Tritone tremolos A^b - D, G^b - C, and A - E^b and major sevenths and diminished octaves are distributed throughout the registers. Alternate fingerings along with some unorthodox approaches should be investigated by each clarinetist. One should find that fingering which would most easily facilitate the best execution of these tritone-seventh gestures.

Although a meter is not indicated, Pousseur sets a pulse at M.M. ♩ =120-240. This is approximately a pulse between a half to a quarter of a second. Because of the rapid bursts of intermittent figures, the tempo per se is really never established.

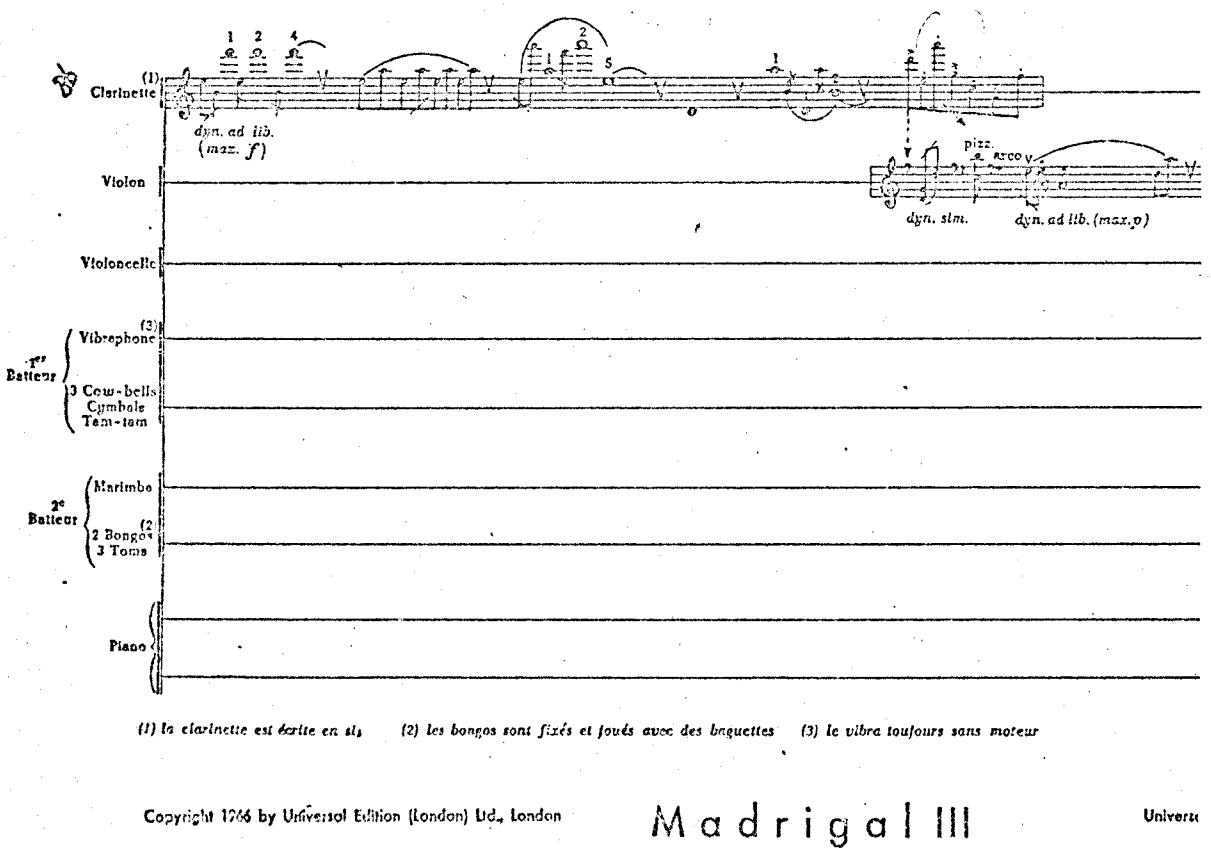
The final element which the clarinetist should attend to is the method or synchronization of the piece.

Since phrasing is left to the discretion of the performer, within the bounds of his controlled freedom, the clarinetist's primary consideration is to the music. It is important that the clarinetist plan his synchronization of events by notating his intent on the music. Otherwise, the pressures of the moment could ruin what might be a splendid performance.

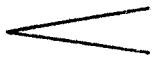
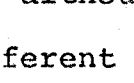
Henri Pousseur: Madrigal III

In 1962 Henri Pousseur composed Madrigal III for clarinet, violin, cello, piano and two percussionists, based on his Madrigal I. Consequently, the first clarinet gesture of Madrigal III is an exact duplication of its model.[19] This duplication occurs within the first system to the beginning of the second system of Ex. 10A and the first system of Ex. 11A. However, unlike Madrigal I,

Ex. 11A Pousseur: Madrigal III



Madrigal III

Madrigal III necessitates a few more symbols of traditional notation. Due to the size of the ensemble and the difficult ensemble passages, additional dynamics and specific articulations have been incorporated. These include: piu f,  , senza dim., and ff (combined at times with experimental usage). Dots indicate a staccato performance and although the performer is confronted by the following different symbols  , they must all be performed as short as possible.

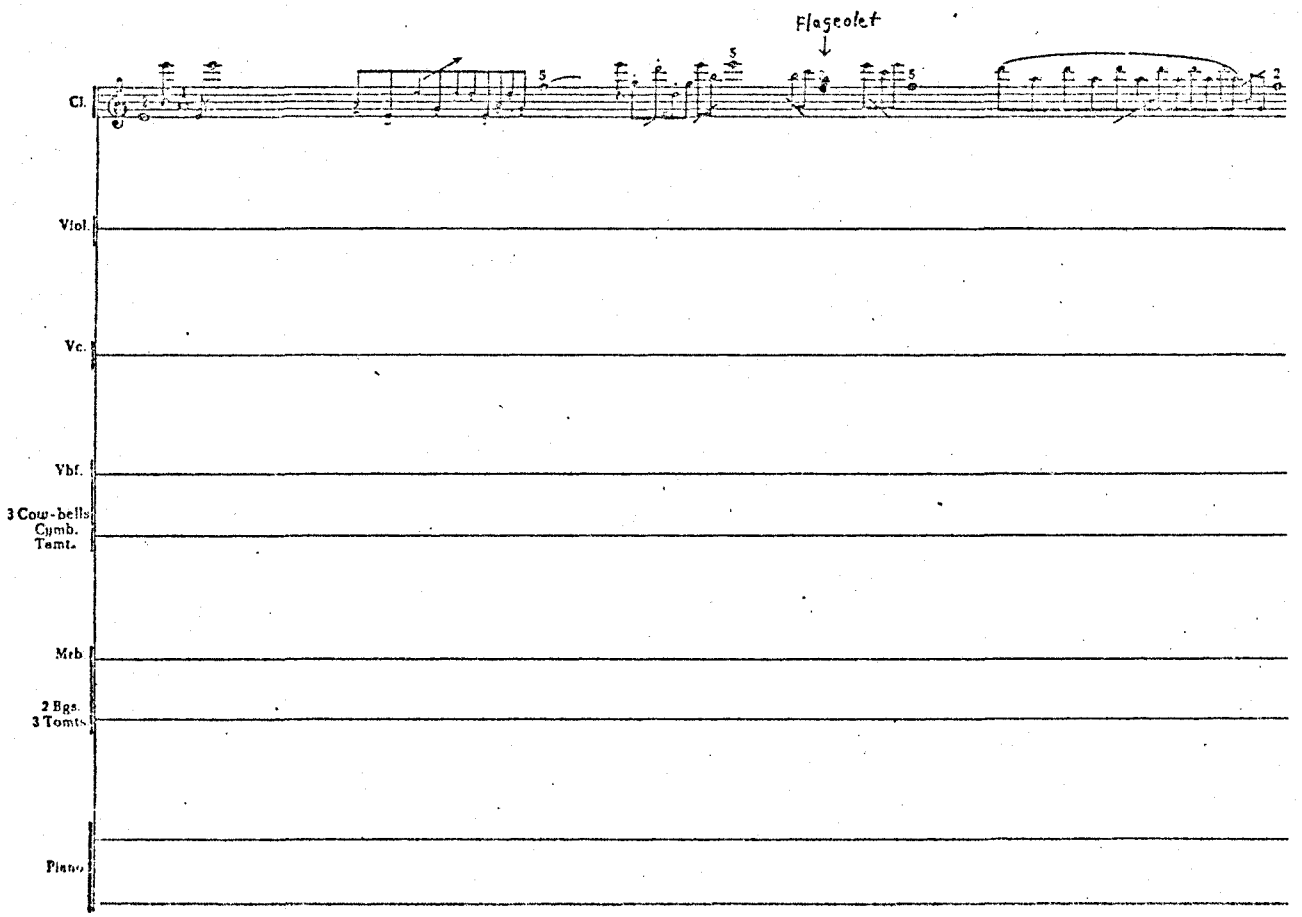
On the experimental side, the treatment of pitch alteration with regard to black and white notes remains the same as its usage in Madrigal I, i.e., black = , white =  (flattened). The question of how much to flatten an unshaded tone is somewhat clarified by the symbol, flageolet  , in Ex. 11B. When positioned over a note, it lowers the tone a full half step. Aside from the flageolet, there are no accidentals employed.

Durational symbols have also been expanded with more detailed instructions. First, the symbol  indicates a short staccato while  , a portato, is longer than the preceding symbol, but sounding for only a part of the

---

[19] There is a one note discrepancy between the two opening cadenzas. The thirtieth note of Madrigal I is $e^{b'''}$ while $g^{b'''}$ is in Madrigal III. The $g^{b'''}$ is probably correct, and a careless misplacement of a leger line is to blame.

Ex. 11B Pousseur: Madrigal III



time prescribed. The symbol 𝅗𝅥 should be held until the next tone or pause. If the tone appears without a symbol, i.e. 𝅗𝅥 , the duration is variable; however, instructions may be indicated which state that the duration of the tone is governed by the playing of another performer, in the absence of such instructions, ad libitum. When a numeral appears over the tone, 8 𝅗𝅥 , Pousseur explains it as:

...duration in relation to a small-

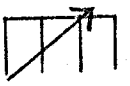
> est value chosen by each performer and falling between 1/2 and 1/4 second (M.M. 120-240). This is retained throughout the entire piece (except at the sections marked "synchrone", when the performers take on the average of their respective tempos).[20]

With respect to silence, there are four additional pauses in this work with slightly different inflections than in Madrigal I. First, the traditional breath mark symbol 𝄾 now signifies a very short pause. The symbol 𝄾⁺ indicates a slightly longer "breath", while 𝄾 , a short pause dependent on one of the other parts. A pause indicated by 𝄽⁸ shows the number of sustained pulses which are derived from the smallest chosen unit; the symbol 𝄽 , on the other hand, is a variable pause dependent on one of the other parts. The final statement which Pousseur renders to clarify his markings is, however, confusing:

> 𝄾 short
> 𝄽 longer
>
> } interruption in performance does not, in effect, result in a pause (pedal, etc.) [See note 20].

---

[20] These instructions are listed under "Explanation of symbols" at the front of the score.

With respect to tempo, Madrigal III is an early example of the first attempts at adopting an experimental notation for altering the speed of notes. There are basically three types of alteration. The first, notated  , is regular and executed as fast as possible. The second is of two varieties: 1)  becoming faster, and 2)  becoming slower. Both types are performed as fast as possible. The third and final type is expressed by the symbol  . This symbol is to be played as short as possible and slurred to the following note if not otherwise indicated (Ex. 11A).

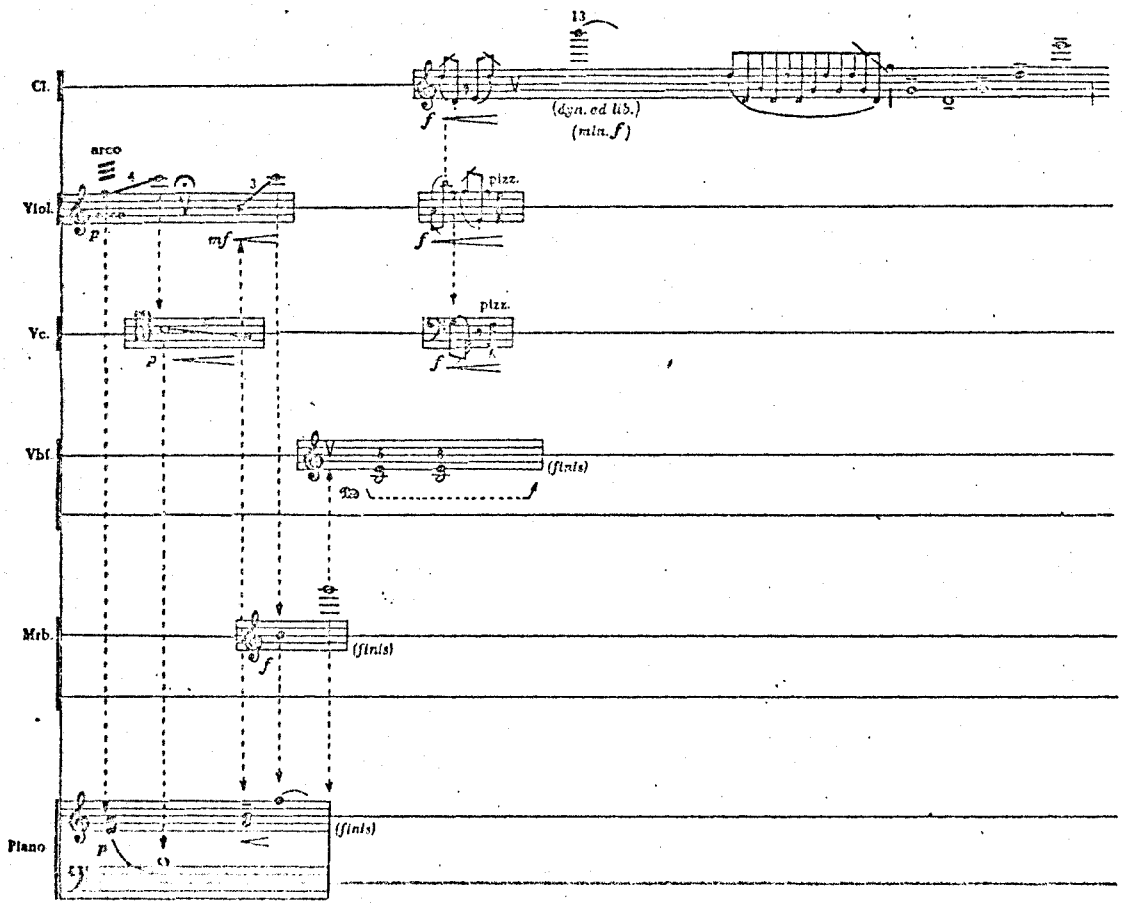
Dynamics are the last area where experimental notation is practiced. As in its model, Madrigal I, the symbol  in Madrigal III indicates a similarly sudden change to the most contrasting dynamic level within the given limits (Ex. 11C). The following symbols require the interaction of the other performers.

dyn. sim
più f
meno f

denote the relative dynamic level of an entrance with regard to the other parts preceding.

ad libitum (except when the symbol is governed by a dynamic value at the beginning or end) [See note 20.]

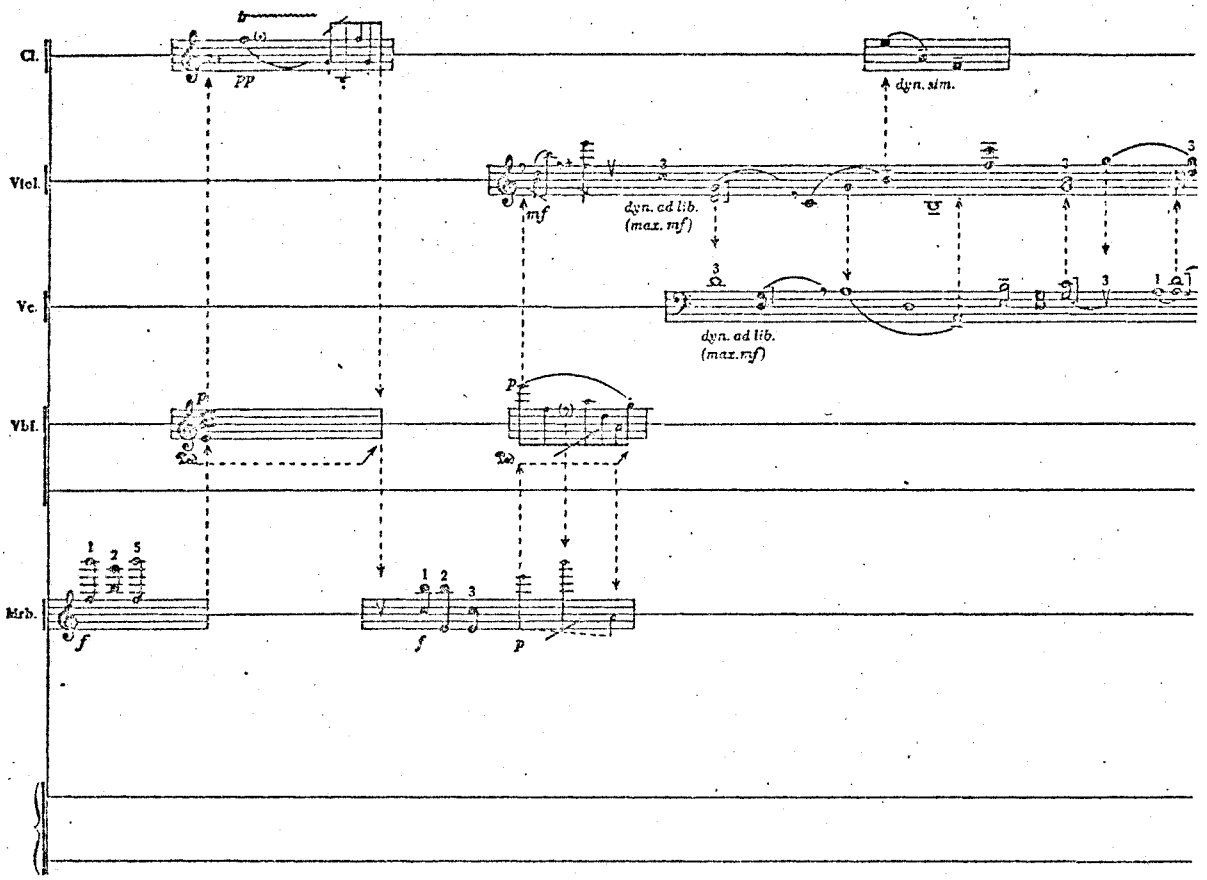
Ex. 11C Pousseur: Madrigal III



These symbols are further illustrated in the score at Exs. 11A, 11D, and 11E.

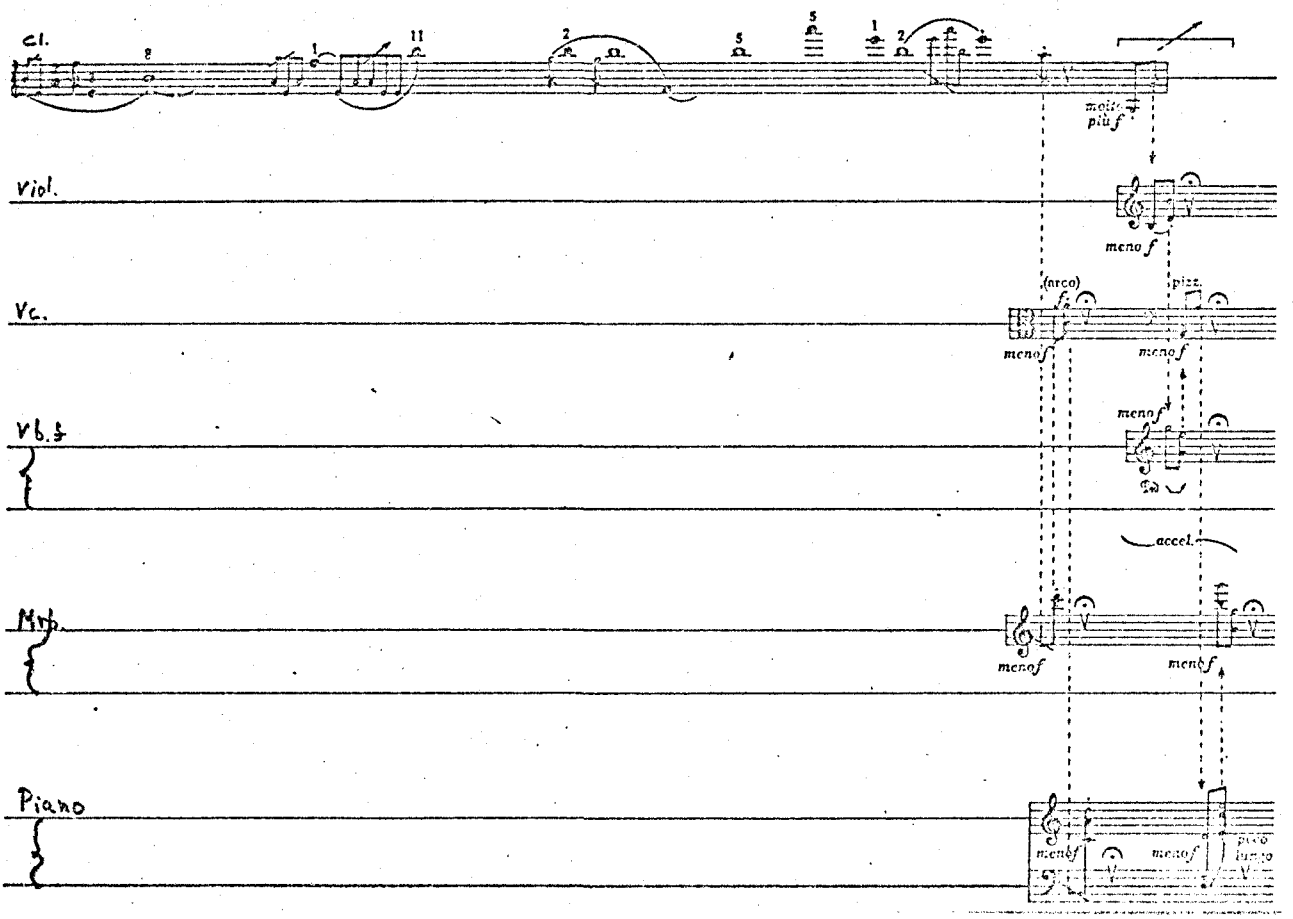
The combination of all these experimental symbols adds to a higher degree of technical demands and complexity in Madrigal III. Pointillism, rapid arpeggiated clusters, and grace note figures combine to make the execution of the work extremely difficult. All of the examples presented illustrate the preceding devices.

Ex. 11 D Pousseur: Madrigal III



Although there are no multiphonics present, other clarinet effects are evident. Micro-tones are somewhat disguised by the term "flattened tones". As mentioned previously, the amount of flatness to the white (O) notes is left to the discretion of the performer. There is a variety of timbral and coloristic changes in the clarinet resulting from an interaction of rapid dynamic changes and rapid figuration. Some of these alterations include extending the range of the clarinet toward extreme limits

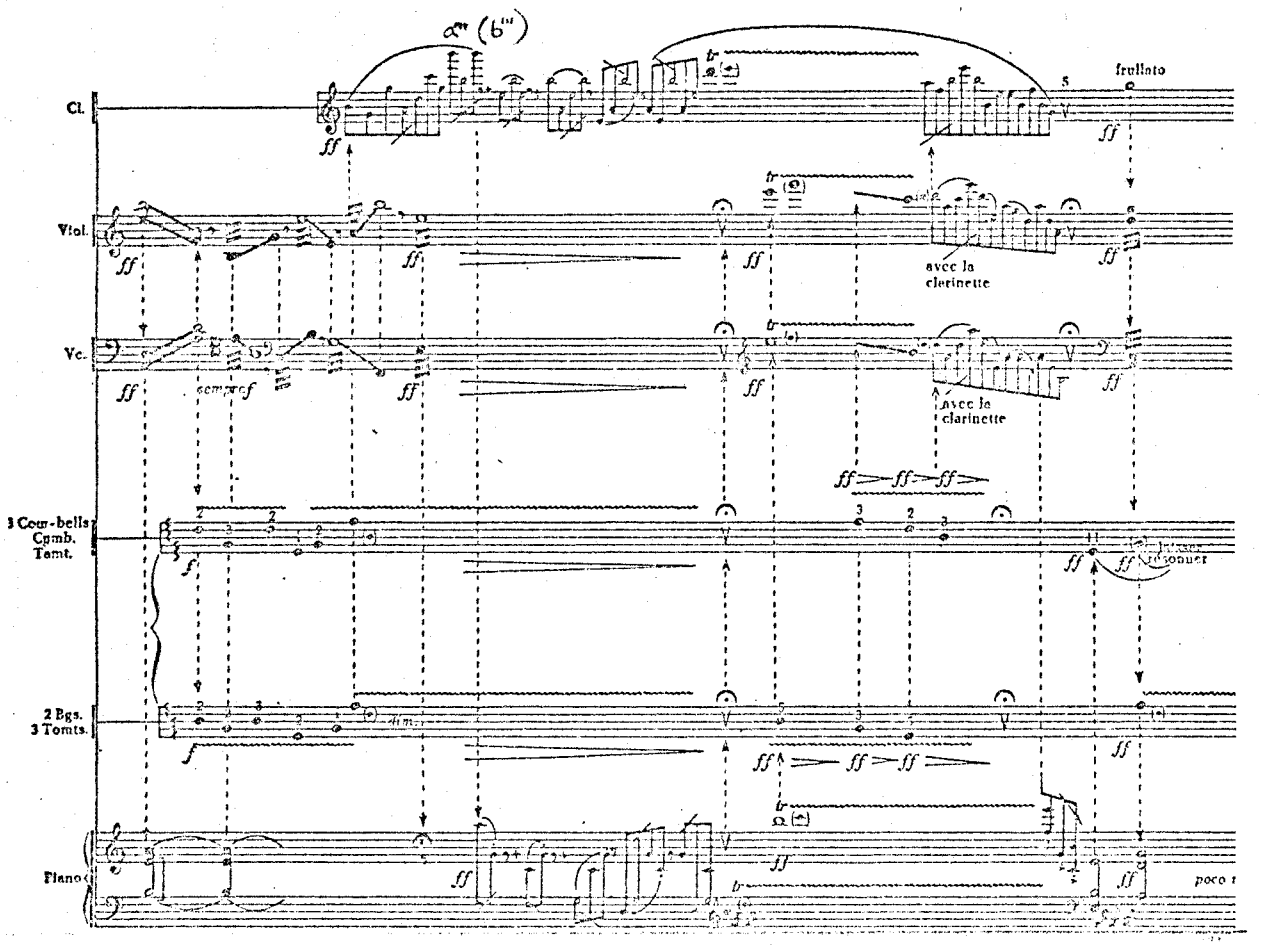
Ex. 11 E Pousseur; Madrigal III



of the altissimo register, for example the high a''' (Ex. 11F). Trills, tremolos, grace notes, and flutter-tongue are also seen in Ex. 11B and Ex. 11F. Frullato is Pousseur's term for flutter-tongue. Immediately following this gesture, the term normale is written for the clarinetist to return to the "normal" tone (Ex. 11G).

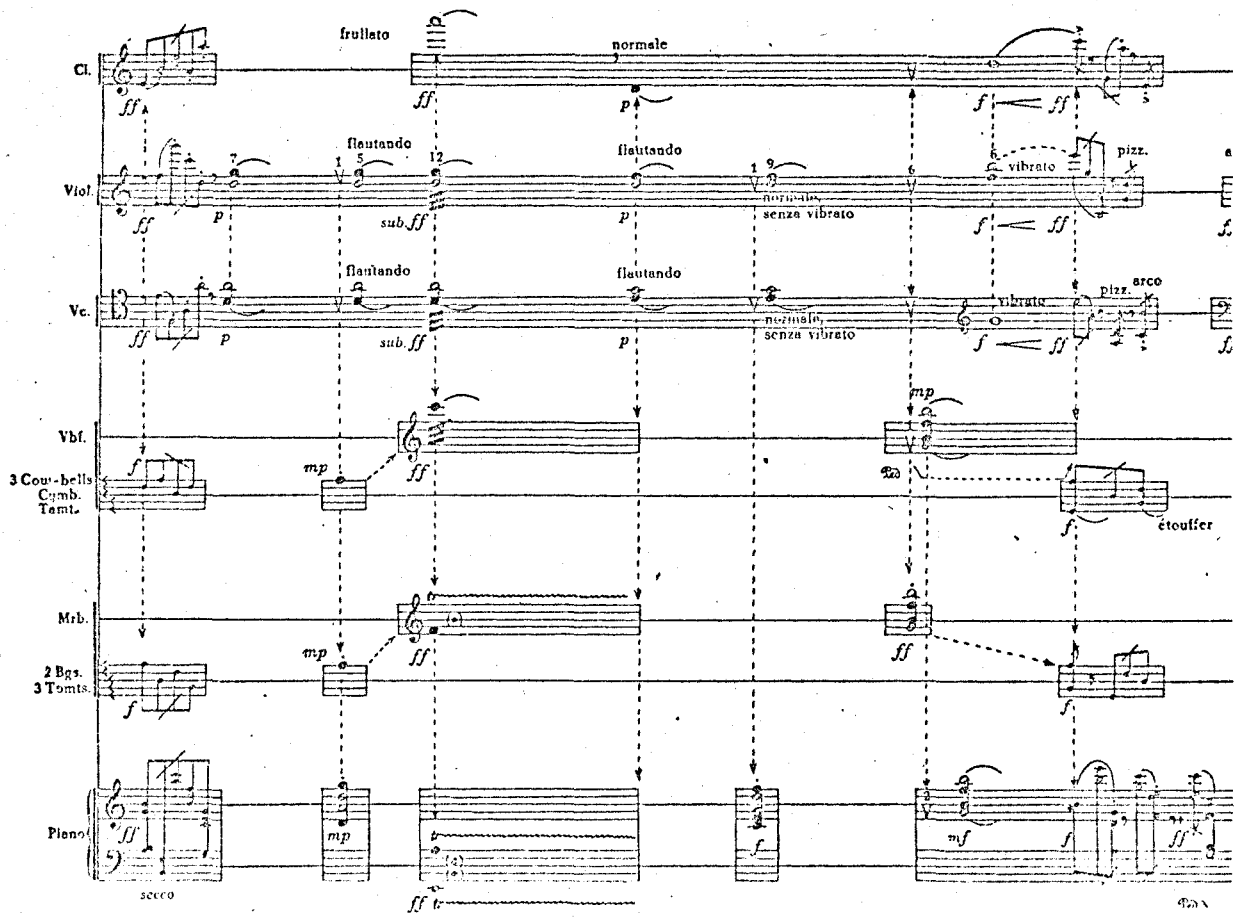
As far as rhythm is concerned, there are neither numerical meter nor written tempo markings present to

Ex. 11 F Pousseur: Madrigal III



create a sense of regular movement. But the "tempo" of the work moves at a fast pace because of specific metronomic markings cited earlier. Although there are still rapid bursts of intermittent gestures in each part, the work is not as disjointed as Madrigal I. The short rapid gestures are imitated among all parts and tend to unify the various progressions. The work begins with a clarinet solo and

Ex. 11G Poussuer: Madrigal III



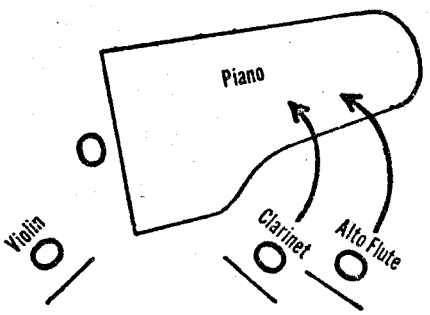
gradually becomes more dense until all performers join in at page twenty of the score (Ex. 11G). The free cadenza-like measures which characterize the clarinet at the beginning (also at the finale) of the work gradually lead to a dense and homophonic texture with the addition of all the performers at Ex. 11G. This is a striking contrast to the preceding passages which are polyphonic.

In the passage work from the beginning of the piece to Ex. 11G, synchronization between clarinet and all other

performers becomes increasingly difficult. Therefore, a conductor should be used to organize and rehearse the ensemble and facilitate the performance. Not only will rehearsals run more smoothly with a conductor, but a sense of progression and cohesiveness will also result. It is almost impossible for the clarinetist, for instance, to rely upon his own part to perform without a conductor. Since there are no barlines whatsoever in Madrigal III, all performers experience the same difficult problems of synchronization.

George Crumb: Eleven Echoes of Autumn

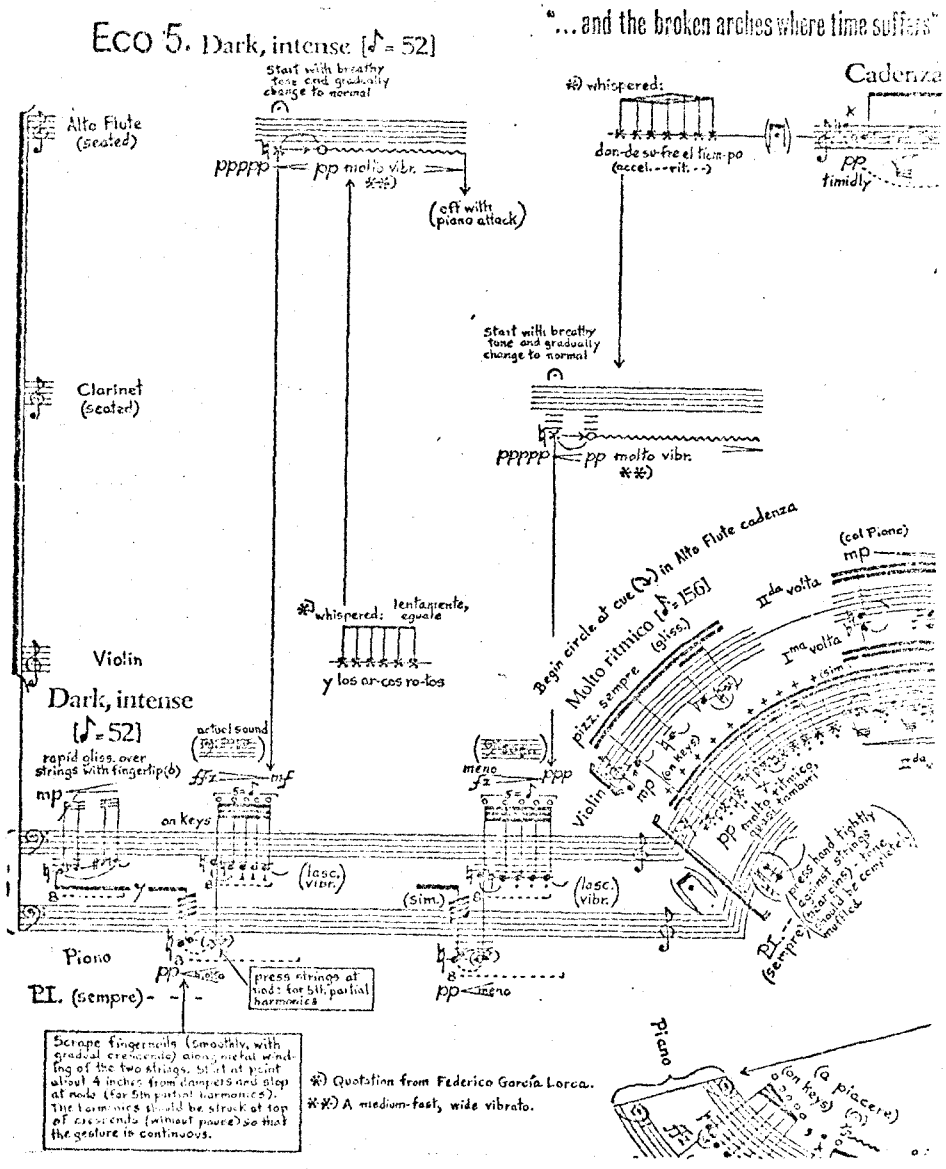
George Crumb composed Eleven Echoes of Autumn in 1965 for a quartet consisting of alto flute, clarinet in B^{b}, violin, and piano. Because of specific spatial movements which requires performers to change from a seated position, Crumb strongly recommends the following seating arangement.

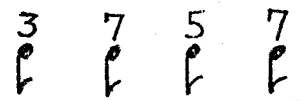


The traditional notation specifically relates to pitches, articulations, accidentals, dynamics, silences (certain rests), and durations (fermatas and tied notes). However, this usage is further extended , with regard to accidentals, for instance; each note in the work has its own accidental unless it is a member of a repeated group. Moreover, if the accidental is larger than its traditional size, a new set of relationships results with the notes immediately following it. These relationships will be discussed further under pitch alteration. Although there are no traditional metric symbols such as 2/4, 6/8, or

¢ ,metronomic markings are evident in each of the echi. For example, Ex. 12A cites two different metronomic markings within Eco 5: ♩=52 and ♪ ≈ 156. In the same illustration,

Ex. 12A Crumb: Eleven Echoes of Autumn

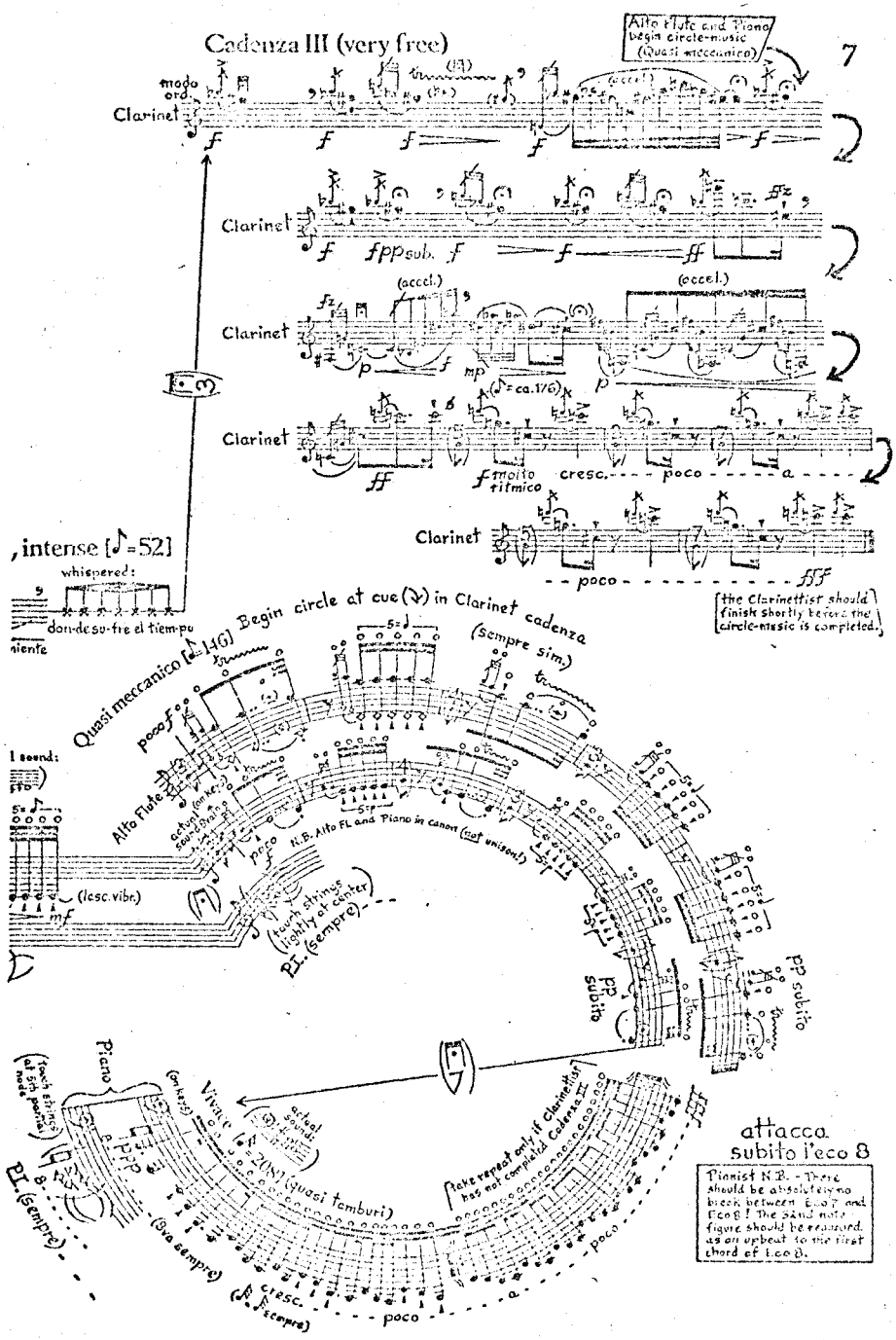


the combination of both languages, English and Italian, helps to create and clarify particular moods and atmospheres for the work. On the other hand, Cadenza III for clarinet demonstrates interesting and unusual symbols for meter. In the last half of the cadenza a rare usage of barlines is coupled along with the following metric symbols   (Ex. 12B). These "meters" are given M.M.  = ca. 176 which separate them from the freer nature of the first half of the cadenza which has none. The cadenza ends with a double bar which coincides with repeat marks occuring simultaneously in the piano part in the revolving "wheel" below (Ex. 12B).

In this work one simply cannot discuss traditional notation by itself. As music styles develop further into the 1950's and '60's, the line between traditional and experimental notation begins to become somewhat blurred at times while at other times it appears quite distinct. In Eleven Echoes of Autumn there is a vacillation between these two qualifications. Traditional notation is interlaced with experimental symbols which alter its previously rigid meanings. Freer new approaches are necessary to fit the yet newer vocabulary regarding silences, tempo, meter, timbre, dynamics, pitch, etc.

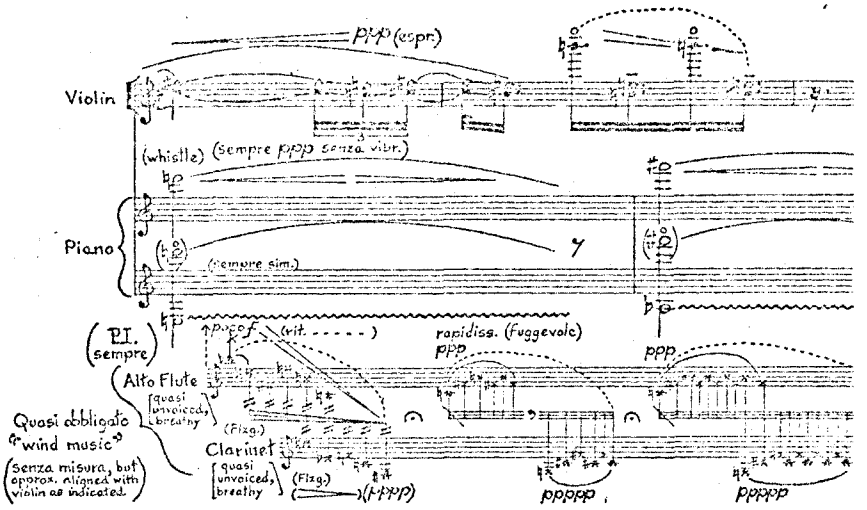
First, with respect to silences, the use of a cut out score is mandatory. The performers have to see when

Ex. 12B Crumb: Eleven Echoes of Autumn

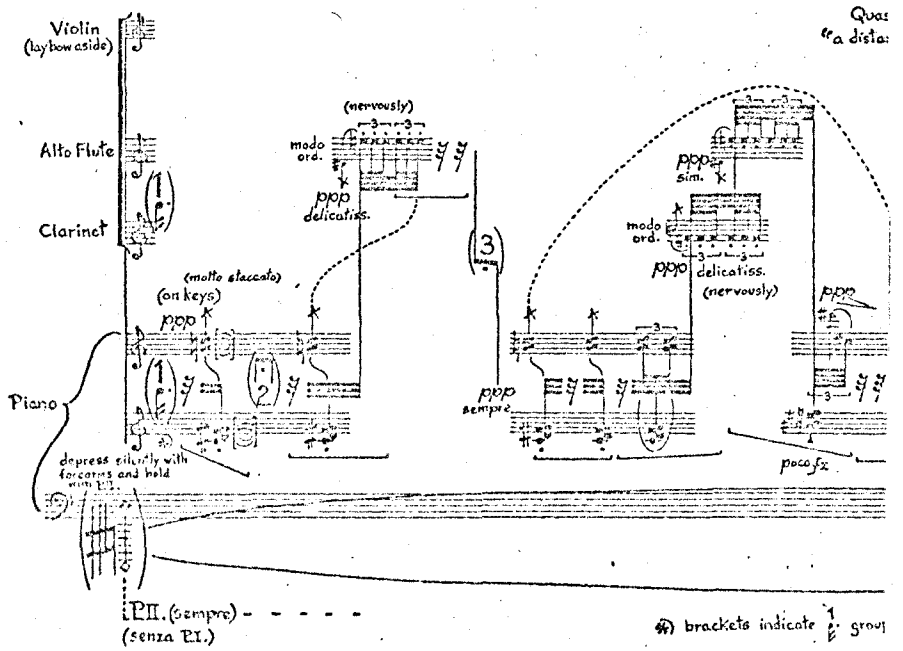


and where to play by observing the progression of the music with all parts notated. Written instructions direct the performers' movements throughout the piece (Ex. 12C

Ex. 12C Crumb: Eleven Echoes of Autumn

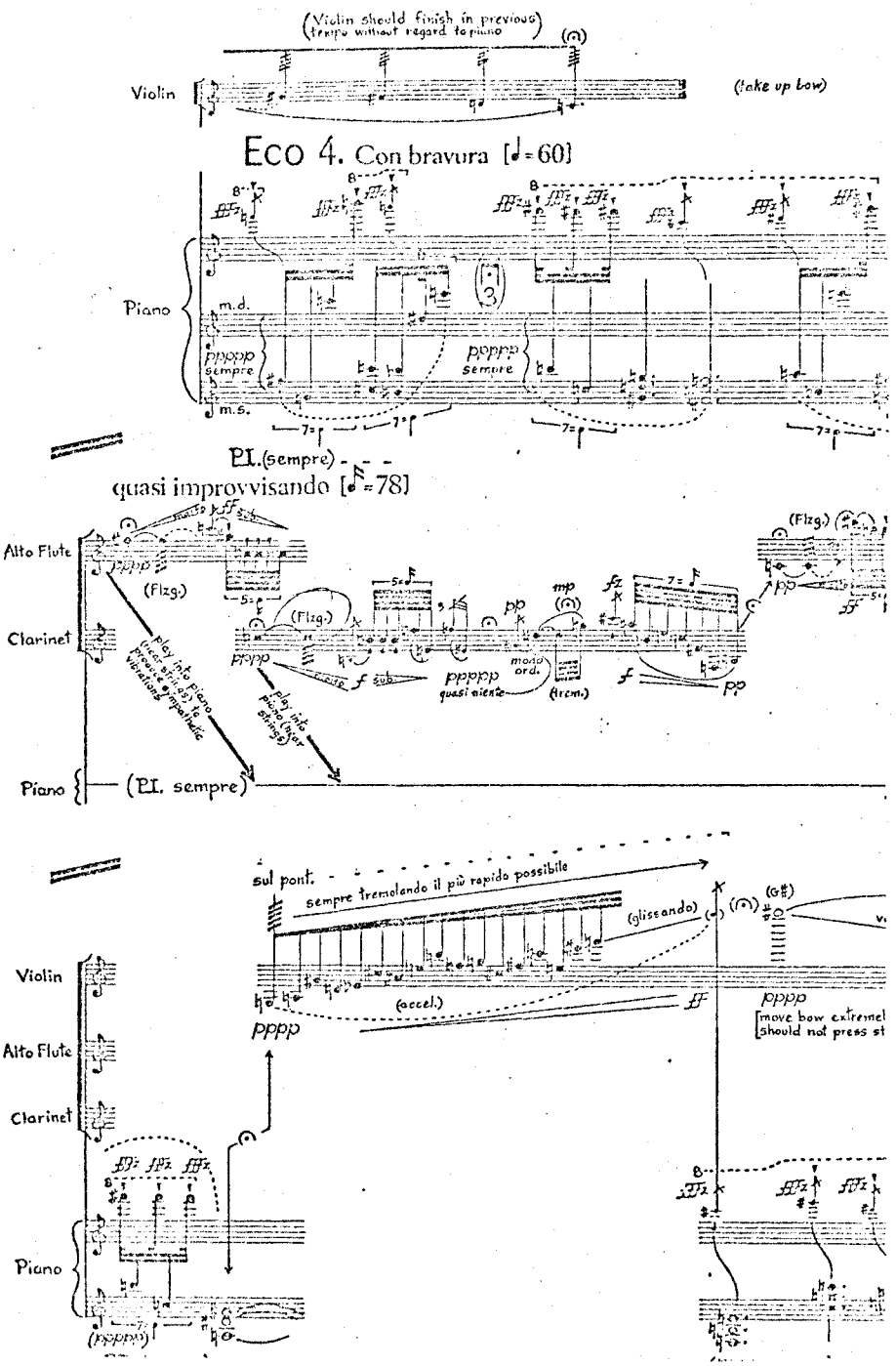


Eco 3. Prestissimo (allegro possibile, e.g. ♪. = 72)

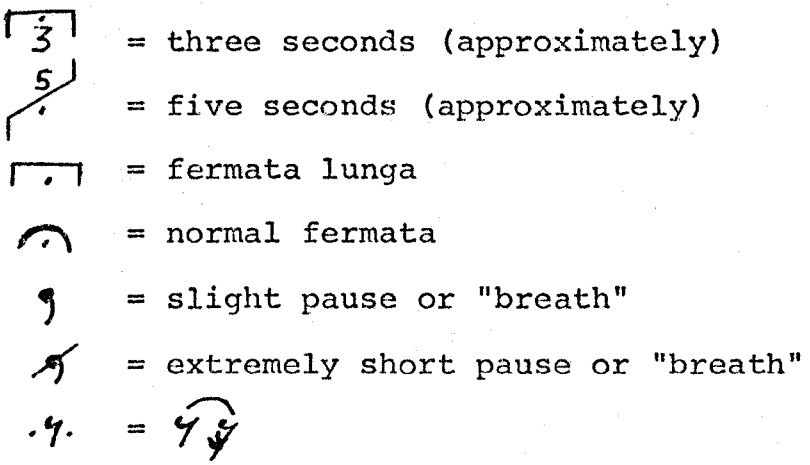


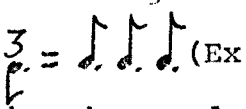
and 12D). From the preceding illustrations, in order to

Ex. 12D Crumb: Eleven Echoes of Autumn



"play" the silences correctly, the clarinetist must know equally well the spatial relationships between all parts; otherwise, the performance is in jeopardy. Under "Performance Notes" on the last page of the composition, Crumb lists the following symbols for silences:

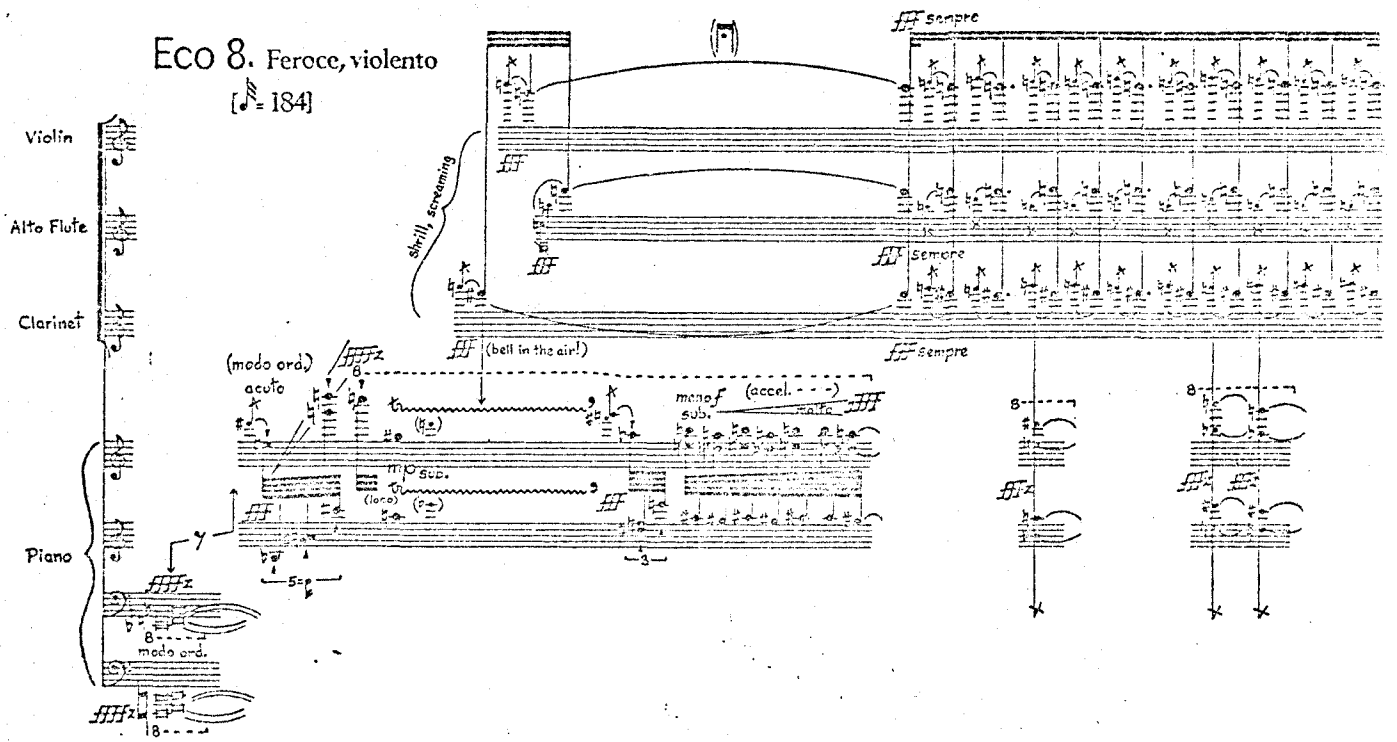


Next, durational values have to be considered in relation to the other performers. Either a mutual sign or movement or a specific durational value should be agreed upon. Of course, if the passage is of a solo nature, this is left to the discretion of the soloist. As mentioned earlier, there is no meter only metronome markings and symbols as found in Cadenza III, such as  (Ex. 12B). Traditional rules are mandatory and must be observed when M.M. is specified for notes in those passages.

Dynamics employed follow the same traditional criteria. However, extreme ranges are indicated, for

instance, ppppp < pp in Ex. 12A and fff of Eco 8 (Ex. 12E). Detailed expressions of all the traditional

Ex. 12E Crumb: Eleven Echoes of Autumn



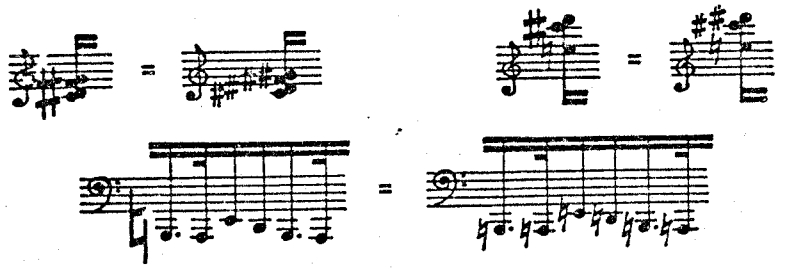
parameters are also cited distinctly throughout the work.

As stated earlier, pitch alteration is the area which composers after the mid-50's begin to examine with great interest. Crumb states that each performer must read from a score and that

> ...each note is preceded by an addidental except in case(s) of an immediate repetition of a pitch or a pattern of pitches. Larger accidentals will apply to more than one note... [21]

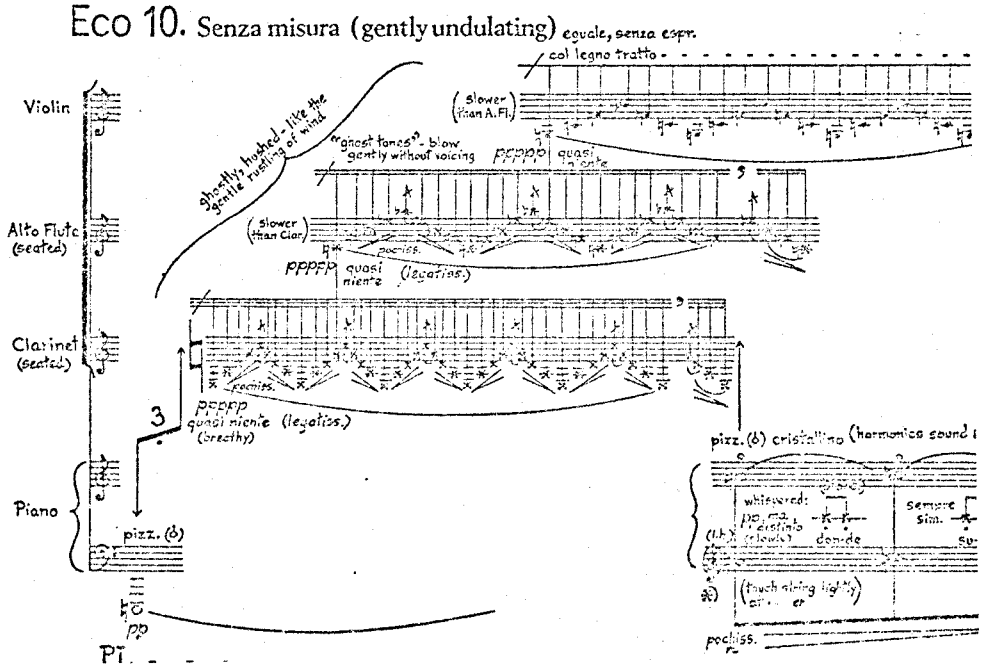
An illustration of the "larger accidental" can be seen in Ex. 12F.

Ex. 12F Crumb: Eleven Echoes of Autumn

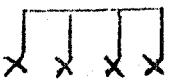


Another type of pitch alteration is vocal Sprechstimme as applied to the clarinet and occurs in Ex. 12G and Ex. 12C.

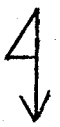
Ex. 12G Crumb: Eleven Echoes of Autumn



21 This is a quote from "Performance Notes" found at the end of the score.

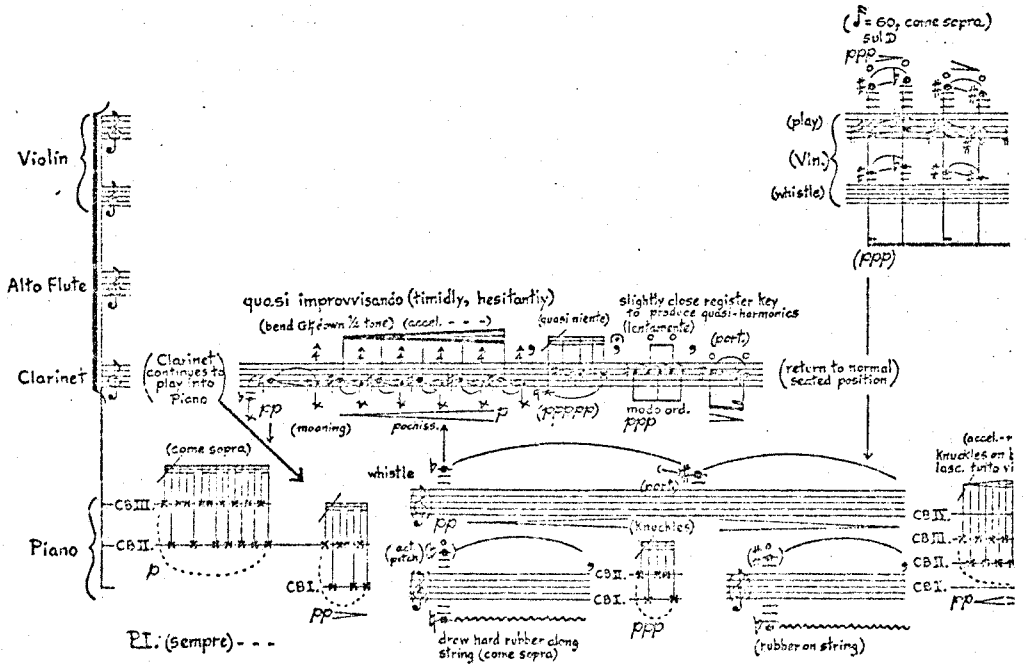
The notes indicated  are approximate pitches played senza misura with a limited amount of freedom. Furthermore, micro-tones are observed in Eco 9 and indicated by the following symbols:

 = a quarter tone higher than pitch

 = a quarter tone lower than pitch

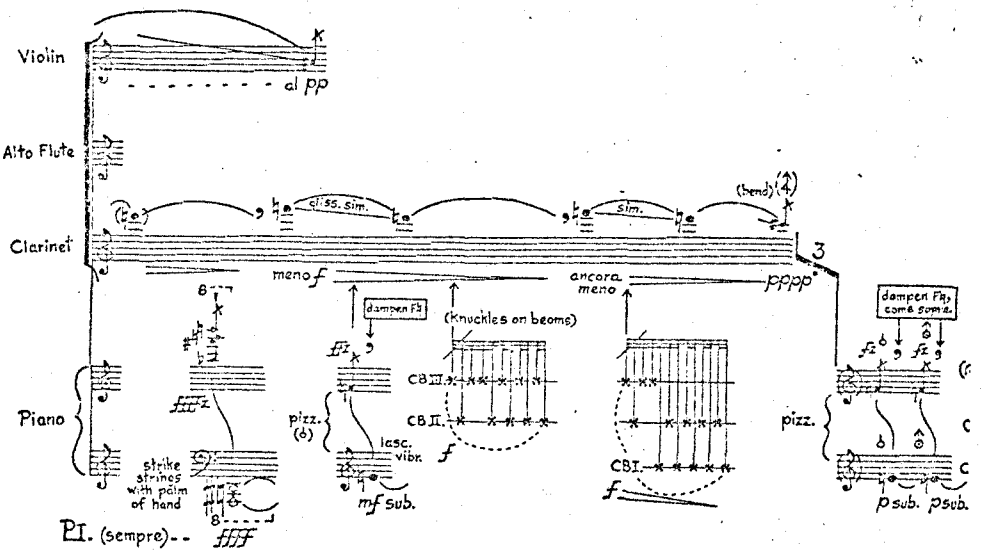
Along with written directions indicating fingerings for pitch alteration of micro-tones, Crumb adds harmonics  . In Ex. 12H, the clarinetist is directed to

Ex. 12H Crumb: Eleven Echoes of Autumn



depress the register key while sustaining his $c^{\#}'''$. This is not quite a harmonic, but as Crumb labels it, "quasi-harmonics". Actually the sound produced is a micro-tone, an eighth of a tone below the clarinet $c^{\#}'''$. In Ex. 12I a

Ex. 12I Crumb: Eleven Echoes of Autumn



glissando reminiscent of Gershwin's Rhapsody in Blue is combined with micro-tones. The e^{b}''' to c''' glissando is combined with the final micro-tone to b''.

Yet another usage of experimental notation if the vocal participation of each performer. Crumb has each of the performers at various intervals during Eco 6 repeat in Spanish "...y los arcos rotos donde sufre el tiempo"[22] (Ex. 12J). In this particular case, the clarinet and piano

---

[22] "...and the broken arches where time suffers," quote from the Spanish poet Federico García Lorca.

"break the arch" with mysterious trills and sustained chords, respectively. The images invoked by the arches are reminiscent of the visual effects which Baude Cordier employed with his heart shapes from MS Chantilly ca. 1400. However, here in the Eleven Echoes of Autumn the interruptions by instruments breaking the arches reach their full climax in Eco 8 where numerous special effects are employed. At this point the piece is texturally most dense and from there on gradually dies away to the end. In Eco 8 (Ex. 12 E) Crumb additionally advises:

> ...the clarinetist and the flautist are required to play directly into the piano in several passages. The change from seated to the standing position should be as unobtrusive as possible.
>
> N.B. Copies of pages 4,7,8, and 9 should be taped to the lid of the piano unless the clarinetist and the flautist prefer to memorize these passages.[23]

This is the first time anything of this nature has been encountered in any of the works examined, and is perhaps one of the earliest examples of this style of writing for the clarinet.

In the final area of pitch alteration, there are

---

[23] Op. cit., "Performance Notes".

similar symbols representing accelerated movement aside from traditional written expressions. These are noted by the following symbol  illustrated in Ex. 12G. Here in particular it expresses an acceleration of the quarter-tone effect. Further illustrations are found in Exs. 12B, 12C, and 12E.

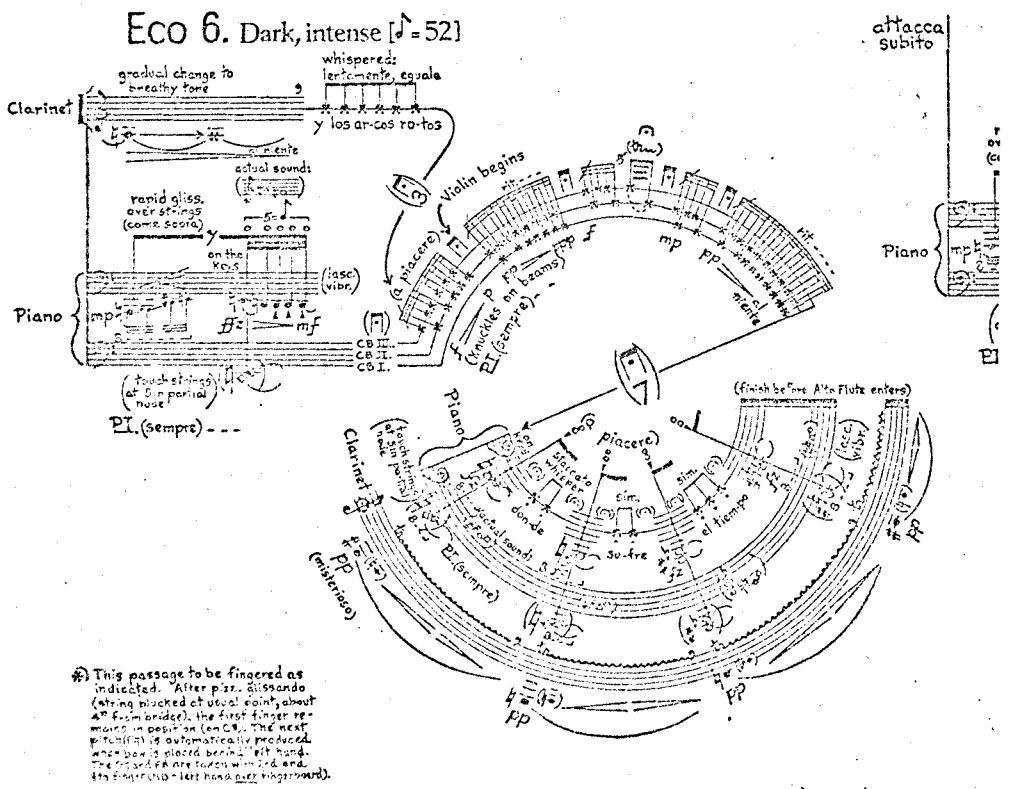
The technical demands of the work lie within passages laden with accidentals and wide skips. The clarinet cadenza in Ex. 12B demonstrates this activity combined with a mild pointillistic influence. However, the main thrust of the cadenza points toward rapid, arpeggiated string-like effects with wide intervals and leaps. The fingerings in the altissimo register are extremely awkward (ex. 12E). Further pseudo-arpeggiated passages rise and fall between the clarion and altissimo registers of Ex. 12G. This particular pattern is repetitive and occurs five times.

In Eco 4 (Ex. 12D) within the span of twenty notes, Crumb employs the following effects: flutter-tongue, grace notes, tremolo, wide dynamic contrast, contrasting fermatas, short rapid bursts of notes, accents, and sympathetic vibrations. The clarinetist must be prepared to negotiate these effects easily. Later in the work, Eco 9 (Ex. 12H) demonstrates yet another collection of effects which should

signal and alert the clarinetist to the approaching difficult passage work. Here micro-tones, pseudo-harmonics, and quasi-Sprechstimme grace notes laced with extremely soft dynamics (ppppp) are present.

In review, all the effects employed thus far include: micro-tone alterations with appropriate fingerings, tremolos, grace notes, trills, flutter-tongue, glissandos, and sympathetic vibrations. There are no multiphonics employed at all in the work. Other effects not listed include trills in the chalumeau register combined with piano pedal point. This effect takes place all within the "wheel" or "arch" of Ex. 12J. Breathy sounds and wind

Ex. 12J Crumb: Eleven Echoes of Autumn



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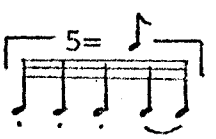
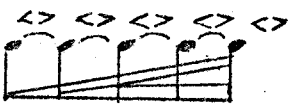
effects characterize the passages of Eco 2 in Ex. 12C and of Eco 5 in Ex. 12A. In the latter illustration, a wide vibrato is called for but retained within very soft dynamics which gradually increase from a breathy tone ppppp to a normal tone pp. In Eco 8 (Ex. 12E), Crumb marks - fff (bell in the air!). This expression is reminiscent of Mahler's Symphonies I and IV where the markings schallrichter auf appears and produce results similar to Crumb's work. Both expressions have a trumpet-fanfare quality to them.

Effects in the other instrumental parts are just as numerous or, as in the case of the violin, more numerous. Some special effect for the alto flute are whistle tones, overblown fff tones, and shrill flutter-tongue tones. The piano is prepared and uses a variety of fingernail devices to pluck the strings from inside the instrument. Finally, in the violin, with the longest history of techniques and special devices, Crumb investigates a few new ones. Mandolin effects, loosened bow hair, glissando combined with harmonics, and bowing behind the bridge (Ex. 12C) are the most novel effects.

A rapid burst of five notes 

occasionally grouped with six, becomes a recurring pattern and appears intermittently throughout the work. Examples 12C,

12D, and 12J demonstrate this practice. Just preceding the five-note burst in Ex. 12D, both the clarinetist and flautist move to a standing position near the piano. With the sustaining pedal depressed on the piano (P. I. sempre), the two performers play into the undamped strings of the piano to produce the eerie effect of sympathetic vibrations.

The Clarinet Cadenza III in Ex. 12B utilizes recurring birdcalls and loud cries. Tritone tremolos, trills, grace notes with accelerando symbols, free and strict movement, abrupt and contrasting dynamics arpeggiated figures, and a gamut of articulations are precisely expressed in detail by Crumb. The passage in Ex. 12E is a shrill sound marked fff, and the whole passage is set in the altissimo register. These f'''s are the highest printed notes of the work. Also in Ex. 12E the clarinet and flute again move in toward the piano to produce a psuedo-trillo, a vocal effect of the early Baroque. The gradually accelerating rapid, short crescendos and diminuendos  of Eco 8 produce this effect.

Rhythmic effects progress generally from slow to fast. However, one example in Eco 2, the wind music, works in reverse (Ex. 12C). Each movement has its own metronomic markings and vertical lines between parts align unison movement so that a steady rhythmic movement can be retained. In certain isolated instances a type of meter with strict

rhythm is established, e.g., clarinet cadenza of Ex. 12B.

As difficult as many of the gestures are, the synchronization of the work can be done without conductor. Vertical alignments act somewhat like barlines and help to organize difficult sections. These vertical lines appear throughout the work and are clearly visible in each performer's score. Even sections which seem at first difficult to coordinate, such as the wheels or arches in Ex. 12J, are clearly defined through verbal printed directions and with arrows in the score. Moreover, the mixture of Italian and English terminology helps to evoke the mood and spirit of the particular Eco distinctly. The tessitura remains standard. Perhaps this is the only effect Crumb has not really exploited. The range is d - f'''.

An unusual, special effect which Crumb suggests is the alternative use of special lights. Since the work is arch-like in its form, the use of lighting could enhance and support the gradual growth of musical intensity. As the music reaches its climactic point in Eco 8, then gradually collapses, lighting effects would follow and help to express these transitions. Crumb offers these two color possibilities. First, a deep green or blue light could be used exclusively throughout the work. The other alternative and perhaps the preferable method utilizes a deep blue light at the beginning. Gradually it brightens

to a fiery red in Eco 8, then dimming gradually to total darkness at the beginning of Eco 11. The latter possiblity, although theatrical, conveys the important visual element of the performance to the listener.

Edward Miller: Piece for Clarinet and Tape

Edward Miller composed Piece for Clarinet and Tape in 1967. Because of the unusual nature of the work, the following equipment is necessary: a prepared tape, tape recorder with technician, and stereo speakers. Miller further specifies that the B^{b} clarinet be utilized and that quadraphonic sound is preferable to stereo if it is readily available (Ex. 13A):

> Tape is 1/4 inch, 2-track stereo at 7 1/2 IPS. If the concert hall is large, each channel should be played on a sufficient number of speakers to insure audibility to all of the listeners. Stereo separation should be maintained.... One person (tape player in score) will be required to operate the offstage playback unit. He must be able to read music.[24]

On the second page of instructions (B) entitled "Form and Coordination", Miller presents a schematic drawing of the work and describes, to the second, the solo and duet-like interplay between clarinet and tape (Ex. 13B).

The notational expression of Piece for Clarinet and Tape is basically traditional with respect to pitch indi-

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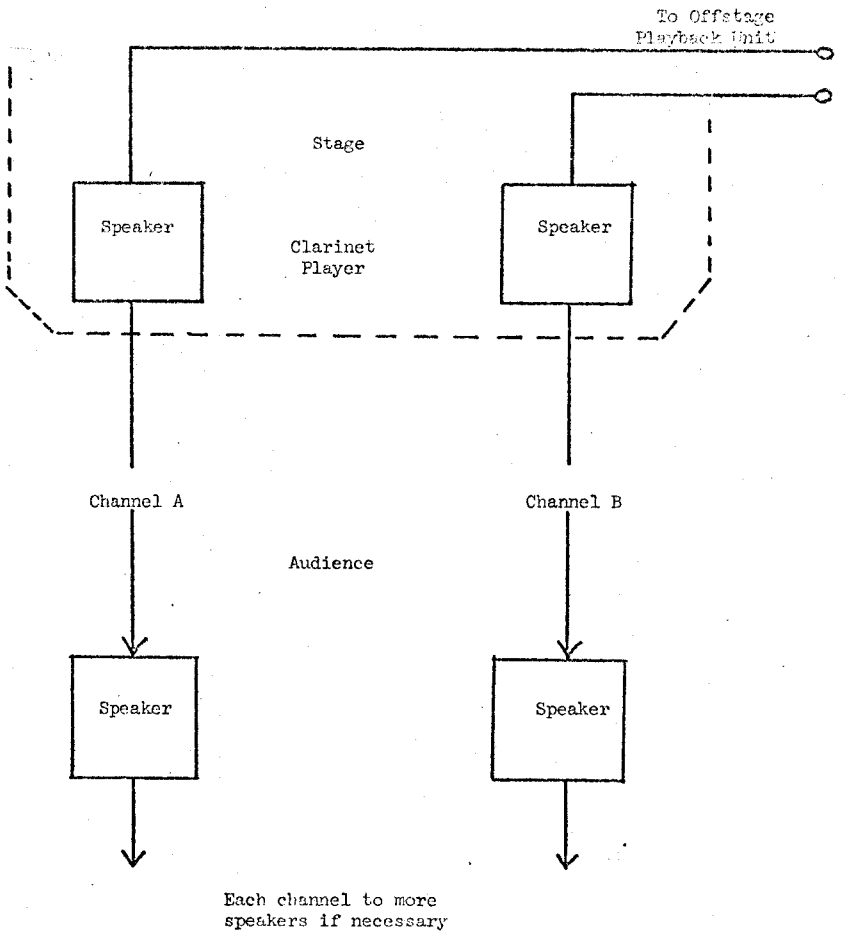
[24] These notes were taken from "Equipment and Setup", the preface to the work.

Ex. 13A Miller: Piece for Clarinet and Tape



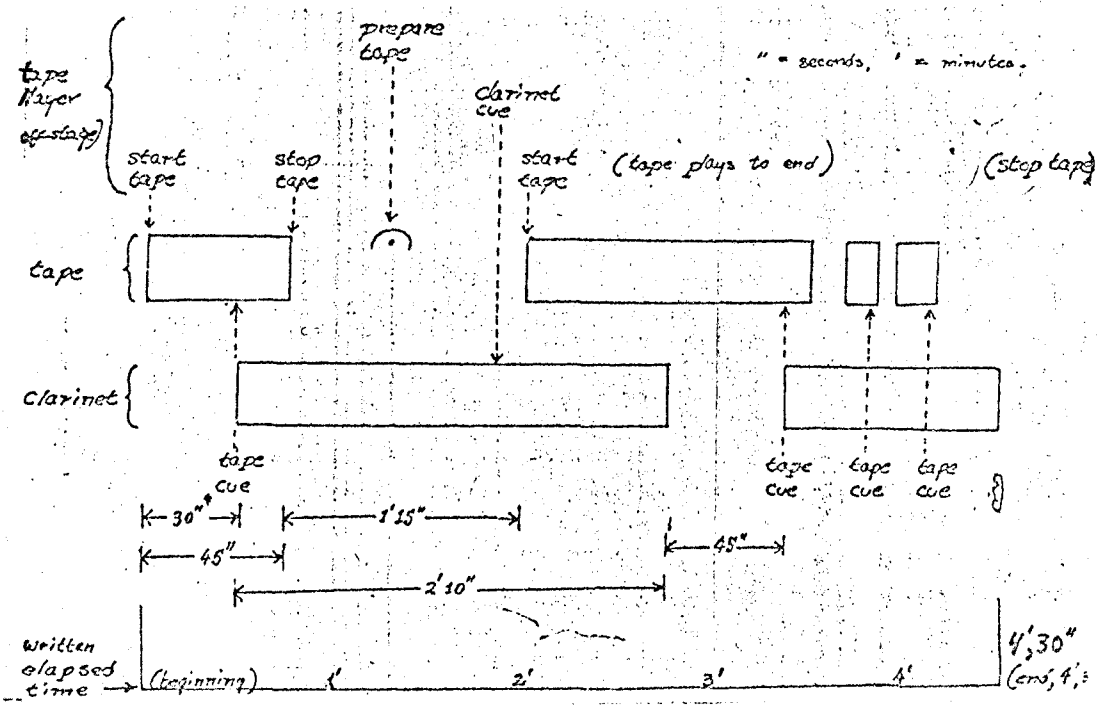
cation, accidentals (only to the note they immediately precede), dynamics, articulation and ornaments (trills, grace notes, etc.). However, there are no bar lines, repeats, or numerical meters. There are, moreover, nine English and Italian phrases expressing emotion and mood which create a spirit for the work.[25] The necessity of additional terms

[25] The English and Italian terms employed are: dolce, roughly, leggiero, getting more excited, furiously, agitato, becoming ... more...gentle, quietly, to nothing. These few markings express the dramatic plan of the work.

Ex. 13 B Miller: Piece for Clarinet and Tape

FORM AND COORDINATION

One quarter equals one second. The written duration (disregarding holds) is approximately 4½ minutes. The holds and pauses should extend the duration to about 5 to 5½ minutes. Diagram of the form (approximate written duration of each section): The clarinet part is written in E♭. The tape cues are written in concert pitch. All small notes should be played as quickly as possible. An accidental modifies only the note to which it is prefixed (tied notes excepted).



would be superfluous since dynamics, articulation, and irregular or smooth tonal contours express sufficiently Miller's intent by their specific character.

The use of experimental notation is linked directly to the use of the tape. Although standard rests are employed, the clarinetist must wait for the tape or adjust his speed to the tape if he finds himself playing ahead or behind the tape. The cadenzas at the beginning and end of the solo for clarinet become free in style as soon as the

tape stops. When the tape enters again, at approximately the two-minute mark (Ex. 13B), strict coordination must be maintained between clarinet and tape. Since there are not many places to take a breath in this section (or the entire piece), it tends to be an exhausting work for the clarinetist.

Durational values are controlled by the quarter note and the second. Miller states that ♩ = 60 (the second) should be maintained throughout the work unless otherwise directed. As mentioned earlier, cadenzas are ad. lib. with regard to duration (Ex. 13C).[26] Moreover, grace notes should always be performed as quickly as possible.[27]

In the next category, both dynamics and pitch alteration are specifically and carefully noted. There are no new or unusual symbols employed in these categories. However, symbols indicating tape cues occur after the clarinet cadenza and are placed below the clarinet part. This continues for thirty-two seconds during which time the clarinetist must coordinate exactly and in "strict tempo"

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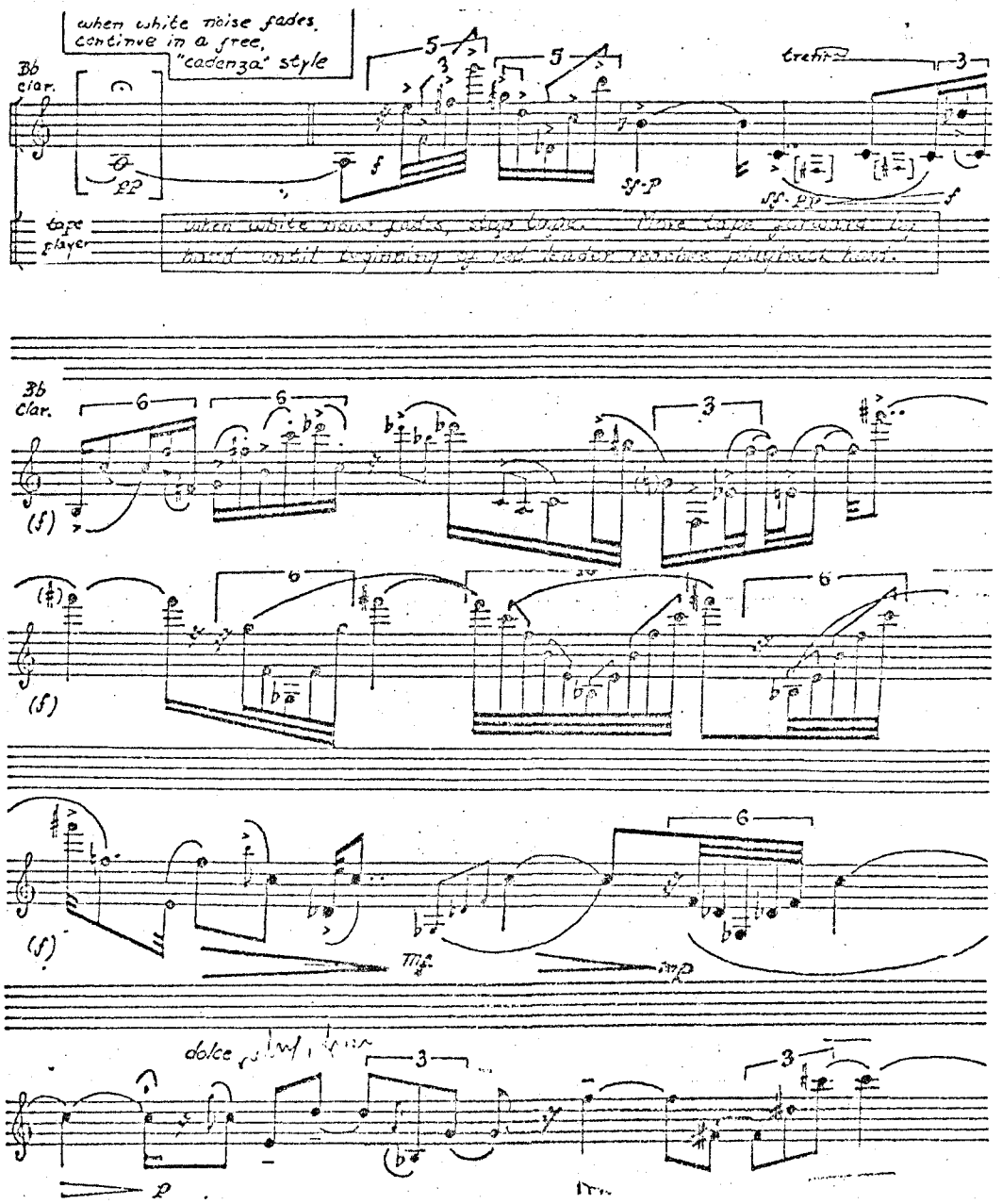
[26] This cadenza is reminiscent of the gestures and passage work of the first and second movements of Stravinsky's Three Pieces for Clarinet, particularly in the use of ornaments.

[27] I had the opportunity to play the premiere of this work, April 1967, in Hartford, Connecticut. At that time, the composer conveyed certain suggestions which had not yet been indicated on the score, grace notes being among them. The work is now with a prospective publisher.

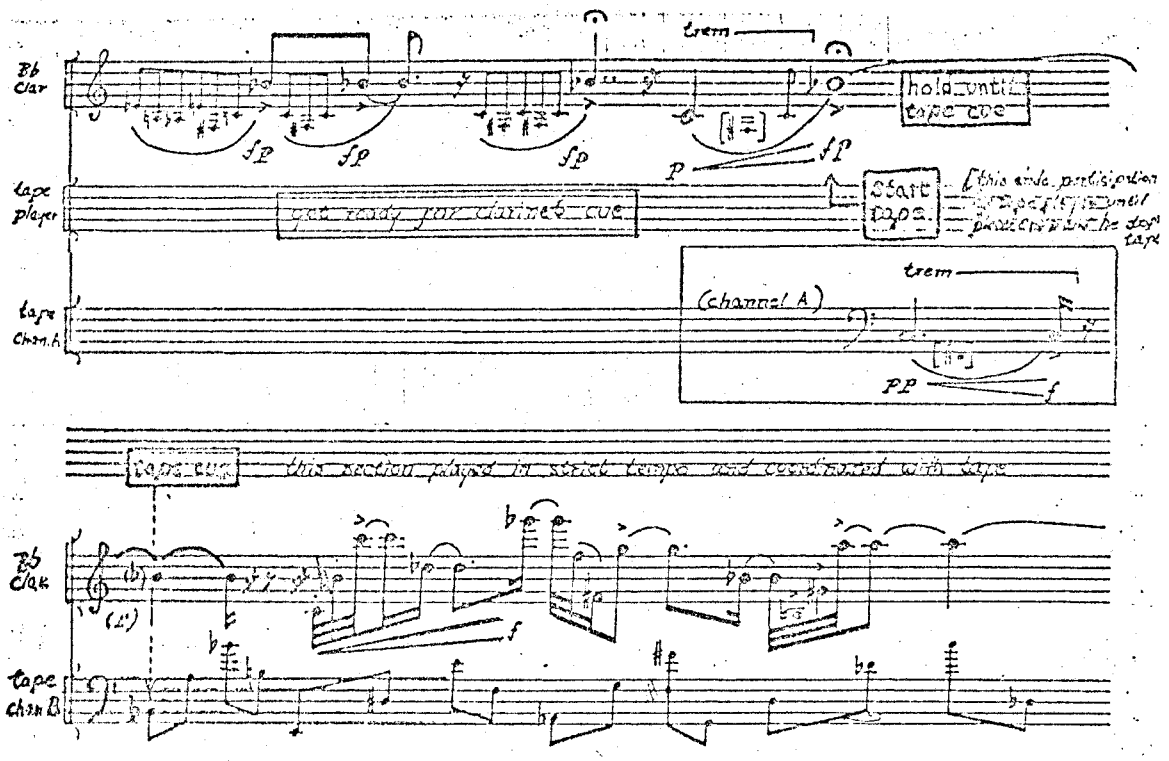
Ex. 13C Miller: Piece for Clarinet and Tape



with the tape (Ex. 13D and 13E).

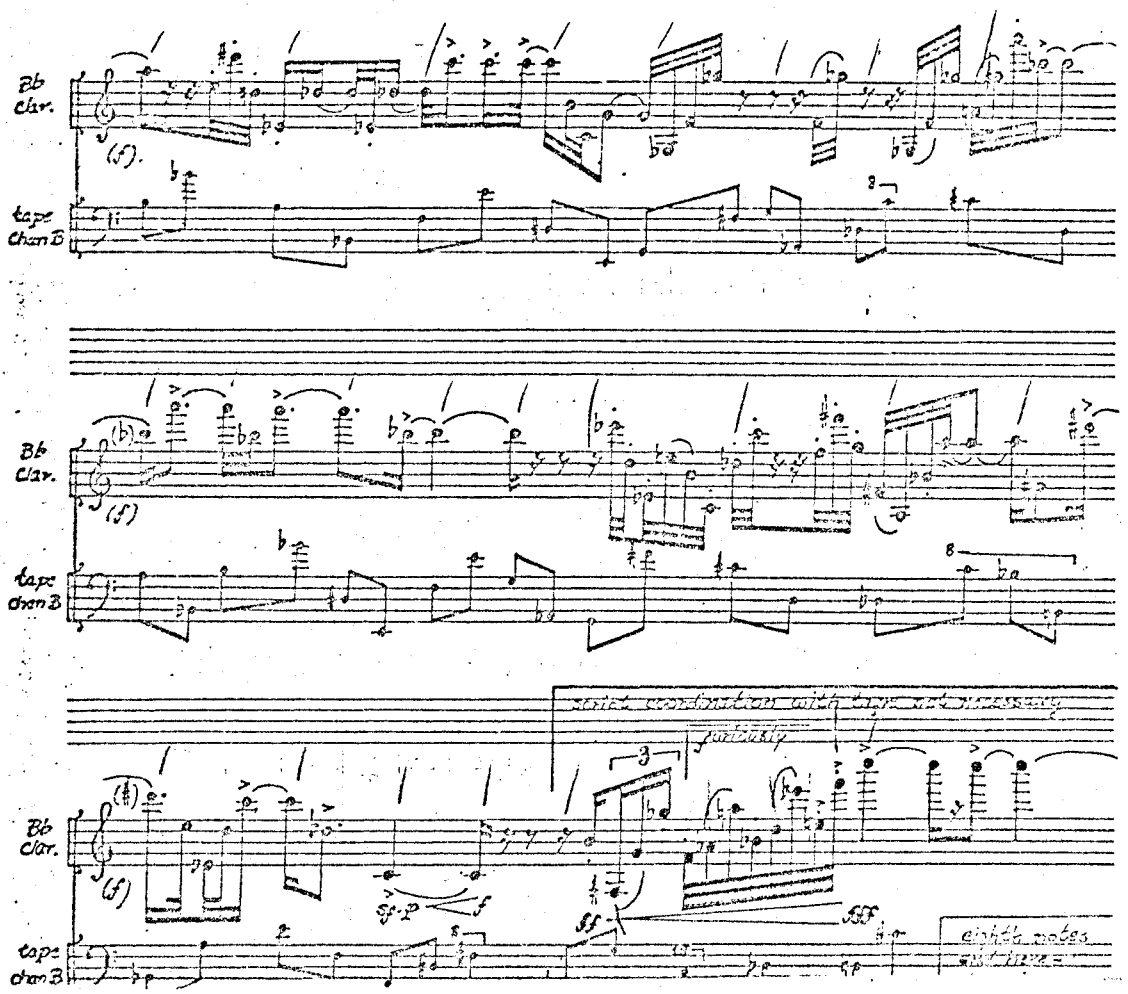
With the introduction of pointillistic motives ranging over the three and a half octave register of the clar-

Ex. 13D Miller: Piece for Clarinet and Tape



inet, the work becomes virtuostic. Not since Cage's Sonata has any work demanded so much technique and control. The rapid, jagged contour of pitches in Ex. 13E covers the entire tessitura of the clarinet within the span of twelve notes and one and a half seconds. This particular gesture occurs on the third system of Ex. 13E. Furthermore, rapid arpeggiated note clusters occur in numerous places, extensively in Ex. 13C and throughout Ex. 13D. All these passages are full of accidentals. Miller emphasizes tritone movement and alternation of major sevenths and minor

Ex. 13E Miller: Piece for Clarinet and Tape



ninths. These intervals gradually become familiar when the clarinetist grasps the tonal areas implied, such as, B^{b} and G in Ex. 13D.

Although there are no multiphonics or micro-tones present in the clarinet part, the tape produces both of these effects. In addition, the obbligato double bass-like motion of the tape in Ex. 13E was originally a bass clarinet tone. On two different occasions I recorded the original pattern of pitches on the bass clarinet for the composer.

Miller later electronically altered the timbre, range, and partials of the tone to conform to his concepts. After having discussed with the composer the means of alteration through the use of filters, the addition of white noise, etc., I was astonished that the sounds which were originally produced by a bass clarinet were unrecognizable when changed electronically with the Miller synthesizer.[28] The quality of the new timbre with its range somewhat altered was recognizable only as a combination of sounds produced by a tuba, double bass pizzicato, and bass clarinet. The attack of the pitch sounded like a tuba with the duration and character of the double bass pizzicato.

In Ex. 13E third system, the rapid burst of this ascending gesture rising to the high $b^{b''''}$ is combined with loud dynamics (fff) and sharp articulations to produce a shrill and screaming effect. After reaching the high $b^{b''''}$ the outer limit of the clarinet tessitura, the clarinetist must sustain the pitch for almost three seconds. This is very difficult and requires a strong embouchure with plenty of air support.

The tritone tremolos which appear throughout the work add a metallic quality to the tone of the clarinet.

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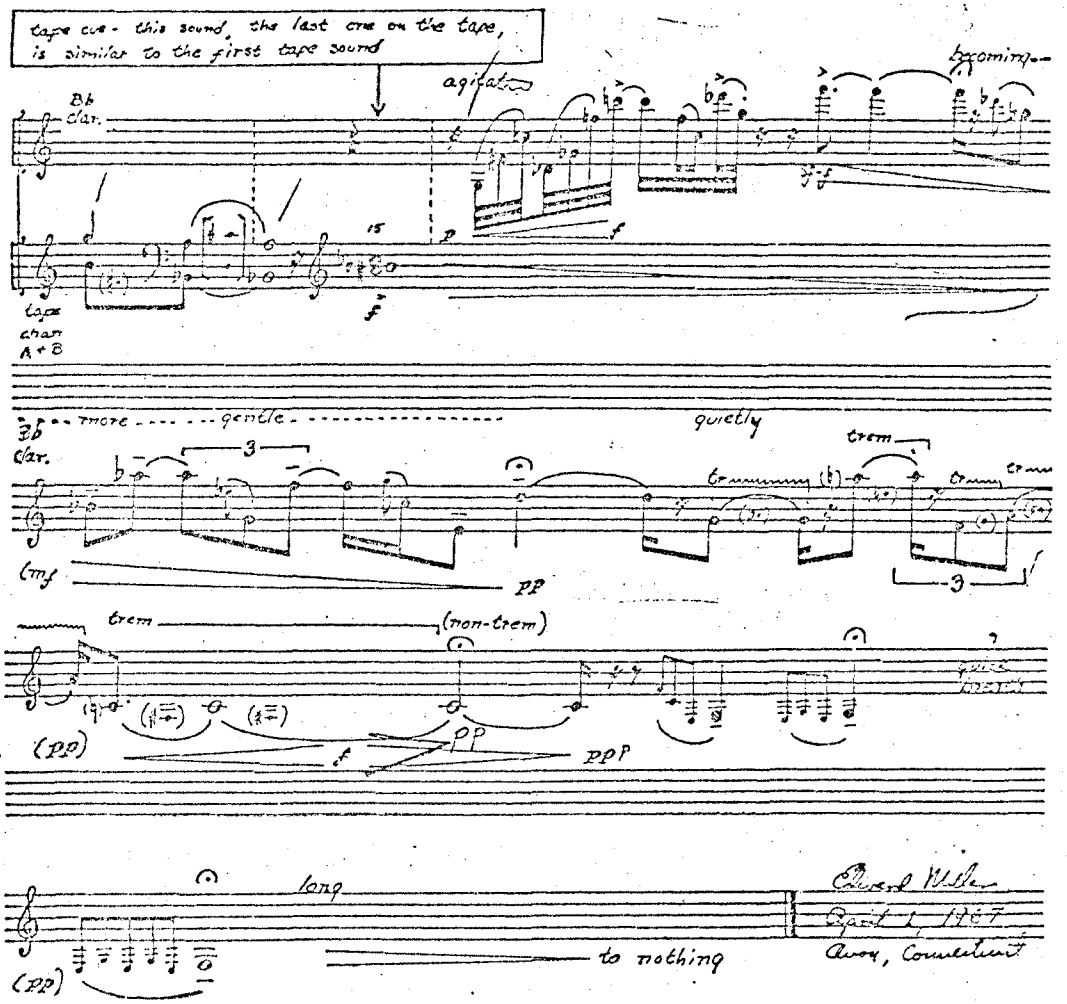
[28] Miller's electronic synthesizer (1967) was entirely his own design and stood 6'x 3' x 3' (approximately).

The tritone is usually found between e and b^{b}. This is functionally an important figure in the work, as the tritone finally resolves correctly to f, the final note of the work (Ex. 13F). More numerous than the tritone tre-

Ex. 13F Miller: Piece for Clarinet and Tape



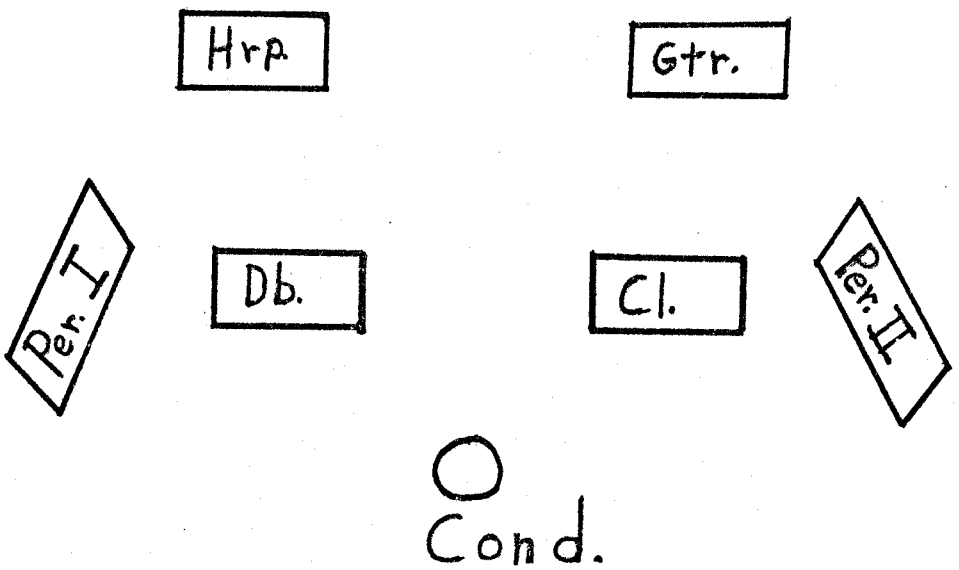
molos, however, are grace notes. Not since the Three Pieces for Clarinet of Stravinsky have grace notes appeared in such abundance (see note 26).

The last important consideration is the synchronization of clarinet and tape. Since the entire performance lasts less than six minutes, the clarinetist and tape technician must carefully watch their respective cues. Miller carefully specifies that the tape player must read music; if the clarinetist should take a slightly longer cadenza, the technician who counts only seconds on his clock may begin the tape prematurely. The most difficult coordination of the two parts, however, is between the ostinato bass passage and the accompanying ornamental jagged clarinet line above (Ex. 13D and 13E). This must be executed in strict tempo with absolute rhythmic precision in the clarinet. Wide leaps and awkward note combinations compel the clarinetist to seek out alternative fingerings rather than the customary fingerings of certain notes in this passage.

Dorrance Stalvey: Points, Lines and Circles

Dorrance Stalvey composed Points, Lines and Circles in 1968 for B^b clarinet plus triangle, percussion (two players), harp plus triangle, guitar plus triangle, and double bass plus triangle. Stalvey recommends the following seating arrangement:

> ... to achieve the effect of triangles moving in circles... Since each percussionist plays 2 triangles, a total of 8 triangles will be used by the ensemble. They must all be pitched differently and suspended from stands.[29]

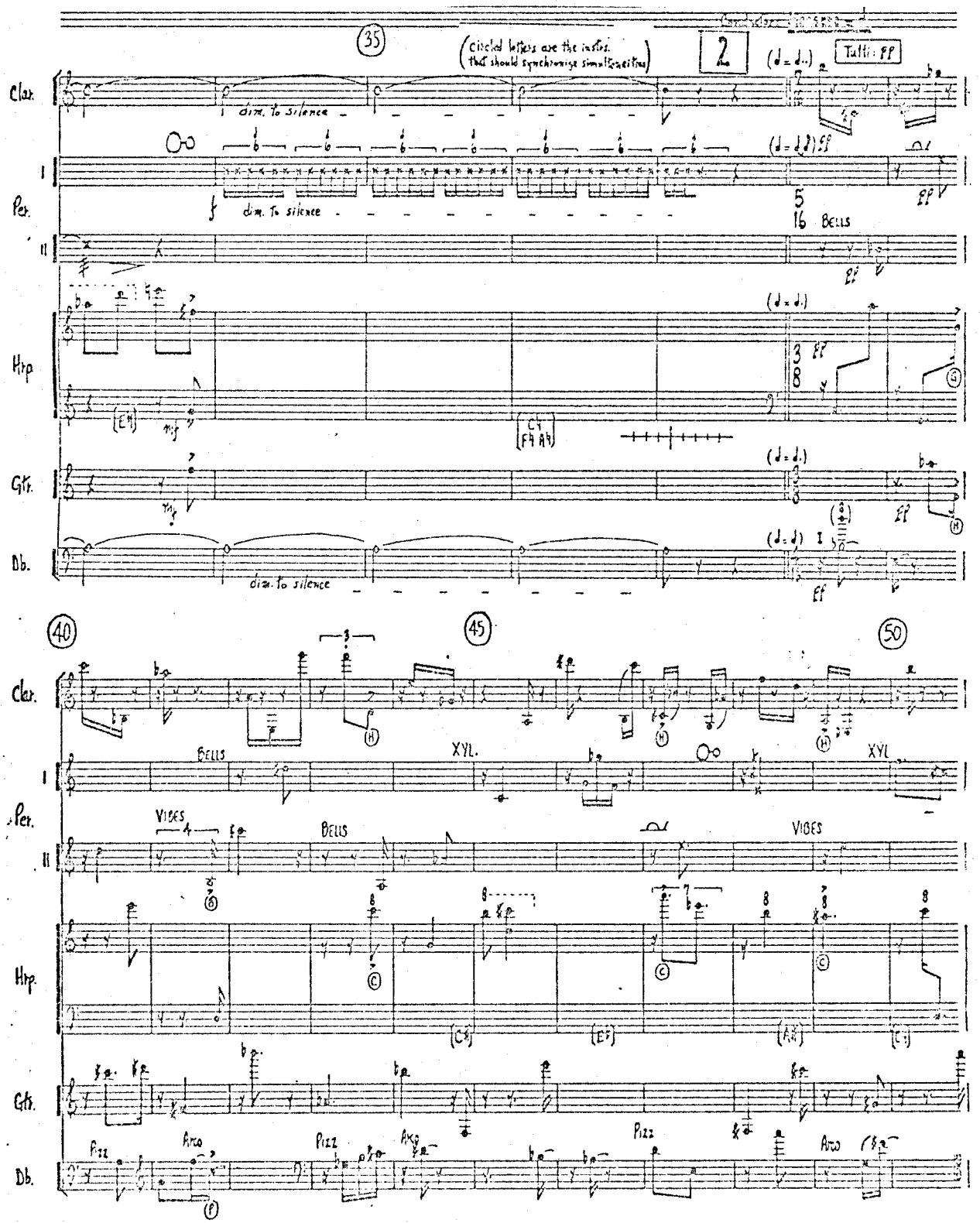


[29] These notes are found in "Indiviual Directions", the preface to the work.

Traditional notation viewed in PLC Extract, the clarinet cadenza of Points, Lines and Circles, applies similarly to the dynamics, articulations, silences, durations, and rhythms (when notated ♩ = 60) in Points, Lines, and Circles. In contrast to PLC Extract, this work, in addition, adopts traditional meter symbols with experimental usage of polymeter (Ex. 14A). The usage of polymeter in this work reveals a more complex process than in Hindemith's Sonata. Polymeter appears with a simultaneous combination of 7/16, 5/16, 3/8, and 4/16 meters beginning at measure 38. The conductor merely gives the pulsation of the measure which is equal to ♩ = 54-60, or approximately a second. During that time the clarinetist and the other instrumentalists must subdivide the conductor's gesture of pulse into their own respective meters. The transition to the polymeter section is made smooth by the use of metric modulation. Ex. 14A also illustrates the various equations which each performer must negotiate, such as ♩ = 𝅗𝅥. and ♩ = ♩. , to complete the transition. Other examples of metric modulation occur at measures 6, 20, 103, 151, 191, 321, 322, 361, 409, 410, and 438.

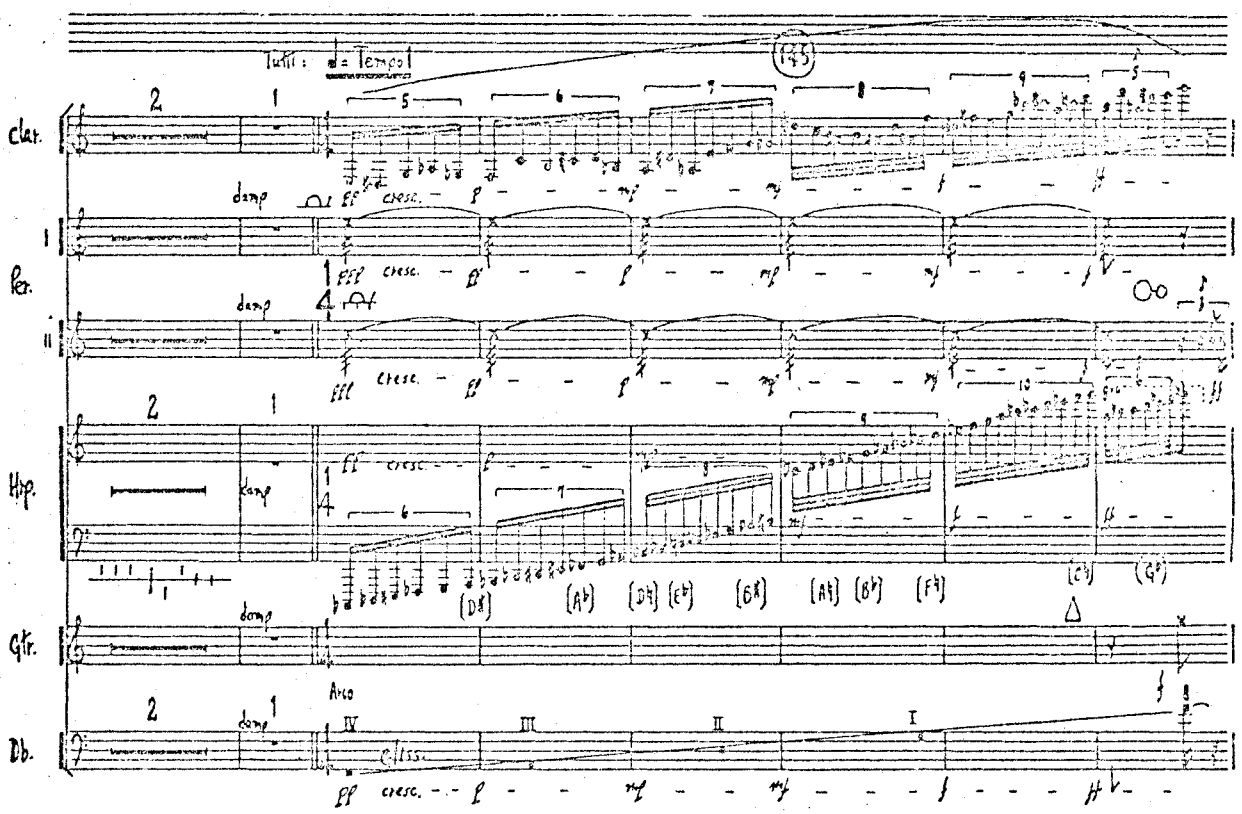
At other moments during the piece the symbol ♩ = Tempo 1 appears. This is the original tempo (♩ = 52-60) which returns periodically to solidify the approximate

Ex. 14A Stalvey: Points, Lines and Circles

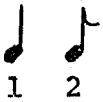


one-second pulse and helps to clarify the unusual contrasting rhythmic groupings appearing simultaneously. Ex. 14B

Ex. 14B Stalvey: Points, Lines and Circles

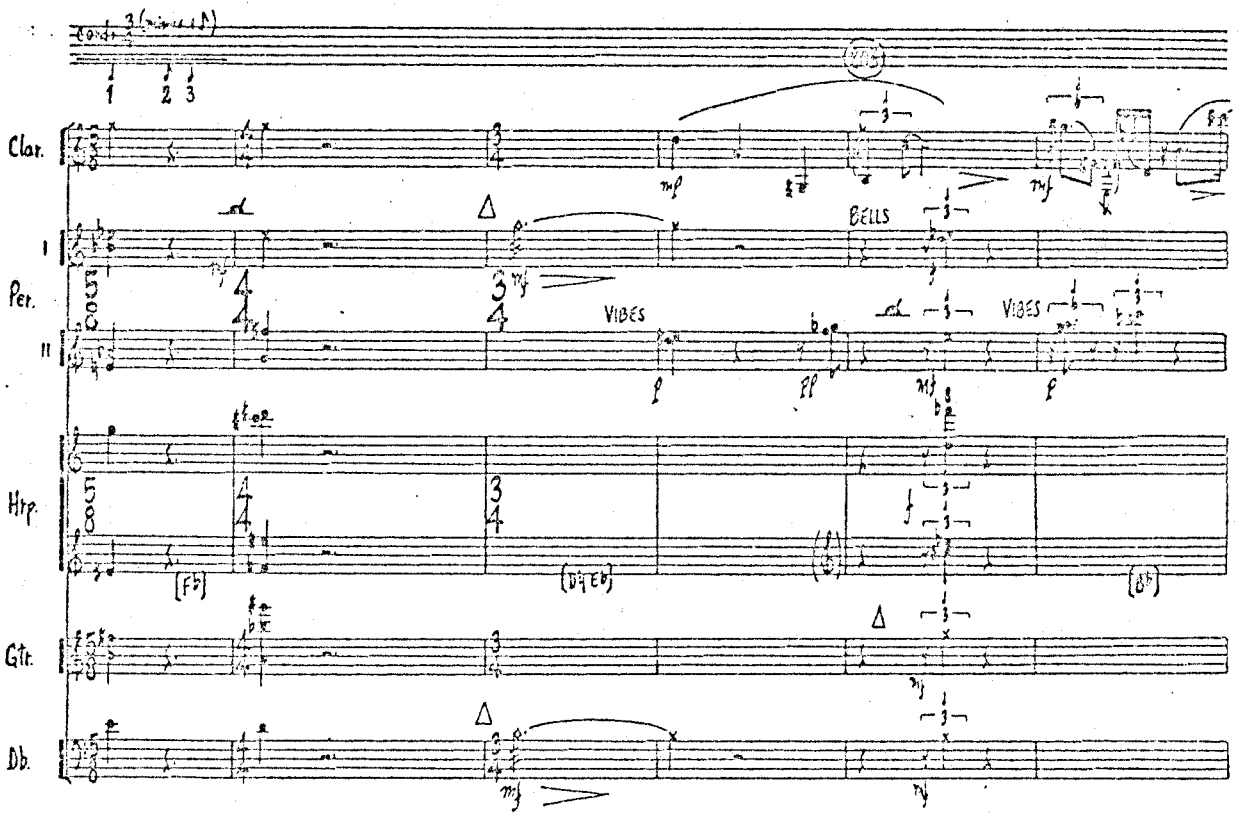


illustrates such an instance at the 1/4 meter, measure 142. The clarinet and harp execute ascending sixteenth note groups of increasing activity: five against six followed by six against seven, etc..

Other experimental markings in the score refer to the conductor's technique. In Ex. 14C measure 201, the phrase, "cond: 3/4 (minus 1)  " instructs

1 2 3

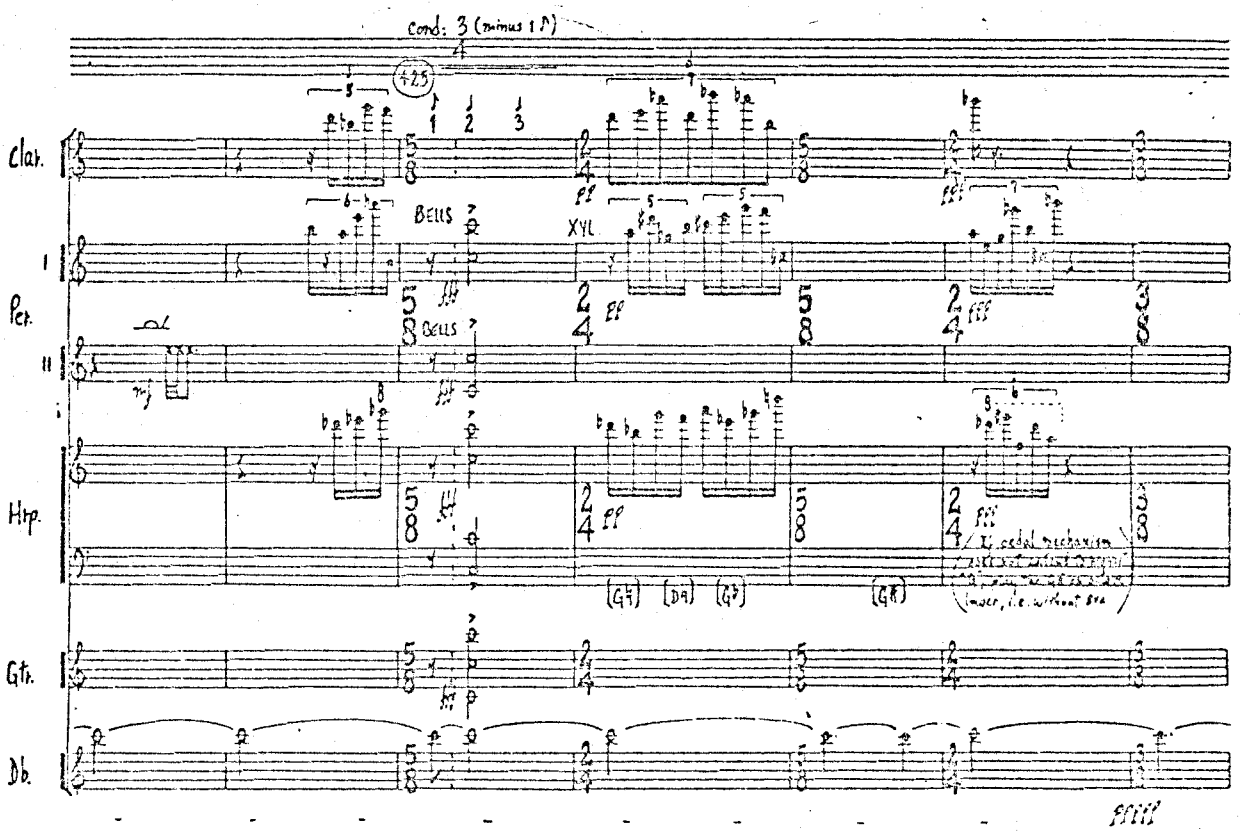
Ex. 14C Stalvey: Points, Lines, and Circles



the conductor to beat a 3/4 bar with a quick second beat. Although the music (♩ ♩.) suggests a two pattern rather than a three, Stalvey prefers the constant quarter note movement in three. A similar situation occurs in Ex. 14D measure 425. This time the first beat is altered (♩. ♩).

Unlike Crumb's Eleven Echoes of Autumn, Stalvey employs the traditional form of the orchestral score. Whereas in the Crumb a visual perspective was essential to assist the performers follow their successive entrances,

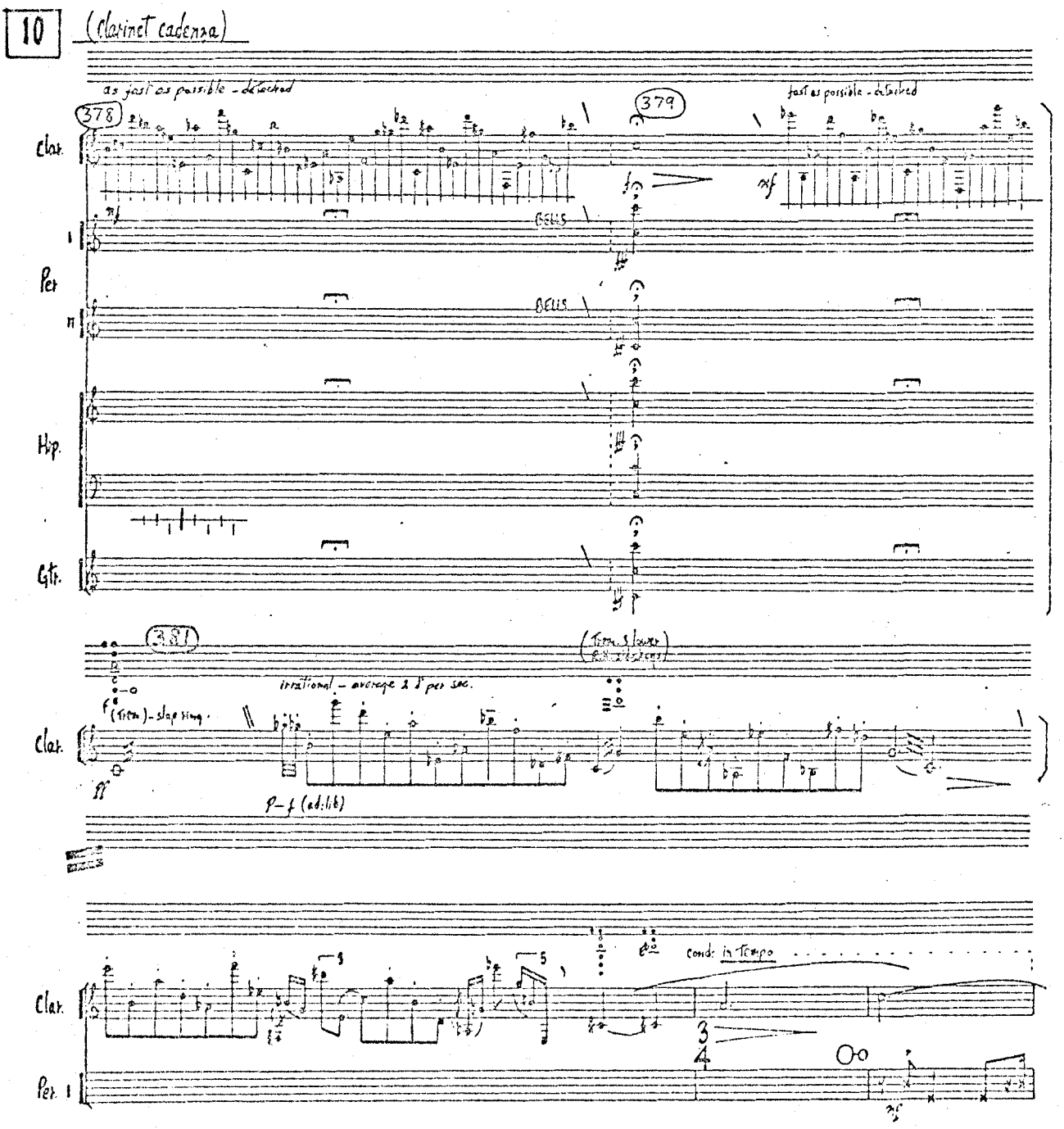
Ex. 14D Stalvey: Points, Lines and Circles

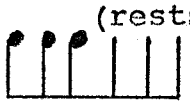


in the Stalvey, measures are complete with traditional bar lines, rests, and meter to help facilitate the execution of certain rhythmic and technical complexities. However, a copy of PLC Extract is necessary for both the performers and the conductor, in order to study certain ambiguities between the two scores. For example, there is no explanation in Points, Lines, and Circles of expressions used for silences either in the bass (measures 243-255) or clarinet (measures 368-393) cadenzas. Of course the clar-

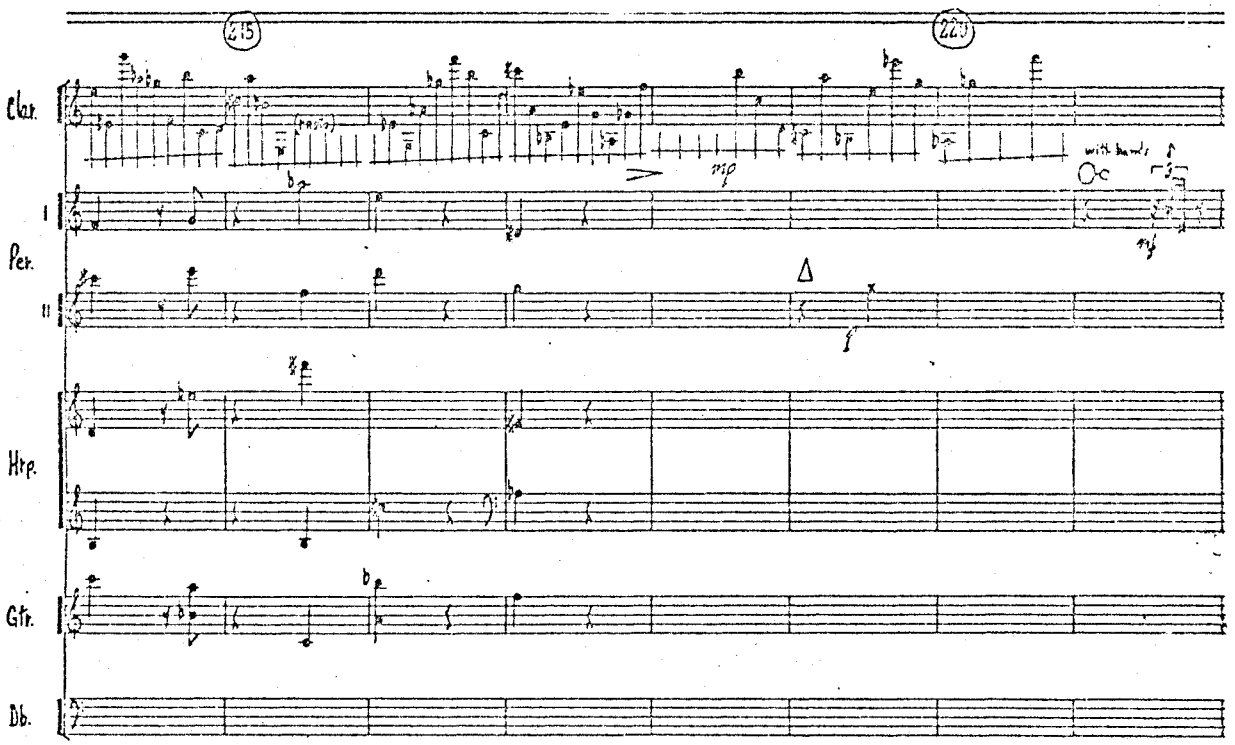
inet cadenza is recognizable as PLC Extract minus the coloration of the few full ensemble chords (fff) at measure 379 and percussive bongo effects at measure 383 (see Ex. 14E for examples of both). Yet the following symbols

Ex. 14E Stalvey: Points, Lines, and Circles



very clearly explained in PLC Extract are not mentioned in this work:  ,  , and  . Stalvey evidently recognized this problem and corrected it in the extract. Other markings, however, are relatively self explanatory, such as the rest noted  (rests) in Ex 14F. The meter

Ex. 14F Stalvey: Points, Lines, and Circles

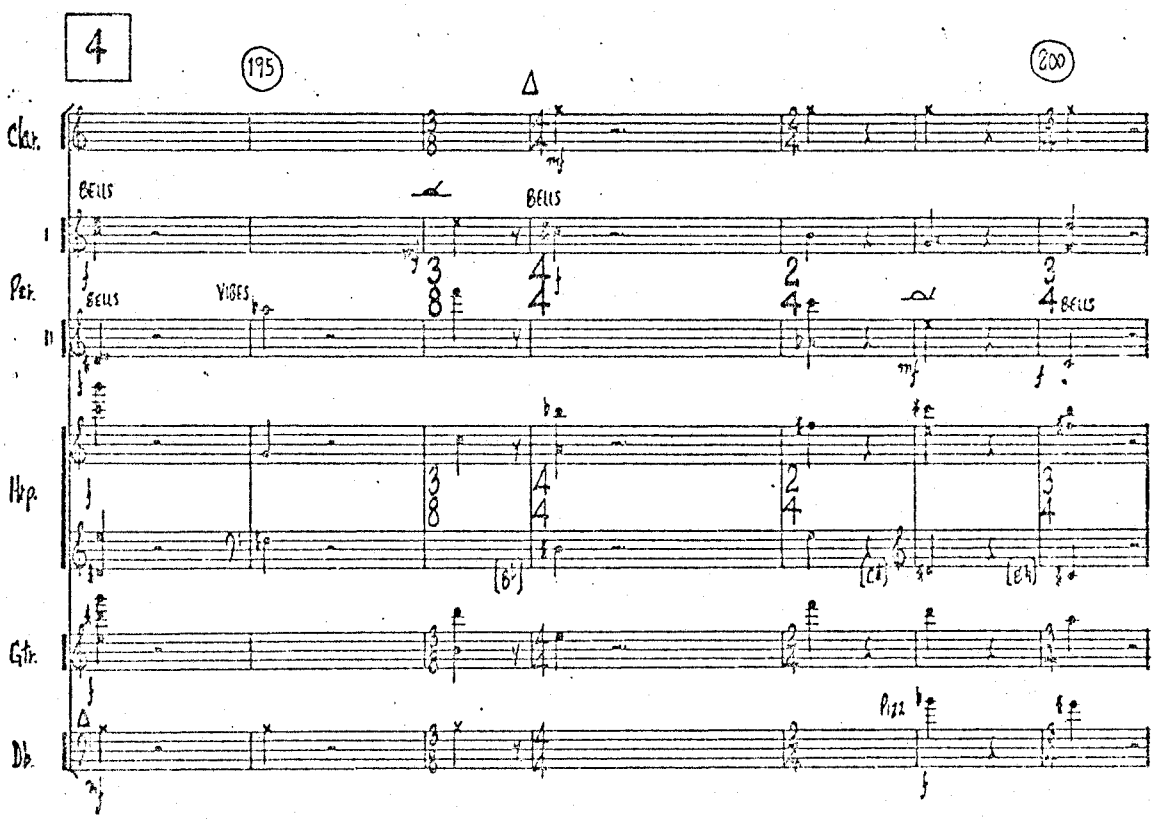


is 2/4 and the clarinetist, as Stalvey states, should play the passage with "... (the) rhythm ad. lib. within measures --- detached always...". Multiphonics and quarter-tone alterations have a similar appearance to PLC Extract.

Instrumental doubling is another effect which has

not been employed in any of the works. All the performers play the triangle. At first glance, the symbol ✕ might be mistaken for a vocal-like Sprechstimme effect as observed earlier in the Eleven Echoes of Autumn. However, the symbol indicates both the triangle and a quarter note duration. This is first used in measure 197 (Ex. 14G).

Ex. 14G Stalvey: Points, Lines, and Circles



Further directions concerning the duration of the tone are found under "Notation" in the preface to the work. Stalvey states:

ALL SOUNDS MUST BE ALLOWED TO DECAY, EVEN WHEN FOLLOWED BY RESTS, UNLESS INDICATED TO DAMP!

Likewise, specific instructions are given to the two percussionists and the remaining members of the group. Some written instructions, for example, direct the performers where to strike the percussion instruments and where to negate the use of arpeggiation in the guitar and harp. These particular instructions are found in Ex. 14H.

The technical demands of this work fall into five basic areas. As in PLC Extract, pointillism, rapid arpeggiated tone clusters, coordination of numerous multiphonics, tremolos, quarter-tones, and partial twelve-tone alternation of pitches combine to produce technically difficult sections.[30] At times the various combinations are used imitatively among other instruments involved in the same rhythmic pattern (Ex. 14J). In measures 152-157 of Ex. 14J the clarinet and harp share the same rhythmic pattern; the harp is an augmentation of the clarinet pattern. The group of sixteenth-note quintuplets in the clarinet is augmented to eighth-note septuplets in the harp.

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[30] A difficult passage of pointillism occurs in measures 107-116 (Ex. 14I).

Ex. 14H Stalvey: Points, Lines, and Circles

NOTATION: ALL SOUNDS MUST BE ALLOWED TO DECAY NATURALLY, EVEN WHEN FOLLOWED BY RESTS, UNLESS INDICATED TO DAMP!

Accidentals apply to immediate notes only.

INDIVIDUAL DIRECTIONS:

Clar., Hrp., Gtr., Db. — indication to play Triangle: △
Triangle notes: x, ♩ (trem.)

Clar., Db. — micro-chromatic symbols: ♮, ♭ — ¼ step
♯, ♭♭ — ¾ step
♮↑, ♮↓, ♭↓, etc. — less than a ¼ step from the symbol.

Db. — Arco notes extended by a tie to a rest are to be played short but allowed to ring. Particular string directions apply to the immediate notes only.

Gtr. — Do not arpeggiate simultaneous notes.
Whenever possible change strings for successive notes so that sounds may overlap and decay naturally.

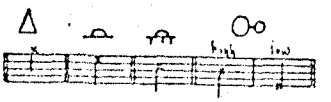
Hrp. — Do not arpeggiate simultaneous notes. If pedal mechanism is not extended: Tune lowest C to C♭; Tune highest G to G♯ at beginning, or during measures 330-334 (if to begin with G♭).

Per. I + II — With few exceptions, the choice of mallets, etc., is left to the player. Choose from hard, medium, and soft mallets; metal Triangle-beaters; and knitting needles.

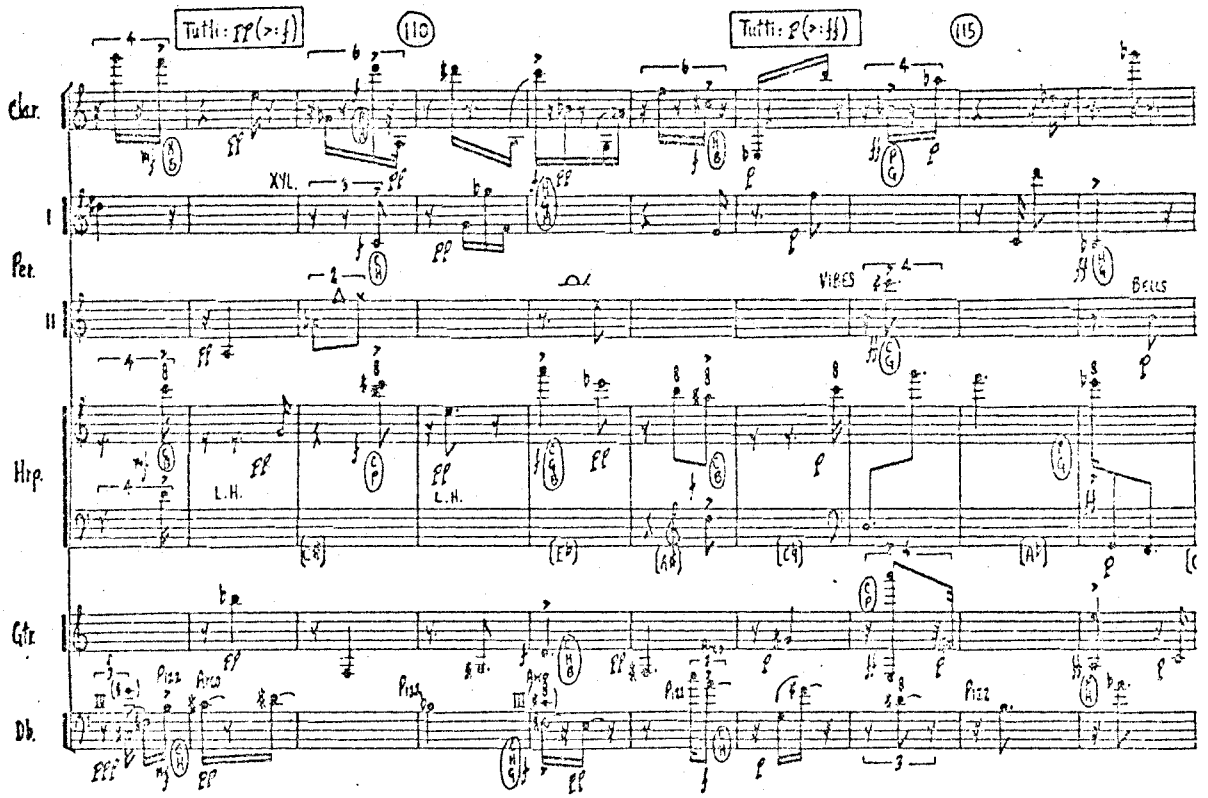
Per. II — The vibraphone is treated like a lower version of the orchestra bells and, therefore, should have a similar decay rate. A suitable technique of pedaling must be utilized to create this effect.

Percussion instruments (in addition to the Triangles played by clar., Hrp., Gtr., and Db.):

I		II
Xylophone (3½ octaves)		Vibraphone (motor off)
Orch. Bells (Glock.)		Orch. Bells (Glock.)
Bongos	— Oo	— Bongos
Large Sus. Cym.	— (edge), (dome)	— Large Sus. Cym.
Sus. Sizzle Cym.	— (edge) (dome)	— Sus. Sizzle Cym.
Two Triangles	— △ (to the player's left)	— Two Triangles
	△ (to the player's right)	
	△ (either)	



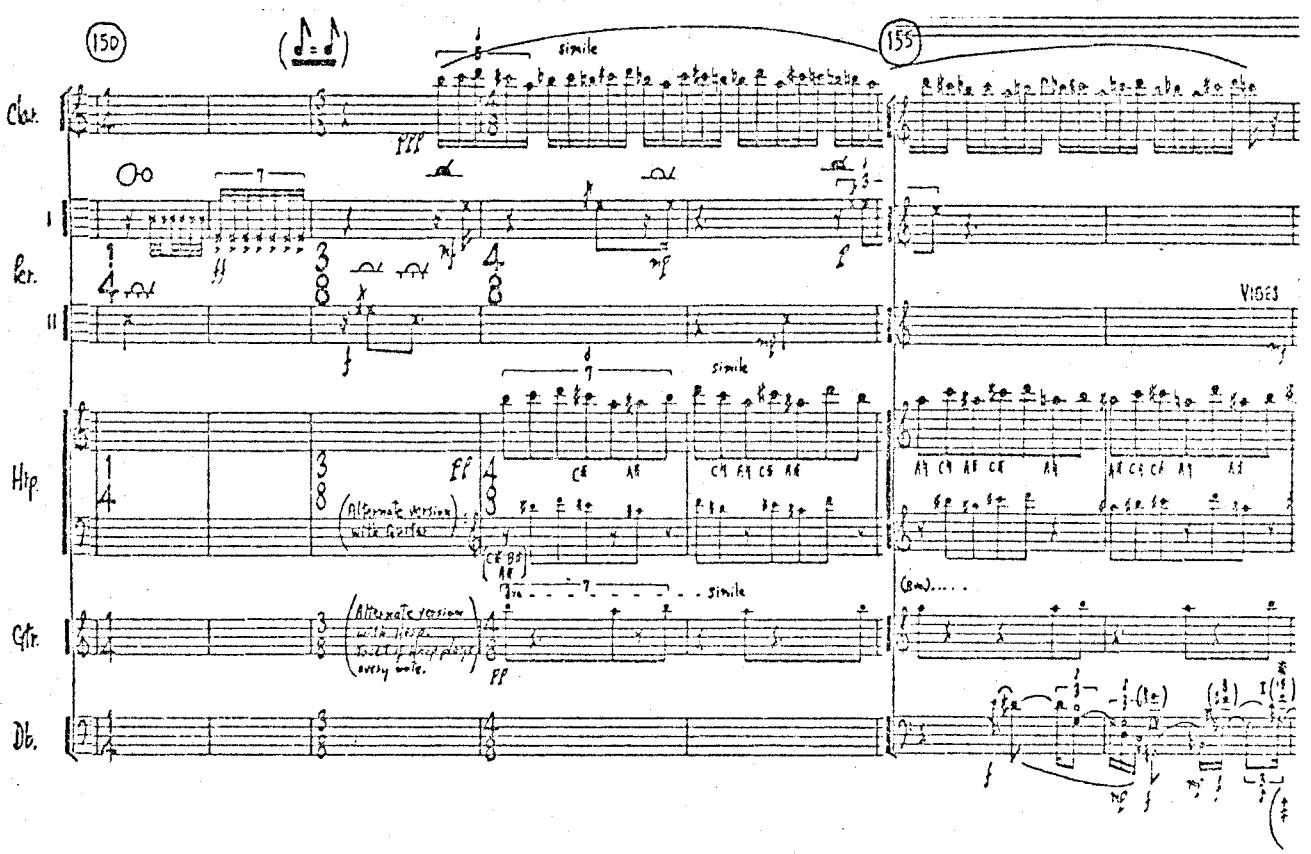
Ex. 14I Stalvey: Points, Lines, and Circles



An alternate version of this same pattern appears directly below the original in the score. The guitar and harp divide the notes of the original harp pattern utilizing a Klangfarben technique. The division of notes between the guitar and harp is irregular and their interplay adds colorful timbres against the quintuplets in the clarinet.

Effects related to timbre, micro-tones, multiphonics, etc. are the same as in PLC Extract. Another effect, the ostinato (not found in PLC Extract), appears

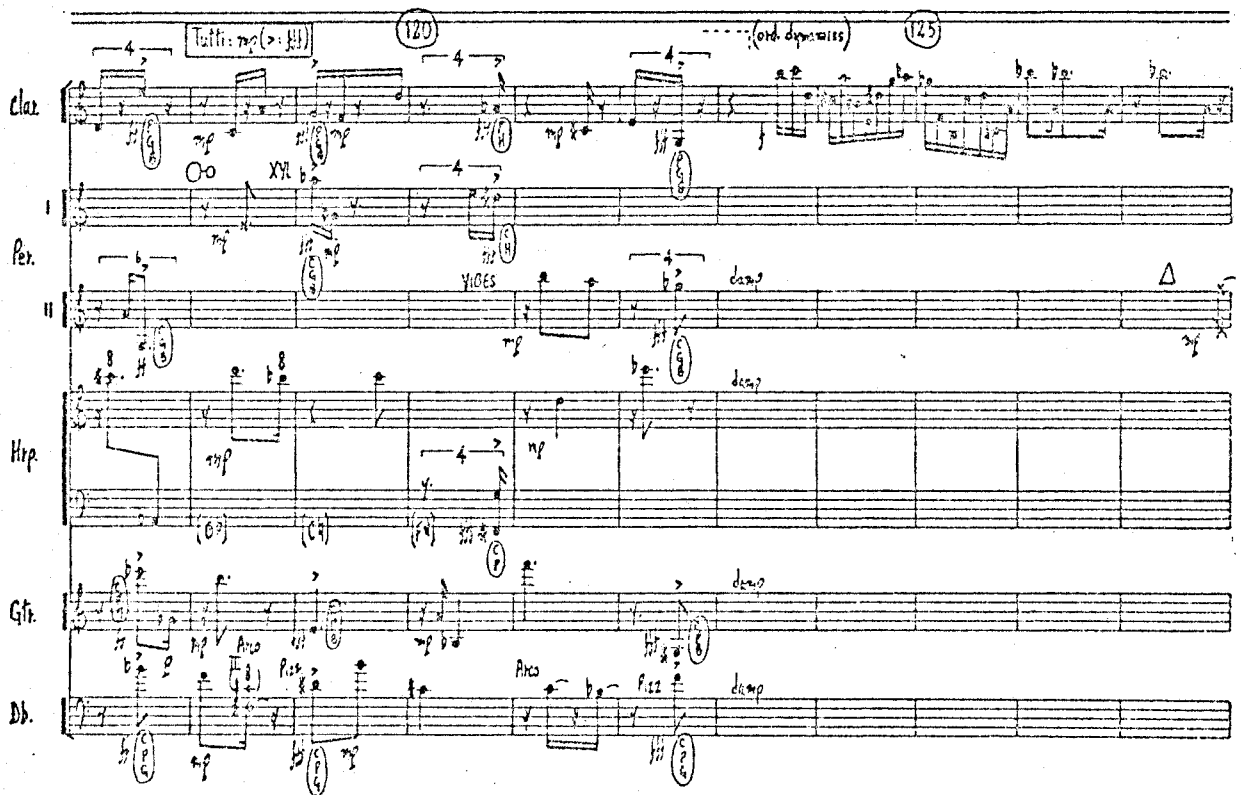
Ex. 14J Stalvey: Points, Lines, and Circles



in a new non-traditional form in Points, Lines, and Circles. The ostinato couples two independently moving voices in such a way as to give the latter voice a pattern which is both in imitation and augmentation of the first voice. Such is the case in Ex. 14J between clarinet and harp (and/or with guitar). The clarinet retains the same notes of its hexachord: A, B^{b}, B, C, $C^{\#}$, and D. These pitches appear in a variety of combinations within each successive quintuplet.

Another effect unique to this work occurs in measures 110-125 (Exs. 14I and 14K). Loud accented notes

Ex. 14K Stalvey: Points, Lines, and Circles



fall disproportionately to create a sound which can only be described as metallic accents. The notated rhythm, however, is explicit.

The employment of color slides adds yet another unusual effect in Points, Lines and Circles. Although Stalvey states that their usage is optional, the slides would be helpful for the audience to visualize the various sequence of geometric shapes in the piece.

> The images, graphic shapes which represent the sound shapes and structure of the work, may be projected a number of ways. In any case, they should appear to be an integral part of the ensemble a spatial extension of sound.[31]

Since the work requires a conductor, the burden of maintaining a good ensemble rests with him, not with the players. It is also the conductor's responsibility to manage the synchronization of slides and other effects such as rhythmic modulations, irregular rhythms, dynamic contrasts, etc.. The clarinetist, on the other hand, is responsible for the manipulation of his two instruments, the clarinet and the triangle. In addition to the mechanics of his own part, the clarinetist must practice changing from triangle to clarinet, at times within one measure. One quick change occurs at measure 310. The measures immediately following this change find the clarinetist beset with one of the most difficult technical passages in the work. This particular passage (Ex. 14M) occurs in measures 311-314. Because of the employment of descending quarter-tone movement, pointillism, irregular metrical groupings, etc., this

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[31] There are more detailed suggestions under "Optional visuals" in the preface to the work. Here are twenty-five 35 m.m. slides. "...13 correspond to the structural sections of the work (separated by double bars in the score) and 15 for the pause between sections 7 and 8 (i.e., between measures 293, 294, end of page 19)." Ex. 14L illustrates a graph of "timings" and related slides.

Ex. 14L Stalvey: Points, Lines, and Circles

TIMINGS:

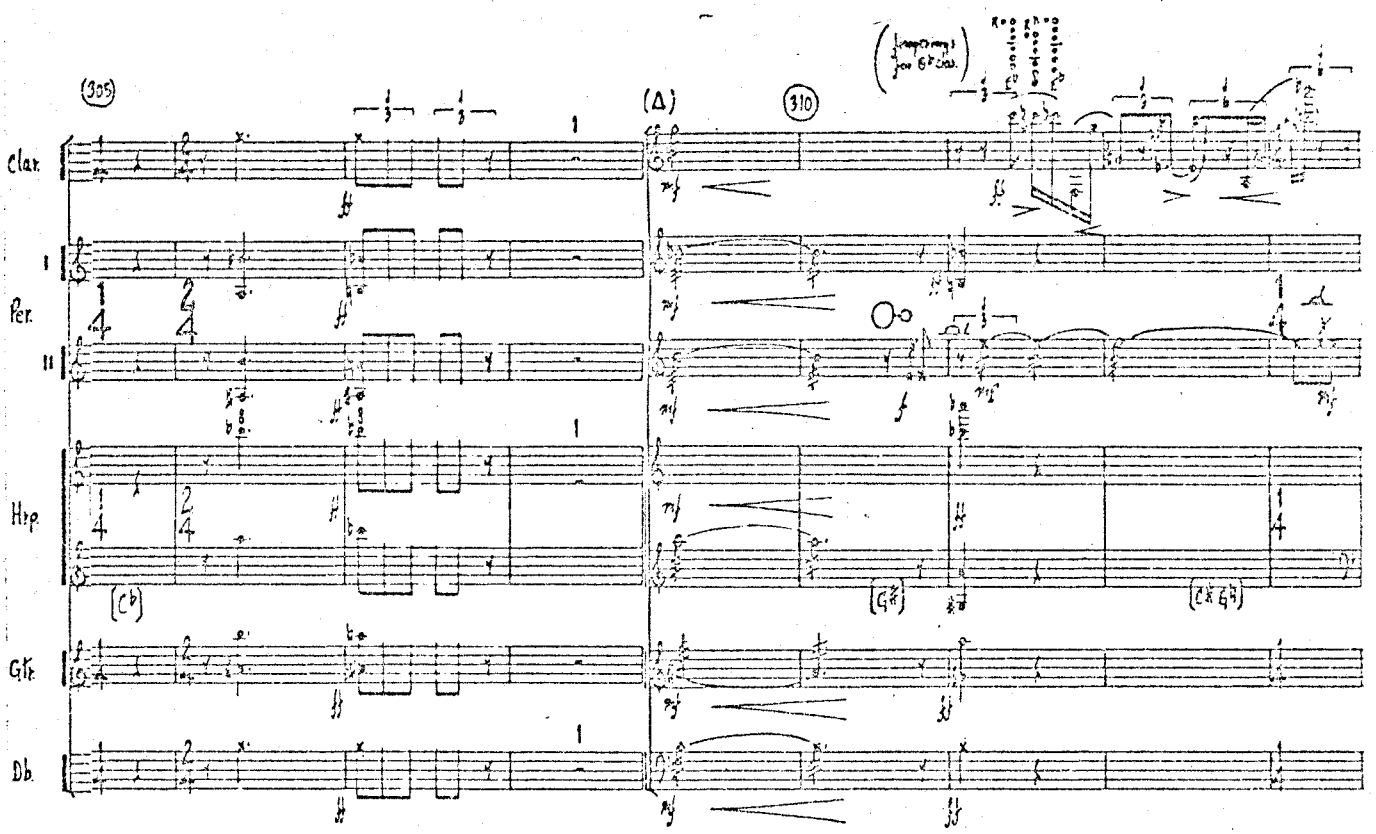
Slide	Measures duration
1	1 - 37
2	38 - 141
3	142 - 193
4	194 - 242
5	243 - 257
6	258 - 282
7	283 - 293
A-O	(Pause) —— change slides as rapidly as possible*
B	294 - 321
9	322 - 377
10	378 - 396
11	397 - 406
12	407 - 414
13	415 - 439

* If a shorter pause is desired, omit slides B, D, F, H, and J.

passage has a formidable reputation. Perhaps the most difficult gesture, the four notes closing in measure 314 pass through the three and a half octave range of the clarinet. Moreover, Stalvey stretches the normal range of the clarinet a minor third higher with a printed $b^{b''''}$ in measure 313.

Although Points, Lines, and Circles examines to a greater degree the ambivalence between freedom and rigid control, it is still bound by certain overall traditional considerations of pitch indication and meter (with bar lines). However, Stalvey's timbral and rhythmic possibilities seem unexhausting to the performers. This almost leads to the conclusion that when freedom occurs in one

Ex. 14M Stalvey: Points, Lines, and Circles



area, other areas must remain traditional in order to weather the strain. This would generally tend to apply to larger ensembles since the organizational factors of synchronization are far greater than for smaller ensembles. Unless the composer were to throw out all existing traditional symbols and use verbal phrases or other text dependent on seconds, etc. for pulse or duration, some form of traditional notation would exist.

Dorrance Stalvey: PLC Extract

As the name implies, Dorrance Stalvey's PLC Extract (1968) is taken from his chamber work Points, Lines, and Circles (1968) and is the clarinet cadenza. This procedure of performing a solo section of a larger work by itself is not unusual. An earlier and parallel usage can be found in Messiaen's Quatuor pour la Fin du Temps. "The Abyss of the Birds", can be performed alone on recital programs, for instance.

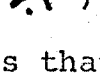
In PLC Extract the particular key of the clarinet to be employed is not specified; therefore, as in Pousseur's Madrigal I, the clarinetist could possibly employ any clarinet which could satisfy the tessitura. The range of PLC Extract is d to $a^{b''''}$. However, in subsequent conversations with both the composer and performers, the brighter quality of the B^{b} clarinet was preferred. Also, Stalvey specifically requests the B^{b} clarinet in the larger chamber work Points, Lines, and Circles; without reference to the chamber work, the clarinetist has no information as to which instrument to use.

Standard practices of notation still exist in PLC Extract. Pitch level, clef, accidentals (applied only to the pitch they precede) dynamics, articulation, and rhythm (only when notated ♩ = 60) remain traditional.

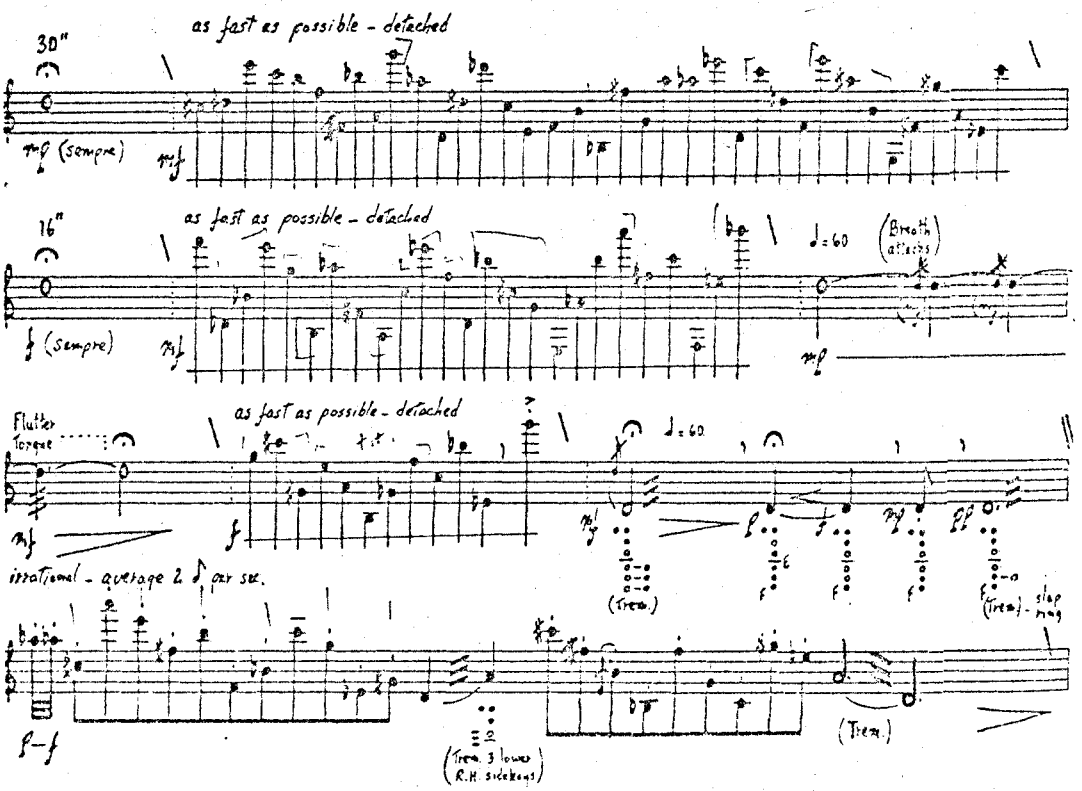
On the other hand, experimental notations make significant advances in this work. Next to Pousseur's Madrial I and Madrigal III, PLC Extract is the most advanced composition studied with regard to technique, devices, and effects used for the clarinet. Crumb's Eleven Echoes of Autumn uses many twentieth century effects but still has a smaller number of experimental symbols than PLC Extract.

Stalvey's employment of notation for silences seems to be an extension of Pousseur's concept of notation. One of the symbols (𝄾) is the same; the other two are different. The three indications Stalvey uses are:

(1) 𝄾 = approximately 1/2 second
(2) \ = approximately 1 - 1/2 seconds
(3) \\ = approximately 1 1/2 - 2 seconds

With regard to durational symbols, fermatas are indicated with numerals above them (). These numerals refer to the amount of time in seconds that the clarinetist should sustain the pitch (see Ex. 15A first and second systems). Otherwise, traditional procedures are observed at ♩ = 60. Dynamics also follow traditional practices of f, p, etc. except in Ex. 15A, the last system. At this point, the passage is marked: "irrational --- average 2  per sec". Beneath the notes lie the dynamics p - f. These

Ex. 15A Stalvey: PLC Extract



directions are somewhat confusing and could possibly be interpreted for the passage to begin soft and become loud. This jagged sequence of eighth notes, according to John Gates,[32] should be executed as follows: the p - f symbol indicates that some notes should be soft and others loud;

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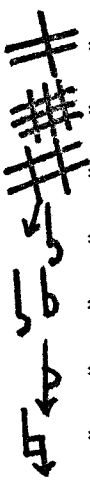
[32] John Gates is the clarinetist with the Montagnana Trio from Los Angeles, California and has worked extensively with the composer.

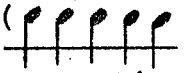
there should be two eighth notes to each second or ♩ = 60. Since the figures are no necessarily alternating, the final decision as to when and how to perform is left somewhat to the musical discretion of the clarinetist.

Pitch alteration significantly changes its appearance with numerous new symbols. Micro-tones, multiphonics, tremolo, flutter-tongue, etc. are a few. Symbols with which micro-tones are illustrated have the following appearance:

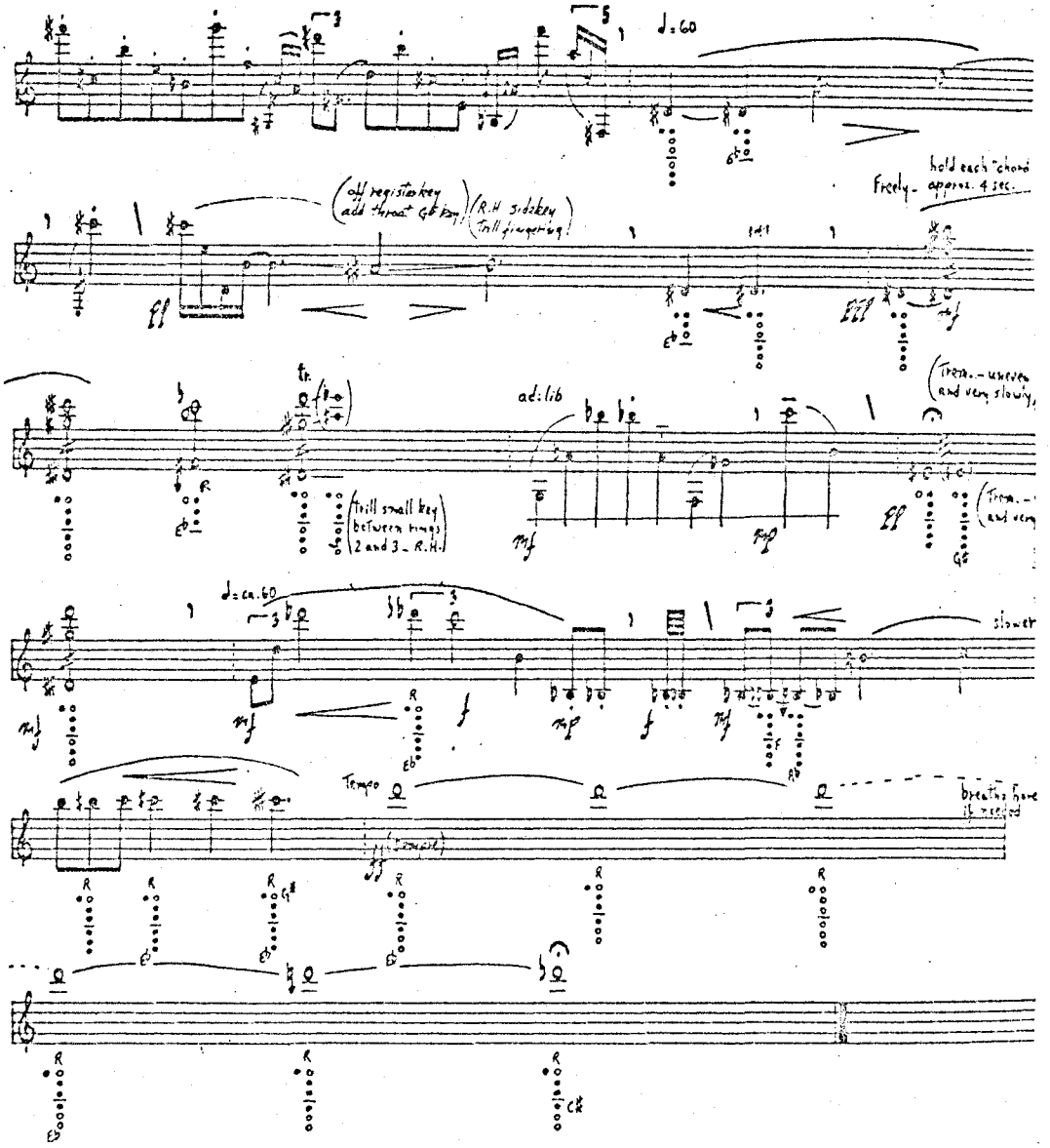


= 1/4 step sharp
= 3/4 step sharp
= slightly below 1/2 step sharp
= 1/4 step flat
= 3/4 step flat
= slightly below 1/2 step flat
= slightly below the natural

All of these new symbols are shown in Ex. 15B.

In Ex. 15A the relative speed of two groups of eighth notes is distinctly different. The first () has stems passing through the beam and the notes are articulated "as fast as possible --- detached". The second, on the other hand, has stems meeting the beam (). This passage marked "irrational --- average 2  per sec"

Ex. 15B Stalvey: PLC Extract



has been explained earlier.

Other passages concerned with pitch alteration will be discussed in detail and in terms of technical demands.

These alterations include such effects as micro-tones (with appropriate fingerings), tremolos (with appropriate fingerings), multiphonics (with appropriate fingerings), timbral changes through dynamics and false fingerings, breath accents, flutter-tongue, long tones, trills, and various combinations of the above, all of which require considerable technical skill.

The preceding list of effects adopted to create unusual coloristic-timbral possibilities in the clarinet reveals an understanding of the instrument by the composer. Each of the effects is possible and playable. The past problem existing in fingering new sounds has been eliminated by explicit instructions and diagrams printed on the score. However, there is a degree of difficulty in producing some of the effects and this will vary for each performer. This writer, for instance, experienced the greatest difficulty at first with the multiphonics. Since the traditional embouchure and fingerings are not possible, the clarinetist must find the correct amount of relaxation in the embouchure, proper air pressure, and correct fingering to produce the multiphonic (Ex. 15B).

Other technical demands center on pointillistic passages and rapid arpeggiated tone clusters. Since the second is used as the general pulse (♩ = 60), the degree of change from this norm is proportional to the difficulty of the passage. The tempo is generally unstable and varies

between free and strict sections of music. Therefore, the first eighth note gesture after the fermata, for instance, and similarly imitated in the following two systems, is indicative of a free pointillistic treatment with very rapid movement (Ex. 15A). The treatment of pitches in the first system involves a series of twelve different pitches arranged in half steps, major sevenths, minor ninths, and compounded intervals of the two former intervals. In the second system, major and minor thirds compounded over octave leaps add noticeably to the technical demands of the work. The last gesture of this particular example, in the third system, illustrates the rapid ascent of three pitches from the chalumeau to the upper limit of the altissimo register; these pitches are f, e^{b}'', and b^{b}'''. Tritone relationships govern the passage in the third system of Ex. 14A and rapid arpeggiated note clusters in the fourth system. Here the first gesture uses perfect fourths primarily; the second (a paired retrograde of the former) uses perfect fifths. In both cases, however, tritone intervals precede the drone-like tremolos.

Increasing investigation into the timbral possibilities of the clarinet has led to a surge of activity in experimentation. Compared to Crumb's Eleven Echoes of Autumn, PLC Extract employs significantly more devices to

explore effects in the clarinet. Perhaps the most unusual effect since the use of pointillism and rapid arpeggiated note clusters is multiphonics which appear in Ex. 15B on the second, third, and fourth systems. They resemble what appear to be triple-stops for stringed instruments, chords, or tone-clusters. The term multiphonic, introduced by Bruno Bartolozzi in the mid-50's, has received increased interest and the employment of these sounds been adopted in many works. Bartolozzi's book, New Sounds for Woodwinds, comes complete with multiphonic passages, appropriate fingerings (based on the standard Boehm fingering chart), and a recording of his "Collage" for flute, oboe, clarinet, and bassoon solos, respectively.[33] Although the multiphonics have printed fingerings, this writer had difficulty in producing the second multiphonic of Ex. 15B third system. The Bartolozzi book was the first source consulted but it offered no adequate solution to the specific problem of fingering. Although the book was helpful, the final result was the invention of a fingering which produced a multiphonic similar to that which Stalvey intended.

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[33] Bruno Bartolozzi's book is very helpful in understanding the new techniques and especially in determining what procedures are involved to produce such effects, i.e. embouchure, air pressure, fingering, etc..

Other forms of pitch alteration are just as meticulously notated as the multiphonics. These include first those of timbral consideration: wave-like succession of false fingerings, long tones with changing dynamics, slapping the key rings of the right hand, and string-like tremolos (Ex. 15A). The long tone d' of the second system (Ex. 15A) begins with a normal tone then changes with breath accents, flutter-tongue, and then returns to the normal pitch. Breath accents are produced by intermittent sharp bursts of air into an otherwise steady flow of air. The dynamic contrast of the breath accent is directly proportional to the amount of air sent into the clarinet. The next effect on the same long tone is the flutter-tongue.[34] It can be produced in either of two ways. First, a harsh strong sound can be produced by trilling the tongue (tr-r-r) behind the front teeth. The second and softer sound, much like a cat purr, is accomplished by rolling the epiglotis in the back of the throat. This latter method is more normal feeling than trilling the tongue, since the rolling of the epiglotis is the same sensation as gargling.

Another significant effect is the tremolo alternating between the fifth, d' and a', which is given a special set

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[34] Richard Strauss is considered to be the first composer to employ the flatterzunge.

of fingerings. While sustaining the d', the clarinetist must trill the lower three right-hand side keys to produce the a'. However, a unique sound is produced by this tremolo; it sounds like rising bubbles breaking at the surface, a surprisingly pleasing effect.

In the second system of Ex. 15B, Stalvey illustrates three distinct timbres on the written pitch b'. It first appears as its normal pitch. Then the clarinetist substitutes his $g^{\#}$' key for the register key producing a concert a' a quarter-tone flat. The final timbre produces a pitch of concert a' just slightly under a quarter-tone sharp. The clarinetist achieves the final timbre by substituting the right-hand side b^{b}' key for the register key. This resulting pitch is slightly higher than the printed b' or concert a'.

In the fifth system of Ex. 15B the succession of chromatic quarter-tones reveals a progression of changing timbres. Six ascending quarter-tones comprise the minor third between b'' and d'''. The clarinetist is given a complete set of fingerings. Immediately following the ascending quarter-tone passage, a similar descending quarter-tone passage occurs. Six descending quarter-tones with complete fingerings follow a 30 second long tone on d'''. After the initial long tone, which changes its quality gradually toward the end of the 30 second span,

quarter-tone alterations with fingerings occur every 4 seconds.

Stalvey uses the three different registers of the clarinet each with the same letter pitch D which is the tonal center of the work. All the varied effects are introduced on either d', d'', or d'''. The same procedure occurs in its model Points, Lines, and Circles where the concert C is the tonal center of the work and the various cadenzas emphasize that pitch.

Since PLC Extract is the solo cadenza of Points, Lines, and Circles, there is no other instrument, tape, or sound which the clarinetist must synchronize. What he must do, however, is to maintain a proper pace in the work. Stalvey carefully places markings in the score stating particular changes in the melodic line. The clarinetist must be attentive to these signs or the work will lose its aural appeal and become a collection and succession of effects. The kind of sound dictated by the work illustrates timbres constantly changing on various pitch levels of D. The proper spacing and time alloted to each coloristic effect should be adhered to with great attention.

CHAPTER III

Conclusion

After examination of these fifteen compositions, a number of conclusions can be drawn. First, although an obvious acceleration and turning point in the changing role of the clarinet does occur during the mid-50's with regard to newer notation, multiphonics, micro-tones, etc., traditional notation is not entirely discarded. In fact, in the works studied there still remain certain limitations with regard to the newer notation. So far, composers such as Pousseur and Stalvey have managed to indicate micro-tones by either utilizing white notes or altered fingerings (complete with diagrams) to accomplish a successful pitch alteration, but this has been done entirely within a more general traditional atmosphere of notation. None of the composers has attempted to invent or create a new system of pitch or tonal symbols, i.e. clef, staff, and notes with or without accidnetals.

On the other hand, there is obvious evidence of the breakdown of steady meter, traditional use of rests, traditional symbols for dynamics, and indeed traditional tone production. These changes apply not only to the clarinet, which has been neglected as far as effects are concerned

for almost 200 years prior to the 20th century, but also to all the other instruments involved in the chamber ensembles. The employment of flutter-tongue, wide vibrato, and multiphonics in Points, Lines, and Circles and Eleven Echoes of Autumn demand that the clarinetist master new methods of tone production. Traditional embouchure position and breath support must be altered to accommodate and facilitate the performance of new effects. The only effects known to a majority of clarinetists before the 1950's were the opening glissando passage and vibrato used in Gershwin's Rhapsody in Blue. Since then both of these effects have been treated with more attention by later composers. Pousseur and Crumb, for instance, continue to employ these earlier effects in Madrigal III and the Eleven Echoes of Autumn.

In summation, the remaining years of the twentieth century should prove to be a more stimulating and active period for the clarinetist. A few areas which perhaps deserve further exploration are: the simultaneous integration of instrumental timbres to include multiphonics, micro-tones, etc., and an experimental notation to replace the traditional devices of clef, staff, and pitch.

BIBLIOGRAPHY

Books

Bartolozzi, Bruno. New Sounds for Woodwinds, London: Oxford University Press, 1967.

Bloom, Eric, "Cage, John." Groves Dictionary of Music and Musicians. 5th Edition, Vol. II.

Cope, David. New Directions in Music, Dubuque: William C. Brown Company, 1971.

Hindemith, Paul. Elementary Training for Musicians, New York: Associated Music, 1946.

Hindemith, Paul. The Craft of Musical Composition, New York: Associated Music, 1942.

Karkoshka, Erhard. Notation in New Music, New York: Praeger Publishers, 1972.

Machlis, Joseph. Introduction to Contemporary Music, New York: W. W. Norton and Company, Inc., 1961.

Messiaen, Olivier. The Technique of My Musical Language, Paris: Leduc, 1956.

Opperman, Kalmen. Repertory of the Clarinet, New York: G. Ricordi and Company, 1960.

Pearle, George. Serial Composition and Atonality, 3rd Edition, Los Angeles: University of California Press, 1972.

Peterson, Peter. Die Tonalität im Instrumentalschoffen von Béla Bartók, Hamburg: Verlag der Musikalien-handlung, 1971.

Peyser, Joan. The New Music, New York: Delacorte Press, 1971.

Read, Gardner. Music Notation, 2nd Edition, Boston: Allyn and Bacon Inc., 1969.

Rendall, F. Geoffrey. The Clarinet, New York: W. W. Norton and Company, Inc., 1971, ed. revised by Phillip Bate.

Seroff, Victor Illyitch. Sergei Sergeevich Prokofiev, New York: Funk and Wagnalls, 1968.

Stevens, Halsey. The Life and Work of Béla Bartók, New York: Oxford University Press, 1953.

Vinton, John. Dictionary of Contemporary Music, New York: E. P. Dutton and Company, Inc., 1974.

Periodicals

Byars, J. K., " A Study and Recital of Selected Compositions for Clarinet and Electronic Music." Dissertation Abstracts, 33 (February 1973), 3944A.

D'Mello, Ralph, "The Music for Unaccompanied Clarinet." Woodwind World, 10:3 (June 1971), 17.

Fisher, H., "Dissertation: A Critical Evaluation of Selected Clarinet Solo Literature published from January 1, 1950 to January 1, 1967." Reviewed by N. M. Heim. Council for Research in Music Education Bulletin, n28 (Spring 1972), 23-25.

Jennings, V. S., "Selected Twentieth Century Clarinet Solo Literature: A Study in Interpretation and Performance." Dissertation Abstracts, 33 (April 1973), 5765A.

Merriman, L. C., "Unaccompanied Woodwind Solos." Instrument, 20 (June 1966), 79-82.

Mills, R. L., "Technical and Fundamental Problems in the Performance of Clarinet Solo Literature." Dissertation Abstracts, 26 (October 1965), 2257-8.

Schempf, W., "Clarinet Music." Notes, 16 (December 1958), 150.

Schwodron, A. A., "Contemporary Music for Clarinet." Instrument, 19 (June 1965), 73-6.

Swenson, A., "Applications of Selected Analytical Techniques to Twentieth Century Works for Solo Clarinet and their Implication for Interpretation and Performance." Dissertation Abstracts, 31 (August 1970), 792A-3A.

Townsend, G. D., "A Stylistic and Performance Analysis of the Clarinet Music of Paul Hindemith." Dissertation Abstracts, 28 (February 1968), 3214A-15A.

Walker, B. H., "Recordings for Clarinet and the Recording Artists." Instrument, 24 (January 1970), 22.

Waln, G., "New Approach needed by Solo Clarinetists." (recommended works). Woodwind World, 1 (November 1957), 3.

Weerts, R. K., "Some Major Contributions to the Repertory of the Clarinet." American Music Teacher, 19 (1969), 34-5.

Wellesz, E., "Suite for Clarinet Solo, Op. 74." Notes, 15 (March 1958), 253.

Unpublished Materials

Los Angeles, California. Letter from composer. PLC Extract and Points, Lines, and Circles. Dorrance Stalvey. 19 April 1973.

Pacific Palisades, California. Letter from clarinetist with Montagnana Trio. Madrigal I, Madrigal III, and PLC Extract. John Gates. 25 March 1973.

Music

Bartók, Béla. Contrasts (1938), New York: Boosey and Hawkes # 49-73, Copyright 1942.

Bernstein, Leonard. Sonata (1943), New York: M. Witmark and Sons #20428-25, Copyright 1943.

Cage, John. Sonata (1933), New York: Peters #6753, Copyright 1963.

Crumb, George. Eleven Echoes of Autumn (1965), New York: Peters #66457 Facsimile, Copyright 1966.

Etler, Alvin. Sonata (1952), New York: Associated Music Publishers Inc. #95919-31, Copyright 1960.

Hindemith, Paul. Sonata (1940), Mainz: Schott and Sons #3641, Copyright 1940.

Messiaen, Olivier. Quatuor pour la Fin du Temps (1941), Paris: Durand #13,091 (D+F)1 Copyright 1942.

Miller, Edward. Piece for Clarinet and Tape (1967), Hartford: Facsimile copy, Copyright 1968.

Pousseur, Henri. Madrigal I (1958), London: Universal Edition #13802, Copyright 1963.

Pousseur, Henri. Madrigal III (1962), London: Universal Edition #13804, Copyright 1966.

Prokofiev, Serge. Quintet Op. 39 (1923), New York: International Music Company #957, Copyright 1948.

Stalvey, Dorrance. PLC Extract (1968), Los Angeles: Facsimile copy, Copyright 1969.

Stalvey, Dorrance. Points, Lines, and Circles(1968), Los Angeles: Facsimile copy, Copyright 1969.

Stravinsky, Igor. L'Histoire du Soldat (1918), New York: Kalmus, Copyright 1945.

Stravinsky, Igor. Three Pieces for Clarinet (1919), New York: Omega Music Company, Copyright 1949.

Discography

Bartók, Béla. Contrasts (1938), Bartok Records: BRS 916.

Bernstein, Leonard. Sonata (1943), Odyssey: Y-30492.

Crumb, George. Eleven Echoes of Autumn (1965), Composers Recording Inc.: S-233.

Hindemith, Paul. Sonata (1940), Mark: 3355.

Messiaen, Olivier. Quatuor pour la Fin du Temps (1941), Angel: S-36587.

Pousseur, Henri. Madrigal III (1962), Everest: 3170.

Prokofiev, Sergé. Quintet Op. 39 (1923), Oiseau: S-267.

Stalvey, Dorrance. Points, Lines and Circles (1968), Composers' Tape of performance Los Angeles: 1968.

Stravinsky, Igor. L'Histoire du Soldat (1918), Vanguard: 71165 [F].

Stravinsky, Igor. Three Pieces for Clarinet (1919), Everest: 3184.