Varèse's Explication of Debussy's Syrinx *in* Density 21·5 *and an Analysis of Varèse's Composition: a secret model revealed*

BY

CAROL K. BARON

True musical parody—neither quotation nor satire but the utilization of specific, structurally significant elements of one work as the basis of a new work—is a special compositional procedure. Common to composers of the post-Josquin generations of the sixteenth century, it has also been useful to some twentieth-century composers who are as different from each other as Dallapiccola, Stravinsky and Schuman. The models involved in parodic compositions are generally acknowledged. They may have been used for extra-musical associations or, just as frequently, some specifically musical characteristic has attracted the parodist. In the sixteenth century, composers' borrowings ranged from sections of the total polyphonic fabric to individual phrases and motifs, and sometimes only to rhythms, individual chords or chord progressions.[1] What the parodist appropriates and how he or she uses the borrowed materials can constitute valid bases of studies in compositional practice and values.

A rare opportunity is presented when a secret model is discovered, especially for the work of a composer whose practice developed according to highly personal visions and whose works have eluded but continued to fascinate analysts as well as critics and performers years after they were written.

Edgard Varèse wrote *Density 21·5* in 1935 for the Franco-American flautist Georges Barrère when the latter acquired an instrument of platinum, a metal with the specific gravity or density of 21·5. That Varèse should have had Debussy's *Syrinx* in mind when he undertook to write a piece for solo flute is easily understandable. *Syrinx*, written in 1912, had a popular success, largely through the efforts of Barrère. The new work was to be a modern addition to what was a very limited repertory of works for solo flute. Years later Varèse told the flautist Samuel Baron that *Density* should be played following *Syrinx* but he suggested no connection between the works.[2]

The titles of the two pieces by themselves suggest two different and possibly opposing approaches to musical composition. Debussy used the instrument and its music for the evocation of literary, here mythical, nature-images. Syrinx, a nymph pursued by Pan, resists the god and is saved from his embrace

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[1] Lewis Lockwood, " 'Parody' as Term and Concept in 16th-Century Music", *Aspects of Medieval and Renaissance Music*, ed. Jan LaRue (New York, 1966), p. 560.

[2] The occasion was a concert of Varèse's music at the Village Gate, a night-club in New York City. At the time Baron was surprised that Varèse wanted another composer's work played in a programme of his music and interpreted Varèse's intention as showing how his concept of the sound of the flute was totally different from Debussy's.

by the water-nymphs, who turn her into reeds. Pan's sighs vibrate through the reeds, and musical sounds are invented. By contrast, Varèse's title declares his concern with the physical qualities of the flute, with the non-associative, inherently musical values of sound. Music emerges from the density of the instrument's materials, the timbral qualities encompassed by range, the sounds produced by breath and by clicking the keys percussively, the dynamic potential of individual notes, the manipulation of pitches. Nevertheless, *Density 21·5* originates in Varèse's analysis of Debussy's theoretical system of pitch organization in *Syrinx*. Such an analysis may be implied because Varèse utilized that system as the basis of his own piece.

That *Syrinx* was, on some level, Varèse's point of departure is apparent through comparison of two strategic and conspicuous places, the beginnings and endings of the two works. To compare the openings: Debussy's melody yields the initial motif of *Density 21·5*: the first three pitches of each work share identical intervals and contours. (See broken bracket in m. 1 of each work.) To compare the endings: the last four notes of the Varèse piece "outline", with enharmonic spellings, in an identical pitch class order but in retrograde, the same whole-tone scale that brings *Syrinx* to its conclusion. (See the final mm. of each work.) Potentially a simple gesture of homage—certainly no example of serendipity can be imagined—these two instances of shared material intimate a methodically composed parody on the profoundest technical levels. His use of the whole-tone scales, hinted at in his using the same collections as Debussy for the work's final passage, is again seen in the measures preceding the last four notes. From the B♭ of m. 56 until the F♯ of m. 59, the pitches are totally derived from the complementary whole-tone scale B♭–C–D–E–F♯, with G♯ omitted.

Varèse's understanding of Debussy's theoretical premises in *Syrinx* led to his interpretation of these premises in the realization of the pitch organization of *Density 21·5*. His acknowledgement of the two whole-tone scales as pitch collections functioning as tonal entities with polar proclivities is of the utmost structural significance. The main musical idea of the Debussy work, in the opening phrase (mm. 1 and 2) and in its repetitions through the piece, prolongs the whole-tone scale of pitches B♭–A♭–G♭–E♮ and, in the opening statement, the upper C neighbour in m. 2—all pitches that appear on the rhythmically stressed pulses (mm. 1 and 2, asterisked notes). Henceforth, this scale will be referred to as WT1 and its complement as WT2. (See Ex. 1.) One note, the

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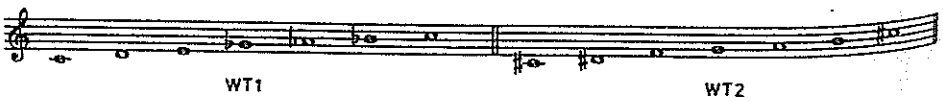
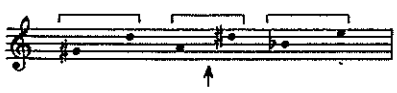


D, is withheld by Debussy for a special purpose, an idea that becomes schematic in the Varèse work. (This interrelationship will be discussed subsequently.) The adjacent ornamental upper and lower neighbour notes and passing-notes

are chromatic, *i.e.* not present in the whole-tone scale of the moment. Two interesting aspects of the statements of both theme-scale fragments that are innovative are: (1) that Debussy never completes the octave, thus avoiding an identifiable modulus implying a single pitch-tonal emphasis; and (2) that the tritone division of the octave is manifest in the initial melodic statement derived from WT1, outlining the descending B♭–A♭–G♭–E♮, and, later, in the dramatic flourish of octaves outlined *via* the tritone divisions in mm. 13–14. In the latter the tritone derives from WT2, which is also the prolonged collection for the measures that follow. The angularity of Debussy's explicit and emphatic statement of the tritone division of the octave stands in relief from the gentle flowing passages that precede it, and the statement is highlighted by the "modulation" to WT2.

Varèse also exploits the unique systematic qualities of the contrasting and discrete whole-tone scales; however, he incorporates these qualities in non-thematic and unordered sets. Like Debussy, with one exception—the last phrase of *Syrinx*—Varèse avoids pitch closure within these hexachordal whole-tone partitions of the total chromatic. Varèse generally identifies these two collections through their most characteristic interval of the tritone, which can be built on every step of the whole-tone scales. (The total pitch class set of each scale can be represented by the three tritone intervals that are exclusive to each one respectively.) The tritone is a most pervasive interval in *Density 21·5*, appearing first in the second measure, used at the final cadence, achieved in several passages through inversionally symmetrical foreground motions that show the tritone outlining the upper and lower pitch class limits of a phrase, as in mm. 53–55 (brackets show symmetrical inversions and the outlining tritone), used as a melodic dyad no less than twenty-six times and appearing in other contexts as well.[3] Varèse's interpretation of the tritone interval is the key to his use of the whole-tone scales as fundamental, unordered collections into which his "thematic" material is implanted: the tritones identify the whole-tone collection, which functions as a "tonal" reference. A close examination of where the tritones appear overtly as melodic dyads reveals judicious choices. The three tritones from WT2 are used as follows: (1) C♯/D♭–G is used exclusively in the opening section, mm. 1–9; (2) A–D♯ appears only, in passing, in m. 12. (See Ex. 2.) E♯–B makes its appearance, only once, as

Ex. 2 *Density 21·5*, reduction mm.12 f.



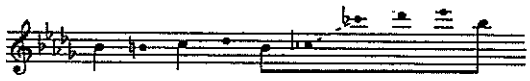
the final dyad of the piece. (See the last m.) The melodic tritone dyads used elsewhere are from WT1. Seen over the entire piece, WT2 controls mm. 1–17; most of the rest of the piece is taken up by WT1 and octotonic

[3] Leo Kraft, *Gradus*, Book II (New York: W. W. Norton), pp. 143–144, analyses *Density 21·5* through predominantly stepwise tritone motion.

material (to be discussed); the conclusion (the last four notes) returns to the pitch classes of WT2. Thus, whereas Debussy begins with WT1 and ends with WT2, creating a free-flowing, fragmentary structure, Varèse here values the symmetry and completion in the concept of return by using WT2 for both the opening and the ending.

The precedent of juxtaposing notes that are chromatic to a referential whole-tone collection is first found in *Syrinx* in the opening phrase (mm. 1 and 2). In the second half of the consequent phrase (m. 4), the line ascends chromatically and returns to B♭ and the repetition of the opening phrase (m. 9) *via* a pentatonic fragment (m. 5), displacing the octave and the chromatic notes C♭, D♭ and E♭ in mm. 7 and 8. (See Ex. 3.) WT2 is asserted in the

Ex. 3 *Syrinx*, reduction mm. 4–8



tritone passage (m. 13) and the following alternation between structural notes E♭ and F (mm. 14 and 15). G♭ and F♭ function as a chromatic upper neighbour and passing-note, respectively. When the hitherto withheld D of WT1 finally appears in m. 16, it has a startlingly fresh sound and is decidedly the chromatic upper neighbour of D♭ of WT2. Just as the tritones of m. 13 established WT2 as the referential collection for this and the following measures of *Syrinx*, Varèse's tritones establish the implications of their relationship to one of the whole-tone scales, as will be shown.

Debussy's theme states a prolonged whole-tone pitch collection on strong beats, rhythmically differentiated from chromatic pitches on weak beats. This differentiation between structural and chromatic pitches in the theme and elsewhere, *e.g.*, in mm. 13ff., is functional in *Density 21·5* also. And the intervals and contours of Debussy's theme function as the matrix for the motivic material in *Density 21·5*. While Debussy is locked into his theme—the notes of the theme maintain their significance in all appearances—Varèse, by contrast, extracts Debussy's opening three-note fragment, which becomes thematic in *Density* through reiteration. Varèse extends this fragment, reinterprets it rhythmically and manipulates it so that pitch tension/stability is modified in each appearance through repetition, dynamics and rhythmic placement. In its first statement the motif moves from the opening note F through a tense, chromatic F♯ (the third pitch) to the tritone dyad C♯–G, which, after several repetitions in the next four measures, is perceived as stable, *i.e.* the reinforcement through these repetitions establishes a perceptual reference for what comes next. The C♯–G tritone, as well as the first note of the piece, is from WT2. When the note D♭ of m. 9 arrives, it is clearly a point of stability.[4] In mm. 9 and 10 the transposed three-note motif is

[4] Leo Kraft agrees, stating that "the impulse to go on is satisfied by the very next note, D♭, in which the upward gesture is completed" (*op. cit.*).

extended through many repetitions of just the first two notes, D♭ and C. Tension is created through the anticipation of the third note of the pattern. Indeed, the tension is great enough to support a satisfactory "modulation".

The resolution to D♮ (m. 11), followed by a G♯ with which a new tritone dyad is formed, one from WT1, marks the beginning of a prolongation of the WT1 collection. (Note the dramatic effect of the *mf subito* preceding the *fff* on the D.) The tritone D–G♯ is built on the third note of the motif in this statement. (Compare mm. 9–11 and mm. 1–3.) This tritone D–G♯ then moves, in passing, chromatically, through D♯–A to E–B♭, also of WT1. (See Ex. 2.) These tritones of mm. 11–13 are presented in the context of divided octaves, providing a parallel to the dramatic octave divisions of m. 13 in *Syrinx*, where the E♭–A of WT2 is prolonged.

In m. 15 the pitches of the three-note motif take on yet another meaning. To review: in the original statement the third note of the motif functions as a leading-note (mm. 1 and 2), and in the second statement beginning in m. 9 the third note is the note of resolution (m. 11). Here in m. 15 the F, the third note, has a passive role. It is not emphasized rhythmically or dynamically, and the motion pushes on, past F, through F♯ to the high G, the highest note of the piece thus far and clearly the end of the first section. (The cadence in mm. 13–14 on E, *via* a tritone, functions as a "half cadence" with the tritone of WT1. The E two octaves lower begins the chromatic motion of the next phrase to this cadence on the G of WT2 (m. 17).)

In summary, the overall motion of the first section encompasses C♯ of m. 2 to high G in m. 17; the tonal structure shows the pitches G, D♭/C♯ and F from WT2 providing the framework and points of stability for this section. Between the opening and m. 9 an upward expansion fills in the octave $C♯^1$ to $D♭^2$ (m. 9). From m. 9 to the cadence on G^3 in m. 17 the music is dynamically aggressive, rhythmically varied, melodically jagged; it moves through a combination of chromatic half-step motion (D♭–D–D♯–E–F–F♯–G) and octave displacement, filling in the next one-and-a-half octaves. Pitches from WT2 *are not asserted again until the end* of *Density 21·5*.

The last statement of the three-note motif in mm. 41ff. is closest to the initial statement in the contextual implications of each pitch—*i.e.* their extensions share the descent of a perfect 4th from the sustained third note, which is the chromatic passing-note prior to the achievement of the tritone. (*Cf.* mm. 41–45 and the opening mm., 1–3.) The tritone D–A♭ and the following one, E–B♭, are both from WT1. The A between these two tritones may be thought of as part of an incomplete tritone, *i.e.* the chromatic motion through A is analogous to the passage in mm. 11–13 (Ex. 2) with an "incomplete dyad". (Both of these passages prolong the WT1 collection.) In mm. 41ff. the first pitch of the three-note motif, F♯, and the four pitches of the two tritones D–A♭ and E–B♭ are five of the six pitches of WT2—closure is withheld. (The section beginning with the statement of the motif in m. 9 also uses five of six pitches of WT1: C and the pitches of the two dyads D–G♯ and E–B♭ (mm. 9–14).) While the role of dynamics and rhythmic placement have not been analysed in detail in this discussion of the manipulation of the

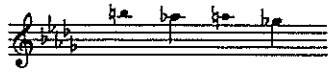
pitches of the three-note motif, it is clear that they invariably reinforce the implications of the individual pitches vis-à-vis their relationship to the prolonged collection, explicitly defined by the tritones.

One mark of articulation must be noted: the *tenuto* sign. It is used sparingly, and it is used only for subtle detail, most frequently to reinforce pitches of prolonged collections. For example, in the statements of the three-note motif the *tenuto* is used for the first pitch in the first and last statements only (mm. 1 and 41), where these notes are constituents of their respective prolonged pitch collections. The *tenutos* are used in m. 6 for G and A, distinguishing these notes from the chromatic pitches that follow. In mm. 25 and 28 the *tenuto* is used for E and D of WT1—again the pitches of the prolonged collection. In m. 38 the *tenutos* point to an inversion of the three-note motif disguised in a different rhythmic orientation—another use of the *tenuto*—but in mm. 49 and 50 they draw attention to the tritone dyad D–A♭, prolonged pitches, expanded by octave displacement. The only other use of the *tenuto* is in m. 21 on B, where attention is being drawn to a subtle detail of symmetrical filling-in, to be discussed later.

To summarize: ideas that Varèse used for motivic manipulation that were developed from *Syrinx* include: the prolongation of whole-tone pitch collections, the implication of a collection by one of its tritones and the explicit statement of symmetrical octave division.

Another motivic idea from *Syrinx* is the use of the minor 3rd as a pivotal interval in outlining tritones. The minor 3rd/augmented 2nd, an interval that does not exist in the whole-tone collection, is used in the *Syrinx* theme between the chromatic ornamental upper neighbours B♮ and A♮ and the structural notes A♭ and G♭ (Ex. 4), between E and the chromatic D♭ and between the

Ex. 4 *Syrinx*



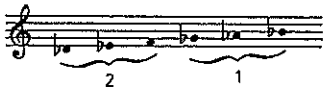
D♭ and B♭ with an octave displacement (mm. 1 and 2, broken brackets). The D♭ pivots between the tritone E–B♭ between mm. 1–2, 3–4 and 4–5 and in the many repetitions of the theme. The minor 3rd pivot between tritone pitches also appears in m. 13: A–G♭–E♭,.E♭–C–A, A–G♭–E♭.

In mm. 7–9 of *Density 21·5*, B♭ is a pivotal note between the outlining tritone G–D♭. B in mm. 18–21, beginning a new section, also mimics the function of D♭ in *Syrinx*. It pivots between the two notes of the outlining tritone G♯–D of WT1. The descent to G♯ is made chromatically, but the ascent makes use of the opening motif disguised. The next section, mm. 21–23, develops the idea of the previous measures. B remains the pivotal note for the smaller intervals that fill the same space, G♯–D: G♯, A♯, B♯, D. This passage is an elaboration of the internal space of A♯–B♯, embellished

symmetrically by the upper and lower neighbour notes A and C♯, respectively.[5] In mm. 46–50 the B again mediates between tritone D and A♭ but in a different setting. Mm. 53–55 are similar to mm. 18–21: in mm. 53–55 E is the pivot between C♯ and G, achieved through inversionally symmetrical passing-notes D and F♯ that correspond to the A and C♯ when B was the pivot in mm. 18–21. The G, then, acts as the pivot between E and B♭, stated explicitly in m. 55. An extraordinary elaboration of the pivotally, symmetrically realized tritone occurs in mm. 29–31 (note brackets). *Via* octave displacement, G moves down chromatically through F♯ to E♯, up from G through G♯ to A, and then down to E and up to B♭ to complete the tritone. (Notice Varèse's use of accents on these two notes.)

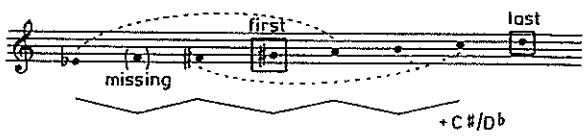
Yet another derivative idea from Debussy's music is the distinction Debussy frequently makes between bridge passages and main sections that utilize one or the other whole-tone scale through the use of pentatonic configurations in the bridge. In *Syrinx* he uses obvious pentatonic scales and also uses a modification of that scale that is hexachordal and made up of three notes from each whole-tone scale! (See mm. 11 and 12 and Ex. 5.) These are the means

Ex. 5



through which "modulations" are enacted. Back to *Density*: several passages in this work that initially presented problems in trying to formulate Varèse's procedure turned out to be his interpretation of Debussy's concept of bridge passages. For example, mm. 32ff. have a thematic cohesiveness, but the underlying logic of the pitches was elusive. The overlapping use of B and A with the prior phrase (last note of m. 31 tied over and first note of m. 32) provided a clue: these notes are not part of the prolonged collection of the previous measures, although they are included in the last phrase. By relating these pitches, including the G♯ of m. 31, and the pitches C and E♭ at the conclusion of this section (mm. 36 and 37) to the broken chord B–F♯–A (mm. 32–36), one discovers an incomplete octotonic scale. (See Ex. 6.) And two

Ex. 6 *Density 21·5*, mm. 31–40



[5] The conclusion by Harvey Sollberger that the repeated B♯s are a misprint (m. 23) and that the B would produce an inversion of the motif, presumably intended by Varèse, is therefore not correct. Varèse means to emphasize the A♯ and B♯ and the whole-tone relationship, not the B♮ or a concealed inverted three-note motif. *Density 21·5* is recorded by Sollberger on Nonesuch HB–73028 (1975).

different tritones, one from each of the whole-tone sets, are exposed (Ex. 6). These tritones are related through the pivotal function to the minor 3rd, here part of a total octave-dividing diminished 7th cycle. The very next note, D in m. 38—the opening note of the next phrase—belongs to this octotonic collection also. (The first pitch of the octotonic scale collection, G♯ from m. 31, and the last pitch, this D of m. 38—neither appears anywhere else within those measures—also form a tritone.)

Later, from the C in m. 53 to the C♯ in m. 59 another octotonic scale is used. (See Ex. 7.) The C is another example of overlapping. (This section encompasses the WT1 collection in mm. 56–59: B♭–C–D–E–F♯.) One pitch, the D in m. 53, is incorrect in the context of the prolonged octotonic collection. Could it be that the D is an error, since the D♯ is consistent with the collection? More probably Varèse was willing to sacrifice the purity of the collection in order to preserve the intervallic inversional symmetry around the pivot E. (See brackets in mm. 53–55.) (Another reason is discussed later.) In this section, also, two tritones are chosen, which are from each of the whole-tone scales and are related through a minor 3rd cycle: E–B♭ and G–C♯ (Ex. 7). Thus, in both of these "bridge" sections (mm. 31–40 and 53–58), Varèse interprets Debussy's idea of a mixture of the two whole-tone collections (Ex.

Ex. 7 *Density 21·5*, mm. 53–59

5) or a neutral or all-encompassing set, which obliterates the centrality of either collection, in octotonic collections that always yield four notes from each whole-tone scale.

Debussy's idea of the minor 3rd as a pivotal interval was developed by Varèse into a structural motif. He also extended the idea of the minor 3rd into the context of an octave-dividing cycle that perhaps initiated, at the time it characterized, the use of the octotonic collection. But Varèse went further still. Amused, perhaps, at how many times Debussy stated E–D♭, the pivotal minor 3rd of *Syrinx*—eleven times in its thirty-five measures, to be precise—he sets off the interval, as E–C♯, in the middle of his piece. In that mysteriously isolated fragment with the innovative key-clicks (mm. 24–28), Varèse found a way of repeating these pitches and creating an exaggerated position for them in his piece. Of course, we are hypothesizing about Varèse's thinking-process, but how seductive is the thought that this striking section, so famous as being the prototype of the key-click, was perhaps inspired by a private laugh and humorous, even sarcastic, mimicry!

Varèse's concern with detail in his explication and parody of *Syrinx* is especially fascinating because the differences between the two works are so apparent and striking. Varèse's interpretation of Debussy's D♭ was already pursued at great length for its role as pivotal note in E–D♭–B♭. D♭ is articulated in other contexts in *Syrinx*, and, most importantly, it is the last note of

the work. Varèse reserves B for comparable, but somewhat different, treatment. The appearance of B is delayed until m. 18; but then it is featured prominently as the pivot of D–B–G♯ in two different contexts already discussed (mm. 18ff. and mm. 46ff.); it is featured in the octotonic collection of mm. 32ff; and it is the last note of *Density 21·5*. Thus, both composers withheld a note, then used it pivotally in the symmetrical inversions and then as the last note in both pieces.

Varèse's concern with detail shows itself in his treatment of the last four pitch classes. The first and penultimate note of *Density 21·5*, F/E♯, is also used sparingly and in a calculated way. (Note: the delimiting tritone E♯/F–B provides a consistent view of outlining space on different levels of the total structure: the first and last notes of the piece form the tritone E♯/F–B, and *they appear together as a dyad only at the end.*[6]) F/E♯ is the passive third note of m. 15, preparing the high G that closes the opening section using WT2; it is the missing note in the octotonic collection of mm. 31–40; then in mm. 52–53 the "dissonant" melodic perfect 5ths created by E♯/F anticipate the final role of this pitch in what seems an inexplicable use. These citations represent the only occurrences/missing occurrence of E♯/F. Two other pitches, also, are used apparently randomly—they are not part of the prolonged pitch collections: E♭ in m. 28 and C♯/D♭ in mm. 38–40 and m. 45. The same pitches, C♯/D♭ and D♯/E♭, are the chromatic and missing notes, respectively, of the two octotonic sections (mm. 31–40 and mm. 53–59). These four pitches—B, F/E♯, D♯/E♭ and C♯/D♭, which received special and erratic treatment—are the last four notes of the piece!

The idea of withholding selected pitches for special effect, already described above for B (which then opens the new section in m. 18), is used for another set of pitches. To refer back once again to Debussy: the appearance of D in *Syrinx*, withheld until m. 16, has a startlingly fresh sound. It was dramatically introduced as a chromatic note in a section where the prolonged pitch collection was clearly established. Debussy's D finds its analogue in the withheld D and G♯ of *Density*'s m. 11. Varèse saves his D and its dyad partner G♯ for a point of "modulation" (see above)—a comparable dramatic change.

In the last five measures of *Syrinx* a remarkable metamorphosis takes place: these measures follow the assertion of WT1 in four statements of the theme (mm. 26–30); then the contents of WT2 gradually replace WT1, and finally WT2 is presented in its entirety (m. 30 to end). Debussy, beginning with a repetition of the last three-note fragment of the main theme, gradually adds pitches from WT2 until all six are used, thus bringing the entire piece to its conclusion. Varèse creates an analogue to this finale—for this process of

[6] Milton Babbitt, "Edgard Varèse: A Few Observations of His Music", *Perspectives on American Composers* (New York: W. W. Norton), 1971, pp. 40–48. Babbitt points to a similar point of detail (p. 44): "The transportation choices" of the opening three-note motif in the two places where "the same metrical orientation" is maintained, "in one sense, reflect traditional criteria of similitude, in that they are the two which secure maximum pitch-class identification (beyond identity) with the initial statement; but in a further sense, the choices are 'serial' in that the order of occurrence of these transportations reflects the pitch-class ordering of the initial three-note succession".

gradual change and redefinition—in his finale. But Varèse begins with an octotonic collection in mm. 53–59 (bracketed and Ex. 7) that includes WT1 exclusively in mm. 56–59: B♭–C–D–E–F♯. An image of an amorphous, all-encompassing collection is projected (in the form of the octotonic collection), out of which Varèse gradually clarifies and disentangles the two whole-tone collections, WT1 emerging first, followed directly by WT2 (beginning with C♯ of m. 59) with which *Density 21·5* ends.

Varèse's involvement in detail demonstrates itself again and again. One more example is the use of the three-note motif in many guises throughout *Density 21·5*. It appears in inversion and in different metrical and rhythmic contexts. (See mm. 20–21; and mm. 49–51 where A♭–A♮–G–C–F♯ are an inversion of the opening intervals.)

Varèse's concern with symmetry exists on the level of the overall structure as clearly as it does in the inversional motions outlining tritones in foreground detail. The three-note motif is a vehicle of coherence in design: of its three approximations to the original statement, two are part of the opening section (to m. 17), and the last statement, which follows the original one most closely, creates the effect of a recapitulation. Tonal coherence is expressed through a symmetrical use of the whole-tone pitch collections; the tonal design of the entire piece may be expressed through the following diagram:

WT2	WT1	OCTOTONIC	WT1	OCTOTONIC	WT1	WT2
mm. 1–17	18–31	31–40	41–53	53–59	56–59	59–61 (end)
		D♭ is chromatic note; D♮ from m. 38 on; F is missing		with chromatic D♮; missing D♯		

Varèse's symmetrical tonal structuring is particularly interesting in a parody of a work that does not express this concern: *Syrinx*, a tonal fragment beginning with WT1 and ending with WT2, uses the polarity of the whole-tone collections in an open, fluid form similar to those occasionally used by Chopin and Schumann in their tonal systems. In *Density 21·5* the beginning and ending symmetrically articulate WT2, the collection reserved for these places, although there is no sense of balance or symmetry in regard to blocks of time.

The obvious stylistic differences in these two works initially mask their relationships. For example, the interdependence of pitch and rhythm in repeated, easily recognizable melodic configurations in *Syrinx* contrasts with the use of discrete but interrelated parameters in *Density 21·5*. Varèse uses abstract intervallic contours and non-metrical rhythmic successions that form short sections or "masses" of thematic cohesiveness in a non-predictable orientation. (Since only a single line exists, the concept of mass, generally applied to Varèse's divided structures, is not literally applicable.) The sections of *Density 21·5* are essentially static blocks in which the contextually logical pitch successions are based on the local thematic idea and pitch collection.

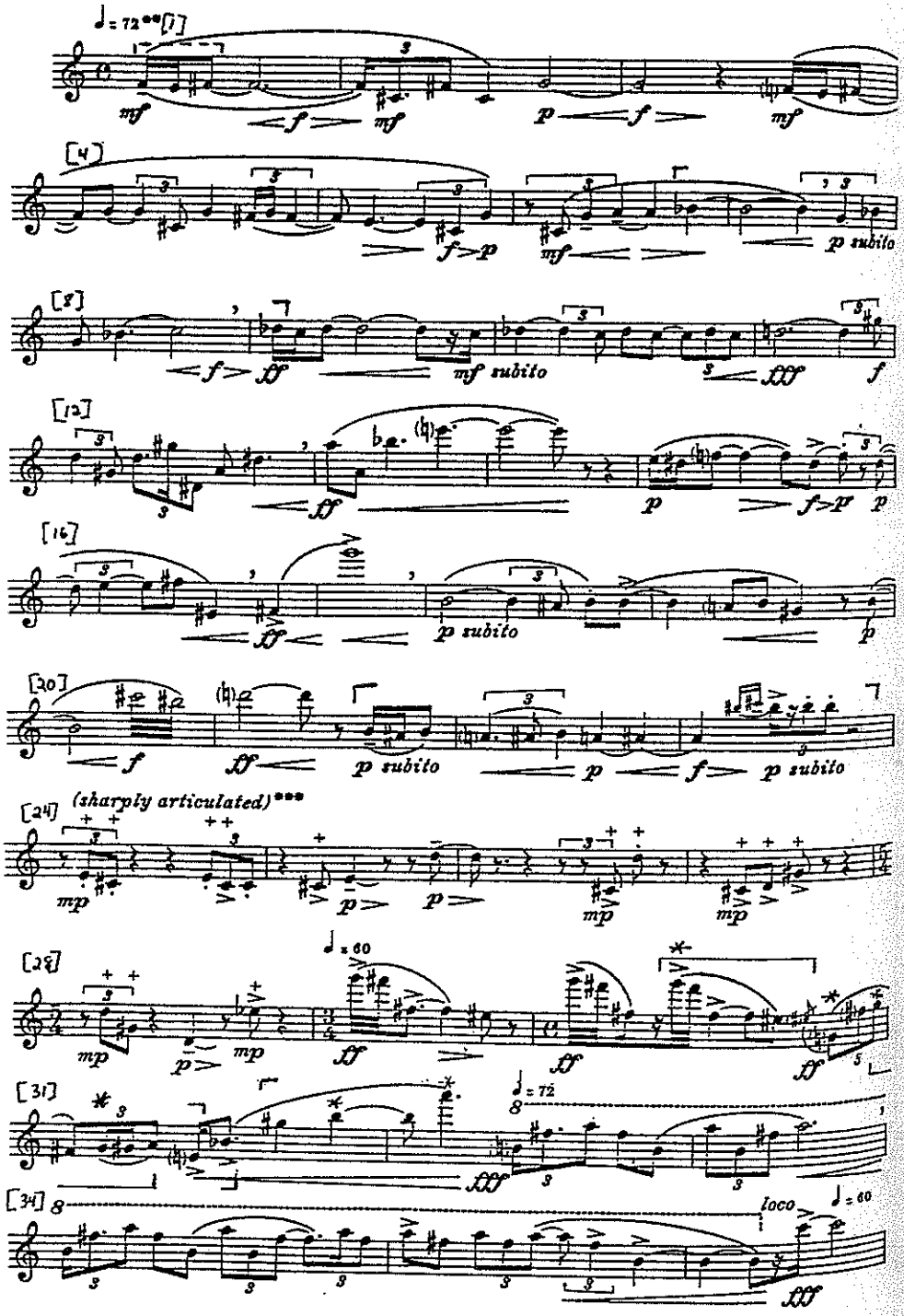
Even if there is no evidence of a rigorous pursuit of "scales or series" as collections in his other works other than pitch content sets in local mass structures,[7] Varèse's selection of tritones that represent pitch collections operating sectionally points to his interpretation of *Syrinx* as a piece built on static blocks of pitch collections; it is an acknowledgement of the precedent for his use of sections or blocks in *Density 21·5*.

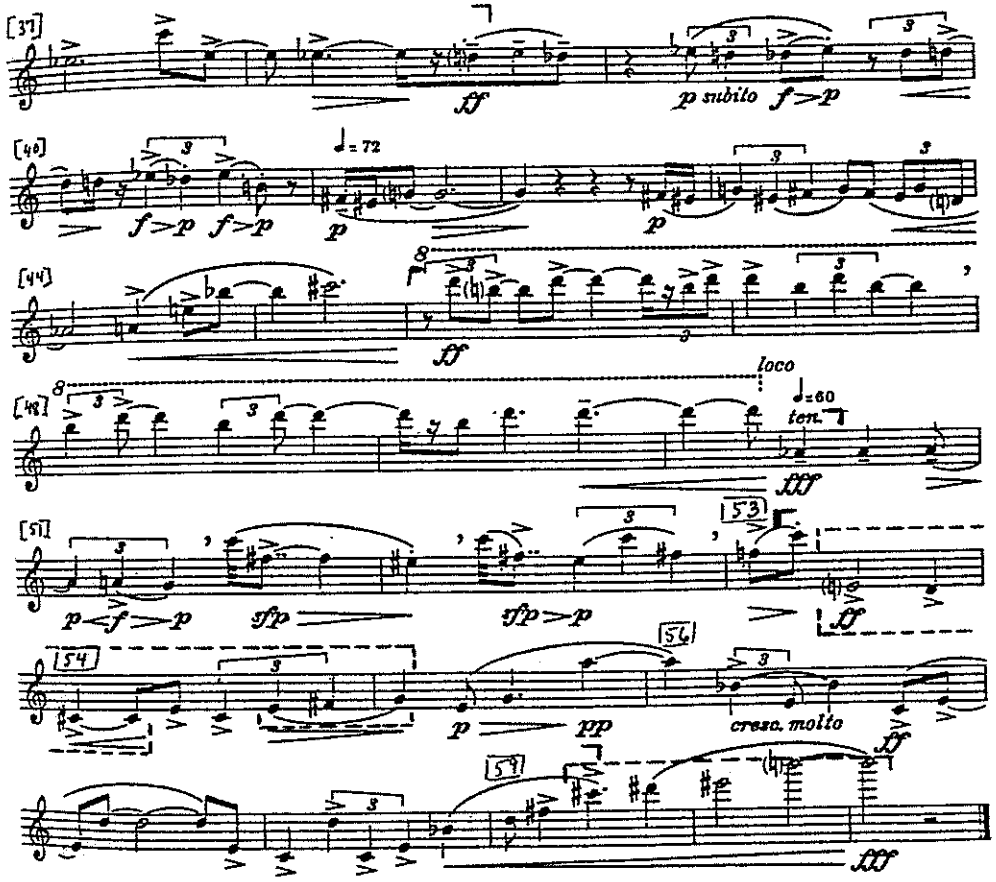
A hidden relationship exists between *Density 21·5* and *Syrinx*. Although they are totally different in their aesthetic approach, they are linked, as I have attempted to demonstrate, through a complex of structural devices, creating parody in a true sense. The discovery of this hidden relationship casts light in both directions, providing a fresh way of looking at *Syrinx* as well as a model providing focal points for the analysis of *Density 21·5*. Varèse's thematic ideas embedded in the whole-tone collections—in effect, incomplete symmetrical pitch-exclusive hexachordal partitions of the total chromatic; his use of irregular partitions for "bridge" material (*i.e.* octotonic collections in lieu of Debussy's pentatonic and modified-pentatonic collections); his use of the tritone as the space-delimiting interval and as the collection-defining interval; his withholding of specific pitch classes for dramatic and constructivist intent; the use of the minor 3rd as the pivotal interval symmetrically dividing the tritone; the symmetrical tritone division of the octave; his sensitive transformations in pitch content expansions and relationships; the metamorphosis of pitch class contents as the concluding idea—all these and others were identified in *Syrinx* through Varèse's keen and innovative analysis and highly personal reinterpretation. This discovery highlights Varèse's affinity for Debussy's music, its use as a point of departure and the links between the two composers in musically homologous relationships that would otherwise not be evident.

[7] John Strawn, "The *Intégrales* of Edgard Varèse: Space, Mass, Element, and Form", *Perspectives of New Music*, Fall/Winter, 1978, pp. 138–160. Strawn states (p. 153): ". . . no comprehensive study has been published to date on the question of harmony in Varèse's music. Varèse himself repeatedly emphasized that his music was not based on any 'fixed set of intervals such as a scale or a series'. Not surprisingly, it seems impossible to derive the choice of pitches in the individual masses in *Intégrales* from such a framework". And "since a system of 'harmony' is apparently not present in *Intégrales*, it is accordingly difficult to derive the selection of successive pitches from such a system". However, Strawn notes that ". . . once a given pitch content has been presented, the stated note or interval is expanded by neighbor-note motion, usually chromatically, sometimes combined with octave jumps". Since Strawn gives only a single example of this technique, how extensively he believes Varèse used this technique is not clear.

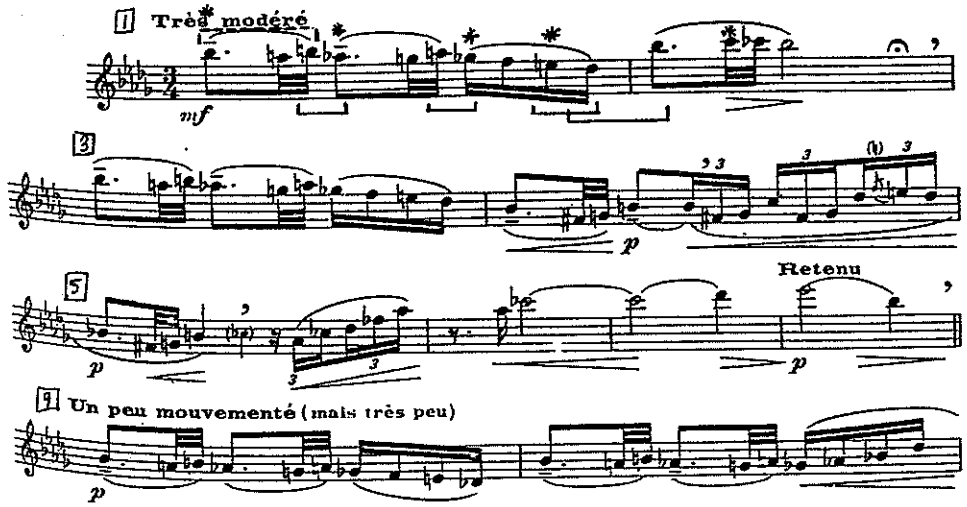
Larry Stempel contends that Varèse generally works with incomplete partitions of the total chromatic: "Being left chromatically askew on a twelve-tone background, these chromatic partitions play off the symmetrical consistency of their interval content against the awkward incompeleteness of their pitches". (From "Varèse's 'Awkwardness' and the Symmetry in the 'Frame of 12 Tones': An Analytic Approach", *The Musical Quarterly*, April, 1979, LXV, No. 2, pp. 148–166.)

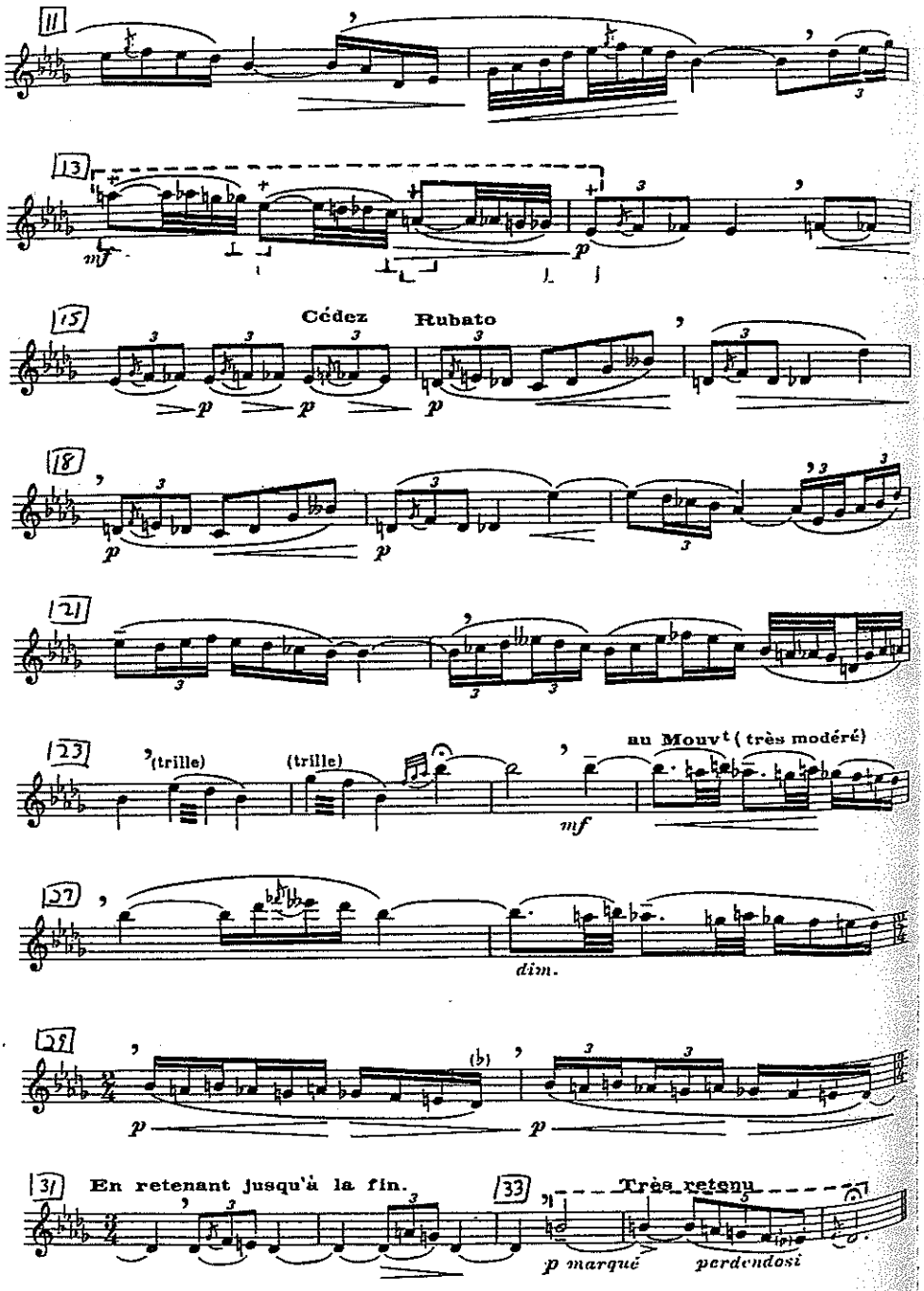
Density 21·5


♩ = 72**
[1]
mf
f
mf
p
f
mf
[4]
f>p
mf
p subito
[8]
f
ff
mf subito
fff
f
[12]
ff
p
f>p
p
[16]
ff
p subito
p
[20]
f
ff
p subito
p
f
p subito
[24]
(sharply articulated)***
mp
p
p
mp
mp
[28]
mp
p
mp
♩ = 60
ff
ff
ff
[31]
♩ = 72
fff
[34]
loco
♩ = 60
fff


[37]
ff
p subito
f>p
[40]
f>p
f>p
p
♩= 72
p
[44]
ff
loco
[48]
♩=60
ten.
fff
[51]
p<f>p
sfp
sfp>p
53
ff
54
p
pp
56
cresc. molto
ff
59
fff

Syrinx


1 Très modéré
mf
3
p
5
Retenu
p
9 Un peu mouvementé (mais très peu)
p



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