

The Arcana of *Déserts*

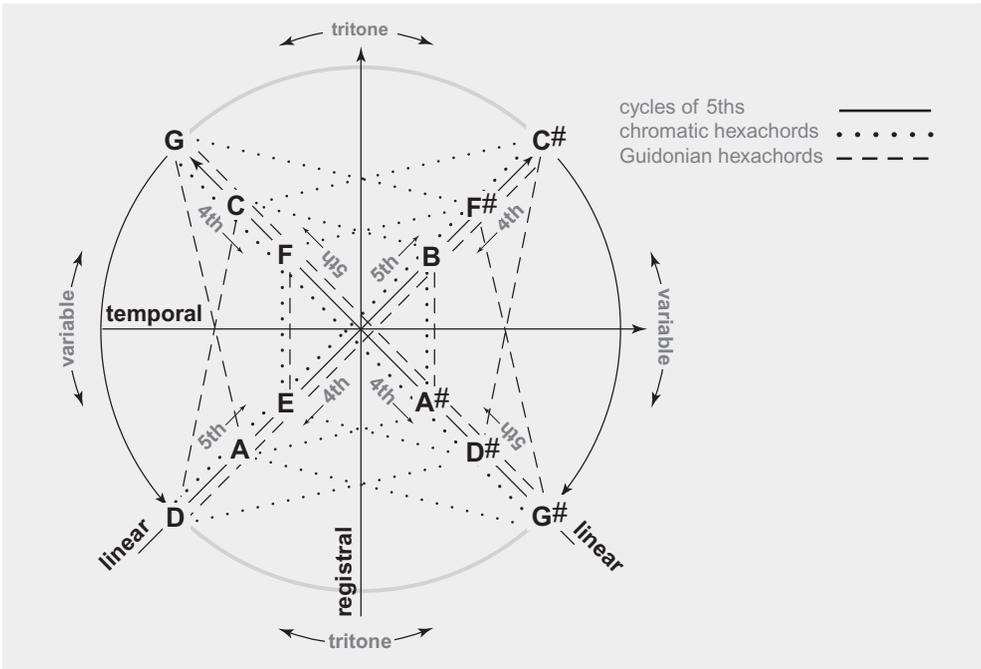
by Chou Wen-chung

In my essay “Converging Lives” in *Edgard Varèse: Composer, Sound Sculptor, Visionary* (2006), there is a reference to *Déserts*, in conjunction with Varèse’s diagram (1910) of two contiguous chromatic hexachords in opposite directions (plate A, “Converging Lives,” p. 357), which was to demonstrate his application of this germinal concept of his Berlin years.¹ As limited space did not allow comments on the role of his double-hexachord, in the context of *Déserts*’ pluralistic theoretical basis, this paper serves as a footnote on this subject.

In its original form without the interpolations, the continuity of *Déserts*’ soundmasses and individual pitches reveals a continual process of transformation of pitch aggregates. Conforming to his concept of the entire work as melodic totality, linearity is replaced by pitch succession and verticality by sonority layered registrally, while timbre and rhythm are integral to soundmasses and formal design.

As movement of pitches and transformation of their aggregates are the essence of Varèse’s thinking, our focus will be limited to pitch succession and interaction. The scope of his interest reveals a pluralism in his approach to pitch organization and its transformation (or transmutation, as Varèse preferred, so as to distinguish his process from conventional procedures), which is broadly exhibited in the exposition, mm. 1–40, and the continual transformations thereafter.

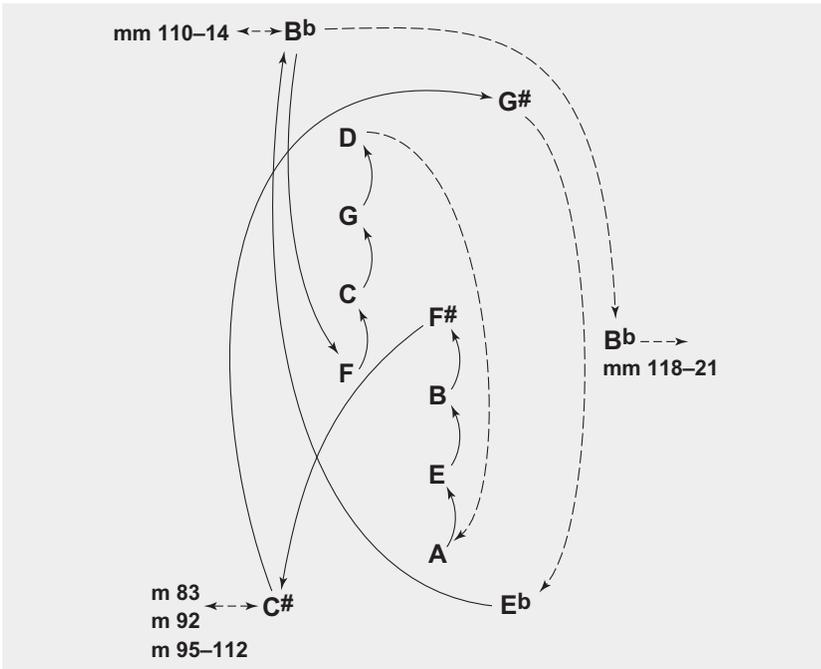
As illustrated in “Converging Lives” (Ex. A, p. 358), the exposition suggests two cycles of fifths moving in contrary direction but eventually merging into one, as expected of all recurring succession of the same interval in equal temperament. Hence, the choice of *cycle* over *spiral* in this essay. Following Varèse’s diagram, the double-hexachord in Ex. B (with *B* as initial, *B*^b as final; “Converging Lives,” p. 358) exhibits the significance of symmetry. Ex. A (pitch locations adjusted to highlight symmetry) illustrates pitches evolving from the cycles. The chromatic hexachord is not unique though, as two mutually exclusive Guidonian hexachords a tritone apart (*C–D–E–F–G–A* and *F#–G#–A#–B–C#–D#*) are imbedded in it. Ex. A shows the first six pitches to appear in *Déserts* and the subsequent six form the two mutually exclusive Guidonian hexachords in symmetry on a vertical axis.



Example 1: mm. 1–40.

The symmetry in the exposition reveals the *atemporal* nature of *Déserts*, a consequence of the trajectory of cycles of fifths as it swings around the registral and temporal axes. An examination of this concept is essential to the analysis of his pitch structure. *Example 1* is a reduction of the trajectory of the cycle in the exposition (“Converging Lives,” Ex. A, p. 358; mm. 1–13) that generates the first Guidonian hexachord in time and register, and of the second cycle with realigned octave positions (mm. 14–40). It shows the cycles moving symmetrically in four directions, with potentials for merging and generating new cyclical or combinatorial trajectories. Three different lines trace pitches of the cycles, and the chromatic and Guidonian hexachords, highlighting symmetric equivalency, aggregates and other relations.

The maze of symmetry inherent in the exposition consists of three basic types: I. Vertical or temporal, with successive cycles of $F-C-G-D-A-E$ and $B-F\#-C\#-G\#-D\#-A\#$, forming the C and $F\#$ Guidonian hexachords; II. Diagonal or linear, with crossing cycles of $A\flat-E\flat-B\flat-F-C-G$ and $D-A-E-B-F\#-C\#$, forming $E\flat$ and A hexachords; III. Horizontal or registral, exchanging half of each cycle, combining $G-C-F$ with $B-F\#-C\#$, and $D-A-E$ with $A\#-D\#-G\#$, forming tritone hexachords of $E-F\#-G-B-C-C\#$ and $D-D\#-E-G\#-A-A$, which may be partitioned into tritone dyads, or trichords of a tritone and a major or minor second as well as chromatic. Symmetries are also suggested by rotating 180° around the axes: rotating at vertical axis,



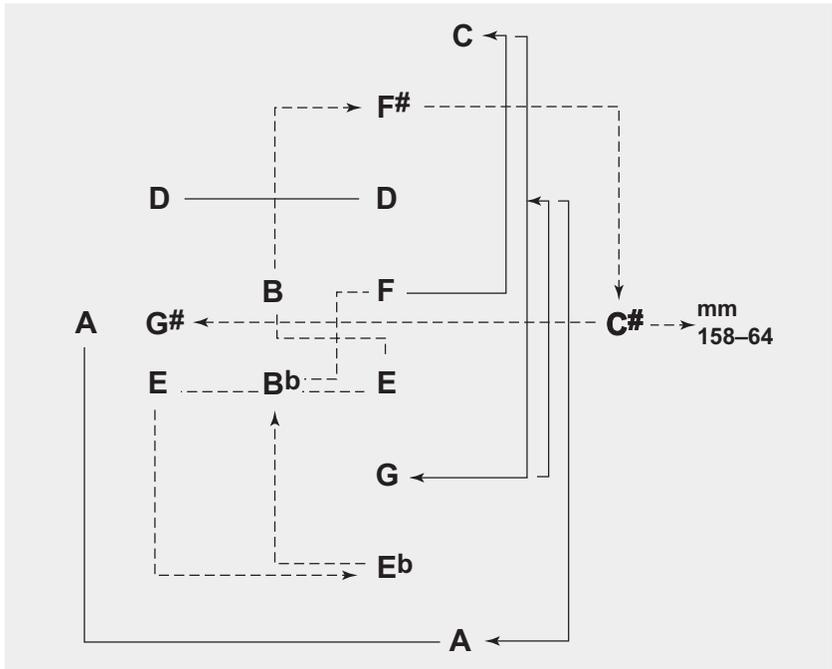
Example 2: mm. 115–17.

temporally reversed; rotating at horizontal axis, registrally reversed; rotating diagonally, half of each cycle exchanged.

The chromatic hexachords begin to emerge at mm. 59–60 when featured dyads congregate and conclude with two bars of the $D-G\#$ dyad. The ensuing two bars show the D chromatic hexachord alone on the woodwinds and then the $G\#$ on the brasses.

The double-hexachord appears at mm. 116–17 in a simultaneity, symmetric in interval value and register, ranging from the lowest $E\flat$ to the highest $G\#$. Example 2 shows the distribution of pitches of the two cycles, in the higher and the lower registers overlapping at $F-F\#$ and $E\flat-G\#$. The missing $B\flat-C\#$ have been sustaining not only from mm. 110–14, 106–12 respectively but also mm. 83, 92, 95 in the case of $C\#$ for large-scale reasons. This practice of *common-tone* overlapping pitches preceding or following a soundmass is another principle of Varèse's transformation. To achieve symmetry, an $E\flat$ cycle produces a $B\flat$ Guidonian hexachord while the $G\#$ cycle generates one on E . The two cycles merge at $G\#-E\flat$ and $D-A$. This organic and symmetric distribution of pitches in a total chromatic simultaneity is characteristic of Varèse's cumulative soundmasses at the moment of completion.

An example of how the sonority of a soundmass is altered without damage to its integrity is mm. 156–58. This symmetry of eight pitches, as if a tetrachord and its inversion, conceals the clarity of the Guidonian hexa-

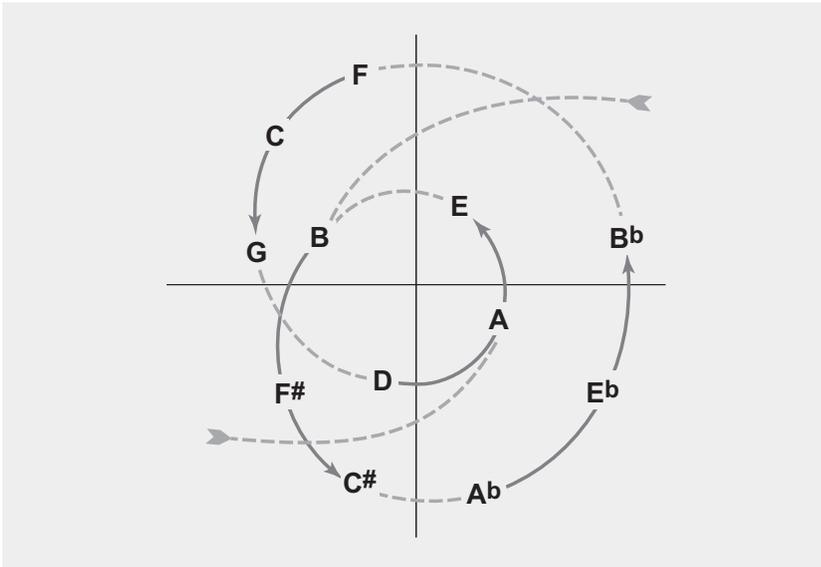


Example 3: mm. 156–58.

chord of the exposition by adding two other pitches often encountered as symmetric equivalents, E^b and F^\sharp (Example 3). But the solo on the bass clarinet concludes in the preceding bar with B^b – B , connected to E^b and F^\sharp as in the exposition. F^\sharp ultimately resolves to C^\sharp in m. 158. As the bass clarinet phrase starts with A and G^\sharp , it appears that the second hexachord of the exposition on F^\sharp is piercing through the verticality of the C hexachord in m. 157. The initial note of the bass clarinet already anticipates the lowest pitch A more than a bar earlier, while C^\sharp continues with C until the chromatic double-hexachord emerges complete by mm. 165–67. The circulatory conjunctions of the two hexachords (B^b – F , E – B , C^\sharp – G^\sharp , G^\sharp – E^b) are typical of Varèse’s idea of phenomena of penetration and repulsion.

Still another kind of double-hexachord appears in m. 270, the onset of the final section. It displays across six octaves a geometric distribution of intervals inherent in a trichord with tritone (C^\sharp – F – G), its transposition (A^b – C – D), and their retrograde (A – B – D^\sharp , E – F^\sharp – A^\sharp). The last pitch to appear is again F^\sharp in the highest register. This, however, is not a case of partitioning. Instead, each trichord and its retrograde form a whole-tone hexachord, a tritone apart – thus mutually exclusive: C^\sharp – D^\sharp – F – G – A – B , G^b – A^b – B^b – C – D – E (as in the ancient Chinese modal system).

There are many examples of trichords and tetrachords as aggregates of dyads and single pitches of known significance, although the integrity of



Example 4: mm. 41–45.

such aggregates may appear ambiguous depending on the context. For example, mm. 304–07 and its restatement in the next two bars actually consist of the same three trichords, B^b – B – F , C – $F\#$ – G , D – $G\#$ – A , with the missing pitches $C\#$, E^b , and E appearing in mm. 311–17 each with its own function. The principles are: organic pitch evolution supercedes local manipulations; exploration is preferred over routine procedure. Thus, in mm. 41–45 what appears to be a restatement of the exposition by inverting the interval of a fifth is likely a horizontal symmetry rotated diagonally, exchanging D – A – E with B – $F\#$ – $C\#$ temporally and registrally (Example 4). Conforming to foreground symmetry, the cycles could begin on B^b in fifths and E^b in fourths, or both in fifths, one regressing from B^b , one progressing from E . The results are familiar pitches and intervals in new relations and implications, setting the stage for a series of transformations that lead to the first chromatic hexachords and double-hexachords discussed above.

Even conventional symmetry is dealt with beyond the expected. Mm. 85–93 shows symmetry on three levels. The dyads of each tetrachord and the tetrachords themselves are inversions of each other intervally and registrally (D – C , $F\#$ – $G\#$ and F – G , $C\#$ – B). But temporally, the second tetrachord is less than $1/3$ of the duration of the first – seemingly asymmetric. The fact is the second tetrachord has to prepare for the swift transition on the timpani with pitches from both tetrachords, $C\#$ – D – $G\#$, to initiate a long passage unfolding the cycle of fifths from this aggregate – except B until the arrival of the first chromatic double-hexachord (mm. 115–17). The role of B , the initial of *Déserts'* principal double-hexachord is another example of a large-

scale pitch function. Throughout the transitional passages observed above, its role as a guidepost is apparent, whether anticipating (m. 93), absent (mm. 94–114), delayed (m. 83), or reaffirming (mm. 246–61, 311–13 noted below).

Varèse's concept of symmetry as applied to the form of *Déserts* is equally tantalizing. In the exposition, after the two hexachords' initial interaction, the pitch contents are all but complete by m. 21, except $F\#$. The dyads $G\#-A$, $D-E\flat$ on timpani and clarinets then bring about a further collision ending with $D-D\#$ alone which ushers in four others in a registral expansion (mm. 33–38), evenly sharing pitches of the two hexachords: $C-C\#$, $D-D\#$, $E-F$, $F\#-G$, $G\#-A$, $A\#-B$ in *Example 1*.

Déserts' ending is in two substantial sections. The conclusion of the final section ending on $E\flat$ (mm. 311–25) appears to be, but is not, a transposed statement of that in the penultimate section ending on $F\#$ (mm. 243–63). The last dyads of both sections illustrate the phenomenon of symmetrical redistribution of dyads in the exposition.

However, while the last dyads of the penultimate section, $C-C\#$, $E-F$, $F\#-G$, $A\#-B$, are the same as in the exposition, dyads of the final section, $D\#-E$, $G-G\#$, $B-C$, $C\#-D$, show a sequential exchange of alternating pitches from the two hexachords. The dyadic relations at the end are an abbreviated reflection of those in the exposition, $E\flat$ being the symmetric equivalent of $F\#$. Thus as the title suggests there is no end to *Déserts'* transformation – and Varèse's ideas. The arcana of *Déserts* is in its breadth for exploring unsuspected potentials and depth in integrating inconceivable relations.

¹ Chou Wen-chung, "Converging Lives: Sixteen Years with Varèse," in *Edgard Varèse: Composer, Sound Sculptor, Visionary*, ed. Felix Meyer and Heidy Zimmermann (Woodbridge: Boydell, 2006), pp. 348–60.