current musicology

number 48

Edited by ANTHONY BARONE

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articles

An American Precursor of Non-tonal Theory: Ernst Bacon (1898–1990)

by Severine Neff

Ernst Bacon was one of the very first American theorists to investigate aspects of extended tonality and atonality. At the age of nineteen, Bacon made his sole contribution to music theory: a long article, "Our Musical Idiom," which appeared in the Chicago journal *The Monist.*[1] His intention was to classify non-tonal scales and harmonies "in a logical order" and "to develop a system of nomenclature describing any possible combination of tones." "Our Musical Idiom" is one of the earliest American contributions to the non-tonal theoretical literature; it predates such European works as Josef Hauer's *Vom Wesen des Musikalischen* and Herbert Eimert's *Atonale Lehrbuch.*[2]

Ernst Bacon was born in Chicago in 1898 and died in Orinda, California, in 1990. His earliest teachers in Chicago were the composers Arne Oldberg, Thörvald Otterström, and the pianist-critic-conductor Glenn Dillard Gunn. Gunn and Otterström had been students of Bernhard Ziehn (1845–1912), the first major German theorist to emigrate to America. Oldberg had been instead a pupil of the organist Wilhelm Middelschulte, a disciple of Ziehn. Bacon subsequently studied composition with Karl Weigl[3] in Vienna and worked extensively with Ernst Bloch in San Francisco from 1919 to 1921. In 1945, Bacon became Professor of Music at Syracuse University. He composed over 300 songs and was the author of an aesthetic treatise, *Words on Music,* and a technical manual, *Notes on the Piano;*[4] among his students were Carlisle Floyd and Donald Martino.[5]

When Bacon published "Our Musical Idiom," American theorists were writing pedagogical treatises solely in the tonal tradition. Bacon's article instead appeared in a journal concerned with the philosophy of science.[6] His musical audience consisted almost exclusively of his teachers Gunn, Otterström, and Oldberg, and other Chicago musicians in the circle of Bernhard Ziehn. Ziehn's own theoretical works treat the harmonic language of Wagner, Bruckner, Richard Strauss, and Debussy.

I shall describe first the background for Bacon's work, focusing specifically on Ziehn's concepts of order permutation, "plurisignificance" *(Mehrdeutigkeit),* and symmetrical inversion. Second, I shall examine "Our Musical Idiom" and its compositional implications for some of Bacon's works.

Ziehn's theories

In 1954, Ziehn's disciple Julius Gold wrote that his teacher's principal achievement was "the formulation and substantiation of an extremely inclusive theory of chromatic harmony at a time when chromaticism was still a highly experimental matter."[7] In view of the current understanding of theoretical rigor, Ziehn's thoughts on chromaticism seem less an "inclusive theory" than merely a classification system of possible chromatic chord events. His major works, including the *Harmonie- und Modulationslehre* of 1887, were all written in Chicago.[8]

Ziehn was a mathematician as well as a music theorist. When he came to Chicago, he taught both music and mathematics at the German Lutheran School. Though Ziehn's books contain no mathematical formulas, Julius Gold, Otterström, and others attest that Ziehn used standard formulas of probability to calculate structures and classifications of chromatic chords, scales, progressions, and canons, such as are found in late nineteenth- and early twentieth-century music.[9]

Using the formula

$$\frac{n!}{(n_1!)\,(n_2!)}$$

one can calculate the number of order permutations in which different intervals can occur. To determine the number of possible order permutations of two different major thirds and a minor third, n is assigned the value 3, the total number of intervals; n_1 is assigned a value of 2, which indicates the two major thirds; and n_2 is assigned the value 1, which indicates the minor third. The calculation yields the result 3, indicating that there are three possible permutations of this interval grouping.[10]

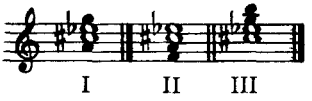
Ziehn selected combinations of major, minor, or diminished thirds and then calculated possible permutations of these thirds to form chromatic seventh chords for his classification system of chromatic chord events. The three chords that could be generated from re-orderings of two major thirds and one diminished third are shown in example 1. The values of n, n_1, and n_2 are the same as those above, again yielding the result 3. Chord "I" contains the ordering (from the bass) major third, diminished third, major third; chord "II," major third, major third, diminished third; and chord "III," diminished third, major third, major third. Example 2 shows six chromatic seventh chords generated in analogous fashion from two diminished thirds, one major, and one minor third. In this case,

$$\frac{n!}{(n_1!)\,(n_2!)\,(n_3!)}$$

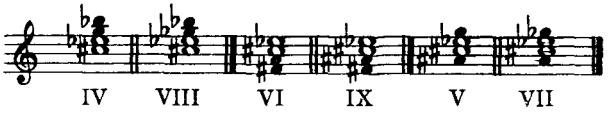
for $n=4$, $n_1=2$, $n_2=1$, and $n_3=1$, there exist six possible orderings of the intervals. Together, examples 1 and 2 demonstrate the nine chromatic

seventh chords that in derivation are unique to Ziehn's system of chromatic harmony.[11]

Example 1. Ziehn's representations of chords. Reproduced from *Manual of Harmony,* 21.



Example 2. *Manual of Harmony,* 21.

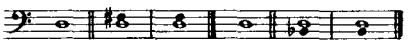


All nine seventh chords contain C♯ and E♭. The repetition of these pitches illustrates a second major theoretical concern for Ziehn, which he called "plurisignificance": the structural and functional reinterpretation of a single interval or pitch in different harmonies. Example 3 shows the plurisignificance of the pitch D.

Example 3. The plurisignificance of the pitch D. *Manual of Harmony,* 6.

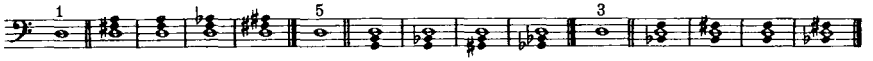
The tone as part of diatonic Thirds.

A tone can be considered as lower or upper tone of a Third, and belongs, consequently, to two large and two small Thirds.



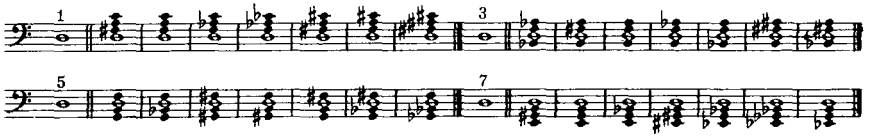
The tone as part of diatonic triads.

A tone can be fundamental tone, Third or Fifth of a triad, and can, therefore, belong to three triads of every kind.

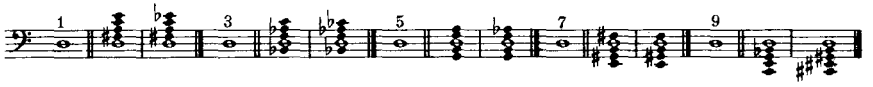


The tone as part of diatonic Seventh-chords.

A tone can be fundamental tone, Third, Fifth or Seventh of a Seventh-chord, and can, therefore, belong to four Seventh-chords of every kind.



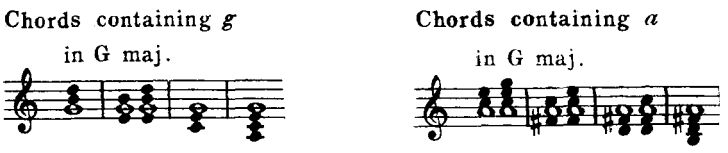
The tone as part of large and small Ninth-chords.



Ziehn further considers the numerical consequences of plurisignificance. Example 3 indicates that a single pitch can belong to twelve diatonic triads, twenty-eight diatonic seventh chords, and ten diatonic ninth chords. By applying probability formulas to the numerical consequences of plurisignificance, Ziehn could exhaustively calculate possible chord progressions. For instance, in G major, Ziehn finds that the pitch G belongs to five chords, the pitch A to seven (example 4a).[12] Applying a probability formula, one can determine that the possible orders of these harmonies in two-chord progressions number 792.

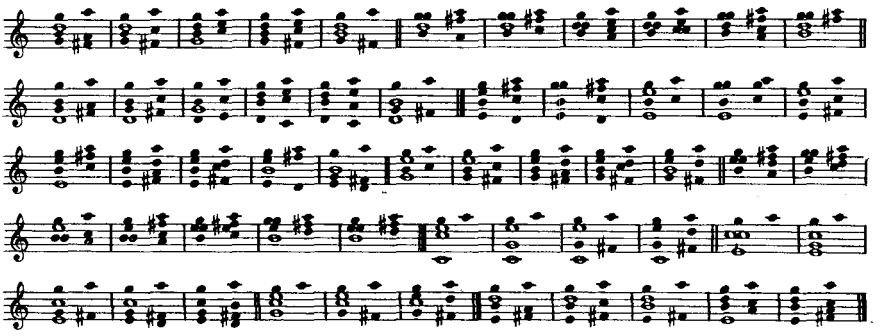
$$\frac{12!}{(5!)(7!)} = \frac{4790016}{6048} = 792$$

Example 4a. *Manual of Harmony,* 10–11.



Ziehn lists fifty-six—only "a few" of them (example 4b).

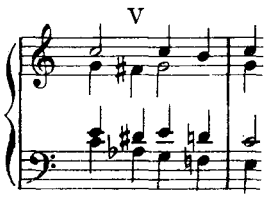
Example 4b. *Manual of Harmony,* 11.



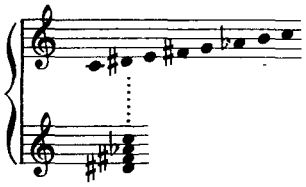
Many of Ziehn's mathematically calculated progressions are tonally ambiguous, sometimes extending to the very limits of the tonal system. Others interject highly chromatic chords into diatonic areas; Ziehn believes

that these generate possible chromatic variants of the diatonic scale (examples 5a and 5b). Ziehn, however, never pursued the generation of potential chromatic scales within the octave with his customary mathematical rigor. Thus, Ziehn's list of eight-note scales hardly names all possible ones.[13] It was Ernst Bacon who continued Ziehn's work in this area.

Example 5a. Chord progression in C major including the chromatic seventh chord called "V." *Manual of Harmony,* 23.

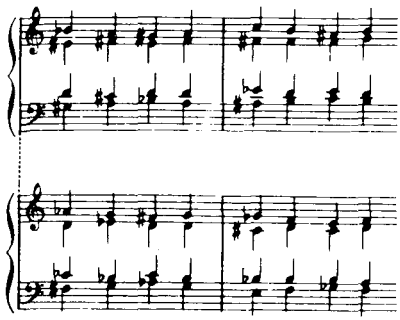


Example 5b. A chromatically altered scale including the chromatic seventh called "V." *Manual of Harmony,* 22.

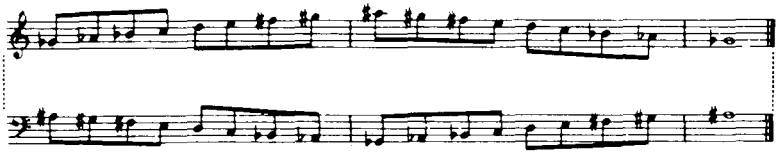


The third major concern of Ziehn's work is his operation of symmetrical inversion around the axis D-A♭. He called this a "keyboard" inversion because D and A♭ are symmetrical with respect to the distribution of black and white keys on the piano.[14] Example 6a illustrates the operation of symmetrical inversion. The soprano pitch, B♭ in the first progression, becomes F♯ in the bass of the symmetrical inversion, the alto E♯ becomes a tenor C♭, and so on. Ziehn applied this operation of symmetrical inversion to scales and suspension figures as well (example 6b and 6c). These symmetrical inversions often produced exotic cadence forms and tonally ambiguous material that he hoped would interest contemporary composers.[15]

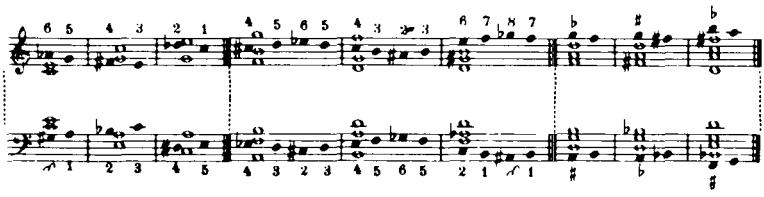
Example 6a. Symmetrical inversion around the pitch axis D-A♭ *Manual of Harmony,* 28.



Example 6b. Symmetrical inversion of the whole-tone scale. *Manual of Harmony,* 28.



Example 6c. Symmetrical inversion of suspension figures. *Manual of Harmony,* 28.



Ziehn was not a professional composer, but he did write short piano pieces to celebrate the birthdays of his young students. Each of the eight surviving pieces is filled with applications of this theories.[16] "Albumblatt," a piece in ternary form dedicated to his "best" young pupil Helen Rudolph, has a theme using the letters of her name (figure 1).

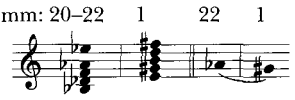
The composer himself gave the following description of the work:

> The musical letters of the name "*He*l*e*n Ru*d*olp*h*" [B–E–E–D–B] structure the theme.
> Measures 3–7: The theme in its original form and in contrary motion; both forms also retrograded.

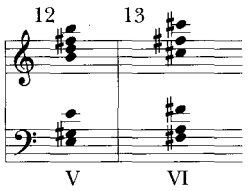
> The next tones heard build a major ninth chord.
> Measure 8: The ninth chord arpeggiated. Measure 9: The thematic figure repeated in a different way.
> First Half of Measure 10: The ninth chord with passages in contrary motion; Second Half: Modulation.
> Measure 11: The theme in the upper voice. The remaining material needs no explanation.[17]

These analytical notes confirm his conscious deployment of theoretical ideas throughout the piece. Moreover, the relation of its first half to its second illustrates symmetrical inversion. Ziehn also uses the enharmonic "plurisignificance"[18] of A♭ and G♯ to circle back from m. 22 to m. 1 (example 7). The final cadence, from V to VI, illustrates Ziehn's concept of "irregular cadence": a final cadence to a triad other than tonic (example 8).

Example 7. The enharmonic plurisignificance of A♭.



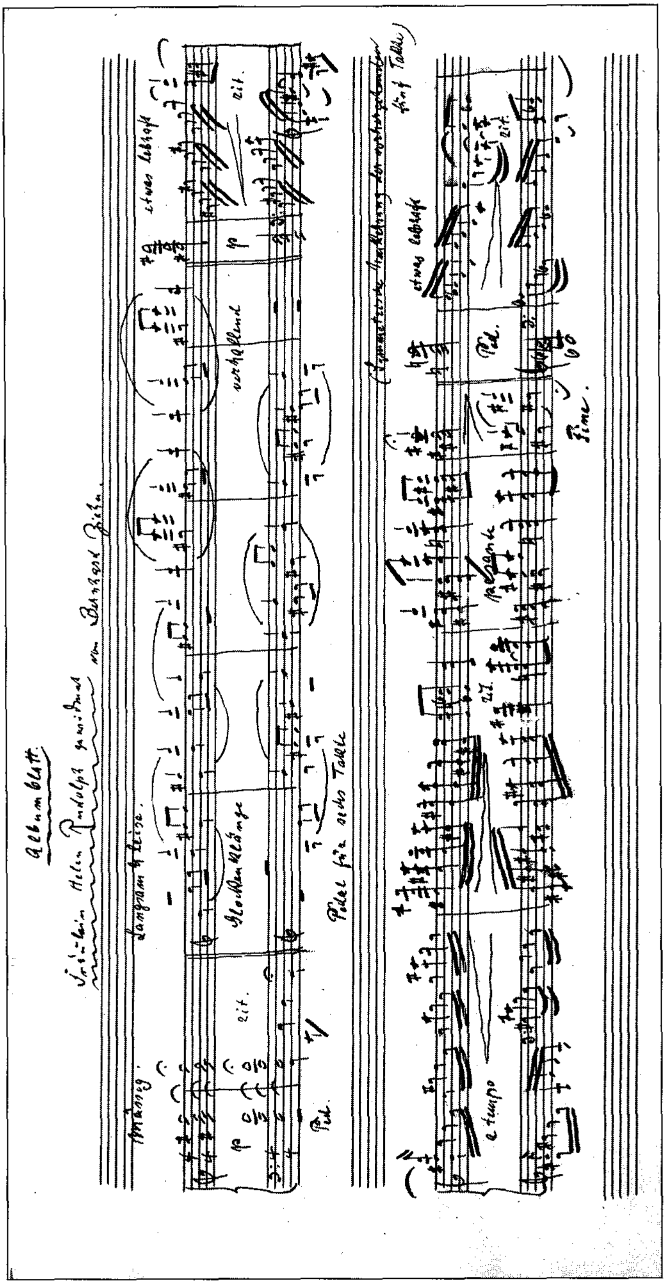
Example 8. The "irregular" cadence.



Bacon's Theories

Ernst Bacon studied Ziehn's *Manual of Harmony* in detail with Glenn Dillard Gunn.[19] In his preface to Bacon's "Our Musical Idiom," Gunn loosely connects Ziehn's work to Bacon's:

> "Harmony is that which sounds together," wrote Bernhard Ziehn twenty-five years ago. But the average theoretician comprehends only those simultaneously produced sounds which may be arranged in a series of superimposed thirds. . . . the world is still seeking a general system which will include all possible harmonies in logical order. . . . The system has now been evolved by Mr. Ernst Lecher Bacon.[20]


Albumblatt
etwas lebhaft
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Fine.

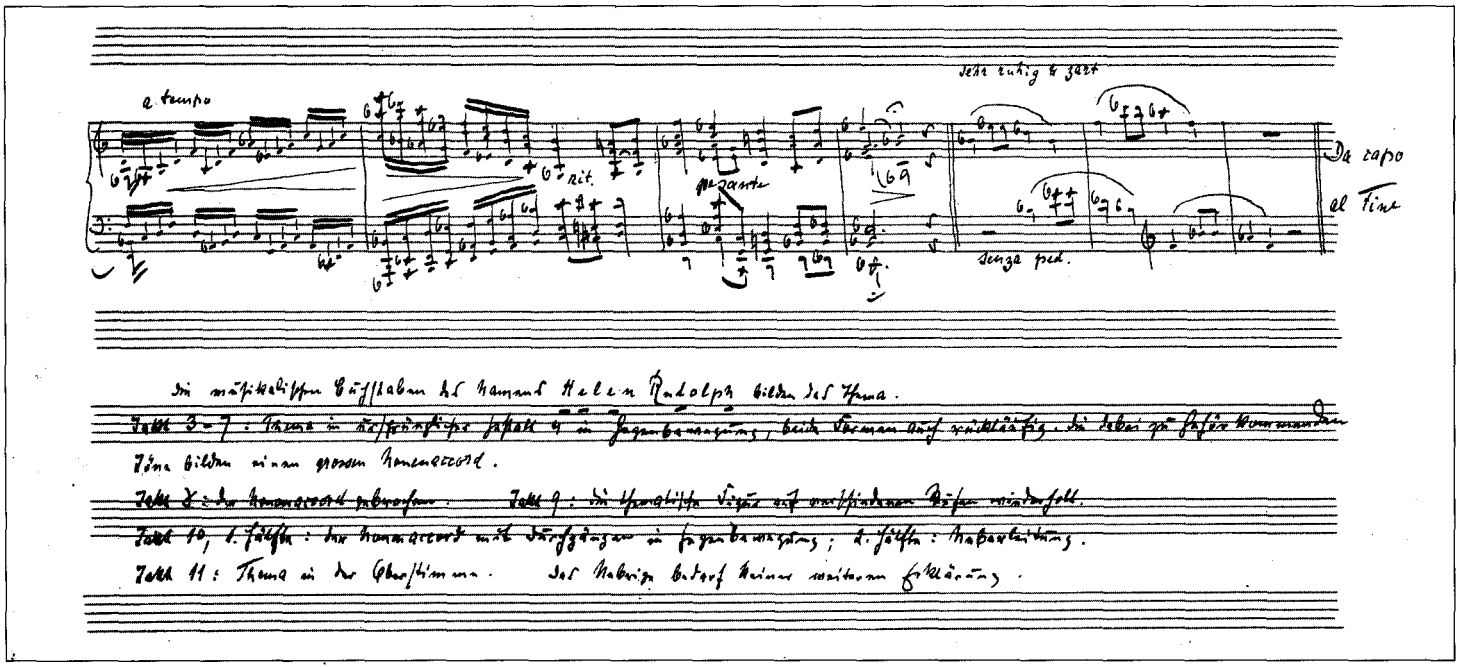


Figure 1. "Albumblatt." Holograph manuscript (Helen Rudolph Heller Collection, Newberry Library). Reproduced with permission.

Bacon himself acknowledges Ziehn's penchant for listing "new" harmonies, such as the nine chromatic seventh chords, as a source of inspiration for "Our Musical Idiom." His mathematical operations for generating scales and pitch collections are identical to those used by Ziehn in his *Manual of Harmony*.[21] His interest in exotic scales and in the invariance of pitch collections also has its roots in Ziehn's work.

Bacon derives the list of all possible forms of chromatic scales within the octave as follows. Using the same probability formula used by Ziehn, he determines the number of all possible order permutations of a group of intervals—none larger than a major third—that can occur within the octave:

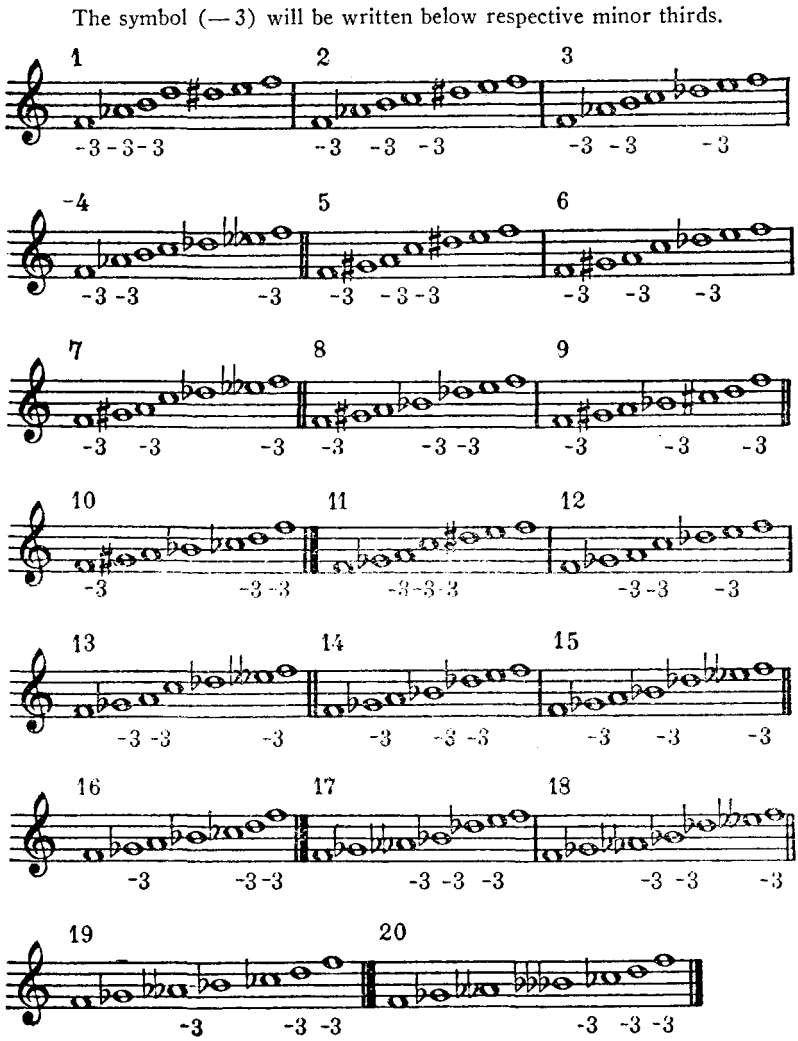
$$\frac{6!}{(3!)(3!)} = \frac{720}{36} = 20$$

(The major third is a limit beyond which Bacon believes an interval will not sound scalar.) For example, three minor thirds and three minor seconds yield twenty possible scales (example 9). Bacon represents the scales in a pitch order which aims to keep initial pitches and intervals the same. In all, Bacon calculates 1,490 types of six-, seven-, eight-, and nine-note scales within the octave.[22] In figure 2, the columns titled "combinations" show the number of intervals of each kind used for the generation of each scale type. Each row shows the number of scales generated by particular interval combinations. For instance, the number of scales having ten semitones and one whole tone is eleven (see the second row on the left half of figure 2).

Bacon singles out from among the 1,490 scales those that have inversionally symmetrical structures, which he terms "equipartite." In these equipartite scales, "the same [ordered] pattern of intervals is repeated an integral number of times within equal divisions of the octave"—what George Perle now terms "interval cycles."[23] For instance, the scale pictured in example 10 is an equipartite one: it is made up of two successive 0134 tetrachords. Bacon defines two types of equipartite scales: "tripartite," whose interval patterns repeat three times within the octave, and "bipartite," whose patterns repeat two times. Figures 3a and 3b show Bacon's tabulations of possible equipartite scales.

A second purpose of "Our Musical Idiom" is to list and name what Ziehn called "all possible harmonies": what we now generally call all "nontonal collections." For Bacon, the problem of listing all possible harmonies is that of finding the number of cyclically unrelated permutations of a given collection. The familiar harmonic inversions of a C-major triad constitute a cyclic permutation. The intervallic content of a major triad, however, can also be ordered major third–perfect fourth–minor third to pro-

Example 9. Twenty possible scales generated from three minor thirds and three minor seconds. Reproduced from "Our Musical Idiom," 564.



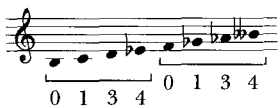
duce the minor triad whose harmonic inversion forms yet another cyclic collection. For contemporary atonal theorists, the cyclic permutations of the major and minor triads are equivalent; for Bacon they are not.[24]

Bacon uses two formulas to calculate the non-cyclically related permutations of interval collections from which he generates his complete list of

Figure 2. The 1,490 types of scales. "Our Musical Idiom," 566.

	Combinations				Permutations			Combinations				Permutations	
	Minor Seconds	Major Seconds	Minor Thirds	Major Thirds	Calculations	Permutations		Minor Seconds	Major Seconds	Minor Thirds	Major Thirds	Calculations	Permutations
1	12				P12!/12!	1	18	3		3		6!/3! 3!	20
2	10	1			11!/10!	11	19	2	5			7!/2! 5!	21
3	9		1		10!/9!	10	20	2	3		1	6!/2! 3!	60
4	8	2			10!/2! 8!	45	21	2	2	2		6!/2! 2! 2!	90
5	8			1	9!/8!	9	22	2	1		2	5!/2! 2!	30
6	7	1	1		9!/7!	72	23	2		2	1	5!/2! 2!	30
7	6	3			9!/3! 6!	84	24	1	4	1		6!/4!	30
8	6	1		1	8!/6!	56	25	1	2	1	1	5!/2!	60
9	6		2		8!/2! 6!	28	26	1	1	3		5!/3!	20
10	5	2	1		8!/2! 5!	168	27	1		1	2	4!/2!	12
11	5		1	1	7!/5!	42	28		6			6!/6!	1
12	4	4			8!/4! 4!	70	29		4		1	5!/4!	5
13	4	2		1	7!/2! 4!	105	30		3	2		5!/2! 3!	10
14	4	1	2		7!/2! 4!	105	31		2		2	4!/2! 2!	6
15	4			2	6!/2! 4!	15	32		1	2	1	4!/2!	12
16	3	3	1		7!/3! 3!	140	33			4		4!/4!	1
17	3	1	1	1	6!/3!	120	34				3	3!/3!	1
												Total	1490

Example 10. An equipartite scale formed of (0134) tetrachords.



non-tonal harmonies. In the first formula,

$$H = (n-1)!$$

H is the number of harmonies and n is the number of non-repeating intervals. A minor second, a major second, and a perfect fourth generate

Figure 3a. The possible bipartite scales identified by Bacon. "Our Musical Idiom," 567.

	COMBINATIONS				PERMUTATIONS	
No.	1 MINOR SECOND	2 MAJOR SECOND	3 MINOR THIRD	4 MAJOR THIRD	CALCULATIONS	NO. OF PERM.
1	6				P=6!/6!	1
2	4	1			P=5!/4!	5
3	3		1		P=4!/3!	4
4	2	2			P=4!/2! 2!	6
5	2			1	P=3!/2!	3
6	1	1	1		P=3!	6
7		3			P=3!/3!	1
8		1		1	P=2!	2
9			2		P=2!/2!	1
					Total	29

Figure 3b. The possible tripartite scales identified by Bacon. "Our Musical Idiom," 567.

	COMBINATIONS				PERMUTATIONS	
No.	1 MINOR SECOND	2 MAJOR SECOND	3 MINOR THIRD	4 MAJOR THIRD	CALCULATIONS	NO. OF PERM.
1	4				P=4!/4!	1
2	2	1			P=3!/2!	3
3	1		1		P=2!	2
4		2			P=2!/2!	1
5				1	P=1!	1
					Total	8

(3 – 1)!, or two possible, non-cyclically related harmonies; these two have interval orderings as follows: minor second, major second, perfect fourth; and minor second, perfect fourth, major second, respectively. The second formula,

$$H = \frac{(n-1)!}{n_1!n_2!n_3!\ldots}$$

applies to harmonies contatining intervals that repeat in combination with one that occurs uniquely. The variable n is the total number of intervals in the harmony, n_1 is the number of repetitions of one repeating interval, n_2

is that of a second repeating interval, and so on. Thus, for example, there is only one harmony having the following seven intervals: one major second and six minor seconds, i.e., $(7 - 1)!/6! = 1$. In the case of harmonies in which all intervals occur more than once, Bacon chooses to calculate his results by trial and error.

Characteristically, Bacon uses his formulas and trial experiments to create tables (eleven in all) that show the number of harmonies derived from each intervallic combination (Figures 4a and 4b present two of these tables). He concludes that there are 350 possible harmonies. These harmonies correspond to Allen Forte's list of atonal sets along with the inversional equivalents of asymmetrical sets.[25]

Figure 4a. Harmonies generated from uniquely occuring intervals. "Our Musical Idiom," 587.

	VARIOUS INTERVALS											CALCULATIONS OF HARMONIES	(No. OF HARM.) H
	1	2	3	4	5	6	7	8	9	10	11		
1	1										1	H=(*n*—1)!=(2—1)!	1
2		1								1		"	1
3			1						1			"	1
4				1				1				"	1
5					1		1					"	1
6						2						"	1
												Total	6

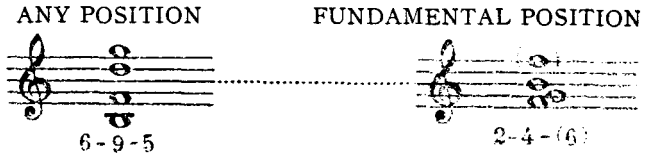
Because he does not acknowledge "pitch class," Bacon chooses to represent all 350 harmonies in pitch notation. He voices each harmony in what he calls "fundamental position": within the smallest possible range, the smallest interval occupies the lowest position, the next smallest the next lowest, and so on. Such voicing is akin to the "normal order" of sets (example 11).[26] Bacon names his harmonies in integer notation according to their interval content, 1 representing a minor second, 2, a major second, etc. Example 12 shows Bacon's list of the twelve trichords and their inversional equivalents.

In 1924, seven years after the publication of "Our Musical Idiom," Bacon wrote in Otto Luening's copy of the article: "This is pretty puerile. At present the opinions expressed herein do not interest me—only the sub-

Figure 4b. Harmonies generated from intervals, of which one must occur uniquely. "Our Musical Idiom," 588.

	1	2	3	4	5	6	7	8	9	10	CALCULATIONS OF HARMONIES	H
1	2									1	H=(3—1)!/2!	1
2	1	1							1		(3—1)!	2
3	1		1					1			"	2
4	1			1			1				"	2
5	1				1	1					"	2
6		2						1			2!/2!	1
7		1	1				1				2!	2
8		1		1		1					"	2
9		1			2						2!/2!	1
10			2			1					"	1
11			1	1	1						2!	2
12				3							By trial	1
											Total	19

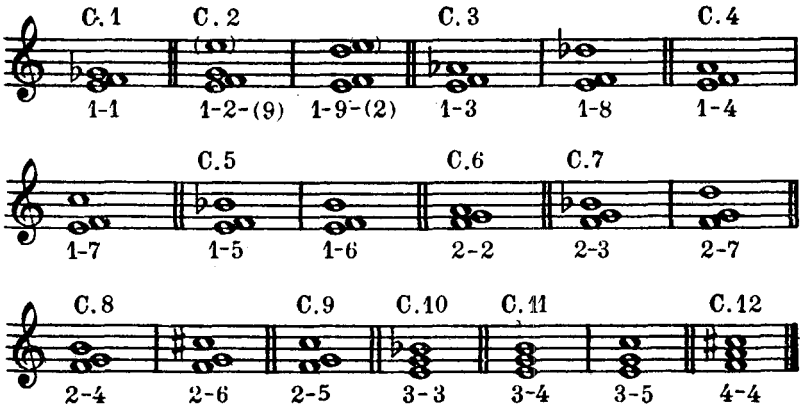
Example 11. "Our Musical Idiom," 592.



stantiated facts are of worth."[27] In a 1978 essay accompanying the song collection *Tributaries,* he further explained these thoughts:

> Growing up in an age of science, I, like many others felt the urge to experiment before settling down to seriously writing music. I tabulated and examined the three hundred fifty harmonies possible in our tuning system, invented new scales latent within the chromatic ladder, discovered new sounds through keyboard symmetry, [and] worked out new progressions in juxtaposing familiar chords. These

Example 12. "Our Musical Idiom," 594.

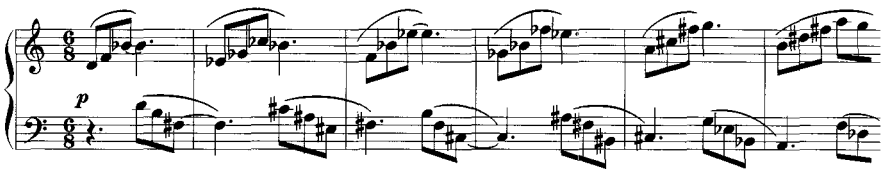


were all exercises in permutations and combination, a practice by no means new, that may have led to the belief that music and mathematics are closely related which I have never seen substantiated, apart from acoustical science.

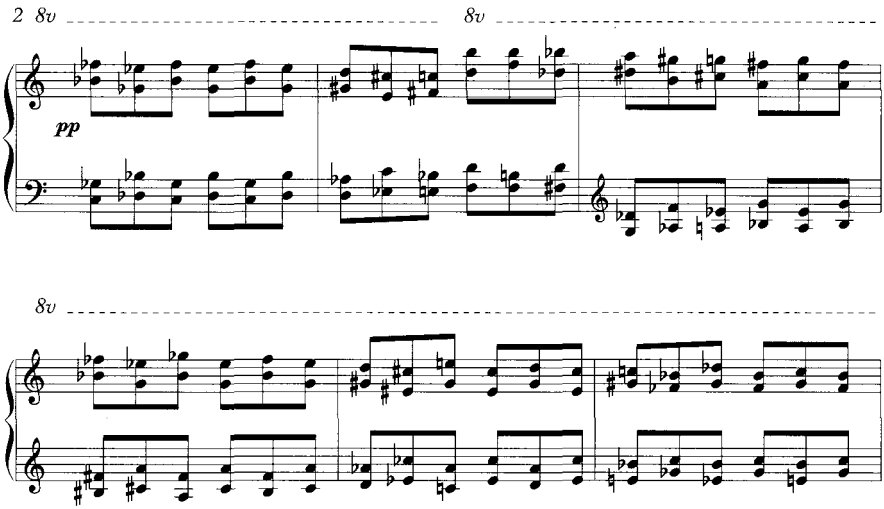
A little of this experimentation found its way into my writing, but less than might have been expected. Instead, I took to studying the classical song literature.[28]

"I gave up Ziehn for Schubert."[29] Despite his remarks, Bacon did not completely "give up Ziehn." The songs "The Spider" and "No More Milk," "Water" (from the song cycle *Tributaries*), the *Riolama* Concerto for Piano and Orchestra, and *The Words of Lao-Tzu* for Narrator and String Quartet written in the 1950s, 1960s, and 1970s use equipartite scales and Ziehn's operation of symmetrical inversion to generate pitch material. Bacon himself points out in *Notes on the Piano* that sections of the *Riolama* Concerto are built from pitch material symmetrical around the D–A♭ axis (examples 13a and 13b).[30] Bacon again points out instances of D-symmetrical material on the autograph score of "No More Milk," a song dedicated to the composer

Example 13a. Alternating symmetrical chords in the *Riolama* Concerto. Transcribed from *Notes on the Piano*, 49.

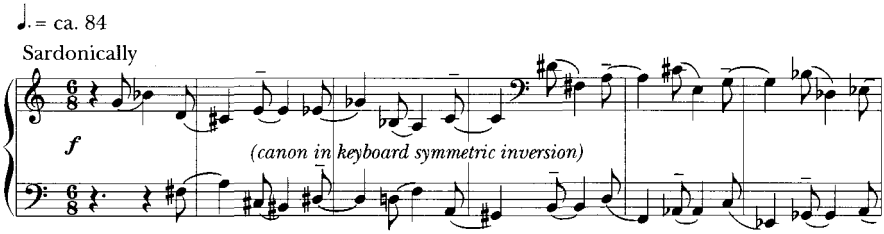


Example 13b. Symmetrical chords used simultaneously in the *Riolama* Concerto. Transcribed from *Notes on the Piano,* 49.



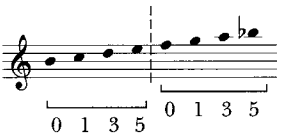
Otto Luening, a friend with whom he often discussed Ziehn's theories (example 14).[31]

Example 14. "No More Milk" (mm. 1–6).

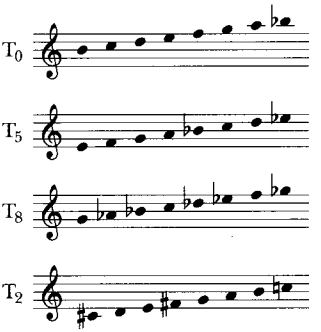


The fourth movement of *The Words of Lao-Tzu* illustrates Bacon's use of exotic scalar material.[32] The work contains five sections, each corresponding to a line of text. The identical pitch-class content of the first, third, and fifth sections of the piece articulates order permutations of a scale formed of two symmetrically related tetrachords (example 15a). For instance, in the first section, the first violin line favors an ordering of the scale beginning on B; the second violin and cello, orderings on A and F (example 15b, p. 23). In the second phrase of the work, the first violin line consists of permutations and transpositions of the basic scale on E, G, B, and C♯ (examples 15c and 15d).

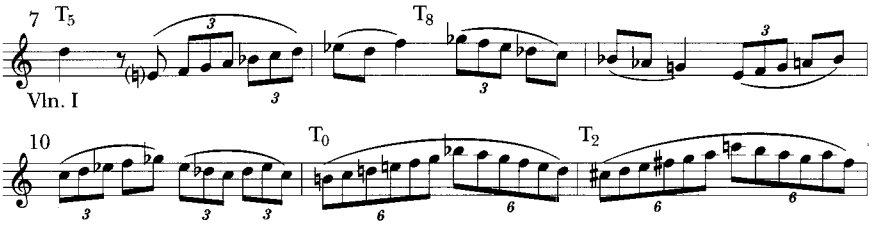
Example 15a. The basic scale of *The Words of Lao-Tzu,* movement iv.



Example 15c. Transposition of the basic scale of *The Words of Lao-Tzu* (mm. 7–12, violin I).



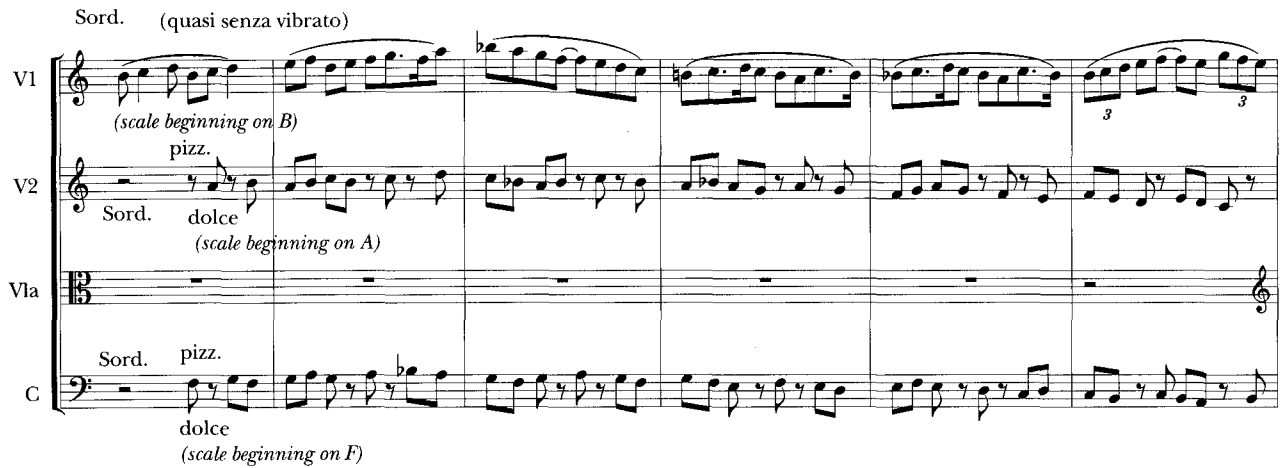
Example 15d. *The Words of Lao-Tzu* (mm. 7–12).



These pieces typify Bacon's employment of scalar material from "Our Musical Idiom" and Ziehn's operation of symmetrical inversion. Their pitch structures show that Bacon read the compositional potential of "Our Musical Idiom" in pitch-centered fashion, ignoring strictly atonal applications. He explained:

> Atonality, with its cousin, the tone row, never had any attraction for me. Appropriate to its originator for reasons remote from the American experience, it seemed a precarious foundation for what has become an international school. Its constructions could not hide their

Example 15b. *The Words of Lao-Tzu* (mm. 1–6).



> artificiality. It appeared to offer more denial than affirmation, imposed limitations far to be beyond promised liberations. What was there to be liberated from? Tonality is no more a tyranny than sentence structure.[33]

Such compositional conservatism contrasts sharply with the theoretical radicalism of "Our Musical Idiom," which places American music theory in a unique historical perspective. Five years before the debut of twelve-tone music and over thirty years before the proliferation of mathematically based theories of non-tonal music, Bacon was working on order permutation, invariance, and symmetrical inversion of non-tonal collections. Moreover, "Our Musical Idiom" is the only work using theoretical principles and methodologies of a radical nineteenth-century work, Ziehn's *Harmonie- und Modulationslehre.* Ziehn and Bacon's works are thus among the first to wed the progressive sides of the German and American music-theoretical traditions.

NOTES

A version of this article was presented at the 1985 national meeting of the Society for Music Theory (Vancouver, British Columbia).

[1] *The Monist. A Quarterly Magazine Devoted to the Philosophy of Science* 27 (1917):560–607.

[2] Josef Hauer, *Vom Wesen des Musikalischen* (Leipzig, 1920; reprint, Berlin-Lichterfelde, 1966); Herbert Eimert, *Atonale Lehrbuch* (Leipzig, 1924).

[3] Karl Weigl was the brother of the theorist Bruno Weigl, an admirer of Ziehn's work.

[4] Ernst Bacon, *Words on Music* (Syracuse, New York, 1960); *Notes on the Piano* (Syracuse, New York, 1963). For further biographical information, see *Dictionary of Contemporary Music,* ed. John Vinton (New York, 1974) s.v. "Ernst Bacon"; Philip Lieson Miller, "Ernst Bacon," *The New Grove Dictionary of American Music* (London, 1986), 1:109–10.

[5] Donald Martino dedicated his *Seven Pious Pieces* (Boston, 1974) to Bacon.

[6] Bacon's article was the first to treat music in this journal.

[7] Julius Gold began studying with Bernhard Ziehn in Chicago in 1909. An ardent disciple, he taught Ziehn's theories both in San Francisco and in Los Angeles to the critic Winthrop Sargeant, to Isaac Stern, and to Meredith Willson (composer of *The Music Man*). For further biographical data on Gold, see Charlotte Serber, "Music as Science Championed by Julius Gold," *Musical America,* 25 October 1935. The quotation is drawn from an autograph annotation on some harmonic progressions in the Julius Gold Collection, Library of Congress (Washington, D.C.). Also concerning Ziehn and Gold, see Julius Gold, "Bernhard Ziehn's Contributions to the Science of Music," *Musical Courier,* 1 July 1914, 21–22.

Ferruccio Busoni met Bernhard Ziehn in Chicago in 1910 and was an ardent admirer of his work. Ziehn gave Busoni his solution to the unfinished fugue in Bach's *Der Kunst der Fuge,* which Busoni incorporated in his keyboard work, the *Fantasia contrappuntistica.* In appreciation, the composer wrote an essay "The Gothics of Chicago," praising Ziehn and his protégé the organist Wilhelm Middelschulte. The essay is reprinted in Hans Moser, *Bernhard Ziehn: die deutsch-amerikanische Musiktheoretiker* (Bayreuth, 1950). Busoni also mentions the compositional potential of Ziehn's theories in his *Essence of Music and Other Papers,* trans. Rosamund Ley (London, 1957), 47.

[8] Ziehn's works are: *System der Übungen für Klavierspieler, ein Lehrgang für den ersten Unterricht* (Hamburg: Verlag Hugo Pohle, 1881); *Harmonie- und Modulationslehre* (Berlin: Verlag Chrs. Friedrich, 1887, 1888, 1910); *Manual of Harmony* (Milwaukee: Wm. A. Kaun, 1907); *Five- and Six-Part Harmonies and How to Use Them* (Milwaukee: Wm. A. Kaun, 1911); *Canonical Studies: A New Technique in Composition* (Milwaukee: Wm. A. Kaun, 1912; reprint, *Canonical Studies,* ed. Ronald Stevenson, New York: Crescendo Press, 1976); Ziehn's essays are to be found in *Jahrbuch der deutsch-amerikanische historischen Gesellschaft von Illinois,* ed. Julius Goebel, vol. 26–27 (Chicago, 1927). Some of Ziehn's musical compositions are reprinted in *Bernhard Ziehn: The Doric Hymns of Mesomedes* (Chicago, 1979). His last work, a second volume of the *Manual of Harmony,* was destroyed in a fire at the office of his son Dr. Robert Sebastian Ziehn. (This is attested in a 1968 letter from Ziehn's son to Donald Krummel, formerly of the Newberry Library, which is preserved in the Helen Rudolph Heller Collection. For biographical information, see Moser, *Bernhard Ziehn,* 7–8; and Philip Lieson Miller, "Ernst Bacon," *The New Grove Dictionary of American Music* (London, 1986), 1:109–10.

[9] Otterström recounts the following story: "The week after [I gave Ziehn] a canon in thirteen parts on the same theme. . . . [Ziehn told me:] the other day I was on the train and felt the necessity of fooling around with something. I figured out that this canon in thirteen parts can be exchanged 6227020800 times without resulting in two positions that are alike" (Goebel, ed., *Jahrbuch,* Bd. 26, 22). 13! equals 6,083,020,800, a number similar to Ziehn's; notice it shares the opening "6" and the "20800" pattern at the end.

Otterström's treatise *A Theory of Modulation* (Chicago, 1935) relies heavily on permutation of chords and progressions through various formulas of probability and number theory. The mathematical formulas are explained in the appendix to that work. Julius Gold's papers contain a sheet on which exponential operations are used to calculate the number of variants of a progression (Julius Gold Collection, Library of Congress).

Otto Luening, a pupil of Ziehn's disciple Wilhelm Middelschulte, recounts in his *The Autobiography of Otto Luening: The Odyssey of an American Composer* (New York, 1980): Middelschulte "worked out my weekly assignments in fifteen different ways to show me *the* way. It annoyed me that he was a better student than I was. I thought I had matched him when I arrived at 126 solutions to a harmonic progression that interested him. He was pleased, but he said, 'I'm sure if we searched a little further we could find other possibilities'." Luening says Middelschulte never showed him how he calculated those "other possibilities" (interview with the author, 15 April 1985).

[10] See K. B. Henderson, Z. Usiskin, and W. Zaring, *Precalculus Mathematics* (New Jersey, 1971), 546–47. The variable *n* may equal any integer.

[11] Ziehn's roman numerals do not represent functions but are his preferred nomenclature. The chords are grouped first according to the nature of their inherent sevenths: roman numerals I–III contain the minor or "small" seventh; IV–IX the diminished seventh. IV–IX are further grouped in the following way: "The last six chords have the sound of diatonic seventh chords; the numbering, therefore, is arranged in the corresponding manner: IV and V according to the dominant, VI and VII according to the small, and VIII and IX according to the small seventh-chord" (*Manual of Harmony,* 21). The actual order of the example—IV, VIII, VI, IX, V, VII—shows, first, how adjacent chords are chromatic variants of each other (e.g., C♯-E♭-G-B♭ and C♯-E♭-G♭-B♭); and, second, how the intervallic content of the chords, taken as a whole, is symmetric to the axis C♯-E♭ (e.g., B♭-G in chord IV paired with F♯-A in IX):

B♭ – G – C♯ – E♭ – A – F♯

Symmetrical inversion is one of Ziehn's general theoretical concerns (see p. 9f).

[12] G obviously can also belong to G dominant seventh, E minor seventh, and C major seventh chords.

[13] See *Manual of Harmony,* 61.

[14] Ziehn's explanation of the sources of his theory is in an essay on symmetrical inversion (Goebel, ed., *Jahrbuch*).

[15] The subtitle of Ziehn's *Canonical Studies,* which extensively explains symmetrical inversion, is "A New Technique in Composition" (see note 8).

[16] Ziehn's pieces are in the Helen Rudolph Heller Collection of the Newberry Library.

[17] Translated by the author.

[18] In a letter to Eugene Luening (Otto Luening's father) dated 1909 (now in the Otto Luening Collection of the New York Public Library at Lincoln Center), Ziehn points out that he is working theoretically with more than symmetrical inversion around D. Notice that "Albumblatt" is doing the same thing compositionally.

[19] Glenn Dillard Gunn was a champion of new music as a pianist, a conductor of the American Symphony Orchestra from 1915 to 1917, and a critic for the Chicago *Tribune.* Certain of his papers are now in the Glenn Dillard Gunn Collection, Library of Congress. See my article, "Glenn Dillard Gunn," *The New Grove Dictionary of American Music,* 1:1332.

[20] Bacon, "Our Musical Idiom," 2.

[21] Bacon confirmed this in a telephone interview with the author (22 April 1985).

[22] Bacon also acknowledges his debt to Busoni's idea of 113 scales. See Bacon, "Our Musical Idiom," 3.

[23] George Perle, *Twelve-tone Tonality* (Berkeley, Calif.: University of California Press, 1977), 18.

[24] Allen Forte, *The Structure of Atonal Music* (New Haven, Conn.: Yale University Press, 1973), 7–11.

[25] Forte, *The Structure of Atonal Music,* appendix 1.

[26] Forte, *The Structure of Atonal Music,* 3–5; John Rahn, *Basic Atonal Theory* (New York, 1981), 31–39.

[27] This copy is in the Otto Luening Papers at the New York Public Library at Lincoln Center.

[28] See "Afterword" to *Tributaries* (Ernst Bacon, 1978).

[29] Bacon, interview with the author, March 1986.

[30] See Ernst Bacon, *Notes,* 48–49.

[31] See *Fifty-Three Songs.* Otto Luening confirmed in an interview with the author (15 April 1985) that he and Bacon discussed the theories of Ziehn. Examples of symmetrical inversion also occur in Bacon's song "A Spider" (found in *Fifty-Three Songs*). See also *Spirits and Places for Organ* (Cincinnati, Ohio, 1974).

[32] The score to *The Words of Lao-Tzu* is housed at the American Music Center, New York.

[33] "Afterword" to *Tributaries.*

Some Principles of Structural Coherence in Varèse's *Amériques*

By Gail Dixon

At its premiere, *Amériques* (1918–1922), Edgard Varèse's first major work, was greeted with outrage:

> The last chord was still sounding when an indescribable din of hisses, cries and insulting epithets erupted in the hall. Those people forgot their usually distinguished manners and conducted themselves like hooligans, attacking the composer, the conductor and the musicians. One scandalized old woman shouted, "And he has the nerve to call it *America!*"[1]

Although the passage of time has moderated the critical appraisal of *Amériques,* it has done little to illuminate the principles of structural coherence in the piece. Only recently, with the writings of Jonathan Bernard in particular,[2] has Varèse's work been the subject of exhaustive analytic scrutiny, which, moreover, *Amériques* has so far eluded. The reason for this seems clear: even by twentieth-century standards the work is gargantuan—it is lengthy and scored for a very large orchestra.[3] The task of analyzing it is daunting, but there are compelling reasons for undertaking it. *Amériques* is Varèse's earliest surviving major work.[4] Moreover, Varèse himself designates it as his first fully mature composition: "With *Amériques* I began to write my own music, and I wish to live (or die) by my later works."[5]

In this paper I shall describe and illustrate some of the principles of structural coherence operative in *Amériques,* as well as some of the general compositional tenets and precepts that lie behind them. My study will be restricted to the opening of the work, to the first eight measures in particular; for the opening provides a clear and easily demonstrable application of these structural principles. This analysis of *Amériques* will deal exclusively with pitch materials, and it will draw in part upon the work of Jonathan Bernard.

Structural coherence and unity are created in *Amériques* by both traditional and innovative means. Traditional means, such as the exact or transformed repetition of materials, are hardly unique to Varèse. The use of symmetrical relations among pitch collections and of certain other transformational processes, however, is representative of the innovations so admired in his work. We shall begin by examining traditional means of creating structural unity, and then consider some of the innovations upon them.

The opening material, presented in the alto flute (example 1), is restated at least seven times during the course of the piece. This material gives the impression of a germinal idea, a basic material for development, especially on account of its reiterations in the opening measures. Later in the work it is transformed by intervallic and rhythmic permutations that grow more extensive as the work proceeds (example 2; this and all subsequent musical examples sound as written). The kind of transformational technique illustrated by example 2 follows no systematic procedure; the essential contour of the line is retained, but the choice of specific pitches does not appear to be governed by any preconceived plan. A large proportion of *Amériques* seems to have evolved from non-rigorous transformational techniques of this kind. At critical junctures in this and other of Varèse's scores, however, highly systematic procedures control the choice and registral placement of pitches, as Bernard and other analysts have demonstrated.[6] These procedures constitute an innovative and unique aspect of Varèse's work, and they are in many cases precisely described in his writings.

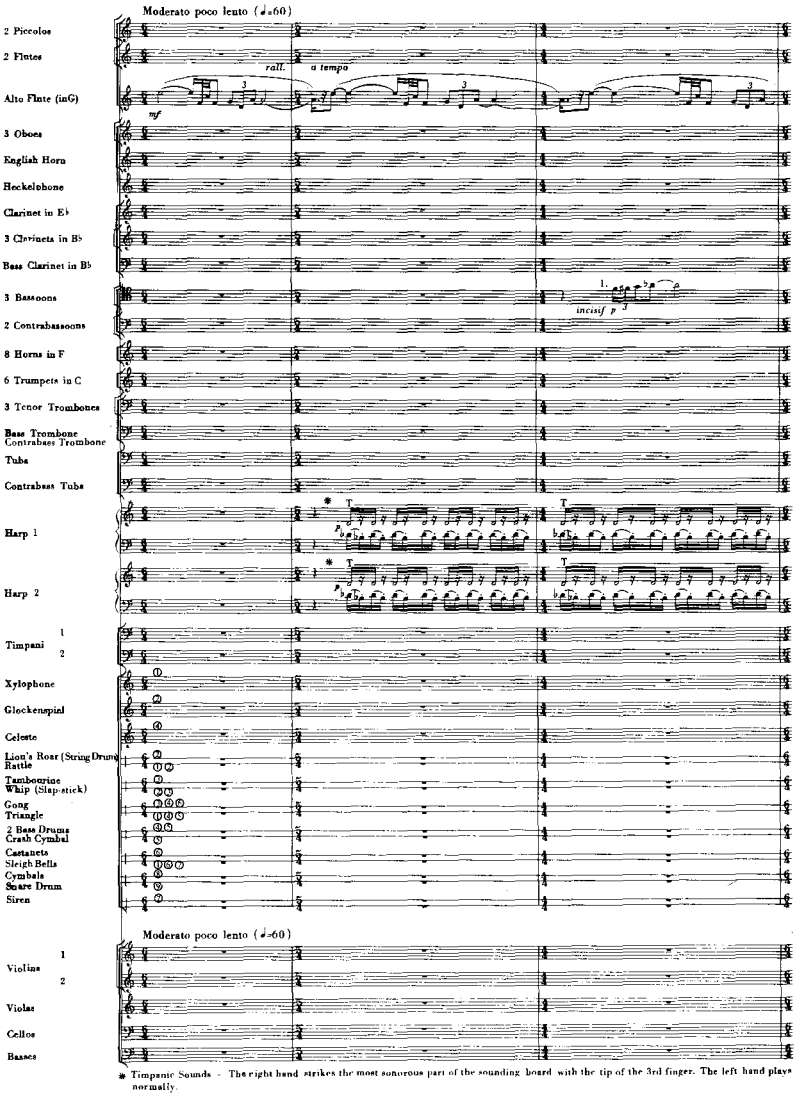
Varèse was not reticent in setting out his philosophical and compositional precepts. But he spoke and wrote in generalities that are susceptible to a variety of interpretations. I suspect that his vagueness and ambiguity were deliberate. In fact, Varèse's own words suggest that he purposely suppresses details of his compositional method. In a letter written in autumn 1934, he states:

> Be assured, that in spite of [questioners'] pressing demands, I did not reveal my ideas—I contented myself with spitting out expressions of praise and admiration, while secretly considering them to be poor fools. My conceptions will seem weighty—and perhaps soon, in a year or two—a lot of "highbrow" types will have respect—consideration for me—and a little fear also—just enough so that my conceptions will excite them by the threat they will pose.[7]

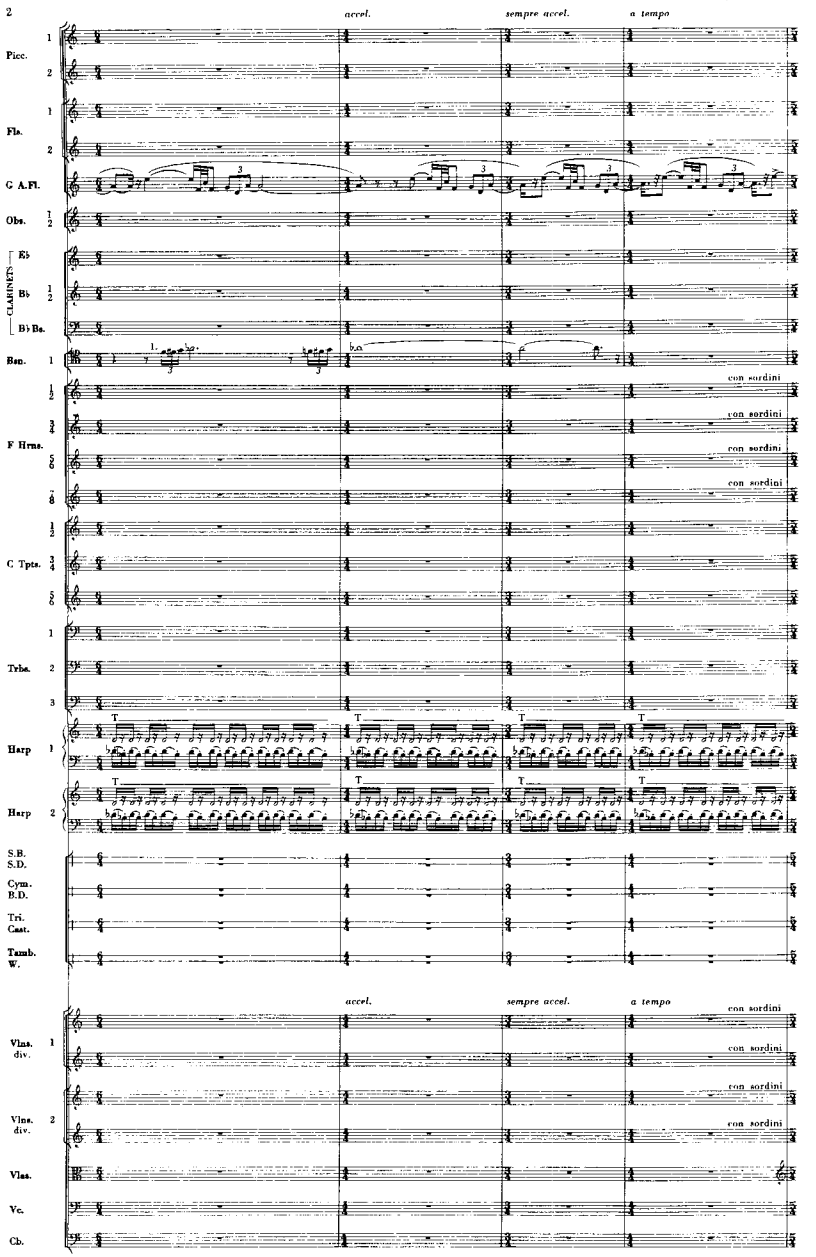
Varèse never did follow up on his half-promise to reveal his compositional methods. Fortunately, he was a prolific writer and lecturer throughout much of his life. His literary legacy is a richer source of information about his methods than is generally believed.

Many of the structural principles associated with his mature works stem directly from the visual imagery expressed in his writings. Varèse conceived of sound as "living matter"[8] that could be formed into "a shifting array of masses, planes and volumes in space."[9] In a famous passage from "The Liberation of Sound" he writes: "There is an idea, the basis of an internal structure, expanded or split into different shapes or groups of sound

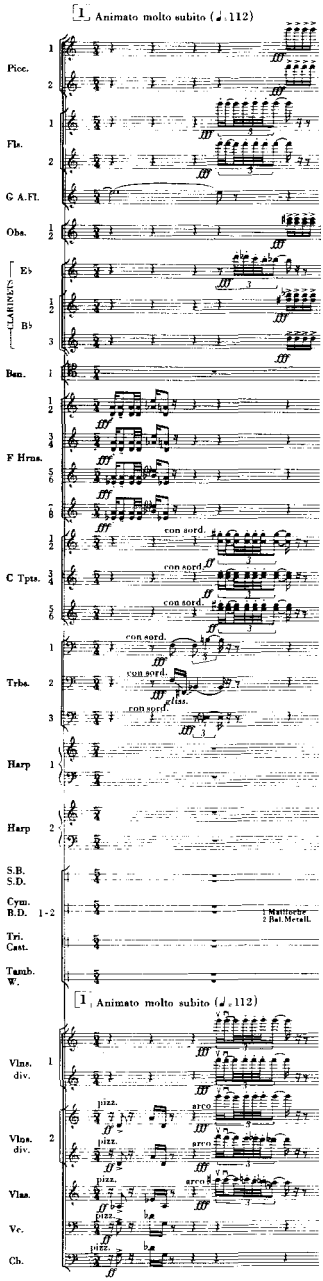
Example 1. *Amériques* (mm. 1–8). Reproduced from the full score revised and edited by Chou Wen-chung (New York: Colfranc Music Publishing Corp., [1973]; copyright assigned to G. Ricordi & Co. S.p.A., 1989). Reprinted with permission.



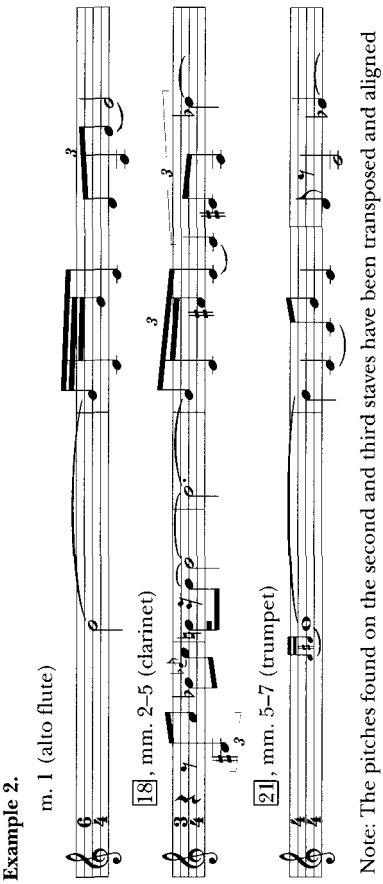
Example 1 (continued).



Example 1 (continued).



Example 2.



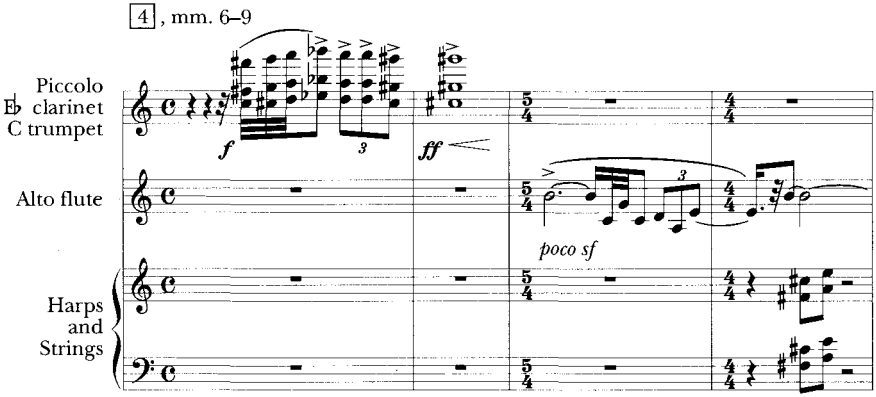
Note: The pitches found on the second and third staves have been transposed and aligned to facilitate comparison with those of the first.

constantly changing in shape, direction, and speed, attracted and repulsed by various forces. The form of the work is the consequence of this interaction."[10] The visual imagery suggested by this quotation translates quite literally into sound in the opening of *Amériques*. The "idea" is the alto flute theme, which I identified above as the basic material of subsequent development.

The flute theme as a whole comprises a chain of successive major and minor thirds, B-G-E-C-A, with one third, E-C, bisected by the tone D. At no point in the flute line do these thirds occur melodically; instead, to prevent the direct statement of the interval of the third, elements in the chain are omitted or the D is interpolated. Nonetheless, these latent major and minor thirds are crucial elements of the opening idea. They serve a generative role in the immediate continuation of the work: the minor thirds are reflected in the harp,[11] which presents a minor third vertically above B♭, and in the bassoon, which outlines a minor third horizontally above F. (The harp ostinato and the chromatic bassoon line lie within the registral bounds of the flute theme.) None of these three distinct pitch groups (those of the flute, harp, and bassoon) relates to another with respect to absolute pitch; that is to say, the collection that they form is not governed by a tertian quality referable to a generative pitch or chordal root. Instead, they relate to each other primarily in terms of their individual intervallic contours. Each of the three pitch groups is characterized by a specific contour, some unique representation of the interval of a third, be it major or minor, by itself or in combination. Subsequently, each group is manipulated in terms of this contour, not in terms of referential pitch, as is traditional (e.g., in tonal harmony).

In the various occurrences of this thematic material, the "idea," the basis for the internal structure, is "expanded or split into different shapes or groups of sound, constantly changing in shape, direction, and speed, attracted and repulsed by various forces. . . ." In mm. 6–9 after no. 4, for example, the alto flute part is essentially unchanged, but its intervallic components, the major and minor thirds, have been "split into different shapes or groups of sounds." The harp accompaniment has been shortened and now appears, rescored, as four disjunct blocks of sound (two of which have escaped the registral frame established by the flute part). The brief chromatic punctuation given originally in the bassoons in mm. 3–4 now precedes the alto flute solo. The bassoon figure has been lengthened and rescored for piccolo, E♭ clarinet, and trumpets, and now occurs as three disjunct blocks of sound. Two of the blocks encompass a major third,[12] the last a minor third. This material both exceeds the registral limits of the flute part and precedes it temporally (example 3).

Example 3.



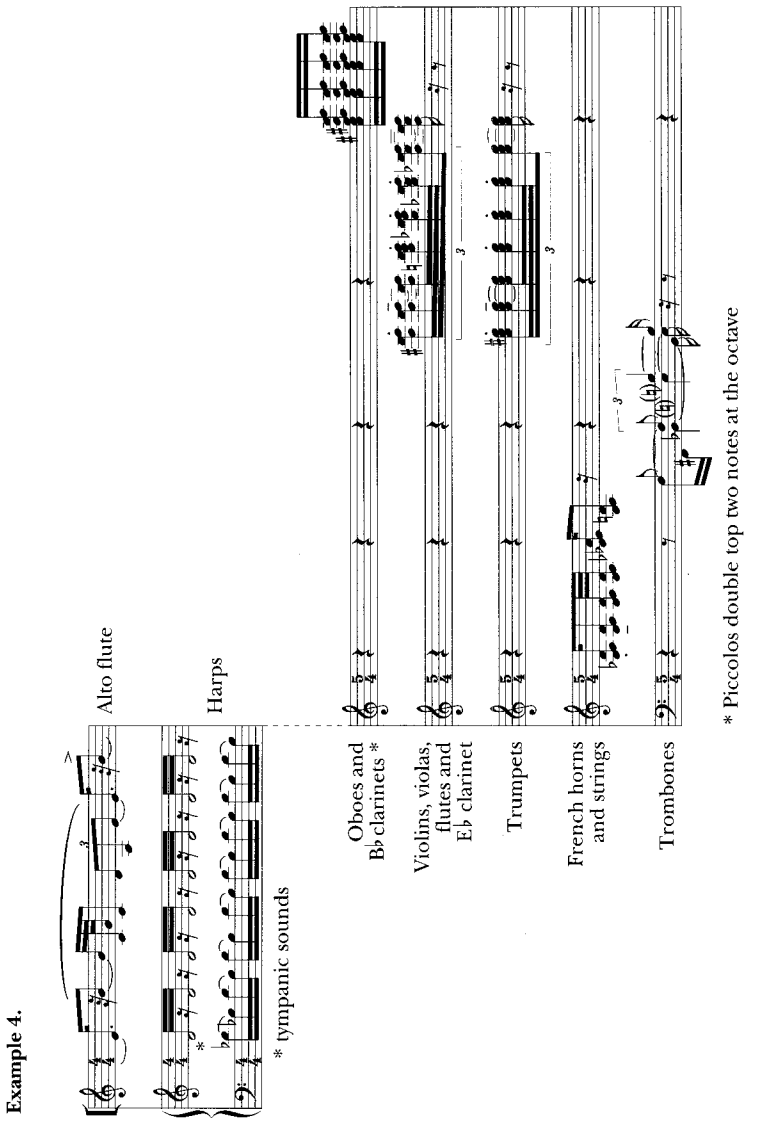
In m. 8 the peace and tranquility of the opening thematic material are interrupted by a very brief, but extraordinarily violent sonic explosion. The material contained in this measure is of the utmost importance structurally because it recurs, either in its original form or subtly altered, at critical junctures throughout the course of the work. Again, it can be shown that this manipulation of material corresponds to the visual images described by Varèse:

> When these sound-masses collide the phenomena of penetration or repulsion will seem to occur. Certain transformations taking place on certain planes will seem to be projected onto other planes, moving at different speeds and at different angles. . . .
> In the moving masses you would be conscious of their transmutations when they pass over different layers, when they penetrate certain opacities, or are dilated in certain rarefactions.[13]

In m. 8 occurs a collision of such sound-masses. The opening thematic sound-mass collides with another of exactly equal registral compass (cast a whole-tone lower), but of heavier weight (*fortissimo* French horns and lower strings). The immediate result of this collision, from the second half of beat 2 onward, is the atomization of both sound masses: the scattering of their components over a wide area (example 4). The intervals implicit in the opening alto flute line are now projected individually onto new planes, scored below and above the alto flute compass, and these coalesce into new, related sound-masses. For example, the trombone parts redistribute

the intervals of the seventh and the fifth that are so characteristic of the alto flute part, while the sound mass that occurs in the higher instruments in the second part of the measure is dominated by superimposed major thirds.

Example 4.

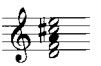


The second sound mass (extending from the second half of beat 2 to the end of m. 8) has its genesis in the alto flute line of m. 1, as do the bassoon and harp parts of the opening measures. This mass takes up the contours of the interval of a third, again without respect to absolute pitch content. (The presence of the major second F-G may require some explanation. Its source can be traced to the one tone in the flute theme that does not belong to the pattern of alternating major and minor thirds. That tone, D, bisects the interval C-E into two major seconds.)

One question springs to mind in looking at this section of the piece: are the actual positions that these new sound masses occupy in time and space the result of some logical process, or are they simply fortuitous, the product of a non-rigorous transformational technique? Would it have mattered to Varèse had the trumpet notes, for example, been all a half-tone higher or lower?

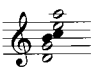
Bernard contends that Varèse does indeed employ a logical process to generate new pitch complexes from old. One of the premises upon which Bernard's theory rests is that "[i]n a truly spatial context—an approximation of Varèse's working frame of reference—criteria of absolute size and distance, in the vertical sense, must form the basis of structure."[14] As a corollary, one might contend that neither octave equivalence nor interval complementarity can be considered legitimate assumptions in the music of Varèse. Bernard also suggests that the vertical dimension must serve as the primary scale of reference.[15] In support of this premise he cites Varèse: "The new composers have not abandoned melody . . . there is a distinct melodic line running through their work. . . . But the line in our case is often vertical and not horizontal."[16] Bernard finds that the vertical structures and the transformational relationships that exist among them are based on the property of either mirror or parallel symmetry. Many exhibit only partial symmetry; they may be incomplete, or they may contain extraneous pitches. Example 5 illustrates the types of symmetry described by Bernard.

Example 5a. Mirror symmetry around a pitch.



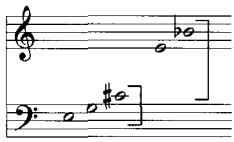
[3, 4, 4, 3]

Example 5b. Mirror symmetry around an interval.



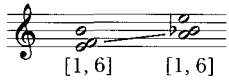
[5, 4, 1, 4, 5]

Example 5c. Parallel symmetry.

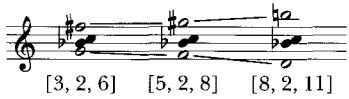


The relationships between vertical adjacencies are based on four processes which operate alone or, more frequently, in some combination. These processes are referred to as "projection," "expansion," "contraction," and "rotation." They are demonstrated in example 6. Frequently, only part of the vertical complex will be involved in the process.

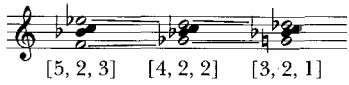
Example 6a. Projection. A vertical complex is transferred to another pitch level. All or only part of the complex may be projected.



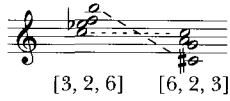
Example 6b. Expansion. New boundaries are generated by symmetrical expansion of outer pitches. The internal structure may or may not be symmetrical.



Example 6c. Contraction. New boundaries are generated by symmetrical contraction of outer pitches. The internal structure may or may not be symmetrical.



Example 6d. Rotation. A vertical complex is inverted.

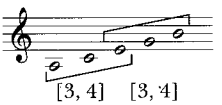


Bernard provides a number of examples to demonstrate the application of his theories to selected works of Varèse. Most of the examples he has chosen, however, are from later works, of which nearly two-thirds were written after 1934, and he makes no attempt in his article to discover the relevance of his theories to *Amériques.* Since these principles are clearly a hallmark of Varèse's mature style, their presence in *Amériques* would lend substance to Varèse's contention that this was indeed a mature work.

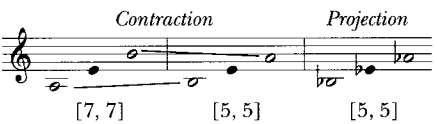
In certain selected portions of *Amériques,* these principles are undeniably operative. The first eight measures, already shown to demonstrate considerable logic in the evolution and the spatial and temporal deployment of motives, can also be shown to embody Bernard's symmetrical processes of generating new pitch complexes from old.[17]

The principal tones of the opening flute part exhibit parallel symmetry (example 7). The outer tones of the combined harp and bassoon parts, B♭ and A♭ (mm. 2 and 3, respectively), are generated by contraction and projection of the outer tones in the flute part, A♮ and B♮, as shown in example 8.

Example 7.

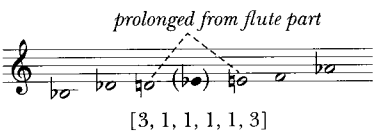


Example 8.



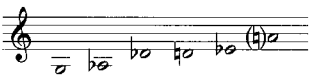
The interval between B♭ and A♭ is filled out in turn to form the complex shown in example 9. The B♭ and D♭ form the boundaries of the harp part; the F and A♭ form the boundaries of the bassoon part. The two tones immediately adjacent to the E♭ axis of symmetry are E and D, and both belong to the flute part. The significance of the D, a tone that was extraneous to the underlying tertian structure of the opening flute line, is clear retrospectively, after it becomes a component of a larger symmetry involving all the sonorities of mm. 2–3.

Example 9.

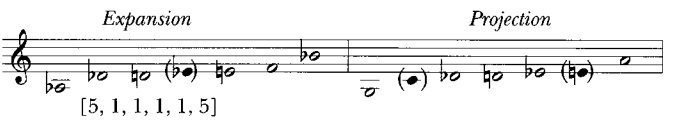


No new tones are added until m. 8, which opens with horns and strings sharing six pitches (example 10a). Five of these six pitches (G, D♭, D, E♭, and A) result from an expansion of the initial intervallic symmetry [3,1,1,1,1,3] of example 9, followed by a projection of the pitches a semitone lower (example 10b). The sixth tone, A♭, may be viewed in the context of either a mirror or parallel symmetry inherent to the sound-mass of m. 8 (example 10c).

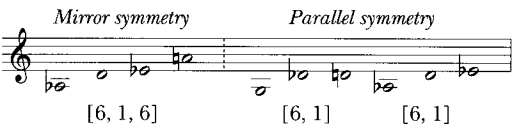
Example 10a.



Example 10b.

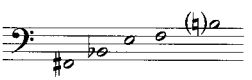


Example 10c.

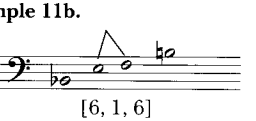


The IC 6 symmetry of example 10c generates the five-pitch trombone complex of measure 8 (example 11a). Simple projection of the mirror symmetry in example 10c yields the pitches shown in example 11b, while expansion of that same mirror symmetry in example 11c yields a complex that includes F♯, left unaccounted for by the operation in example 11b.

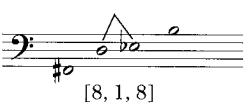
Example 11a.



Example 11b.

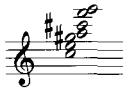


Example 11c.

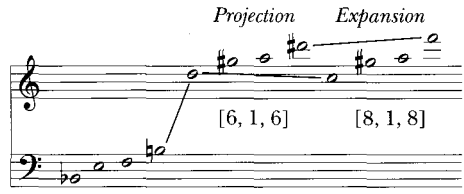


The last complex of m. 8 consists of seven pitches, six of which form contiguous augmented triads (example 12a). The boundary tones of each triad are generated from example 11b by projection and expansion (example 12b) and from example 11c by simple projection (example 12c). These boundary tones are fleshed out to form the interval complex [4,4,1,4,4], which is mirror-symmetrical about its central interval (example 12d). (Note also that the two triads stand in a parallel symmetrical relationship, [4,4][4,4].)

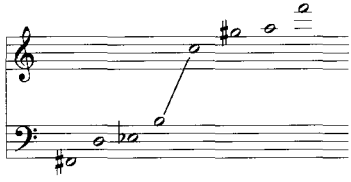
Example 12a.



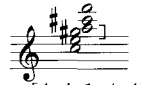
Example 12b.



Example 12c.



Example 12d.



One tone, G, the top pitch of example 12a, cannot be explained according to the processes described by Bernard. (It is possible that its significance is not intended to become clear until later in the work.) The G may simply be an accessory pitch to the F—a kind of doubling. Instances of similar pitch adjacencies high in the register abound throughout the piece (e.g., rehearsal no. 5, m. 7ff; rehearsal no. 20, m. 3ff; rehearsal no. 28, m. 5ff).

With the single exception of this G, then, every tone in the first eight measures can be explained according to the contraction, rotation, expansion, projection, and accompanying symmetrical relationships of the materials in the opening flute theme. Any attempt, however, to extend the principles of symmetry and the four processes of aggregate relation into some of the more complex areas of this piece would be fraught with difficulty. The dense textures typical of much of the work make this kind of analysis problematic. Large vertical complexes can be partitioned in so

many ways that symmetrical relationships, both within and between them, are fatally easy to create. It would be irresponsible for the analyst to claim that these symmetries stemmed necessarily from the generative processes of the composer. On the other hand, the evidence of the first eight measures suggests that Varèse was indeed experimenting at this time with evolving symmetrical complexes. It seems certain that the remainder of the piece embodies this technique at critical junctures in its development, though it is doubtful that the true extent to which it does so can ever be adequately determined.

I have isolated several principles of structural coherence in *Amériques,* in particular those principles involving pitch organization. These have ranged from traditional principles of thematic reccurence and transformation to the highly idiomatic principles typical of the mature Varèse. The latter govern the formation and evolution of motives, the spatial deployment of sound masses, and the symmetrical generation of vertical complexes. Clearly, structural coherence exists in this work, but it bears little resemblance to the comprehensive and highly integrated coherence so characteristic of the work of Varèse's exact contemporary, Anton Webern. Rather, the rich fabric of *Amériques* appears to be generated by a multiplicity of structural principles, none of which functions as the referential source for all the others. Furthermore, statements made by Varèse himself about his own compositional processes imply that, for him, no single structural principle becomes an end in itself; structural principles are in the service of intuition, not vice-versa:

> I want simply to project sound, a musical thought, to initiate it, and then to let it take its own course. I do not want an a priori control of all its aspects.[18]

Amériques, like all of Varèse's mature works, is a unique blend of rigor and intuition.

NOTES

[1] "La dernier accord sonnait encore qu'un vacarme indescriptible de sifflets, de cris, d'apostrophes injurieuses éclata dans la salle. Ces gens oubliaient leurs manières distinguées habituelles et se conduisaient comme des voyous, agressant l'auteur, le chef d'orchestre et les musiciens. Une vielle dame scandalisée s'écria: 'Et il a osé l'appeler America!'" (Hilda Jolivet, *Varèse* [Paris: Hachette Litterature, 1973], 74.)

[2] Especially, "Pitch/Register in the Music of Edgard Varèse," *Music Theory Spectrum* 3 (1981):1–25, and *The Music of Edgard Varèse* (New Haven: Yale University Press, 1987).

[3] There are sixty-six instruments in the revised version, a substantial reduction in number from the original.

[4] Earlier works, with the exception of the recently discovered *Un grand sommeil noir* (1906), appear to have been either lost or deliberately destroyed. For a discussion of *Un grand sommeil noir* and the circumstances of its discovery, see Larry Stempel, "Not Even Varèse Can be an Orphan," *The Musical Quarterly* 60 (1974):46–60, especially 52ff.

[5] Quoted in Chou Wen-Chung, "Varèse: A Sketch of the Man and His Music," *The Musical Quarterly* 52 (1966):164.

[6] See, in addition to the sources cited above, Milton Babbit, "Edgard Varèse: A Few Observations of His Music," *Perspectives of New Music* 4 (1966):14–22; Robert Cogan, *New Images of Musical Sound* (Cambridge: Harvard University Press, 1984), 96–102; Robert Erickson, *Sound Structure in Music* (Berkeley: University of California Press, 1975), 47–57; Larry Stempel, "Varèse's 'Awkwardness' and the Symmetry in the 'Frame of 12 Tones': An Analytic Approach," *The Musical Quarterly* 65 (1979):148–66; John Strawn, "The Intégrales of Edgard Varèse: Space, Mass, Element, and Form," *Perspectives of New Music* 17 (1978):138–60; András Wilhelm, "The Genesis of a Specific Twelve-tone System in the Works of Varèse," *Studia Musicologica* 19 (1977):203–226; Marc Wilkinson, "An Introduction to the Music of Edgard Varèse," *The Score and I.M.A. Magazine* 19 (1957):5–18.

[7] "[S]oyez assuré que malgré leurs demandes pressantes, je n'ai pas révélé mes idées—Je me contentai d'expectorer des phrases de louange et d'émerveillement—en les traitant en moi-même de pauvres c. . . . Mes conceptions me rapporteront lourd—et peut-être bientôt dans un ou deux ans—un tas de types de la haute 'phynance' ont respect—consideration pour moi—et un peu peur aussi—juste assez pour que mes conceptions les excitent par le danger qu'ils y recontrent." (Varèse, as quoted in Jolivet, *Varèse,* 26).

[8] Chou Wen-Chung, "Open Rather than Bounded," *Perspectives of New Music* 5 (1966):1.

[9] From Varèse's notes on *Espace,* as cited in John Vinton, *Dictionary of Contemporary Music,* s.v. "Varèse," 793.

[10] Varèse, "The Liberation of Sound," in *Contemporary Composers on Contemporary Music,* ed. Elliot Schwartz and Barney Childs (New York: Holt Rinehart and Winston, 1967), 203. See Strawn, "Intégrales," 155ff. and Wen-Chung, "A Sketch," 157ff. for other analyses of this passage.

[11] Note that the notated D♮ in the harp parts is a tympanic sound and, as such, has no specific pitch.

[12] The major thirds are notated as diminished fourths.

[13] Varèse, "The Liberation of Sound," 197.

[14] Bernard, "Pitch/Register," 4.

[15] Ibid., 3.

[16] Varèse, as quoted in Louise Varèse, *Varèse: A Looking-Glass Diary* (New York: W. W. Norton, 1972), 211, and cited by Bernard, "Pitch/Register," 2.

[17] The author gratefully acknowledges the contributions of Gordon Sly to the initial preparation of the musical examples that follow.

[18] Varèse, as quoted in Gunther Schuller, "Conversations With Varèse," *Perspectives of New Music* 3 (1964–65):37.

reviews

James Kippen. *The Tabla of Lucknow: A cultural analysis of a musical tradition.* Cambridge: Cambridge University Press, 1988.

The city of Lucknow was the center of fine arts patronage in North India from the mid-eighteenth century until the Indian Mutiny of 1857. Although its cultural prominence has been in decline ever since, Lucknow remains host to one of the major *gharanas* (family musical traditions) of the Hindustani drum-pair, the tabla. The Lucknow *gharana* and its cultural setting are the subjects of James Kippen's worthy study, *The Tabla of Lucknow.*

The emphasis of many modern ethnomusicological studies has shifted away from the study of reified musical products to a more humanistic, anthropologically-informed focus upon musicians, socio-cultural contexts, performance norms, and emic conceptions about music. Kippen makes it clear that his intent is to "tread the middle path" between these two approaches, giving relatively equal weight to each. In such a relatively slim (222 pages) volume, such a treatment necessarily precludes the depth and breadth of the focussed studies of tabla music by Stewart and Gottlieb, as well as the extensive anthropological research of Neuman.[1] Nevertheless, the emphasis on the under-researched Lucknow school and, more importantly, the abundance of fresh insights and original material make Kippen's book a highly informative and valuable contribution to the study of Indian music.

Kippen's first three chapters consist of a concise and highly readable "history of music" (by which he means classical and light-classical music) and description of cultural life in Lucknow, from its heyday as the site of the final sunset of Mughal culture, up to the present, which finds the city as a relatively provincial backwater. Despite the primary focus upon Lucknow, many of Kippen's observations apply to North Indian music and culture in general. Particularly illuminating are his discussions of the attitudes musicians and audiences hold toward each other, and the complex and in some cases conflicting social hierarchies by which classical musicians rank themselves. Kippen outlines clearly the various parameters governing these hierarchies, *viz.*, caste, employment, age, wealth, education, *gharana,* instrumental medium, and of course, expertise. His discussion of "politics"—i.e., the back-biting, jealousy, intrigue, and sordid competition endemic among Hindustani musicians—eloquently portrays the way these unsavory features of cultural life balance the refined etiquette, gentility,

and polished speech for which Lucknovites are celebrated. The author's frequent introduction of his own personal vignettes and experiences lends much immediacy and credibility to his arguments and style, while avoiding the self-indulgence found in some contemporary ethnological studies. Throughout the book, however, Kippen places primary emphasis on the emic, i.e., on the attitudes of his informants and of Indians in general.

It is not until the fourth chapter that Kippen finally addresses the tabla. He commences by convincingly refuting Neuman's (rather dated) assertion that tabla lineages are not true *gharanas,* but rather are organized in terms of *biradaris* or "brotherhoods";[2] anyone immersed in the Indian music scene discovers, as Kippen observes, that tabla players and other Hindustani musicians do routinely refer to tabla schools as *gharanas,* even if they are not so esteemed as vocal *gharanas.* The Lucknow *gharana* of tabla, as Kippen outlines, evolved primarily in connection with *kathak* dance, which played only a secondary formative role in the development of other tabla styles. This tie with *kathak,* while lending the *gharana* a distinctive style and repertoire, came to constitute a liability insofar as it implied a close association with the courtesans (*tawa'ifs*), who, although once custodians of high culture, are now regarded as embarrassments by the new patrons of Indian music, the bourgeoisie. More dramatically, Lucknow tabla players have suffered from the general decline of public interest in art music in their city, as patronage has shifted to the industrial centers of Delhi, Bombay, and Calcutta. Public concerts in Lucknow are now rarities, the *tawa'if* world has degenerated, and the remaining musicians must compete for private tuitions, irregular radio and television opportunities, and frustrating teaching positions at the Bhatkhande Music College.

Kippen discusses how today's tabla players—indeed, like many Hindustani musicians—have deliberately tried to create a new image for themselves as educated, "respectable," and middle-class, in order to disassociate themselves from the persisting bourgeois ambivalence toward traditional musicians as illiterate, unscrupulous sidekicks of *tawa'ifs.* Conversely, classical musicians tend to regard their new audience—the middle class—as boors, addicted to light *ghazals* and film music and incomparably more ignorant of art music than were the former patrons of classical music, the feudal elite. Given the stagnant musical scene in Lucknow, and the inherently recondite nature of many aspects of tabla music, Kippen's observations, while again applicable to the Hindustani music scene as a whole, are particularly apt for Lucknow tabla players.

Kippen's book is one of the few publications to discuss stylistic adaptations that tabla style has undergone in accommodating to its new role as accompaniment to instrumental music. He shows that the new emphasis on virtuosity has led to many brilliant innovations while stressing faster,

easier, more dramatic "machine-gun" patterns at the expense of more varied and difficult traditional strokes and compositions which are harder to execute at fast speeds. While Zakir Hussein must still be regarded as one of the most extraordinary geniuses of twentieth-century Indian music, it is interesting to find Kippen daring to fault him, however respectfully, in this matter. Also of interest is Kippen's assertion that sitarist Ravi Shankar must be regarded as one of the most important figures in modern tabla music, since it was allegedly he who commenced the practice of allowing the previously subjugated tabla players to play solos in a duet format with the melodic instrument. Perhaps Ravi Shankar's teacher, Allaudin Khan, should be better credited with this important innovation, since contemporary recordings of other instrumentalists suggest that the practice was in vogue at least by 1950.

Chapter VI is devoted to tabla pedagogy, and contrasts the traditional *gurushishya* ("teacher-disciple") format with the uninspired, under-funded, impersonal, and generally inefficient situation prevailing in the Bhatkhande College, as in innumerable other music schools and departments throughout the country. Kippen rightly doubts the inflated boasts that musicians are wont to make about the length and intensity of their practice, but certainly goes too far in stating that he "rarely came across a musician who could be said to be displaying anything even remotely resembling discipline and perseverance in practice" (p. 128). The technical virtuosity expected of modern Hindustani musicians cannot be acquired without years of diligence; my own impression is that most competent musicians have indeed practiced at least two or three hours daily throughout their formative—primarily teenage—years, although this is a far cry from the claims frequently heard from Indian musicians.

The last two chapters describe the Lucknow tabla style in technical terms, employing graphs and a modified notation system which the author has devised to illustrate finger techniques as well as sound. A cassette containing the relevant examples can be obtained from the publisher.

Much scholarly work on the tabla remains to be done, exploring such matters as the early development of its repertoire, the way the instrument accompanies dance, and the original purpose and context of the tabla's vast—and generally unused—solo repertoire. Kippen's book, nevertheless, provides a distinctively insightful contribution to the study of the tabla, and in this reviewer's opinion constitutes one of the better books on Indian music in recent years. It is a pity that at $65.00 (plus $14.95 for the cassette) the book may be too expensive for many interested readers.

—*Peter Manuel*

NOTES

[1] Robert Gottlieb, *The Major Traditions of North Indian Drumming*, 2 vols. (Munich: Emil Katzbibhler, 1977); Daniel Neuman, "The Cultural Structure and Social Organization of Musicians in India: The Perspective from Delhi," Ph.D. diss., University of Illinois at Urbana-Champagne, 1975; and Rebecca Stewart, "The Tabla in Perspective," Ph.D. diss., University of California, Los Angeles, 1974.

[2] Neuman, "The Cultural Structure," 147, 207.

Nicholas Kenyon, ed. ***Authenticity and Early Music.*** Oxford and New York: Oxford University Press, 1988. 219 pages.

"Do we really want to talk about 'authenticity' any more?" asks Richard Taruskin at the start of his contribution to this collection of essays. Rhetorically, the question seeks an emphatic no, but the appearance of the volume and of a barrage of reviews and subsequent writings proves that the real answer is yes.[1] Taruskin's essay, "The Pastness of the Present and the Presence of the Past," is the seventh and longest of the contributions to this "symposium," as Nicholas Kenyon, editor of *Early Music,* calls it in his preface to the volume. As Kenyon explains (p. x), the essays stem from a series of conferences held at the Oberlin, Ohio, Conservatory of Music during the academic year 1986–7, in the course of which were offered panel discussions and concerts, as well as formal papers.

The essays make for stimulating reading, although they hardly add up to a rounded treatment of the subject. The book is a continuation of a set of much smaller essays published in the February 1984 issue of *Early Music* under the heading "The Limits of Authenticity."[2] But the inclusion of an essay concerned with text-editing (Philipp Brett) signals an extension of the discussion beyond the sphere of performance practice, as do the efforts toward what amounts to cultural and historical criticism by Robert Morgan and Gary Tomlinson, respectively. Nevertheless, in a book-length treatment of the topic it is fair to look for a serious consideration of authenticity as a problem of musical aesthetics, and of the meaning of "authenticity" in the arts in general. Several of the writers make stabs in this direction, but only as parries in the course of other arguments. Just about every writer seems to connect the concept of authenticity with Ranke's phrase *wie es eigentlich gewesen,* but only Kenyon, in his introduction (p. 13), begins to explore the possible meanings of this deceptively simple expression, usually taken as representing a commitment to "positivistic historicism" (Taruskin, p. 201).[3] Performance practice remains the focus of most of the essays, yet the contributors are better known for their work in print than in the concert hall or conservatory. Only Taruskin includes any substantive discussion of the specific, concrete choices about instruments, tempo, and so forth, that are made by real musicians in real performances. Even he makes few references to the latest (and, to my mind, most exciting) generation of "authentic" performers, and the contributions by Morgan and Tomlinson make little connection with the actual business of performing or even listening to early music, although in Tomlinson's case this appears to be part of the point he is trying to make.

Although the title of the book promises reference to the whole vaguely defined expanse of "early music," the great majority of works referred to are from the fraction of the repertory that has been more or less canonical since the late nineteenth century—above all, the instrumental music of J. S. Bach. Only the essay by Howard Mayer Brown gives more than passing attention to those repertories which "can scarcely be played at all in a convincing manner unless musicians use techniques or instruments different from those in current use" (p. 28); he mentions medieval and French Baroque music in particular. Other major repertories are barely even mentioned, notably *opera seria,* in which not only music but costume, stage design, lighting, and movement are all now being brought to life by proponents of authentic performance practice. Perhaps, however, this is not surprising; most of the controversy over authenticity stems from its perceived threat to familiar ways of performing the eighteenth- and nineteenth-century canon.

While the liveliest and most provocative essays are, naturally, the more polemical ones, I suspect that it is the more purely historical discussions that will prove to be of lasting value. The most useful part of Taruskin's essay may be his discussion of the neoclassic music of Stravinsky and its relationship to "sewing-machine Bach," and to certain misconceptions of Baroque rhythm promulgated in the 1960s. Morgan ("Tradition, Anxiety, and the Current Musical Scene") offers a comparison between Stravinsky's neoclassicism and that of Schoenberg. Brett's contribution, "Text, Context, and the Early Music Editor," has little to say about "authenticity" as usually understood, but it contains a useful summary of the basic issues of music editing, and students of the subject will be able to glean a basic bibliography of writings on editorial method from Brett's footnotes. Brown ("Pedantry or Liberation? A Sketch of the Historical Performance Movement") offers a valuable survey of "early music" from its beginnings through the early 1970s. And the contributions by Nicholas Kenyon and Will Crutchfield contain some perceptive observations about the current performing world, although Kenyon perhaps places a disproportionate emphasis on a rather small number of British performers.

Brett, while elevating the editor to the position of a "historical critic" (p. 107), is nevertheless conscious of the limited relevance of the printed text to performance in certain repertories. Still, he quite sensibly takes the edited text as the basis for all further interpretation, whatever "critical or theoretical currents sweep towards the shores of musicology" (p. 112). His discussion of the arcane controversies over the various philosophies of editing is concerned ultimately with the question of which approach leads to the most authentic type of text. In practice, however, the choice between the "best-text" ("single-source") approach and various collational

methods is as likely to depend upon the nature of the work and of its sources as on the editor's theoretical orientation. An "authentic" text can surely be discerned in a print overseen by the composer, as in the case of Byrd's vocal works, which Brett discusses (pp. 107–109). On the other hand, for most of Byrd's keyboard music one has little choice but to collate readings from various equally poor copies, and to emend heavily in passages for which no copy gives a musically coherent reading. Even in the latter case, an editor can still imagine that he or she is reconstructing the type of text that Byrd himself would have presented in a printed edition, since one can emend according to rules of style deduced from authentic texts. But in repertories like chant or the early motet, where practically every source presents a different version of the work, any musically plausible early text must be considered authentic. Each such text, to borrow an idea of Leo Treitler's, represents an authentic recreation of the work; the situation is similar to that of *opera seria,* in which, as Brett notes (p. 107), each production was in effect a new version, and moreover a version represented only very partially by the written text.

Realizing such a text has been the traditional task of studies in authentic performance practice, and Brown begins with a concise statement of the philosophical questions attending the exercise: "Should we play music in the way the composer intended it, or at least in the way his contemporaries could have heard it. . . ? How do we know what the composer intended? How fixed were his intentions? However fixed they were, how closely should we feel obliged to follow them?" (p. 27) There is no reason to confine these questions to "early music," as Brown does; nevertheless, Brown is the only contributor whose essay seems to acknowledge the full breadth of performance practice as a musicological discipline, or the extent to which it has contributed to the present state of knowledge about early music. This is evident, for example, in his statement, quoted earlier, about the necessity of the "authentic" approach for the performance of at least certain repertories. But are there in fact any repertories that can be performed without some consideration of "authenticity"? That is, can any music of the past be validly interpreted entirely within the conventions of some "current" performing tradition? Only a pedant would answer no; one could hardly rule "invalid" all the present-day performances not only of nineteenth- and twentieth-century music but also of much older pieces that, either willfully or out of ignorance, are presented according to the "modern" tradition. The real question is whether, or in what sense, these or any other performances can be called "authentic." Naive listeners—and perhaps even some distinguished performers, such as Christopher Hogwood, a few of whose less well-considered pronouncements on the topic receive a merciless bashing from several of the writers—may take

"authenticity" to be a simple matter of following the composer's "intentions" or recreating specific performances of the past. But implicit even in these simple views is the intuition that there are right and wrong ways of performing compositions.

"Right" has often been equated with "original," and the latter in turn with "as intended by the composer." While there are problems with assuming each of these equations throughout the various repertories of Western music, it seems disingenuous for Taruskin to declare, "We cannot know intentions. . . . Composers do not always express them" (p. 145). Obviously a score records certain intentions with respect to certain musical parameters; the whole debate is over which of the composer's or notator's intentions—that is, his or her expectations as to how the notation will be interpreted—are integral to the work and which are legitimately subject to alteration, reconstruction, or, in the absence of relevant information, to the performer's invention. We do, after all, recognize Western music as a repertory of works having certain ascertainable properties, and at least some of the latter depend upon the use of certain historic performing practices, just as others depend upon possessing an authentic text. Authentic performing practice can hardly reside in a "sense of presentness, conviction, genuineness, of an absence of falseness," as Leo Treitler has succinctly defined one concept of authenticity alluded to at several points in the present volume.[4] This definition of authenticity, at least as applied to performance, substitutes for a verifiable authenticity one that depends on the state of mind of the claimant; it seems to equate authenticity with sincerity, or with a mere pretense or appearance of truthfulness. In the present context, however, we are concerned with the ranges within which the musical parameters defined by or implicit in the score and its surrounding musical tradition can be varied without destroying the integrity of the work.

To take an extreme case, I think most listeners would rate inauthentic the substitution of marching band for orchestra in a performance of a Beethoven symphony. Novel, even interesting, perhaps—but not authentic, even if the work were so arranged as to preserve all of the original notes without adding any others. The change in instrumentation would actually be only the first of many other alterations that would necessarily follow. A sensitive conductor who consented to direct such a travesty would probably find his decisions about phrasing, tempo, and balance, for example, affected in one way or another. Most important of all, I think that listeners would find the expressive element of the work changed in significant ways.

Indeed, it is ultimately the effect on the expressive aspects of the familiar classics that causes so many listeners and musicians to see red when

they hear "historically informed" performances (or "uninformed" ones, depending on preference). The "conviction" that is one of Crutchfield's subjects (in "Fashion, Conviction, and Performance Style in an Age of Revivals") is for most performers a commitment to a particular expressive quality or "meaning" in a work. But conviction in this sense seems itself a part of a romantic aesthetic. Musicians and listeners at all times have been moved by music and in many different times and places have attached emotional significance to it, but the idea that music exists primarily in order to convey or project emotional quantities to a paying audience seems to be a fairly modern one. Modern audiences, conversely, seem to have lost the ability to respond to the intellectual content—including wit and humor—found in so much earlier music, although if Taruskin is right they nevertheless prefer performances marked by an "absence of subjective reflection" (p. 187). It seems wrong, however, to allow general impressions of how modern musicians perform or how audiences respond to works of the past to influence a decision as to whether or not one can uncover authentic elements of performance practice, including expressive character.

That there is indeed such a thing as a work's authentic expressive character, and that it is capable of being conveyed in performance, cannot be argued here.[5] But it is worth noting that one source of this expressive character lies in intertextuality—the references between different compositions—and that this is a matter involving not only what Anthony Newcomb has called "expressive meaning,"[6] but also authenticity. A performance of a Bach sarabande may remind us of Rameau or it may remind us of Verdi, depending on how it is played; either version may convey some "expressive meaning," but if the Verdiesque element overpowers the Ramellian the "expressive meaning" is likely to be an inauthentic one.

To be sure, the word "authenticity" has been debased by careless use in "commercial propaganda" (Taruskin, 137), and I would be reluctant to apply the word to performances as such, preferring to use it for particular aspects of a performance, such as instrumentation or articulation. Naturally, there exists the possibility of confusion with other types of authenticity, such as that mentioned by Treitler, or that of an authentic attribution.[7] The latter is of greater importance in the visual arts, but even these raise problems corresponding to that of authenticity in performance. One might consider the case of a stained-glass window displayed in patently "inauthentic" lighting (e.g., the glow of a neon lamp), or—to raise two more timely issues—the cleaning and restoration of Old Master frescoes, or the "colorizing" of black and white movies. In each of these cases, as in that of musical performance, authenticity involves showing the work in its true colors—not an unproblematic concept, but hardly as slippery or dis-

honest as Taruskin seems to imply.

For, as Brown notes, "the whole purpose of playing early music authentically is for the sake of the music" (p. 55); the impulse arises not from a romantic historicism but from respect for the works themselves, which "modern" performances tend to turn into reflections of later, more familiar ones. "Authentic" performance practice has opened up all sorts of possibilities not dreamt of within the late-Romantic tradition, while also helping to explain all manner of curious anomalies even in canonic works (such as Beethoven's pedal markings, which are routinely ignored or willfully misinterpreted by modern pianists—as Chopin's still are). One product of this has been to make strange—to de-familiarize—favorite pieces. But the point of this is more than mere novelty; it causes us to reconsider the meaning of the pieces themselves, and, as in any challenging performance, prevents listening to music from being merely an exercise in nostalgia. In short, it provokes a reexamination of the work, as much as any good analysis or historical discussion would do.

Morgan seems to have overlooked this, repeating the old canard that "the tendency of the authenticity movement . . . is to place older music in a museum" (p. 81). By this Morgan presumably means to invoke the familiar if unfair caricature of the museum as a dusty collection of useless relics, unimaginatively displayed; in fact his image is as appropriate to some of the "modern" performing groups as it is to "authentic" ones. There is, however, much truth in Morgan's deeper point, that the concern with authenticity is somehow connected with other aspects of modern culture. Unfortunately, Morgan treats the "concern for historical authenticity" as a sort of disease; it "represents an unmistakable symptom of the present situation of our musical culture, a situation characterized by an extraordinary degree of insecurity, uncertainty, and self-doubt . . ." (p. 57). It is understandable that a distinguished composer and theorist such as Morgan should be made uneasy by our living in what Crutchfield terms, in the title of his essay, "an Age of Revivals." But while ours is perhaps the first culture that has made extensive use of old music, the world is full of present and past cultures in which older literature, painting, sculpture, drama, and other art-forms have been an important focus of attention and the chief source of inspiration for new works. There is nothing pathological about this, although a Romantic fetish for the "new" still causes many to disparage the more tradition-bound cultures of, say, ancient Egypt, the medieval West, and virtually the entire history of China. At any rate, we hardly lack for new compositions, although it is true that older Western music, whether or not performed "authentically," continues—perhaps by design—to be more accessible and appealing to the average modern listener.

Even so, there is no reason why a concern with the music of the past cannot co-exist with a truly vital tradition of contemporary music and performance. Morgan seems to agree, but he does not explain how old works are to be given "new life through an infusion of new ideas, lending them the sort of richness and flexibility characteristic of a living tradition . . ." (p. 70). Does this mean making Stokowski-style arrangements of Bach works? Or does it mean investing the works with tired post-romantic mannerisms, as is the case in performances by some "modern" performers specializing in old music? What, after all, is the value of "new" ideas if they are grafted inorganically onto works to which they are irrelevant?

Morgan raises a more serious issue when he suggests that, because we hear most early works in public concerts—he might have said, rather, in recordings—they have been removed from their original "cultural environment" and therefore have lost their "authentic function" (p. 71). But just what was the authentic function of a virtuoso Mass by Josquin or a *concerto da chiesa* by Corelli? If such things were *only* church music and served no aesthetic function, then more routine, artistically insignificant works could have served the same purpose. The elaborate church services and secular ceremonies in which such music often played a role can hardly be restaged today, but such events are not necessarily the true "environment" or "context" for the works, many of which were created in the expectation that they would eventually be re-used for other purposes. The fact that one once had to attend such events in order to hear beautiful music explains many aspects of the works, but one could argue that the primary purpose for the individual works was nevertheless to answer what we would call an artistic or aesthetic impulse—even if the original listeners would have found such an idea difficult to express or to accept.

"Context" is also a concern in the essay by Tomlinson, who seems to value context, in the guise of what he calls "authentic meaning," above the music itself: "Our interest in creating the authentic sounds of music can be justified only by our belief that they lead us closer to its authentic meanings" (p. 115). For Tomlinson, the latter is a product not of a musician's interpretation but of a historian's attempt at a "reconstruction of the historical moment when the work of music came into being," as Rosen puts it.[8]

As illustration, Tomlinson discusses an early humanist drama (Angel Poliziano's *Orfeo*) for which the music does not even survive. But, even if the music sung by Baccio Ugolini had been written down, its "historical interpretation," like that of any musical composition, would have to be fundamentally musical in nature. It is not enough to say that "depth of understanding increases with the complexity and richness of the context . . ." (p. 134); one has to explain precisely how the context illuminates

the work of music, whose "meanings" are peculiarly *musical* ones that can be discussed, if at all, only with the aid of musical analysis. The type of meaning discussed by Tomlinson, which seems to emerge from cross-references between a work and its cultural context—in this case, Poliziano's and especially Ugolini's supposed neo-Platonic preoccupations—is *perhaps* relevant to the interpretation of the play's text, and thus might have borne some relationship to its music.[9] But musical meaning cannot be located in historical arcana hidden from the senses; on the contrary, it is part of the experience of every listener, learned or not learned. The "context" or "environment" of a composition consists not only of pertinent historical data but of other compositions; how they are performed may be as important as the actual notes of which they are composed.

This, of course, brings us back to the problem of establishing authenticity. We feel intuitively that Ugolini's singing—or, for that matter, the music of Attic drama—must have been worth hearing, and we wish we could experience it as we experience more profusely documented music. Yet we also know that what is authentic one day may become a misunderstanding a day later. This fact, however, does not pose an argument against the concept of authenticity, but merely confirms that what we know about the performance of old music is subject to the same revisions as other historical knowledge and historical interpretations. Moreover, it is wrong to impute to Hogwood and others the preoccupations of neo-classical Stravinsky by asserting that they belong to a modern tradition that "essentially treats the music performed as if it were composed—or at least performed—by Stravinsky" (Taruskin, 166). Taruskin finds significance in the fact that twentieth-century performances of Bach, "historically informed" or not, tend to be "geometric," like Stravinsky's neo-Classic works, rather than "vitalist," as in the romanticized performances of the late nineteenth century. But the Furtwängler performances that Taruskin holds up as examples of the "vitalistic" approach probably represented extremes even within their own tradition. In any case, so far as we know, Bach's own performances were more like Hogwood's than Furtwängler's, with respect to sonorities, tempos, rhythms, and, above all, expressive character.

How important is this? Twentieth-century composers have written about the degree to which "new" music depends on the physical nature of sound, or the method of producing sound on particular instruments.[10] While earlier composers may not have consciously invented new sonorities, it would be a mistake to suppose that sonority is not just as essential to their music, especially as every other element of music—tempo, balance, and so forth—depends upon it. You cannot simply play a Beethoven sonata on the modern piano without making innumerable departures from what one might do on an earlier sort of instrument, changes, which lead ulti-

mately to a somewhat altered view of the expressive character of the music.[11]

Of course a good (or "authentic") performance of early music is hardly guaranteed by the use of an appropriate instrument or technique—a point made repeatedly by several writers here. Conversely, the use of "modern," i.e., late- or post-Romantic, instruments does not guarantee authenticity in more recent works. Taruskin asks why we do not now hear authentic performances of Tchaikovsky, that is, ones resembling those still audible in turn-of-the-century recordings. It may well be that such performances do not "please us" (p. 206), but the whole point of "authenticity" is doing things in ways that are not, at first, pleasing, if only because they are unfamiliar. In the case of Tchaikovsky, it is also likely that few if any living performers really can play in the late nineteenth-century Russian manner, and fewer still have thought seriously of doing so.[12] Taruskin seems to feel that reviving authentic "scoops and slides" in Tchaikovsky would be a mistake, yet why should a "modern" or "Stravinskian" style be more appropriate to such music? Perhaps we have been deprived of an important element in the meaning of this particular repertory.

No doubt there will always be performers unconcerned with authenticity, just as there are writers on music more concerned with arbitrary "criticism" than with scholarship. Kenyon's introduction to the present book uses the past tense in recounting the accomplishments of the "period-instrument movement," but the latter has hardly touched most performers, at least in America—a point of which Crutchfield is well aware (see p. 20). Even many early music groups continue to operate along the lines of Noah Greenberg's Pro Musica, which was exciting in its heyday (the 1960s) because of its professionalism and musical conviction, but whose approach now seems a quaint exercise in creative anachronism, like those "Renaissance Faires" in which King Arthur's Dark-Age warriors joust with Elizabethan courtiers and a good time is had by all. On the other hand, the better informed early music groups have clearly been influenced by contemporary cultural fashions that leave far behind the early twentieth-century "geometricism" described by Taruskin. Thus Reinhard Goebbels and Musica Antiqua Köln improvise cadenzas in a Gabrieli sonata with bop-like intensity and make a Philip Glass-like continuum out of Bach's recently discovered infinite canons on the Goldberg bass. Some of this is no doubt as inauthentic as Franz Brüggen's romantically conducted performances of Beethoven's "Eroica," which Taruskin has blasted in a recent *Times* article.[13] But such performances will serve as a counter-weight to the under-nuanced exercises in literalism that Taruskin attacks in the present volume, with equal justification. In the resulting dialectic, a small number of superior musicians will produce performances that will be sufficiently

authentic *and* musically convincing to shape the way in which the next generation of listeners, including historically minded critics like Tomlinson, will understand early music.

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NOTES

[1] The most important review is perhaps that by Charles Rosen in *The New York Review of Books* ("The Shock of the Old," vol. 37[12], July 19, 1990, pp. 46–52).

[2] See *Early Music* 12 (1984):3–25. The further "Observations" (ibid., 517–25) form an essential continuation of the series.

[3] The "positivistic" interpretation of the phrase may be a mistake; see Leo Treitler, "History, Criticism, and Beethoven's Ninth Symphony," in *Music and the Historical Imagination* (Cambridge, Mass.: Harvard University Press, 1989), 310–11 (note 26).

[4] Leo Treitler, "The Power of Positivist Thinking" (a review of Joseph Kerman's *Contemplating Musicology*), *Journal of the American Musicological Society* 42 (1989):399.

[5] I attempt to show this in "Expression and Authenticity in the Harpsichord Music of J. S. Bach," *Journal of Musicology* 8 (1990), 449–76.

[6] See his review of Peter Kivy's *The Corded Shell:* "Sound and Feeling," *Critical Inquiry* 10 (1984), 624–26 and 640 (note 29).

[7] Taruskin, in his contribution in *Early Music* 12 (1984), 3–4, brings up the matter of attribution, but seems to underrate its importance. Attribution can legitimately influence various aspects of a work's interpretation.

[8] *The New York Review of Books* 37 (12), p. 50. Tomlinson adopts a similar position toward "meaning" in *Monteverdi and the End of the Renaissance* (Oxford: Clarendon Press, 1987), ix, but see the review by Tim Carter in *Early Music History* 8 (1988), 258.

[9] But would Ugolini and Poliziano have shared the neo-Platonic doctrines of Ficino if, as Paul Oskar Kristeller argues, Poliziano's "philosophical orientation was Aristotelian rather than Platonic"? See "The Platonic Academy in Florence," in *Renaissance Thought and the Arts,* expanded edition (Princeton: Princeton University Press, 1990), 93.

[10] See, for example, Elliott Carter's program note for the 1975 Nonesuch recording (H-71314) of the Double Concerto and the Duo for Violin and Piano, in *The Writings of Elliott Carter,* ed. Else Stone and Kurt Stone (Bloomington and London: Indiana University Press, 1977), 326–28.

[11] For a discussion of the problems of playing even nineteenth-century piano music on the modern instrument, see Robert Winter's contribution in *Early Music* 12 (1984):22.

[12] The point is substantiated in a recent article by Will Crutchfield, "Historical Violin Styles: Myth and Reality," *New York Times,* August 12, 1990.

[13] "The Spin Doctors of Early Music," *New York Times,* July 29, 1990.