Otto Luening (1900–) and the Theories of Bernhard Ziehn (1845–1912)*

By Severine Neff

> The present-day harmony and that of the future interest me as they
> do the musical world and with similar intensity. At present there is a
> searching and a groping but I see the roads. The first new harmonic
> system rests upon chord formations according to customary scales. . . .
> By the symmetrical inversion of the harmonic order Bernhard Ziehn
> shows me the second way.[1]
>
> (Ferruccio Busoni, "The New Harmony")

This paper will explore the influence of the theory of Bernhard Ziehn
(1845–1912) on the work of Ferruccio Busoni's student, the American com-
poser Otto Luening.

Born in Erfurt, Thüringen, Ziehn was one of the first major theorists to
address the techniques of late-nineteenth-century chromaticism. In 1868
Ziehn moved to Chicago, the most renowned American center for German
immigrant musicians, where he became the close friend and colleague of the
conductor Theodore Thomas. Ziehn taught piano, organ, theory, and com-
position privately in Chicago from 1870 to his death in 1912. His foremost
student was Wilhelm Middelschulte (1863–1943), the virtuoso organist of
the Chicago Symphony.[2]

Busoni met Bernhard Ziehn and his protégé Wilhelm Middelschulte in
Chicago in January, 1910. At this time Busoni was composing a keyboard
piece, the *Fantasia Contrappuntistica*, which was to include a completion of the
unfinished fugue from Bach's *Art of Fugue*.[3] Ziehn gave Busoni his own solu-
tion to the fugue, and in appreciation Busoni wrote an essay for the journal
Signale, entitled "The Gothics of Chicago," in which he praised Middel-
schulte and Ziehn as contrapuntalists and harmonists without peer.[4] He sub-
sequently dedicated the *Fantasia Contrappuntistica* to Middelschulte, who
arranged it for organ.[5]

Otto Luening studied composition with both Busoni and his disciple Phil-
ip Jarnach in Zurich from 1917 to 1920. His instruction consisted of weekly
meetings with Jarnach and less frequent sessions with Busoni, who expected
his students to emulate his daily routine of contrapuntal studies and compo-
sition. For each of his meetings with Jarnach, Luening was expected to show
at least two canons, part of an invention, or the composition of a given fugal
exposition in up to six parts.[6]

Busoni's lessons featured mystical-philosophical comments on the princi-
ples of composition. It was Busoni who suggested Luening read Ziehn's writ-
ings. He drew Luening's attention to Ziehn's mastery of contrapuntal

techniques and to his theory of symmetrical inversion.[7] When Luening returned to America in 1920, Busoni asked him to convey regards to Wilhelm Middelschulte, with whom Luening subsequently studied Ziehn's theories. Later Luening himself taught Ziehn's theories at his own Chicago Musical Arts Studio. Figure 1 reproduces a portion of an advertisement for Luening's school.[8]

Mme. Bernhard Stavenhagen	*Piano*
Rudolph Mangold	*Violin*
Marguerite Lamar	*Voice and Diction*
Otto C. Luening	{*Musical Theory* (Ziehn) / {*Composition and Musical Appreciation*

Orchestral Instruments by Members Chicago Symphony Orchestra

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ENSEMBLE

Rudolph Mangold	*Chamber Music*
Marguerite Lamar	*Stage Presence*
Mme. Stavenhagen	*Concert Accompanying*
Theodore Stearns	*Opera, Operetta, Drama and Musical Criticism*

Figure 1. Advertisement for the Chicago Musical Arts Studio.

His studies with Middelschulte inspired Luening to use certain aspects of Ziehn's theory in his own compositions: the First Symphonic Fantasia, the Second Violin Sonata, the Sonata *in Memoriam Ferruccio Busoni,* and the Second Short Sonata for Flute and Piano.[9] Only these works will be mentioned in the present paper. They do not form a complete list of Luening's pieces using Ziehn's techniques, but rather a list of pieces in which Ziehn's theories contribute to both formal and structural coherence.

Ziehn drew upon his knowledge of the standard tonal literature, the "new music" of his day, and approximately two thousand pieces of pretonal literature in devising a scheme for classifying highly chromatic material.[10] From this music he extracts five operations of pitch and chord generation: diatonic and chromatic "plurisignificance," "irregular" cadence, order permutation, "figuration," and symmetrical inversion.[11] The use of these operations can

Example 1.

produce tonally ambiguous chord progressions. Example 1 shows a typical progression of Ziehn's which defines no triad as tonic and ends with a non-traditional cadence (i.e. not V–I or IV–I).

Otto Luening was fascinated with such tonally progressive materials and immediately attempted to incorporate them into the framework of his pieces. Specifically, Ziehn's theories helped Luening generate and vary chromatic pitch material. The result was the triadic but often tonally ambiguous sound that is characteristic of Luening's works of the early twenties.

Consider the following theoretical concepts of Ziehn and Luening's interpretation of them. Ziehn defines a harmony as "whatever sounds simultaneously," but for him, as for Rameau, a chord is "a harmony which consists of thirds placed above each other, or which can be reduced to such a structure of thirds."[12] What interests Ziehn about these chords is their diatonic *Mehrdeutigkeit* or "plurisignificance."[13] Ziehn never defines this term. Instead, through examples, he shows diatonic plurisignificance to be the structural and functional reinterpretation of an invariant pitch or an invariant major or minor third in different diatonic chords. Example 2, taken from Ziehn's *Manual of Harmony*, shows how, through plurisignificance, the pitch D can belong to twelve distinct triads, twenty-eight seventh chords, and ten ninth chords in seven keys.

Ziehn also applies plurisignificance to four-part writing: the voice-leading rule of "keeping the common tone within the same voice" is seen as a manifestation of diatonic plurisignificance. The plurisignificant common-tone pitches or intervals in example 3 are indicated with whole notes. A plurisignificant progression such as the circled one in example 3 can be interpreted in both G major and C major.

Luening finds Ziehn's operation of plurisignificance compositionally suggestive in that diatonic triads and sevenths not closely associated through key can still be related through invariant structure—through common pitches or intervals. For instance, through "plurisignificance of the third," the interval C–E flat can belong to the C-minor triad, to the C half-diminished seventh, the dominant seventh on F, and the A-flat-major triad: chords forming the opening progression of Luening's First Symphonic Fantasia (see example 4).

The initial tonic C-minor triad of the progression is immediately contradicted by the pitch G flat, substituted for the dominant degree in the next half-diminished seventh. We can assume that the G flat is leading to D-flat

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

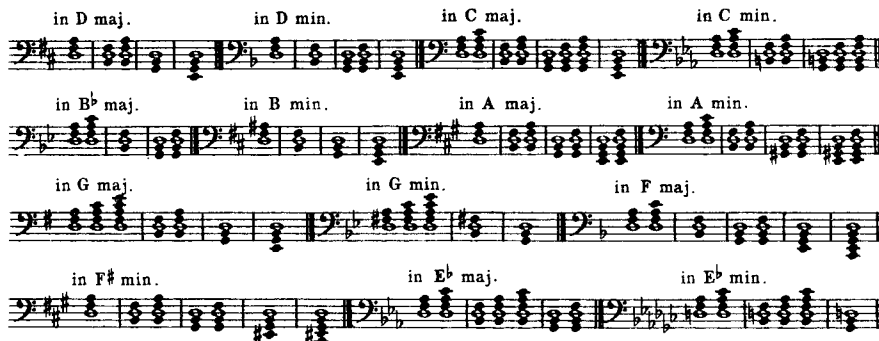*d*) The tone as part of diatonic Seventh-chords.

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.

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

Since any tone belongs to seven major and seven minor scales, a given tone can be harmonized as follows. (The large Seventh-chords may be omitted here, because they appear mostly as accidental dissonances.)

in D maj.   in D min.   in C maj.   in C min.

in Bb maj.   in B min.   in A maj.   in A min.

in G maj.   in G min.   in F maj.

in F# min.   in Eb maj.   in Eb min.

Example 2. From Bernhard Ziehn's *Manual of Harmony*, p. 6.

major or minor. But the A natural in the subsequent dominant seventh chord on F immediately contradicts this assumption. In turn, the dominant seventh on F in m. 4 implies B-flat major, but the subsequent A-flat-major triad contradicts the implied leading tone, the A natural, in m. 4. Note that the lowest A flat in the A-flat-major triad of m. 5 descends directly to G in register, while the higher A flats are left unresolved, hanging in the air (see bracket). Despite these nontraditional chordal connections, the C-minor triad and A-flat-major triad still allude functionally to C minor.

The opening phrase is given structural coherence through the timbral and registral repetition of the plurisignificant third C–E flat. As Luening himself explains: "One must hear the passage as a variation on a constant."[14] Specifically, while C–E flat remains stationary in the timpani and strings, all other instrumental parts move through different chordal settings of the interval.

Examples: 1) The G major triad in G, D and C major, and in C and B minor.
2) The A minor triad in G, F and C major, and in A and E minor.
3) The B diminished triad in A and C minor, and in C major.

1) G major triad.

2) A minor triad

3) B diminished triad.

Example 3. From Bernhard Ziehn's *Manual of Harmony,* p. 8.

When Luening repeats this opening to the Symphonic Fantasia at the end of the work, he leaves a suspended A flat unresolved at the final cadence (see example 5).

This ending illustrates a second theoretical concept of Ziehn's: the "irregular cadence" in which a dissonant pitch is left unresolved. For instance, in a cadential passage of Bruckner's Seventh Symphony, quoted in the *Manual of Harmony* (see example 6 below), the next-to-last chord contains two dissonant pitches: the seventh C and the suspension B which find no stepwise resolution. Ziehn was the first major theorist to classify such a cadence.[15]

The initial transition of the First Symphonic Fantasia, mm. 18–21 (see example 7), contains six registrally isolated progressions—two repeated exactly with respect to pitch class (see letters B and C in example 7) and one repeated with F natural instead of F sharp (see letters A and then A′). Luening calls each of these progressions a "harmonic area," which he defines as a registrally or articulatively isolated series of at least three chords (stated at a tempo of approximately a quarter note equals 100), producing tonal ambiguity through the operation of chromatic substitution.

Luening's interest in chromatic variants stems from Middelschulte's concept of chromatic plurisignificance, derived from Ziehn's operation of the same name. For Ziehn's pupil Middelschulte, chromatic plurisignificance was the process of varying a diatonic third through chromatic substitution

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Example 4. Otto Luening, First Symphonic Fantasia, mm. 1–6.

Example 5. Otto Luening, First Symphonic Fantasia, rehearsal no. 9,
    mm. 34–42.

Example 6. Anton Bruckner, from the Seventh Symphony, cited in Bernhard Ziehn, *Manual of Harmony*, p. 93.

and then combining such thirds to form multiple chromatic chords. For instance, a lesson sheet of Middelschulte's saved by Luening (see example 8a) shows nine sevenths built out of the chromatic variants of three diatonic thirds D–F, F–A, and A–C, and ten triads built in the same way from G–B and B–D. Thus for Middelschulte any thirds related through chromatic substitution show chromatic plurisignificance.

The thirds in mm. 18–21 of Luening's First Symphonic Fantasia are also chromatically plurisignificant: they are generated by chromatically varying the stack of thirds, E flat–G, G–B flat, B flat–D, as example 8b shows.

Chromatic alterations of the third G–B are used in all "harmonic areas" of these measures. Example 9a shows alterations of G–B in the second and fourth chords of area A. A similar substitution appears in area B (see example 9b). Consider also the chromatic variation of the thirds E–G and G–B in areas A, B, and C (see example 9c).

In terms of the horizontal relations between chords, in area A the linear seconds connecting the first two chords are identical to or chromatic variants of the linear seconds connecting the remaining two chords (see example 10a). Example 10b shows that the lowest lines of areas A and B are identical, while the top lines of all three areas are chromatic variants of each other.

The network of chromatically varied lines and harmonies in all three harmonic areas cannot produce one clear tonal reference. Example 10c shows how, instead, in the A area, these lines allude to the E-flat-minor scale, in the B area to the E-flat-major scale, and in the C area to the E minor and the G-major scales.

Since the E-minor scale in area C tonally contradicts the E-flat-major and -minor scales in areas A and B, the passage remains tonally ambiguous. However, the E-flat-major, G-major, and E-minor key areas suggested by these regions are clearly stated later in the work (see table 1 below). At the local level, the opening parts of the piece thus reflect aspects of the large-scale form and produce a structural and formal coherence.

Luening both reorders and ornaments his original melodies to form the larger themes of his First Symphonic Fantasia. Such procedures are rooted in Ziehn's concepts of order permutation and "figuration." Example 11 shows

Example 7. Otto Luening, First Symphonic Fantasia, mm. 18–20.

Example 8a.

Examples 8b. From Otto Luening, First Symphonic Fantasia, mm. 18–20.

Example 9a.

A

B

Example 9b.

A

B

C

Example 9c.

Ziehn's studies of order permutations in a single melodic fragment. Ziehn labels the variants as retrogrades of each other and suggests their possible contrapuntal combinations.

Example 12 illustrates Ziehn's concept of figuration, in particular the creation of surface ornamentation through local dissonance.

In the First Symphonic Fantasia, Luening uses these procedures to generate melodic variants of the flute melody in mm. 4–5, a melody which consists of an arpeggiated triad plus a passing tone (see example 13a). When permuted in order and transposed, the initial flute line forms G–D–A–B, a secondary theme of the work, and its later variant (see example 13b). In turn, G–D–A–B is varied with passing tones and suspensions to form yet another theme in the trumpet (see example 13c). Yet another version of the original flute line is reordered as F–G–A flat–C and extended through a chain of

A
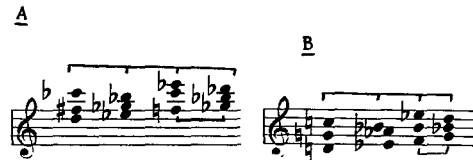
Example 10a.

Example 10b.

B

A: E♭ minor

B: E♭ major

C: E minor/G major

Example 10c.

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TABLE 1
Formal Structure of the First Symphonic Fantasia

Section	Measures	Discernible Key
A	1–14	C Minor
A'	15–17	C Minor/E-flat Major
B	18–*1*,7	none
B'	*1*,8–*2*,1	E Major/E Minor
C	*2*,1–*2*,17	G Major/G Minor
C'	*2*,18–*2*,20	G Major/G Minor
D	*3*,1–*3*,20	E Major/E Minor
		G Major/G Minor
		E-flat Major/
		E-flat Minor
A"	*4*,1–*4*,16	E Major
B"	*4*,17–*5*,5	E Major
C"	*5*,6–*6*,1	G Major/D Major
E	*6*,2–*6*,10	E Major
F	*6*,11–*6*,15	C Major/C Minor
		E Minor
		E-flat Major
G	*6*,16–*7*,25	A Minor
H	*7*,26–*8*,14	C Major
I	*8*,15–*8*,30	C Major
A	*8*,31–*8*,42	C Major

NOTE: Rehearsal numbers from the score are italicized in table 1.

thirds with further variation by suspensions and other chromatic pitches (see example 13d).

Ziehn extended the concept of hexachordal inversion around D to include chromatic relationships. He did so by generating pitch structures balanced around the axis of D–A flat (G sharp). He felt that the piano best visually demonstrated his concept, both D and A flat (G sharp) being centrally positioned with respect to the black and white keys. Indeed, Ziehn first published his theory as a piano exercise, thus aptly demonstrating the practicality of his work.[16]

With example 14d, subtitled "Chord Progression," Ziehn shows the inversion of a harmonic progression around the D–A flat (G sharp) axis. The first note of the soprano, in this case, B flat, becomes F sharp in the bass of the symmetrical inversion. E sharp in the alto becomes C flat in the tenor, D in the tenor becomes D in the alto (an axis of symmetry), and G sharp in the bass becomes A flat in the soprano (the other axis of symmetry). Ziehn's text

a) in C and G maj. and E min. *b)* in F and B♭ maj. and G min. *c)* in E♭ and A♭ maj. and F min.

The 24 versions of these groups. (Compare the broken Seventh-chord.)

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24

	1 & 6	2 & 18	6 & 15	8 & 10	10 & 19		2 & 18
Simultaneously	1 & 15	3 & 14	6 & 17	8 & 19	10 & 24	Retrograde to	5 & 16
can be employed	1 & 17	4 & 13	7 & 9	8 & 24	11 & 22	each other are:	7 & 23
	2 & 5	5 & 16	7 & 23	9 & 20	12 & 21		9 & 20

Example 11. From Bernhard Ziehn's *Manual of Harmony*, p. 19.

Canonical Studies also demonstrates the symmetrical inversion of scales, chords, suspensions, and canons (see examples 14a, b, c, and e).

Ziehn believed his operation of symmetrical inversion would interest composers: the subtitle of *Canonical Studies* is "A Technique in Composition." And indeed, in 1910, the year he met Ziehn, Busoni wrote a symmetrical, wedge-shaped canon in mm. 81–93 of his *Berceuse Élégiaque* (see example 15). This passage inspired Otto Luening to begin the second movement of his Sonata *in Memoriam Ferruccio Busoni* with a chordal canon symmetrically inverted about A–G (in turn symmetric to D–A flat) (see example 16).

Luening utilized Ziehn's operation of symmetrical inversion in at least three other pieces. Luening symmetrically inverts an entire section of the Second Violin Sonata, a work written in the same year as the First Symphonic Fantasia (see example 17).

Another work written in 1922, the Fugue and Chorale Fantasy for Organ, uses an extension of Ziehn's theory in its chorale-like sections. For instance, the first phrase of the work (see example 18) contains nine chords. The thirds in the first chord are chromatic variants of those in the last; the thirds in the second chord are varied in the eighth; the thirds in the third chord are varied in the seventh; and the thirds in the fourth chord are varied in the sixth. Luening thus arranges the chords that share chromatically variant thirds in a wedge-shaped order around the fifth chord.

In turn, the chords in the second phrase (again see example 18) share chromatically varied thirds with chords in the first phrase. The first chord of the second phrase shares thirds with the last chord of the first phrase, the second chord with the next-to-last chord, and so on. In this sense the order of chords in the second phrase is a retrograde of the order in the first phrase, this being yet another type of wedge-shaped arrangement.

The Broken Triad extended through an Octave, with Accidental
Dissonances, employed as Melody (in the Soprano).

For the following models six out of an indefinite number of versions are taken.

Example 12. From Bernhard Ziehn's *Manual of Harmony*, p. 77.

Otto Luening's Second Short Sonata for Flute and Piano was composed many years later in 1971. The melody lines of the first, second, and third movements (see examples 19, 20, and 21 below) are "figured" variants of each other. Furthermore, the accompanying chords in the second and third movements generate a wedge around A–G, just as they do in the Sonata *in Memoriam Ferruccio Busoni* (see the additional staves below examples 20 and 21).

The symmetrically inverted accompaniment chords continue throughout the second movement. Midway through the same movement, the relationship of the chords is registrally inverted: the lower chord becomes the higher and the higher the lower (see example 22). Thus through procedures of invertible counterpoint, Luening creates the symmetrical inversion of a symmetrical inversion.

Otto Luening has composed over three hundred compositions, truly a large and varied repertory. The pieces analyzed date almost exclusively from his early years. Exceptions to this group are the Sonata *in Memoriam Ferruccio*

Examples 13a, b, c, and d. Otto Luening, from the First Symphonic Fantasia.

Busoni, written in 1955, and the Second Short Sonata for Flute and Piano, written in 1971, which show that Luening's interest in the compositional potential of Ziehn's theories has resurfaced in recent years. Another recent work, Three Short Canons for Two Flutes (1985), also makes use of Ziehn's symmetrical inversions. Applications of Ziehn's theories thus offer at least one aspect of continuity through Luening's varied and extraordinarily large output. Moreover, the careers of Bernhard Ziehn and Otto Luening also demonstrate the vital connection between the German theoretical tradition and contemporary American music.

a. Scale

| D Lydian | D Ionian | D minor | D maj. with minor 6 | Hungarian D min. | Hungarian D maj. |

Contrarium reversum

| G hypo-Phrygian | G Aeolian | G maj. with minor 6 | G min. | Hungarian G maj. | Hungarian G min. |

b. Suspensions

c. Chord

d. Chord Progression

In two parts

e. Canon

Examples 14a, b, c, d, and e. From Bernhard Ziehn's *Canonic Studies,* pp. 24, 25, 28, 30.

Example 15. Ferruccio Busoni, *Berceuse Élégiaque*, mm. 81–93.

Example 16. Otto Luening, Sonata *in Memoriam Ferruccio Busoni,* second
movement, mm. 1–5.

Example 17. Otto Luening, from the Second Violin Sonata.

Example 18. Otto Luening, Fugue and Chorale Fantasy for Organ, mm. 1–9.

Example 19. Otto Luening, Second Short Sonata for Flute and Piano, first movement, mm. 1–6.

Example 20. Otto Luening, Second Short Sonata for Flute and Piano, second movement, mm. 1–4.

Example 21. Otto Luening, Second Short Sonata for Flute and Piano, third movement, mm. 1–3.

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Example 22. Otto Luening, Second Short Sonata for Flute and Piano, from the second movement.

NOTES

*In honor of Otto Luening's eighty-fifth birthday.

[1] Ferruccio Busoni, *The Essence of Music and Other Papers*, Rosamund Ley, trans. (London: Salisbury Square, 1957), p. 47.

[2] Additional biographical data about Ziehn appears in: Hans Joachim Moser, *Bernhard Ziehn: Die deutsch-amerikanische Musik-Theoretiker* (Bayreuth: Verlag Julius Steeger, 1950); *New Grove Dictionary of Music and Musicians*, s.v. "Ziehn, Bernhard"; Bernhard Ziehn, *Canonical Studies*, Ronald Stevenson, ed. (New York: Crescendo Press, 1976); Winthrop Sargeant, "Bernhard Ziehn, Precursor," *Musical Quarterly*, 19 (1933): 169–177; Bernhard Ziehn, *Doric Hymns of Mesomedes* (Chicago: The Newberry Library, 1979). For information on Middelschulte see John Becker, "Wilhelm Middelschulte, Master of Counterpoint," *Musical Quarterly*, 14 (1928): 192–202.

[3] For information on Busoni and Ziehn see: Ferruccio Busoni, *Letters to his Wife*, Rosamund Ley, trans. (London: Edward Arnold, 1938), p. 154.

[4] "The Gothics of Chicago" is reprinted in Moser, *Bernhard Ziehn*.

[5] Frederick Stock arranged the work for orchestra. Busoni also made a two-piano version in 1922.

[6] I wish to thank Otto Luening for granting me many interviews during the writing of this paper, for reading and commenting on this essay, and for his infinite kindness and patience. His description of study with Busoni is from an interview granted on April 17, 1984.

[7] Otto Luening, interview with author, March 17, 1984.

[8] For more biographical data on Luening see Otto Luening, *The Odyssey of an American Composer: The Autobiography of Otto Luening* (New York: Charles Scribner's Sons, 1980), pp. 11–13.

[9] The First Symphonic Fantasia and the Sonata *in Memoriam Ferruccio Busoni* are published by ACA, the Second Violin Sonata by Galaxy Press, the Second Short Sonata for Flute and Piano by New Valley Music Press, Smith College, and the Fugue and Chorale Fantasy for Organ by World Library Publications, Inc. The First Symphonic Fantasia and the Sonata *in Memoriam Ferruccio Busoni* are recorded on CRI.

[10] See Thorvald Otterström, "Personal Recollections of Bernhard Ziehn," *Jahrbuch der deutsch-amerikanischen historischen Gesellschaft von Illinois,* Julius Goebel, ed., Bd. 26–27 (Chicago: University of Chicago Press, 1927), p. 20.

[11] Ziehn's major works are: 1) *System der Übungen für Klavierspieler, Ein Lehrgang für den ersten Unterricht* (Hamburg: Verlag Hugo Pohle, 1881); 2) *Harmonie-und Modulationslehre* (Berlin: Verlag Chrs. Friedrich, 1887, 1888, 1910); 3) *Manual of Harmony* (Milwaukee: Wm. A. Kaun, 1907); 4) *Five- and Six-Part Harmonies and How to Use Them* (Milwaukee: Wm. A. Kaun, 1911); 5) *Canonical Studies: A New Technique in Composition* (Milwaukee: Wm. A. Kaun, 1912; reprinted New York: Crescendo Press, 1976); 6) Various essays appear in *Jahrbuch der deutsch-amerikanischen historischen Gesellschaft von Illinois,* Julius Goebel, ed., Bd. 26–27 (Chicago: University of Chicago Press, 1927).

[12] Ziehn, *Manual,* p. 3.

[13] The concept of plurisignificance can be traced to the following earlier theorists: Abbé Georg Joseph Vogler, *Handbuch zur Harmonielehre und für den Generalbass nach den Grundsätzen der Mannheimer Tonschule* (Prague: 1802), pp. 101–110; François Fétis, *Traité Complet de la Théorie et de la Pratique de l'Harmonie* (Paris: Brandus et Cie., 1875), pp. 177–185; Johann Philipp Kirnberger, *The Art of Strict Composition,* David Beach and Jurgen Thym, trans. (New Haven: Yale University Press, 1982), pp. 299–305; *Mehrdeutigkeit* is also discussed by Gottfried Weber in his *Versuch einer geordneten Theorie der Tonkunst* (Mainz: B. Schott, 1817–21), vol. 2, pp. 72–80.

[14] Otto Luening, interview with author, April 11, 1984.

[15] A similar concept is alluded to in Weber, *Versuch,* vol. 2, p. 281.

[16] *System der Übungen,* vol. 1, pp. 1, 12.