IX. Quintext (Five Textures for String Quartet and Bass)

The five movements of Quintext are individual studies in the abandonment of melody and drama, the exploration of certain "essential" characteristics of string instruments, and in the creation of static textural environments in which microstructural motion is undetermined, but whose macrostructure has a clear, precise, and powerful unification. In three of them, this unification is an harmonic idea derived from the harmonic series, in the two others it is mainly textural. Each is dedicated to a different composer, and in much the same manner as Koan and A Rose is a Rose is a Round, reflect some aspect of that composer's ideas, though all pay quite different sorts of homage.

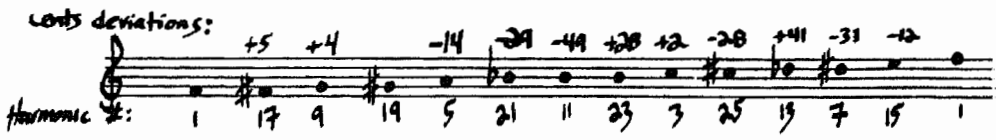
Quintext #1, Some Recent THOUGHTS for Morton Feldman, takes both its title and much of its texture from Feldman's own pieces. Tenney has said that "it's the closest I've ever come" to stasis, and therein lies the nature of the experiment (though I might point out Ergodos II along the same lines). The harmonic scale is clearly defined, and it is much the same as was described above for clang. The precise scale here is the first 13 odd harmonics, or in order of their appearance in the harmonic series on F:

F	C	A	D#	G	B	Db	E	F#	G#	Bb	B	C#
1	3	5	7	9	11	13	15	17	19	21	23	25

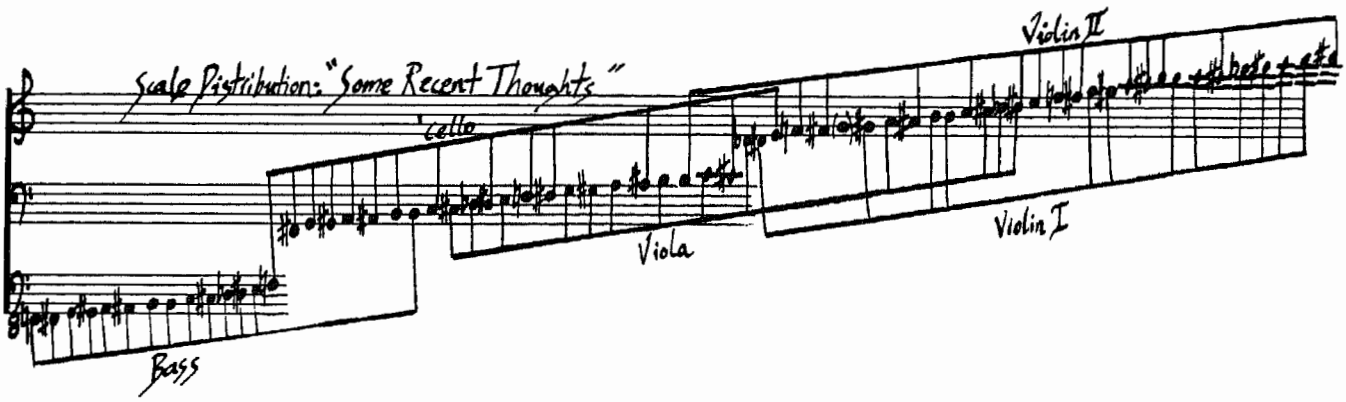
Example IX.1 shows the pitches placed in scale order and with the cents deviations from tempered tuning added above. In Some Recent THOUGHTS.., the total range (from triple low F to double high F#, or about five octaves) is partitioned among the five instruments as shown in Example IX.2. In the piece, each instrument plays those notes only (with one exception), and just once. The exception is that both the second violin and the viola play the D# (seventh harmonic) above high C, though at different times - because Tenney wanted to end the piece on a spread out dominant seventh chord (or the first four primes of the harmonic series).

Note that there are 67 pitches used in the piece (14 in the 'cello, bass and second violin; 13 in the viola; 12 in the first violin), though one note (G above middle C, or the 9th harmonic) is omitted, while the first pitches of another octave are included. The reasons for this are not clear to

Example IX.1



Example IX.2

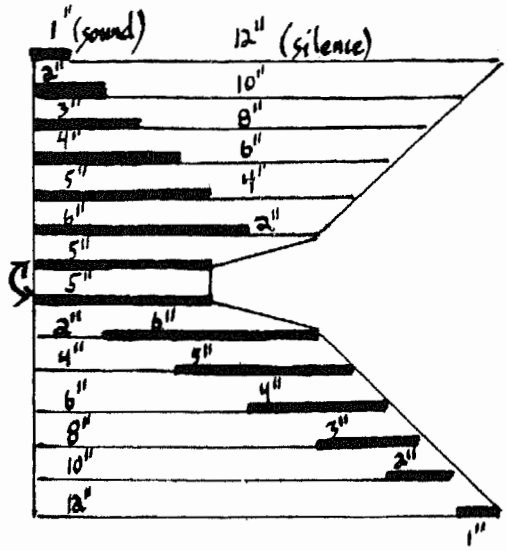


me, and probably insignificant, as the piece was composed using some random procedure (according to Tenney "coin-tosses, dice or telephone numbers, etc...."). The durations and the particular partition of the total range was I think selected by Tenney in a rather simple way - by ear. Certain things which recur a few times and give much of the movement it's characteristic form (like successive octaves in the same instrument and quasi-canonic passages) are probably happenstance. What he is aiming for (through vastly different techniques) is an evocation of the soft, static, vertical, and almost inexplicably beautiful harmonic structures that are somehow peculiar to Feldman's music.

Quintext #2, CLOUDS for Iannis Xenakis, is structurally one of the simplest of the set. The piece is diagrammed in Example IX.3, with the second half the exact retrograde of the first.

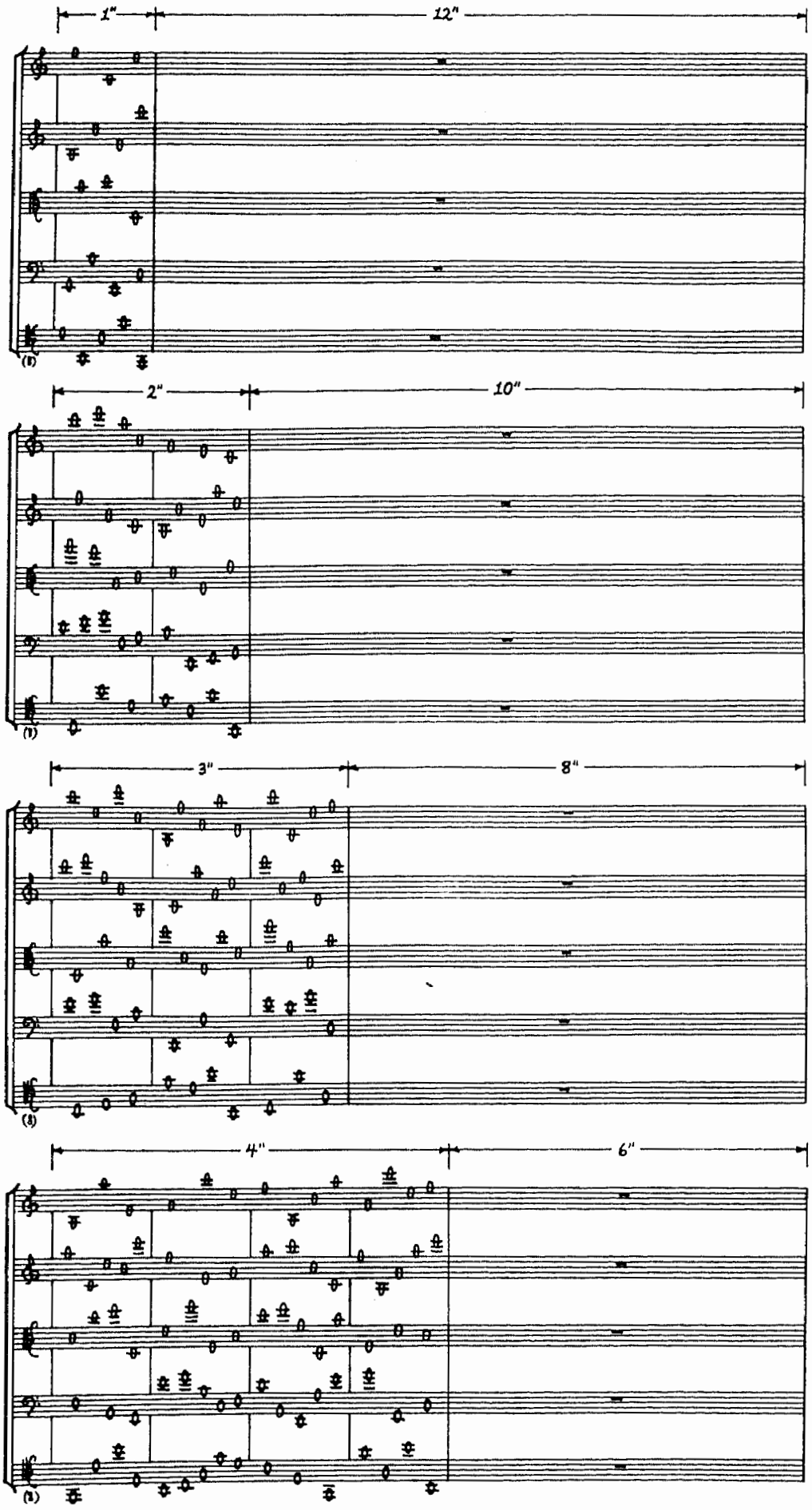
In each successive section (sound plus silence), the sound portion increases by one second while the silence decreases by two. After six such, there are five seconds of

Example IX.3



sound and no silence, and then begins a perfect retrograde. At this point the piece "rotates" upon itself, and the seven-second sections are created by the juxtaposition of the mirrored five second sound segments with the two second silences surrounding them. Another way to explain it is that each silent section combines with the sound preceding and succeeding it, creating two different ordered sound/silence combinations. The effect is that of, say, a cloud gradually covering the sun and then moving on. It is, though extremely simple, quite an exhilarating work. The pitches are only approximately indicated (one problem is that the notation seems to encourage players to only play "white notes"), and are plotted randomly along what seem to be sinusoidal paths. The pitch configuration in the second half is also the exact retrograde of the first. Example IX.4 shows an entire page of the score (the first).

Quintext #3, A Choir of ANGELS for Carl Ruggles, is a textural parody of Ruggles' short masterpiece Angels (usually performed with four trumpets and three trombones,

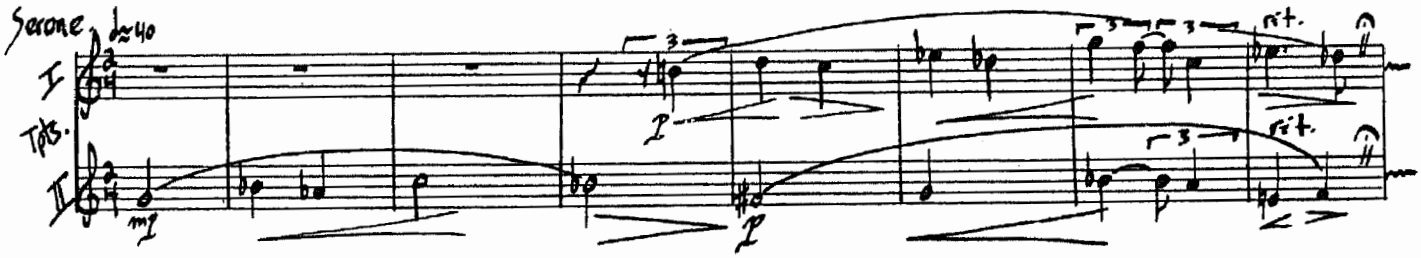


Example IX.4

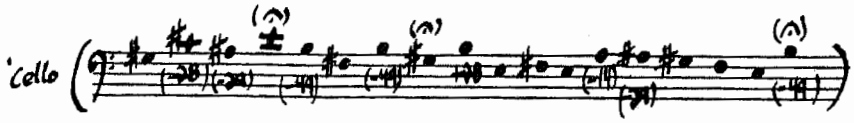
although there are other versions, including one for violins and 'celli). #3 begins on the same close position min/maj chord with an added seventh as does Angels (though in a different key - Example IX.5), and there are several more subtle stylistic homages embedded in the work. The distinctive melodic writing in Angels (Example IX.6, shows the first eight measures in the top trumpets), characterized by major and minor third leaps which wind slowly back upon themselves, is seen in rhythmic augmentation in each of the voices in #3 (though generally the intervals are wider - fourths and tritones). Example IX.7 shows this in the pitches of the 'cello line (without rhythms). The contrapuntal texture also recalls the parent work in the way the registers are used so that each instrument's range is about the same as any other (the violins play in their low

Example IX.5

Example IX.6



Example IX.7

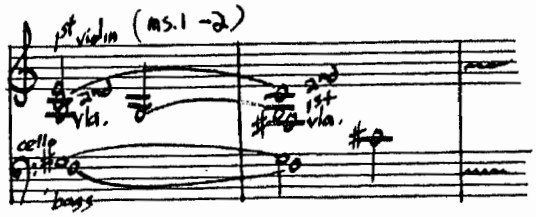


register, 'celli and basses in their high). Though in Angels, the voices/instruments almost never cross (except as brief suspensions), Ruggles always scores the lines as close as possible, resulting in an almost constant texture of minor seconds. In #3, this orchestrational technique is taken further, to the point where registral interweaving is quite common. Example IX.8 shows this in the first two measures, and Example IX.9 shows the last chord, which contains the closest possible minor-second network, as well as several voice crossings (incidentally, this is reminiscent of a Varèsian orchestral nuance that we saw in Seeds). Note that the final chord of Angels (spelled Ab-C#-Eb-E natural-C-E natural) is just another version of the initial "Ruggles chord". If we take C# as the root, the chord can be seen as a minor triad with an added major seventh, and an additional diminished third degree, creating the same ambiguous third relationship (this time in the "other direction").

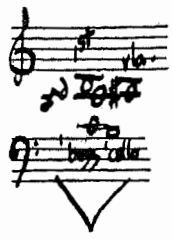
The timbre of #3 is quite unusual and ethereal (sul ponticello throughout), possibly another reference to Angels, which calls for muted brass. Even the number of measures is similar (45 in Tenney; 47 in Ruggles). Once again, the pitches used are intonations derived from the odd harmonics.

But perhaps the clearest aspect of this homage inherent in #3 is the almost brutal "rawness" of the sonority and form. Tenney extracts this New England personality from

Example IX.8



Example IX.9



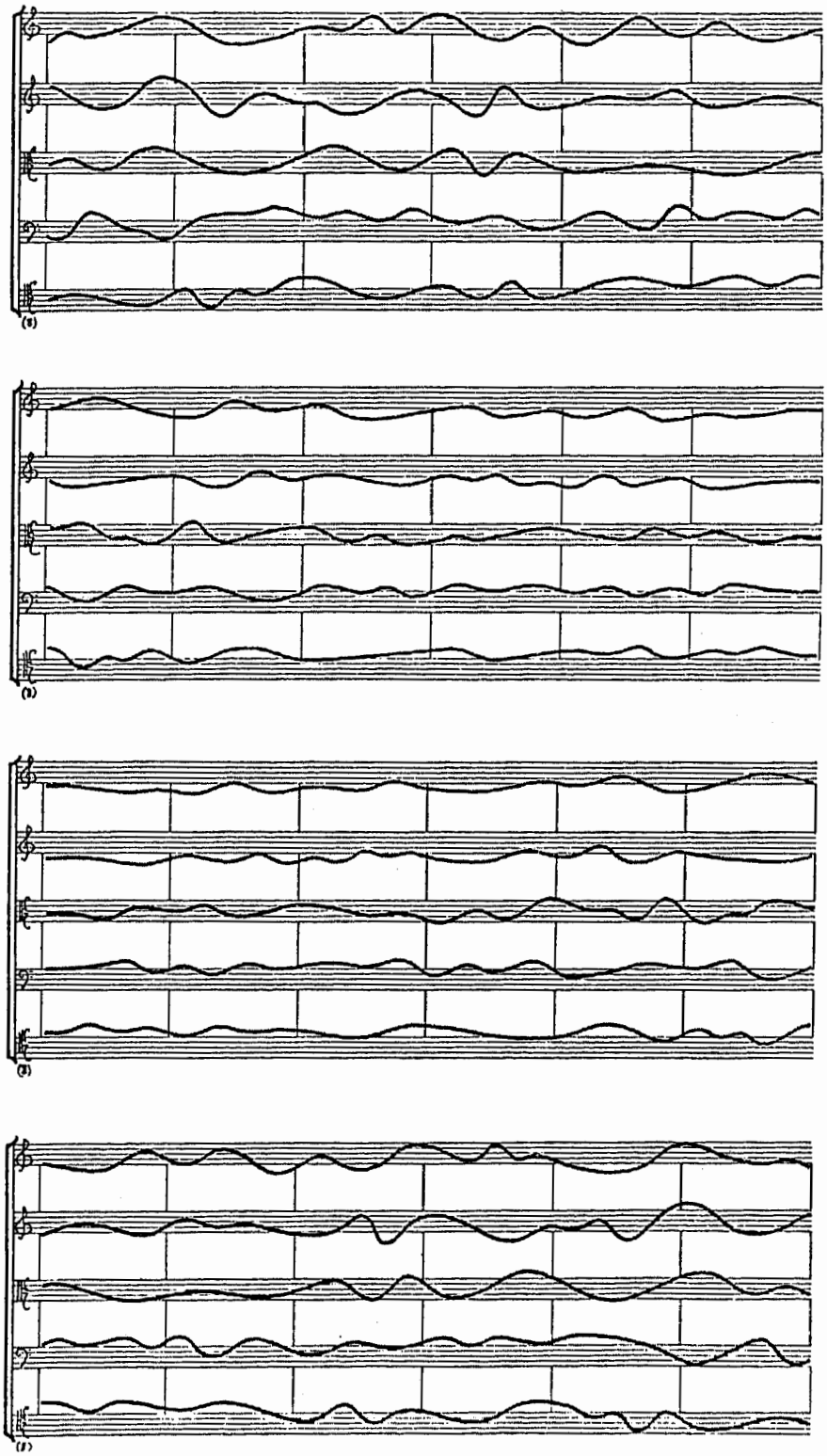
Ruggles' music, and sets it on a new and rather beautifully parallel path. #3 is, in the final consideration, a simple kind of poetic remembrance of a great American composer.

Quintext #4, PARABOLAS and HYPERBOLAS for Edgard Varèse is similar in form and simplicity to Clouds. In it, Tenney is to some extent experimenting with the various "thresholds" of our harmonic perception (the last chord, for example, is an approximate dominant seventh). The compositional process consisted of drawing random points on the staff for each instrument within a continually decreasing vertical range, in which all of the instruments are eventually assigned to the small region around middle C, Tenney then "connected the dots" via hyperboloid and paraboloid line segments. The piece is 5 minutes and 36 seconds long, with the second half (2'48") the exact mirror image of the first. This process is a primitive version of the stochastic computer programs written at Bell Labs, with the "mean value" taken to be the same for each instrument (though in reality what this does is skew their distributions slightly) so that the total string quintet range of possibilities converges stochastically to a fixed point (zero range). Not only the title, which is a paraphrase, but the sound itself is reminiscent of Varèse, especially of his early and revolutionary use of instruments like the siren and the natural occurrence of industrial sounds in his music. Example IX.1Ø shows the second page of the piece.

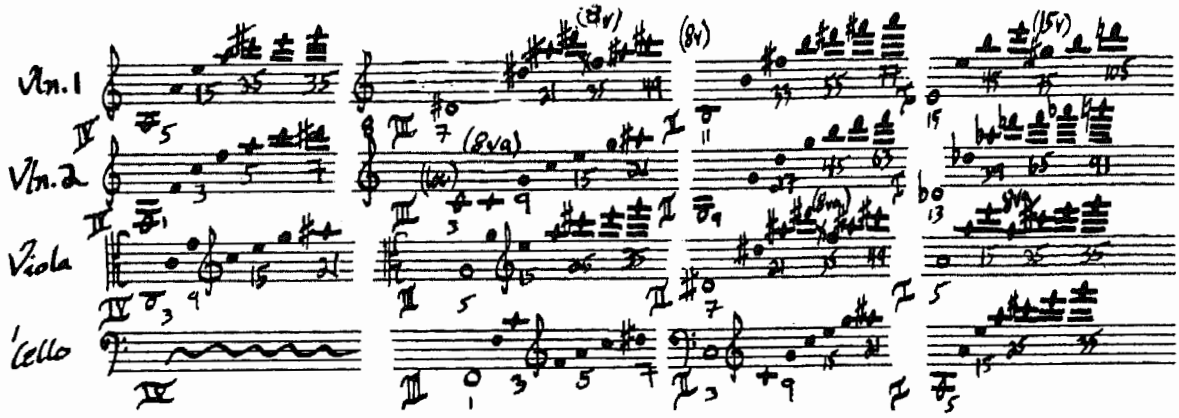
Quintext #5, SPECTRA for Harry Partch is at once the simplest and most complex of the five. It makes the most extensive use of harmony and the ability of strings to produce complex just intonation in a simple way (by natural harmonics), yet aurally, it is the most free and formless.

I think that the use of scordatura and natural harmonics here merits some detailed explanation - the piece is quite visionary in its approach and important in light of its early solution to the problem facing composers today who are interested in just intonation. What Tenney does, by the careful scordatura and the use of the harmonic nodes up to seven on each string (higher than that would be risky in performance) is produce a total harmonic spectrum of 23 different pitches, the highest being the 1Ø5th term in the harmonic series (the seventh node of the string tuned to the 15th partial). Example IX.11 shows the scordatura and the available pitches as natural harmonics up to the seventh on each string. Roman numerals indicate the string number, and the smaller arabic numerals under certain pitches (including the open strings - the scordatura) indicate the harmonic number (irrespective of the octave placement) of the given node. Tenney selected as open nodes the first eight odd harmonics, (1,3,5,7,9,11,13,15) so that the first seven in each of their resultant series might be produced as well, as "secondary" harmonics (e.g., 3 of 3, 5 of 7, etc.). This is of course inspired in part by Partch's method of compound

Example IX.10



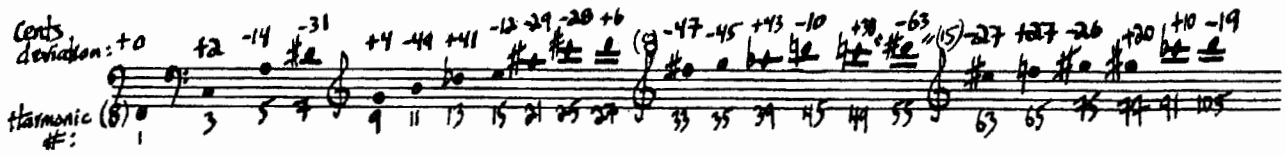
Example IX.11



scale construction, ("otonality") though Tenney utilizes it in a vastly different way. Note that there is quite a bit of duplication in the pitches produced (for example, the seventh node on a string tuned to five is equal to the fifth node on a string tuned to seven, and so on). On the bass, only the E string is used, tuned to F (the fundamental), which functions as a drone throughout, and resonates wonderfully with the higher partials of its spectrum being sounded. No string is tuned up more than a major second, and most are tuned down (in the case of the second violin's E string, as much as a small minor third). All tuning can be done from higher harmonics sounded on the bass's low F (which can quite easily produce partials well past the thirteenth). The notation is simple and one I have also found to be effective in this usage: sounding pitches are notated, but the nodes of the untuned strings are given in parentheses as a sort of tablature. If the player simply knows the nodes for producing the natural harmonics (octave produces the second, fifth the third, fourth the fourth, major third the fifth, minor third the sixth, and diminshed third the seventh), he/she can play the piece perfectly without understanding the first thing about just intonation!

The complete scale of pitches, without octave equivalences and in their harmonic series order, is displayed in Example IX.12. Numbers below the pitches are their harmonic series numbers, and those above are their

Example IX.12



respective deviations from tempered tuning, and are easily computed for the higher harmonics by considering them to be complex ratios, simply summing the smaller ratio's deviations. (For example, 75 = 5 x 15, or a major seventh above the major third, yielding G#. The cents deviation is computed from the sums of the deviations of its components. The fifth harmonic is 14 cents shy of a tempered major third, and the 15th is 12 cents shy of a major seventh - thus the resultant "compound" minor third is 26 cents shy of its tempered neighbor.) One interesting aspect of this tonal system, besides its being one of the earliest manifestations of what would become one of Tenney's main interests, is that all first order difference tones produced are members of the set (though they may be octaves of some other pitch). This has the positive aural effect, as in the idealized version of For Ann (rising), of ensuring that unwanted dissonances will not be produced by such combination tones, maintaining a "purer" harmonic sonority.

#5, Spectra..., has a simple, direct form. It is nine minutes long, with the first and last minutes being a kind of outer border for the piece. In the opening minute, only open strings are used (first harmonics on the given strings) and they gradually enter from lowest to highest harmonic until an eight-part chord made up of the odd harmonics 1-15 is sounded. Over the next seven minutes, several things happen. The temporal density of pitch change (event) becomes greater and greater, beginning with about one per four second measure and ending in about six per measure. Note that since no instrument ever "sits out", (all pitches are sustained until they are changed), the texture (vertical density) remains constant, but the rate of change increases. Each possible node of each string is used at least once over the seven minutes, with the lower nodes in general used more often (though some higher nodes, like the sixth on the 'cello G string, are used as much as the lower ones). The general direction is from lower nodes to higher nodes or from simpler harmonic ratios to more complex ones. That is, first the second (octave) harmonics appear, then the third (perfect twelfth), etc., though this is not a precise system. There seem to be two general stochastic envelopes which are subjected to more or less random processes: the height of a node on a string (upper pitch range), and the rate of change. Thus, as the piece progresses, it moves faster and gets harmonically richer. The last minute is almost the mirror image of the first, as the harmonic motion gradually builds into a recurrence of the open string chord at the eight minute mark, and fades out in much the same way as the piece begins, over the course of the last minute.

This movement (#5) might almost be a separate work in itself, for its effect on the listener is quite different from that of the others. For one thing, it is longer. The next longest, #1, is only a little shorter but moves much more rapidly. #2, #3, and #4 are about 2, 3, and 5 minutes

respectively. Another distinguishing feature is that though it shares its harmonic motivation with Clang, and #1 and #3 (to some extent), it is a more developed use of that idea, and in some way presages the complexities of a piece like the string trio. I think that Tenney is a little uncomfortable with the overall length of Quintext. My suggestion might be to occasionally perform #1 or #5 by themselves. In that situation, Spectra... especially might be heard as one of his finest and most successful works.