

IV. New York City 1964-1970

After leaving Bell Labs, Tenney had several different jobs, among them: a teaching position at the Polytechnic Institute of Brooklyn (where I believe he taught acoustics, computer music, and some standard music theory), and a research position in theory at Yale (where he had access to the Ives archives). During this period, Tenney was also an active part of several musical movements in N.Y.C. Aside from his role in Tone Roads (see Chapter XV), he was deeply involved in the Annual Avant-garde Music Festivals, and an "original" member of both the Steve Reich and Phillip Glass ensembles. In these six years, up until the time he left N.Y. for California, his work is characterized by a new interest in what might be called performance art, electronic music, an exploration of political and social principles, and a trend away from the virtuosic and technical, both in instrumental and electronic music. The music of this period includes three very fine tape pieces: Fabric for Ché (1967), Collage #2--("Viet Flakes") (1966) and For Ann (rising) (1969) (the instrumental version, For 12 Strings (rising), was written two years later, after he stopped composing electronic music). If For Ann (rising) is seen as a kind of ultimate expression of the ideas of ergodicity, lack of drama, and exploration of psychoacoustic perceptual ideas, then the ensuing Three Piano Rags and Tenney's sudden turn from electronic to instrumental music makes more historical sense.

Also from this period were at least eleven "theatre" or "performance" works, in which (with the possible exception of Maximusic) there is little or no requisite of instrumental technique. These works include:

Chamber Music Events (1964; for George Brecht)
Audience Piece #1, #2, #3 (1965)
Thermocouple #1 (1965)
For Two (gently) (1965; originally for Charlotte Moorman and Nam June Paik)
Maximusic (1965; for Max Neuhaus)
Metabolic Music (1965)
Choreogram (1965)
Thermocouple #2 (1965; with Carolee Schneemann)
Redbed (1966)
Swell Piece (1967)

Many of these pieces show the influence of the FLUXUS movement, the Judson Dance Theatre (for which Thermocouple #1 was written), and the various art "happenings" which were part of the N.Y. scene at the time. There is a definite presence of politicization in them as well, and this is the last time that this overtly appears in Tenney's music (with the possible exception of Listen). However, this political

bent, even at its most explicit, often takes the form of almost romantic studies in human interaction, rather than in explicit references to political events (unlike Viet Flakes and Fabric for Ché, the former composed for a Carolee Schneemann film on the Vietnam war). Maximusic and Swell Piece eventually became postal pieces, and are described in Chapter VII. Of the others, several are of interest in their early use of ideas, albeit in a rather simple (or, perhaps a better word is straightforward) way that would later become almost cliché in the avant-garde. Metabolic Music specifies that electrodes "be attached to the skin at various points found to be good sources of fluctuating voltages". These signals are then used, in a freely improvisational way, to control oscillators, amplifiers, or even lights; the idea being (with respect to Cage) that the low frequency, low amplitude sounds encountered in the physiological realm, when manifested in the perceptual (via control of some carrier signal, as in some recent work of David Rosenboom, Jerry Hunt and others) can be a source of artistic interest. In Thermocouple #1, static electricity is used in a way that in a simple fashion resembles much of the work of Alvin Lucier. Choreogram is one of the most interesting of these pieces. In it, Tenney describes rather wonderfully how the various acoustic parameters of the music might be translated into the kinaesthetic ones of dance, and vice versa. Though this concept is no longer of any particular novelty after so many years of use, Tenney's short verbal score remains impressively elucidating and fresh, perhaps because even at this early stage, he was interested in sound and movement parameters that were somewhat unusual - a sophisticated result of his many years of acoustical and perceptual research. These parameters included intensity and pitch modulation, vertical density and excitation (sound); and inclination, angularity and orientation (dance).

Fabric for Ché is at once beautiful and ugly, a relentless and noisy evocation of the revolutionary political energy of the time. (The work's composition is contemporary with Guevara's ill-fated attempt to establish a continent-wide revolutionary movement in Central Bolivia). Tenney explains it musically as an attempt to create a continuous sonic event with no beginning and no end. Like much of his other music - "the whole piece conceived as consisting of but a single sound, more or less complexly 'modulated'". The individual microscopic sonic events are "noisy" and the density of texture, intensity, and general timbre are relatively static. Viet Flakes is one of Tenney's simplest pieces. It consists of snatches of popular rock'n'roll songs from the mid-sixties (We Can Work it Out, Sunny, 96 Tears, etc.), Asian musics (probably Vietnamese) and western classical music, all more or less randomly spliced together. The snatches range from about one second to about five seconds, and there does not seem to be any structure to it

at all, except that none of the little bits are used more than once (though the internal repetitions of the songs themselves make this hard to determine). I have never seen the film for which this was composed, so cannot comment on any relationships between film and music, but I have heard the tape played in concert, and it works surprisingly well by itself. This has much to do with the extreme simplicity of the idea and total lack of contrivance in its execution.

For Ann (rising) is to many people the Tenney signature piece, and a kind of essential symbol of his aesthetic. Its genesis lies in what has now become known as a "Shepard tone" (named for the great experimental psychologist, R.N. Shepard, pioneer of multi-dimensional scaling and associate of Tenney's at Bell Labs). This is a sound that, like an Escher woodcut, seems to continuously rise. There has been some debate as to who first created the illusion, but that is unimportant here. The piece is about twelve minutes long, and consists of continuously rising glissandi, each about a minor sixth from the next. They begin in the subaudio range and gradually, over the course of about half a minute, climb above the audio range. Each glissando has a fade in/fade out amplitude envelope on it, so that they enter and leave imperceptibly. The total effect is of a complex, almost contrapuntal gestalt. It is a rather breathtaking piece, and still continues to interest me after at least a hundred hearings, for the listener's attention is constantly shifting, both between various bands of the spectrum and the various levels of his own perception (in much the same way as Steve Reich's Come Out, composed about the same time). At any given point, there are between 12 and 15 glissandi present, and the continual overlapping actually creates the desired illusion.

I have heard Tenney consider a possible modification of this piece which would, I think, be an interesting exploration. He suggests that each glissando be related to the one on either side by the ratio which is the limit of the ratios of successive Fibonacci terms (2:1, 3:2, 5:3, 8:5, 13:8, 21:13...), or about 1.618033988749894 (etc.), a minor sixth. This interval (quite a nice one - about 833 cents, as compared to 813.7 for the 8/5, 840.5 for the 13/8, and 800 for the tempered) which the current version of the piece only approximates, would result in the property of all first order difference tones of any given glissando pair being already present in some lower glissando. That is, all resultant tones would simply replicate existing ones, and the piece might conceivably be smoother, or more "perfect". This rather simple yet surprising result of the Fibonacci numbers, or more accurately of the "golden mean", can be seen visually in the common representations of it as a sequence of inscribed rectangles with sides proportioned in this fashion. What Tenney describes is an important acoustic ramification of this very popular concept. A "fine tuning" of the piece, with today's digital technology, would

not be too difficult, and would be a worthwhile experiment.

There are several other works that might be mentioned in connection with this period. Music for Player Piano (1964) is a computer generated piece, punched onto a piano roll, whose form springs directly from the later computer pieces. The roll may be played in any combination of its four possible directions/orientations, and as such the piece can be heard in various permutations of its prime, retrograde, inversion, or retrograde-inversion. Each such orientation is two minutes long, and its structure derives from the type of hierarchical gestalt manipulations already described in detail for works like Ergodos II and Phases. Three other "graphic" scores were written as performance additions of Ergodos I and II. They are called String Complement (1964) String, Woodwind, Brass and Vocal Responses (seperate scores, 1964) and Percussion Complement (1964). These were performed on at least one Tone Roads concert that I know of, and have not, I believe, been played since.