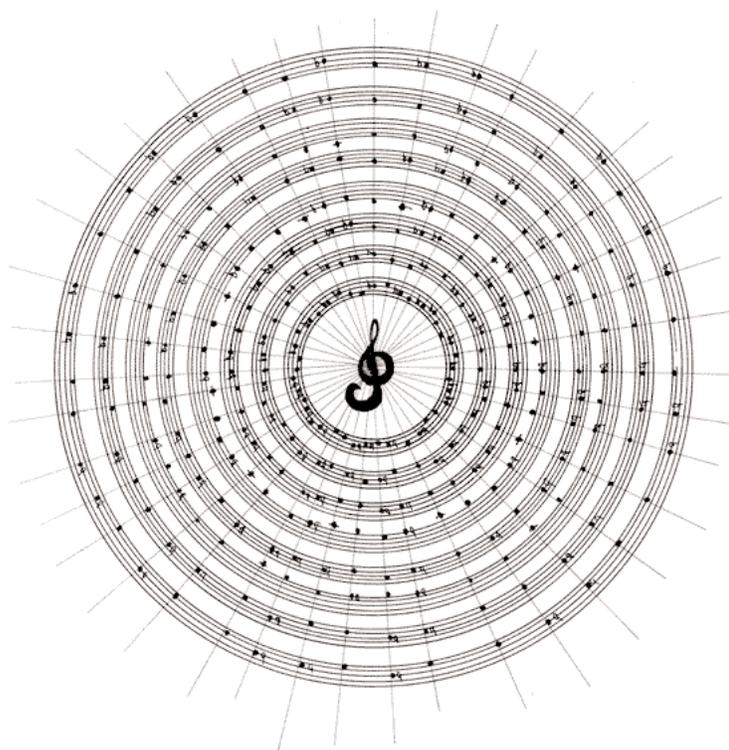


# SELECTED WRITINGS



LA MONTE YOUNG & MARIAN ZAZEELA

ubuclassics  
2004

*Selected Writings*

La Monte Young & Marian Zazeela

First published by Heiner Friedrich, Munchen

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Printed in West Germany in an edition of 2,100.

Michael H. Tencer, Editor and Redactor

Cover image: Terry Riley: "Keyboard Study #2, Page 8", from *Aspen no. 9*. The full issue of *Aspen* can be found in UbuWeb's *Aspen* archive: [ubu.com/aspens](http://ubu.com/aspens)

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2004 **ubuclassics**

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**1. NOTES ON THE CONTINUOUS PERIODIC COMPOSITE  
SOUND WAVEFORM ENVIRONMENT REALIZATIONS OF “MAP  
OF 49’S DREAM THE TWO SYSTEMS OF ELEVEN SETS OF  
GALACTIC INTERVALS ORNAMENTAL LIGHTYEARS TRACERY”**

(Also published in ASPEN, September, 1969, edited by Dan Graham.)

“Map of 49’s Dream The Two Systems of Eleven Sets of Galactic Intervals Ornamental Lightyears Tracery” consists of a total environmental set of frequency structures of sound and light – a collaboration of my work with light projections and designs created by Marian Zazeela. Although the work is a section of “THE TORTOISE, HIS DREAMS AND JOURNEYS” it is different from the previous sections and will have its own subsections, each of which will receive an individual title. A major difference is that all work on this section has taken place since I began to write “2-3 PM 12 XI 66-3:43 AM 28 XII 66 FOR JOHN CAGE FROM ‘VERTICAL HEARING OR HEARING IN THE PRESENT TENSE”” which I have since revised under the title “THE TWO SYSTEMS OF ELEVEN CATEGORIES 1:07:40 AM 3 x 67 –”. I have concentrated primarily on selected intervals from categories A1, B1, and A2, B2, X=5 from the latter work.

“The Two Systems of Eleven Categories” applies to sets of concurrent generating frequencies which may be represented as integral multiples of a common fundamental and outlines a means for achieving graduated degrees of control over which frequencies will be present within a complex of such concurrent generating frequencies and their associated combination frequencies. Generating frequencies are refined to be the prime, or zeroth order, combination frequencies from which all higher order combination frequencies are derived. The nth order ( $n > 0$ ) combination frequencies are defined to be the

sum and difference frequencies produced by all lower order combination frequencies. This control is achieved by categorizing sets of concurrent generating frequencies according to the specific generating and combination frequencies to be excluded.

Consider the premise that in determining the relationship of two or more frequencies the brain can best analyze information of a periodic nature. Since chords in which any pair of frequency components must be represented by some irrational fraction (such as those required for any system of equal temperament) produce composite sound waveforms that are infinitely non-repeating, only an infinite number of lifetimes of listening could possibly yield the precise analysis of the intervallic relationship. Consequently the human auditory mechanism could be best expected to analyse the intervallic relationships between the frequency components of chords in which every pair of components can be represented by some rational fraction, since only these harmonically related frequencies produce periodic composite sound waveforms.

As sources for the frequency environments I have selected sine waves since they have only one frequency component. These are produced by frequency generators tuned both by ear and with an oscilloscope which continuously displays the generator frequency ratios with Lissajous and intensity modulated ring patterns. Most recently I have been using a Moog Synthesizer with ultrastable variable frequency sine wave oscillators designed for my work.

To my knowledge there have been no previous studies of the long term effects on continuous periodic composite sound waveforms on people. (Long term is defined to be longer than a few hours in this case.)

My past work in music with sounds of long duration slowly led in this direction until it became possible for me to develop a situation allowing the study of truly

continuous sounds by establishing continuous frequency environments with electronic instruments. I have maintained an environment of constant periodic sound waveforms at my studio and home continuously since September 1966. The only exceptions have been that I sometimes, but not always, turn off the equipment when no one will be in the environment at all, and when listening to “other music.” Also, I sometimes turn it off to test the acoustical situation for spurious (incidental) sounds, and to study the contrasts of such extended periods of sound with periods of silence.

The sets of frequency ratios listened to are often played continuously 24 hours a day for several weeks or months. Marian Zazeela and I have worked and lived in this environment, and varied groups of people have been invited to listen and report their reactions to the frequencies.

Although in 1957 I was originally drawn to work with sounds of long duration by intuition alone, my work of this nature has led to the formulation of three principles which suggest further study:

1. Tuning is a function of time. Since tuning an interval establishes the relationship of two frequencies in time, the degree of precision is proportional to the duration of the analysis, i.e. to the duration of tuning. Therefore, it is necessary to sustain the frequencies for longer periods if higher standards of precision are to be achieved. The fact that this information is not generally known to musicians may be one reason that only a few examples of pitches of long duration such as organum, pedal point, and the drone are to be found in music. On the other hand, astronomers have known for some time that if a measurement or comparison is to be made of two orbits which involve many years of time, the degree of precision of the measurement will be proportional to the duration for which the measurement is made.\*

2. Consider the possibility that the number of complete cycles of a periodic composite waveform is a primary factor in recognizing an interval and/or in determining the degree of precision in tuning once the interval has been recognized. If this were the case, ratios comprised of lower frequencies (such as 52.5 Hz: 30 Hz = 7:4) would have to be sustained for longer periods of time than the identical ratios comprised of higher frequencies (such as 840 Hz: 480 Hz = 7:4), in order to produce an equivalent number of complete cycles of their periodic composite waveforms.
3. In the tradition of modal music a fixed tonic is continued as a drone or frequently repeated, and a limited set of frequencies with intervallic relationships established in reference to the tonic is repeated in various melodic permutations throughout a performance in a particular mode. Generally, a specific mood or psychological state is attributed to each of the modes. The place theory of pitch identification postulates that each time the same frequency is repeated it is received at the same fixed place on the basilar membrane and transmitted to the same fixed point in the cerebral cortex presumably by the same fiber or neuron of the auditory nerve. The volley theory of pitch perception assumes that a sequence of electrical impulses is sent traveling along specific neurons of the auditory nerve. For frequencies up to about 2000 Hz. only, these produce a more or less complete reproduction of the frequency of the vibratory motion of the basilar membrane in the case of a single sine wave and a more or less distorted reproduction of the complete waveform for more complex signals. It is presumed that this reproduction will be best for sounds at lower frequencies and less good for higher frequencies since an individual neuron cannot fire faster than 300 Hz. At lower frequencies a group of neurons working together would be able to supply several pulses per cycle whereas at higher frequencies they could only supply one every several cycles. The assumptions of place theory and volley theory suggest that when a specific set of harmonically related frequencies is continuous, as is often the case in my music, it could more

definitively produce (or stimulate) a psychological state that may be reported by the listener since the set of harmonically related frequencies will continuously trigger a specific set of the auditory neurons which in turn will continuously perform the same operation of transmitting a periodic pattern of impulses to the corresponding set of fixed points in the cerebral cortex. When these states are sustained over longer periods of time they may provide greater opportunity to define the psychological characteristics of the ratios of the frequencies to each other.\*\*

\*A notable example of the application of principles 1 and 3 is the classical music of India which has nearly always included a sustained drone and has evolved and actually practices the most highly developed system of modal scales and moods related to modes in the history of music.

\*\*Ibid.

## 2. DREAM HOUSE

LA MONTE YOUNG

MARIAN ZAZEELA

### DREAM HOUSE

A continuous frequency environment in sound and light with singing from time to time.

Opens Sunday 6 July 1969 at 15 h; continues through 19 July 1969.

The environment in sound and light at Galerie Heiner Friedrich will be continuous during the hours 10 to 18 and later on some days, Monday through Saturday. Visitors who wish to hear us sing with the continuous frequency environment may telephone the gallery to find out if we are or expect to be singing on that particular day and during which hours.

By 1962 La Monte had formulated the concept of a Dream House in which a work would be played continuously and ultimately exist in time as a “living organism with a life and tradition of its own..”

Much of our work has focused on the relationship of the media to time, or on time directly. Time is so important to the experiencing and understanding of our work that the installation for two weeks duration at Galerie Heiner Friedrich will provide the most realistic environment for its realization we have so far encountered. This presentation will be our most complete public statement to date.

The work presented within this model Dream House will be the longest contin-

uous public performance at periodic intervals of a section from “Map of 49’s Dream The Two Systems of Eleven Sets of Galactic Intervals Ornamental Lightyears Tracery” from the longer work “The Tortoise, His Dreams And Journeys,” and will consist of a total environmental set of frequency structures in the media of sound and light.

Two sources will be used to produce the frequencies in the sound medium: sine wave oscillators will generate a continuous live electronic sound environment during the hours the gallery is open; and we will sing additional frequencies at time intervals to be determined. Light frequencies will be manipulated in the gallery rooms with the specially designed installation of floating sculptures and dichroic sources.

#### I. Continuous Live Electronic Sound Environment

Sine waves have the unique characteristic among sound wave forms of having only one frequency component. All other sound wave forms have more than one frequency component. When a continuous frequency is sounded in an enclosed space such as a room, the air in the room is arranged into high and low pressure areas. In the high pressure areas the sound is louder, and in the low pressure areas the sound is softer. Since a sine wave has only one frequency component, the pattern of high and low pressure areas is easy to locate in space. Further, concurrently sounding sine waves of different frequencies will provide an environment in which the loudness of each frequency will vary audibly at different points in the room, given sufficient amplification. This phenomenon can rarely be appreciated in most musical situations and makes the listener’s position and movement in the space an integral part of the sound composition.

Various intervals, triads, and chords composed of sine waves will be produced

electronically in the different rooms of the gallery over the two week period allowing the listener to actually experience sound structures in space in the natural course of exploring the environment. Each of the intervals and chords is selected beforehand from “The Two Systems of Eleven Categories 1:07:40 AM 3 X 67 – ” (first revision of ““2-3 PM 12 XI 66 – 3:43 AM 28 XII 66 for John Cage’ from ‘Vertical Hearing Or Hearing In The Present Tense”). The frequency components of the sine waves are tuned on highly stable sine wave oscillators using oscilloscopes to achieve chords and intervals in which every pair of frequency components can be represented by some rational fraction. This produces a frequency environment of periodic composite sound wave forms. The ratios of the amplitude components of the sine waves are tuned with voltage meters to be inversely proportional to the ratios of their corresponding frequency components. In addition to the precise control over the intervallic ratios established among the sine waves, the control over the frequencies of the combination tones produced when more than one sine wave is sounded at one time is an important structural element of the work. In order to achieve this control only certain combinations of frequencies from the pre-selected set of chords and intervals are permitted to be sounded concurrently. 50 Hertz AC (derived from 220 volt power line frequency) will be used as the standard to which all other frequencies are related and tuned since it functions as the underlying drone of the city and all AC-powered equipment. The sine wave oscillators may be retuned from time to time to produce new intervals and chords, and recircuited to change the number of sine waves in each room. The frequency ratios being played will be displayed continuously as lissajous and intensity-modulated ring patterns on oscilloscopes so that visitors to the gallery can study them and their relation to what they hear.

## II. Light Frequency Environment

This will be the first public presentation of the light environment which Marian

designed to accompany the continuous periodic sound wave forms. Her work with slides as performed in concert with La Monte's music since 1965 provided the basis in mixtures of colored light frequencies which is of central importance in the new work. The intention of the work is to exploit the inherent properties of colored light mixtures combines with specific forms to produce a fluid, variable environment which appears to contain self-luminous colored bodies freely suspended in an atmosphere of continually moving calligraphic strokes. The pieces were created and inspired by just those conditions of continuous frequency sound structures in the studio that they will exist in at the gallery. In fact, the slow shifting movements of the forms and their multiple shadows in space recall the slow phase drift of two sine waves in rational relationship as displayed in lissajous figures on an oscilloscope.

The installation will consist of the suspension of flat white metal mobiles hung by filaments from the ceilings of the rooms which shape light by reflecting the colors of light sources directed at them from points below, and simultaneously cast colored shadows on the ceiling and upper walls of the room. Each metal piece is positioned in relation to the other pieces to form a part of a total design. The colors of the shadows cast by each piece vary with the colors of the light sources projected on it, and the distances of the piece from the source and the ceiling. Each piece appears to be that portion of the color spectrum which it reflects at any one moment, and all other available colors mix to form its shadows. Thus if a piece has two lights, red and green, projected on it from different angles, it will at various times appear red, green, or yellow, depending upon the luminance and angles of incidence of the lights it faces, but it will continually cast two shadows, a reddish shadow from the green light source, and a greenish shadow from the red light source.

With careful placement of light sources, and use of dichroic filters to create intense, near-pure colors, secondary and tertiary shadows are also cast by the

auroras of the light sources, evolving very complex configurations of shape and shadow. Slight air currents, such as those set in motion by people in the room, gently move each mobile around its suspension axis causing variations in the hue and luminance of the color it reflects, the existence and shape of its shadows, and the relation of it and its shadows to the other mobiles and their respective shadows. As these variations of color, shape, light and shadow in response to vibration occur in the space over a period of time, time becomes an essential dimension of the work.

### III. Frequencies Sung at Time Intervals To Be Determined

A particularly interesting aspect of the continuous performance situation is the possibility that it may free the artists from the artificiality of measured time, and allow them to perform in real time. Once a situation is created in which the artists may sing several hours a day, several days a week, for a few weeks, it no longer seems important to fix an auspicious evening at 20h two months or six months in the future (with no possible way of determining what circumstances will have evolved in the lives of the artists or in the world at large in the intervening months) and then at that pre-selected moment place the artists on stage and command them to sing (or produce in whatever media)! Although this feat must be within the technical capabilities of every great performer, one must recognize that most artists can only be expected to produce their best work on the inspiration of their muse, and at those time during the day or week when their physical and mental powers are at noticeable peaks. Certain aspects of the structure of the vocal work are specifically organized to be determined by the performers during the performance, which requires that we must be as sensitive as possible to the demands of the work and to all interacting forces which may bear a direct relationship to the work at just that point in time when it is being performed, and in part, created.

Therefore, no predetermined singing times will be set, rather the artists plan to sing frequently during the 10 to 18 hours, Monday through Saturday, and later on some days, for the duration of the show. If it should be known at any point in advance that they will sing at a particular time the information will be given to people who telephone. However, the live performance of the electronic sound and light environment will be continuous during gallery hours so that visitors are also expected to come without phoning since there is a good chance they will hear some portion of a three-to-four hour vocal performance as well. It is hoped that visitors will come several times during the period of the show since this will best allow them to experience the aspects of the work that are inherently dependent on time.

The artists will sing intervals from “The Two Systems of Eleven Categories”, chosen to be sustained over a drone produced by one or more of the sine waves in the environment.

[included is a diagram of DREAM HOUSE]

“... In Dream Music there is a radical departure from European and even much Eastern music in that the basis of musical relationship is entirely harmony. Not European harmony as textbooks have outlined it, but the intervallic proportions and acoustical consequences of the particular ratios which sound concomitantly in the overtone series when any simple fundamental is produced. Melody does not exist at all (The Disappearance of Melody) unless one is forced to hear the movement from group to group of various simultaneously sounded frequencies derived from the overtone series as melodic because of previous musical conditioning. Even before the first man moved successively from one frequency to another (melody if you like) a pattern for this movement, that is the relationship of the second frequency to the first was already predetermined (harmonically) by the overtone structure of the fundamental of the first sound.

An in the life of the Tortoise the drone is the first sound. It last forever and cannot have begun but is taken up again from time to time until it lasts forever as continuous sound in Dream Houses where many musicians and students will live and execute a musical work. Dream Houses will allow music which, after a year, ten years, a hundred years or more of a constant sound, would not only be a real living organism with a life and tradition all its own but one with a capacity to propel itself by its own momentum. This music may play without stopping for thousands of years, just as the Tortoise has continued for millions of years past, and perhaps only after the Tortoise has again continued for as many million years as all of the tortoises in the past will it be able to sleep and dream of the next order of tortoises to come and of ancient tigers with black fur and omens the 189/98 whirlwind in the Ancestral Lake Region only now that our species has had this much time to hear music that has lasted so long because we have just come out of a long quiet period and we are just remembering how long sounds can last and only now becoming civilized enough again that we want to hear sounds continuously. It will become easier as we move further into this period of sound. We will become more attached to sound. We will be able to have precisely the right sound in every dreamroom playroom and workroom, further reinforcing the integral proportions resonating through structure (re: earlier Architectural Music), Dream House (shrines, etc.) at which performers, students, and listeners may visit even from long distances away or at which they may spend long periods of Dreamtime weaving the ageless quotients of the Tortoise in the tapestry of Eternal Music ...”

(from concert program notes, 1964

C La Monte Young 1968)

### 3. CONVERSATION WITH LA MONTE YOUNG

by Richard Kostelanetz

In less than a decade, La Monte Young has established himself as one of the most imaginative young composers in America by offering a succession of pieces which, while valid extensions of certain current practices, were absolutely novel. In 1960, at Berkeley, he presented a composition which consisted of turning loose a jar full of butterflies (they made a sound, however inaudible); the score of *Composition 1960 #7* consists of an open-fifth chord (B and F#) followed by the hand-written instructions: "To be held for a long time." At a New York concert, some years later, he set fire to a violin; another time he performed a suggestive abstract design by Toshi Ichiyanagi by counting a bag-full of beans. Many of these early pieces are collected in *An Anthology* (1963), which he edited. In 1964, Young publicly initiated *The Tortoise, His Dreams and Journeys*, a mixed-means theatrical piece which is currently the only work he performs; with new sections introduced on each of many occasions, it is among the most admired works in the new theatre.

Young was born in a log cabin in 1935, in Bern, Idaho, where his father herded sheep; he lived in Idaho until the age of four, in Los Angeles through the sixth grade, in Utah through junior-high school, and then his family settled permanently in the Los Angeles area. He attended John Marshall High School, Los Angeles City College, Los Angeles State College, and the University of California at Los Angeles, where he majored in music and received his B.A. in 1958. Throughout his youth, Young studied the saxophone, which he calls "my instrument of virtuosity," and he later studied composition with Leonard Stein (once an assistant to Arnold Schoenberg), as well as attended Karlheinz Stockhausen's seminar at Darmstadt in the summer of 1959. After graduating from U.C.L.A., he studied at Berkeley under a Woodrow Wilson Fellowship and served for two semesters as a Teaching Assistant in the Music Department. In

1960, he won the Alfred Hertz Memorial Traveling Scholarship, which took him to New York where he studied electronic music with Richard Maxfield; and he has lived there ever since. In 1966, he received grants from both the Foundation for Contemporary Performance Arts and the John Simon Guggenheim Memorial Foundation.

Although Young's earliest work as a serious composer was in the Schoenberg twelve-tone tradition, his use of sustained notes, sparse textures, and the exclusion of certain combinations of pitches suggested directions he has since pursued. His interest in classical Indian and Japanese Gagaku music, combined with his exposure to the work of Karlheinz Stockhausen, Richard Maxfield, and John Cage helped produce even more radical changes. Following his return from Darmstadt where he "discovered" Cage, he created numerous audacious performances which demonstrated the effects of his "discovery," and his work since has been increasingly original and idiosyncratic. *In The Tortoise, His Dreams and Journeys*, Young and three associates chant an open chord of intrinsically infinite duration, amplified to the threshold of aural pain. Public performances usually consist of two sessions, each nearly two hours in length, within a darkened room illuminated only by projections of pattern-art. Although music is the predominant force, the entire setting induces a multi-sensory involvement, and as the piece's time is open and its space is closed, I classify it as a kinetic environment.

Young is a small and slender man, strong in physique, who speaks with a decidedly far-western accent. He possesses the ability to talk forever, in a tone at once passionate and professional, and he likes to laugh at his cleverness. He carries himself in an eccentric and commanding manner similar to that of his music. Disdainful of worldly realities, he once subscribed to a twenty-seven-hour day around the clock - eight for work, eight for play, eleven for sleeping - a regime that meshed with the rest of the world only a fraction of the time. He insists that other people who perform his work must pay in inverse proportion to a piece's length - three hundred dollars for seven minutes, twenty-five dollars for

twenty-four hours.

Young lives with his wife, Marian Zazeela (a painter noted for her objectivist contemplative patterns, such as those used in the *Tortoise* piece), in a large loft filled with desks, boxes, tape and electronic apparatus. Here, his group, The Theatre of Eternal Music, rehearses every night for at least a month before a performance. Its membership consists of Young, Marian, Tony Conrad, Terry Riley, and, at different times, John Cale, Angus MacLise, Terry Jennings, and Dennis Johnson. Married in 1963, the Youngs share such common enthusiasms as turtle-keeping, yogurt-making, Far and Middle Eastern cooking, and organic vitamins. During the interview, conducted on a hot summer night in 1966, they often spoke simultaneously.

KOSTELANETZ - What was your first instrument?

YOUNG - The very first I ever played was the harmonica; however, at the age of two, this was soon followed by singing and guitar lessons from my Aunt Norma, who sang in the local high-school operettas. The songs I learned to sing at that time were cowboy songs.

KOSTELANETZ - Did you learn to read music then?

YOUNG - No, I did not learn to read music until I was seven. During that period, around the age of three, I also had tap-dancing lessons, and I developed a tap-dancing routine which was among my earlier stage experiences. I had also played my grandparents' piano a little bit and looked through the sheet music of cowboy songs that they had there, but I didn't have lessons in reading music at that time. When we moved to Los Angeles, my father one day brought home for me this old gray saxophone; he was my first saxophone teacher and he taught me to read music.

KOSTELANETZ - What do you consider your most important early experiences?

YOUNG - The very first sound that I recall hearing was the sound of the wind going through the chinks in the log cabin, and I've always considered this among my most important early experiences. It was very awesome and beautiful and mysterious; as I couldn't see it and didn't know what it was, I questioned my mother about it for long hours.

KOSTELANETZ - Do you remember this now?

YOUNG - Yes, quite vividly.

KOSTELANETZ - Were there any important high-school experiences?

YOUNG - The best thing about high school was the small intellectual community I fell into - artists, poets, philosophers, as well as other musicians. There was a boy, Gordo, who was the leader of the gangs in Toonerville at that time; but he was also a prize-winning trombonist of the Philharmonic and had already been on the road with Perez Prado's band. He came upon me one day practicing Charlie Parker's *Donna Lee* at a furious tempo and after that we often had jazz sessions together after school. In the first or second year of high school I began taking private saxophone lessons with William Green at the L.A. Conservatory. He is really a saxophonist's saxophonist, and put the finishing polish on my technique. I also enjoyed my high-school harmony classes. Otherwise, I did not like the social situation of high school. I thought it was fairly juvenile.

KOSTELANETZ - What would you rather have been doing?

YOUNG - Playing music all the time and associating with the people I liked. I didn't like being regimented. For instance, when I was chosen to play the saxophone solo at graduation I had to shave off my goatee and sideburns.

KOSTELANETZ - Where did you go to college?

YOUNG - I began at Los Angeles City College where I first studied with Leonard Stein, the pianist and theorist who was Schoenberg's assistant. I later studied counterpoint and composition privately with Stein. Then I went on to U.C.L.A., where the main influence upon my actual writing style was Dr. Robert Stevenson, with whom I studied both baroque and sixteenth-century counterpoint as well as keyboard harmony. Lukas Foss was very important in encouraging me to talk about my work at the various composers' symposia held at that time.

KOSTELANETZ - The earliest piece in your list of compositions is dated 1955. Were you already a functioning composer at that time?

YOUNG - Oh yes. Of course, I had already started playing jazz in high school.

KOSTELANETZ - Professionally?

YOUNG - As professionally as I could play the kind that I was interested in playing. I never recorded, but I always went to the best and most exciting sessions at the clubs. When I got a few jobs at dances and so on, I used to hire all my friends, like Billy Higgins, Don Cherry, Dennis Budimir, and Tiger Echols. We rarely got hired back to those jobs, because we played jazz all night long. Billy and I had a group at Studio One, as it was called, downtown in L.A.

KOSTELANETZ - Are you still interested in jazz?

YOUNG - Only from a listening and speaking point of view.

KOSTELANETZ - Was it your original ambition to do something in jazz?

YOUNG - Yes, in high school, it was. The reason I discontinued my work in jazz was to progress into more serious composition. I found that I got into far-out areas that were not being appreciated except by a very small group. Most were complaining that my rhythmic style didn't out-and-out swing, because I used rhythmic configurations that weren't always right on the beat in the most obvious way. They confused the drummer. I was also interested in harmonic patterns that were beyond what the ordinary jazz musician was using. Jazz is a form, and I was interested in other forms.

KOSTELANETZ - Did you object to the repetitiousness that tends to plague even the best jazz?

YOUNG - No, that wasn't it. I'm very interested in repetition, which is why I prefer the style of John Coltrane or Indian music. I am wildly interested in repetition, because I think it demonstrates control.

KOSTELANETZ - However, there are different kinds of repetition - repetition because the musician can't do anything else, and repetition as a very objective strategy to produce a subjective effect. Your own recent music exemplifies the second kind.

You told me once before that at college you knew the late Eric Dolphy, the jazz saxophonist.

YOUNG - He was at L.A. City College at the same time, and his playing was

an example of repetition used in yet another inventive way. While John Coltrane constructed modes or sets of fixed frequencies upon which he performed endlessly beautiful permutations, Eric Dolphy had an incredible set of licks - melodic fragments - that he would repeat in the most various and happy combinations at any frequency transposition that sounded right to him at the time.

KOSTELANETZ - After you gave up your jazz career, what was your next step?

YOUNG - While I was at City College, studying with Leonard Stein, I became quite interested in the work of Anton Webern. In fact, to this day his work stands out among my influences as one of the most important examples of clarity, which is a value of great interest to me.

KOSTELANETZ - What kind of clarity - his uncompromising precision in the use and extension of serial principles?

YOUNG - I think the clarity in every dimension of his work may be unprecedented in Western music. Schoenberg used row technique in a far more naive way - it was not as strictly, in an audible way, related to the musical result, as it is in the work of Webern. In Schoenberg's music, theme and content are separated from row technique, whereas in Webern row technique is very strictly coordinated with thematic and motivic materials.

Some of my favorite Schoenberg pieces are the Five Pieces for Orchestra, Opus 16, and of particular interest to me among these are the second, *Yesteryears*, and the third, *The Changing Chord - Summer Morning by a Lake - Colors*, which is a very static piece with extraordinarily subtle and delicate changes. It goes on and on with mirage-like motifs disappearing and reappearing over recurrent droning textures that are among the most gorgeous in orches-

tral sound. The *Summer Morning by a Lake* piece interests me because it involves stasis in contrast to climax.

I feel that in most music peculiar to the Western hemisphere since the thirteenth century, climax and directionality have been among the most important guiding factors, whereas music before that time, from the chants through organum and Machaut, used stasis as a point of structure a little bit more the way certain Eastern musical systems have. In *Summer Morning by a Lake*, as I say, stasis is used, although it wasn't as much in Schoenberg's other work. In Webern, however, stasis was very important, because not only was he involved with row technique but he also developed a technique for the repetition of pitches at the same octave placements throughout a section of a movement. That is, each time C, A, or Eb comes back in the section of the movement, it is at the same octave placement. So, as you hear the movement through, you find this static concept of a small number of large chords reappearing throughout the entire movement.

KOSTELANETZ - Were you interested more in this static dimension than the serial language?

YOUNG - I was interested in both elements; for even though we can define serial technique as constant variation, we can also redefine it as stasis, because it uses the same form throughout the length of the piece.

KOSTELANETZ - How can the row be a static element if its manipulations are so various?

YOUNG - We have the same information repeated over and over and over again, in strictly permuted transpositions and forms, which recalls the thirteenth-century use of *cantus firmus*. The theme-and-variations technique depends as much upon the static repetition of the theme as upon its variations.

KOSTELANETZ - Of course, the theme or information of the piece is the row, which informs all the structures of notes; however, as the row is manipulated, we hear the row in continually different ways.

YOUNG - The “continually different ways” are so precisely related to the “original” form of the row that any one of the permutations is simply an aspect of the basic shape of the row which includes all of the permutations. Schoenberg based row technique on the belief that these “continually different ways” were related in such a way that they could be the unifying structure of a composition.

KOSTELANETZ - What you are saying, then, is that as the row informs every aspect in a controlling fashion, a serial piece therefore acquires, as information, an ultimately static quality.

YOUNG - Also, I might point out that I was predisposed to the twelve-tone technique, because my high-school harmony teacher had studied at U.C.L.A. with Schoenberg. Beginning in 1956 I enjoyed writing with serial technique for about three years, but by 1957-58 I was beginning to discover reasons for moving beyond the twelve-tone system. I felt that it was by no means the final word as far as structure is concerned. There are so many forms that structure can take, and so many structures that form can take - so many possible forms in art. In my Octet for Brass [1957], I began to introduce, within the serial style, very long notes. In the middle section, there were notes sustained easily for three or four minutes, where nothing else would happen except other occasional long notes overlapping in time, and there would be rests for a minute or, at any rate, a few beats, and then another long note or chord would come in. This technique became more refined and perfected in the Trio for Strings [1958] which has pitches of longer duration and greater emphasis on harmony to the exclu-

sion of almost any semblance of what had been generally known as melody. The permutations of serial technique imply possibilities of ordinal organization only. Ordinal organization applies to line or melody, whereas the increasing emphasis on concurrent frequencies or harmony in my work implied the possibility of the organization of the cardinal values both in regard to how many frequencies are concurrent and the relationships of the frequencies to each other.

KOSTELANETZ - Do you still listen to serial music?

YOUNG - If I happen to hear it. When I did work in it I listened to some pieces over a hundred times; nothing else would be going through my head. Now I listen to it if a composer brings a piece by or sends one to me. But otherwise I spend almost all my time working on my own music, as I have found other organizing factors which I feel are more interesting and pertinent to it.

KOSTELANETZ - How are these factors more interesting?

YOUNG - The longer notes make harmonic analysis by ear a reality and these integral relationships soon sound much more beautiful and harmonious and correct than their irrational equal-tempered approximations.

KOSTELANETZ - What else initiated your turning away from serial composition?

YOUNG - In the late fifties I had more opportunities to hear Indian classical and Japanese Gagaku music, partly because of the outstanding ethnomusic department at U.C.L.A., which had its own student Gagaku orchestra and Japanese instructors, and partly because of that famous early recording by Ali Akbar Khân and the late Chatur Lal of Râgas *Sind Bhairavi* and *Piloo* which essentially introduced the longest example then available of masterfully played

Indian music. I literally flew to the record store when I first heard it on the radio. I was also hearing recordings of plain chant and organum, and while at Berkeley I had the privilege of visiting a nearby Dominican monastery where I heard the monks sing plain chant. That was a beautiful experience. These examples of modal music, and particularly the systems of harmonic frequencies required by the continuous frequency drone of Indian music and the sustained harmonics of the *sho* in Gagaku, seemed to move me much more deeply than anything else I was hearing.

In contemporary European music after Webern, the work of Karlheinz Stockhausen had made a very powerful impression on me. In the summer of 1959 I traveled to the Darmstadt Festival for New Music to take his composition seminar. On my way there from Berkeley I met Richard Maxfield in New York, and heard his new electronic music for magnetic tape. I liked it so much that a year later I took his class in electronic music at the New School for Social Research.

In the seminar at Darmstadt, Stockhausen devoted much time to his own work in sound, and to the work of John Cage. The events at the festival also provided my first exposure to John Cage's lectures and the concert presentation of the recording of the David Tudor performance of the Concert for Piano and Orchestra played on an impressive sound system. After this sequence of refreshing experiences, meeting composers and hearing new work, I returned to Berkeley even more inspired to further explore extensions of the ideas related to the sustained frequencies I had presented in my Trio for Strings. The relevance of this work as a synthesis of particular Eastern and Western musical systems and a new point of departure for my work had become strikingly clear to me, and the cumulative effects of all of my exposures to music were at this point providing enough information that I began to think of serial technique as only one of many possible methods applicable to music composition.

KOSTELANETZ - Why had you not been exposed to John Cage's ideas previ-

ously?

YOUNG - In those days, there was no Cage on the West Coast, except on records. Dennis Johnson had played the recording of the Sonatas and Interludes for Prepared Piano for me maybe once, and Terry Jennings had a record of the String Quartet which we used to listen to, but I had to go to Europe to really discover Cage. When I got back to Berkeley and started to perform Cage, everybody there still considered him an out-and-out charlatan. I really had to fight to get him on programs.

KOSTELANETZ - What were your purposes in the pieces of your second year at Berkeley, the compositions of 1960, written after your encounter with Cage?

YOUNG - I was on my way to Mount Tamalpais, the biggest mountain in the Marin County area, and I started thinking about the butterfly. Alone, it made a very beautiful piece. Being very young, I could still take something so highly poetic and use it without the fear I would have now - that it would be trampled on. Now, I would offer something quite a bit more substantial than a butterfly or a fire - something that can't be so easily walked on. After all, a butterfly is only a butterfly. No matter how much I write about the fact that a butterfly does make a sound - that it is potentially a composition - anyone that wants to can say, "Well, it's only a butterfly."

KOSTELANETZ - Your point, then, in bringing into the concert situation a jar of butterflies and then releasing them, was that a butterfly makes a sound.

YOUNG - True. Another important point was that a person should listen to what he ordinarily just looks at, or look at things he would ordinarily just hear. In the fire piece, I definitely considered the sounds, although a fire is, to me, one of the outstanding visual images. I'm very fascinated by the form of fires, as I

am fascinated by the form of the wind. In fact, during my entire Berkeley period, I was constantly talking to people about the form of the wind and the form of fires. Also, I was talking at that time about the sound of telephone poles, and I liked to quote these words from Debussy:

Listen to the words of no man,  
Listen only to the sound of the winds and the waves of the sea.

I feel, in fact, that Debussy is among my most important influences.

KOSTELANETZ - What else were you doing at that time?

YOUNG - Some of the other important pieces involved the audience. Those grew out of a performance of *Vision* [1959], which I wrote immediately after my return from Darmstadt and the exposure to chance music and so on. I took thirteen minutes of time and organized that period with eleven sounds, the longest of which was over four minutes. During the first performance, the audience carried on at such a rate of speed - at such a level - simply because I turned out the lights for the duration of the performance and they were involved with these weird sounds coming from strange spacings. In that period, I was really intrigued with the audience as a social situation.

KOSTELANETZ - Were the sounds in *Vision* constant in pitch and amplitude?

YOUNG - No. However, textures and methods of performance were sometimes constant. The sounds were complex and changing. There was, for instance, a sound we called "Herd of Elephants" which was made by two or three bassoons playing a series of notes up in the falsetto range of the instrument at a rapid rate of speed. That would go on for the specified duration of a few minutes or less. These sounds were ancestors of the wild sounds - natural sounds, abstract

sounds, interesting material juxtapositions such as metal on glass, metal on metal - that I later worked with extensively in 1959-60 when Terry Riley and I were doing the music for Ann Halprin. Terry and I started making incredible sounds; they were very long and very live, and we'd really go inside of them, because they filled up the entire room of the studio. However, we were working with very irrational timbres.

KOSTELANETZ - Were any of these sounds tape loops?

YOUNG - No, it was all live. I've released very few tape pieces for public performance. I did record and preserve three of the sounds from that period, two of which I have released as the tape composition *2 Sounds* [1960], which Merce Cunningham uses in his *Winterbranch*.

KOSTELANETZ - In *Vision*, were your musicians all in one place?

YOUNG - No, I had grouped them around the audience - up in the balcony, in the aisles, and all over the place. I never saw an audience carry on that way, except at some of my subsequent performances at which they sang *The Star Spangled Banner* and stood up and swore.

KOSTELANETZ - Did you mind this?

YOUNG - Well, at that time I felt it was the best they were capable of. I didn't see what I could do about it, although I was quite upset that they did not sit and listen. I just hoped that in the future they would. Finally, now I think they do listen, as when Merce does the piece. Here's the difference: With Merce they are also given something to watch. I've noticed that a much greater part of the world is visually oriented and more capable of concentrating on visual stimuli than aural. Only a small percentage have learned how to concentrate on sound.

Some of the pieces of this period, then, were specifically related to the social situation. In one, someone announced the duration and told the audience that the lights would be out for the entire composition and that was all. Sure enough, plenty of people tore up their programs, and a few made other noises. Everybody thought I had programmed these events into the composition but I hadn't.

KOSTELANETZ - So it was, as a silent piece, very much like John Cage's *4' 33"*.

YOUNG - They are related, except that in John's you have a classic setting in which one sits at the piano and turns the pages for each movement - going through the motions of a classical form. In my piece, I just announced a block of time, which may be of any length. In the original manuscript, I said that, "When the lights are turned back on, the announcer may tell the audience that their activities have been the composition." This is not at all necessary, and I have never done it in that form.

KOSTELANETZ - Are these theatre pieces or music pieces?

YOUNG - Both categories apply. I divide my works into music pieces, and musical-theatre pieces. All my pieces, I feel, deal with music, even the butterflies and the fire. In every case, I was writing them as musical compositions to be played at musical performances. In fact, a certain amount of their impact relates to the fact that they are performed in a classical concert situation. Although there is no question but that my exposure to John Cage's work had an immediate impact on aspects of my Fall, 1959, and 1960 work, such as the use of random digits as a method for determining the inception and termination of the sounds in *Vision* and *Poem for Chairs, Tables, and Benches, Etc., or Other Sound Sources* [1960] and the presentation of what traditionally would have been con-

sidered a non- or semi-musical event in a classical concert setting, I felt that I was taking these ideas a step further. Since most of his pieces up to that time, like the early Futurist and Dadaist concerts and events which I became aware of shortly after my exposure to John's work, were generally realized as a complex of programmed sounds and activities over a prolonged period of time with events coming and going, I was perhaps the first to concentrate on and delimit the work to be a single event or object in these less traditionally musical areas. This was a direct development of my application of the technique in my earlier, more strictly sound, compositions.

KOSTELANETZ - At this point, too, you developed that composition where you instruct the performer to hold an open fifth "for a long time."

YOUNG - Another related to it was Composition 1960 #9 . . .

KOSTELANETZ - . . . which you published as a straight line on a three-by-five file card.

YOUNG - I have performed this work at one sustained pitch.

KOSTELANETZ - What is your purpose here?

YOUNG - This leads us from the old area of the Octet for Brass and the Trio for Strings, where I had sustained pitches in the context of other pitches, into the new area. I noticed about 1956 that I really seemed more interested in listening to chords than in listening to melodies. In other words, I was more interested in concurrency or simultaneity than in sequence.

KOSTELANETZ - That was your radical step.

YOUNG - Yes, that separated me from the rest of the world. I was really interested not only in a single note, but in chords, while other musical systems have placed great emphasis on melody and line or sequence.

KOSTELANETZ - Because the wind is a single note or chord.

YOUNG - The wind is a constant sound, the frequency of which at any given time is dependent on its surroundings or location, and therefore not always constant. Sometimes the frequency was fairly constant, during blizzards as the wind blew through the chinks in the log cabin, although even at those times the sound was characterized by that kind of increase and decrease in frequency with which we all associate the sound of a wind storm as the gusts would become stronger and then weaker. I really enjoyed it. I found it fantastic. It sounded great coming in like that - very calm, very peaceful, very meditative. During my childhood there were four different sound experiences of constant frequency that have influenced my musical ideas and development: the sounds of insects; the sounds of telephone poles and motors; sounds produced by steam escaping from such as my mother's tea-kettle or train whistles; and resonance from the natural characteristics of particular geographic areas such as valleys, lakes, and plains. Actually, the first sustained single note at a constant pitch, without a beginning or end, that I heard as a child that did not have a beginning or ending was the sound of telephone poles - the hum of the wires. This was a very important auditory influence upon the sparse sustained style of work of the genre of the Trio for Strings and Composition 1960 #7 (B and F# "To be held for a long time").

KOSTELANETZ - At this time, did you go back and listen to telephone poles?

YOUNG - I did - and to this day, I'm also very fond of power plants. For instance, the step-down transformer up there on the telephone pole probably

contributes to the hum. As the power hits intermediary stages, it has to go through transformations, and hums of various frequencies are generated. A great deal of electronics and machinery seems to generate series of partials. The partials of many of these series are related to each other as positive integers, and what is interesting is that the partials in the series produced by strings and pipes are also related in this way. When my refrigerator goes on again, or if I happen to turn on my little turtle motor, I can sing a few of the earlier harmonics for you.

KOSTELANETZ - So, you observed that nature is full of constant sounds?

YOUNG - Actually, aside from the sound of groups of insects and natural geographic resonators, sounds of constant frequency are not easily found in nature before mechanization and electronics.

KOSTELANETZ - What about a waterfall?

YOUNG - That's pretty constant. If it's a large waterfall, it's a pretty noisy sound, similar to white noise. It is very full - it has so many frequencies in it that one tends to hear it as a complex of sounds. Theoretically, white noise has every frequency within a given band, although a particular waterfall may or may not have all of these.

One place where we find a constant sound that has been with us for a few thousand years is the drone used in certain musical systems, such as those of India, Scotland, and Spain. The constant sound is also in organum, a form that grew out of chant, used in the ninth-century Catholic Church; in one style of organum various pitches were sustained, and a melody woven over them. After the first plain chant (which was just melody alone and very static, as I hear it and analyze it), the next stage was parallel fifths and fourths. After that, a musician started holding one of these notes for a long time, while another one

moved around over it.

KOSTELANETZ - Once you observed this tradition, did you want to recreate it?

YOUNG - I wanted to do more of it, because I felt there was all too little around. It made me feel very good to hear it, so I really wanted to hear a lot of it. In fact, my ideal is to have a number of machines playing a constant sound around the house.

KOSTELANETZ - You spoke once of “trying to get inside a sound.” How does this process work?

YOUNG - There are several ways you can approach it. One is that someone concentrates so heavily upon a given sound - he gives himself over to it to such a degree - that what’s happening is the sound. Even though I could be sitting here, all I am is an element of the sound. Another approach is to walk into an area in which the sound is so abundant that you actually are in a physical sound environment. This happens when someone walks into one of my concerts.

KOSTELANETZ - It’s the same thing as walking into a noisy generator room.

YOUNG - Yes, it depends upon the level. If it were high enough, you could be enveloped.

KOSTELANETZ - Is this a valuable process?

YOUNG - I find that it does things to me unlike anything else.

KOSTELANETZ - If you walk into Grand Central Station, you’re also

enveloped by sound, but it consists of a different, dissonant quality.

YOUNG - The difference in which sound you would want to be enveloped depends upon whether you are John Cage or La Monte Young.

The harmonically related frequencies I'm interested in have so much to do with the way we hear and the way so many sounds are structured. These common characteristics reinforce each other. Alain Danielou points out in an article on sound in the *Psychedelic Review* #7 that he feels the mental mechanism permits us to analyze and recognize only those musical intervals which are harmonically related. This is an area in which I plan to do more work - what happens after the information carried by the sound passes the reception stage at the ear. It is highly likely, as I hear it, that what makes me like this sound is more than just the way the ear receives information; the brain finds this kind of information congenial.

KOSTELANETZ - Let me go back to that earlier point. Why do you prefer the constant sound of the generator to the sound of Grand Central Station that Cage has always treasured so much?

YOUNG - I think it has more to do with how human beings have related to sound from history on end. Not only do the ears receive information this way, but the vocal chords are strings. The sound with which we are most familiar, the voice, is structured according to these principles.

KOSTELANETZ - So, in retrospect, we may trace two long-standing preoccupations that are reflected in your present work - the *Tortoise* piece - one was creating a social situation or environment in which all kinds of elements were used, another was the interest in the constant sound.

YOUNG - My recent work has led me away from the twelve-note equal-tem-

pered system, which is necessarily a compromise of music and musical structure, if we are going to consider how sound is organized and how the ear hears. The twelve-note system divides the octave into twelve equal-tempered intervals, equidistant pitches. The interval between each consecutive frequency is an equal irrational proportion. An accepted standard allots one hundred cents to the distance between each consecutive semitone; so there are twelve hundred cents to the octave.

If we take the major scale, which is the Ur-scale, or scale of origin for many musical systems, we find that this scale is most rationally and musically represented in the octave 24 to 48 in the overtone series. The overtone series - the system of partials arising within a given sound - is one basic aspect of the area of music I'm involved with today. If we assume a fundamental, which can be a random note of any pitch, and subject it to the analysis which twentieth-century electronic instrumentation allows us, we find that most sounds consist of more than one frequency. These many other pitches are partials, also known as harmonics or overtones. In many sounds these partials exist in whole-number relationship to the fundamental. The frequencies of these partials relate to each other as integers. For example, if we have the fundamental one, which we will call the first partial, the wave pattern of the second partial completes two cycles to each cycle of the fundamental.

KOSTELANETZ - Which is to say, the second partial has twice as many frequencies as the original; it is the octave.

YOUNG - Right. These partials exist in the frequency ratios of 2:1, 3:2, 3:1, 4:3, 4:2, 4:1, 5:4, 5:3, 5:2, and so on.

We distinguish the timbre, or characteristic sound, of one instrument from another by which overtones are present, which ones are louder and softer, and their phase relationships.

If we take the major scale as represented in the octave 24 to 48, the

scale of frequency proportions is 24, 27, 30, 32, 36, 40, 48. Many cultures have been hearing and playing this scale. The twelve-note system of equal-temperament was a simplification developed to approximate the integral relationships found in the major scale, but since none of the adjacent rational intervals in the harmonic series (by which the major scale is represented) are equal, we are confronted with a compromise.

KOSTELANETZ - What kind of relationships does the serial scale have then - 24, 26, 28, etc.?

YOUNG - No, it's just a division of the octave, the ratio of two to one, into twelve equal irrational fractions or intervals, each of which is separated from the other by an interval designated as the twelfth root of two over one ( $\sqrt[12]{2/1}$ ) which, when written as a proportion, is an infinite non-repeating decimal, approximately 1.0594631/1. An array of composers, theoreticians, and scientists have been aware of, or written about, the problems of twelve-note equal-temperament; Helmholtz, Alain Danielou, Harry Partch. Lou Harrison, Narendra Kumar Bose, and C. Subrahmanya Ayyar are just a few of the investigators in the field. Some have recommended a division of the octave into the larger number of 53 equal-tempered intervals which allows a smallest interval that is very nearly the same size as 81/80 for the basic unit, and a lesser compromise for limited musical systems composed only of intervals expressible as powers of this smallest unit interval, whereas others have accepted no compromises whatsoever. But with our present system of tuning the piano, the only intervals that are rationally in tune are the octaves. None of the other intervals are harmonically in tune. If you play these other intervals for a long time at a loud enough volume, there is no problem hearing how unharmonious they sound. In practice most of the time, however, they are underemphasized and rushed over. To compare some harmonic and inharmonic intervals, just listen to any piano quintet, any piano concerto with orchestra, any choral work in which

the piano is out part of the time. Whenever the piano is not around, instrumentalists tend to play in tune with exact harmonic proportions. This is called “just intonation.” There are two factors which lead musicians to do this if their instruments do not have equal-tempered limitations.

The first factor is that the frequencies of the harmonic components of the timbres of the classical instruments of the string and pipe families are defined by the multiplication operation. This means that these frequencies will all be integral multiples of the fundamental and that the performer, who is near the instrument is hearing these integral harmonic relationships or being influenced by them whenever the instrument is sounding.

The second factor is that the ear’s characteristics as a non-linear receptor and transmitter of sound also include this operation of multiplication, as well as the operations of addition, and subtraction, in that it generates its own harmonics at integral multiples of the fundamental even when presented with sine waves which have no harmonic content, and sum and difference combination frequencies when at least two frequencies are present, if in each case the information is presented at a loud enough volume. It is a characteristic of the operations of multiplication, addition, and subtraction that as long as they are performed on integers they will always produce integers, and these of course will correspond to the integral structure of the harmonic components of the instrumental timbre.

KOSTELANETZ - Would I be able to hear this difference between harmonic and dissonant intervals?

YOUNG - If I put one against the other, you’d have no problem. The rational intervals sound beautiful and harmonic, as when the best string quartet plays a Beethoven quartet. The twelve-note system, in contrast, sounds like the piano that comes in out of tune in a Brahms concerto after the orchestra has been playing for so long. When Peter Yates gives his lecture on tuning, he’ll play first

an equal-tempered example and then one in just-intonation; an equal-tempered and then a Pythagorean; an equal-tempered and then one in mean-tone tuning. I find it myself quite easy to hear the difference, as I think the audience does. On the simplest level, all you have to hear is whether or not it sounds like what we conventional people have always called harmonized, in-tune, beautiful, rather than just grinding and gratey.

KOSTELANETZ - What you are saying, then, is that nature sounds in “just intonation.”

YOUNG - This is an example of a harmonic system that occurs naturally in the world of sound.

KOSTELANETZ - Aren't there some cultures that don't use this harmony?

YOUNG - Some cultures have very interesting different systems. In the music of Java, for instance, we know about *pelok* and *salendro*, which are scales of irrational intervals. The seven-note, heptatonic scale is also used in Cambodia. There is evidence for another kind of harmonic hearing, however, when we consider the fact that in Java they use plates and bells as resonating bodies. Plates and bells have irrational harmonic systems, whereas here and in Europe, as well as in India, China, and Japan, we use strings and pipes as our primary resonating bodies, and as the bases for determining the frequencies of our musical system.

One factor that shapes the use of the system of just-intonation and what the audience hears at my concerts is amplification. It happens that the audibility of harmonics can be a function of amplification - the louder a sound is, the more likely you are to hear the harmonics that sound makes, which is to say that they increase as the amplitude goes higher. At ordinary volumes they are so soft that you don't even hear most of the higher partials. In fact, if you

listen closely to my singing voice without amplification, you will hear perhaps up to three. With amplification, the seventh harmonic in my voice and often the ninth harmonic in Marian's voice become clear and audible for everyone. That's only one reason we play the *Tortoise* piece so loud.

An important step in the history of just-intonation is the use of relationships that are multiples of integers greater than the number 5. That is, the entire major scale can be derived from proportions which are multiples of the integers 2, 3, and 5 only by themselves. Let me reduce the proportions: 27/24 is a 9/8 interval; 30/27 is 10/9; 32/30 is 16/15; 36/32 is 9/8; 40/36 is 10/9; 45/40 is 9/8; 48/45 is 16/15. There are only three kinds of consecutive intervals, each of which reduces to factors of 2, 3, and 5: 9 is 3 times 3; 8 is 2 times 2 times 2; 10 is 2 times 5; 16 is 2 times 2 times 2 times 2; 15 is 3 times 5. The music of South India forms an important basis of the theoretical work I have done. Not only do they use the number 7 but they also employ the numbers 11, 13, and simple multiples of these and, perhaps most important, these intervals are considered harmonically over the drone rather than only melodically. I refer to the book by the Indian theorist and violinist, C. Subrahmanya Ayyar, *The Grammar of South Indian (or Karnatic) Music*.

KOSTELANETZ - What does this give you?

YOUNG - An expanded vocabulary. It means that you are using pitch relationships which are not available in the Western system by any means, because of the fact that this system uses numbers only up to five.

KOSTELANETZ - How are you able to hear them, or even create them?

YOUNG - Very easily. That has a great deal to do with my work in long durations and the fact that I'm interested in harmony, not melody.

KOSTELANETZ - Some of your first pieces in New York were more or less theatrical events, such as counting the string beans.

YOUNG - I did that at my first performance of Toshi Ichiyanagi's *Mudai Number One*, during a series of concerts at Yoko Ono's loft that I directed. He had given me the score, which has been published since in my *Anthology*. It is an abstract pattern - a few calligraphic brush strokes on a white field - which give the impression of a half-dozen images. It is very sparse, very pretty - a few inkdrops, John Cage style, or, more appropriately, in the style of the Zen abstract calligraphers. This was given to me with no instructions, and *Mudai* means untitled. I had been thinking about the piece up to the moment of the concert, and I really hadn't come up with anything that was appropriate. Finally, when I passed a vegetable stand on the way to the concert, I decided I would buy thirty cents' worth of string beans. When I got there, I counted them. Most people who mention it never point out that I timed the counting with a stopwatch, so that I would find out how long it took me.

KOSTELANETZ - How long did it take you?

YOUNG - I forget.

KOSTELANETZ - Did you write it down?

YOUNG - I'm not even sure about that.

KOSTELANETZ - What good then did it do to time it?

YOUNG - The timing interested me then.

KOSTELANETZ - Was that "music"?

YOUNG - I think so. There was a score, and certainly it involved a duration of time, an element with which music has always been involved. Certainly, picking the pods out of the bag made a little rustle here and there. People were sitting and listening, and I was definitely performing. According to the definitions that I had exposed in my earlier 1960 pieces, I'd say it was certainly music.

KOSTELANETZ - Music being anything that makes a sound. Is anything not "music"?

YOUNG - There probably are very still things that do not make any sound. "Music" might also be defined as anything one listens to.

KOSTELANETZ - What happened in the piece where you burned a violin?

YOUNG - That was in a piece by Richard Maxfield performed at the Y.M.H.A. in New York. Even though it was Richard's piece, he gave me free rein, as he did in all his pieces; and this was one of the general conditions I often asked for my performance of the works of other composers and artists during that period. The piece was his Concert Suite from *Dromenon*, I believe. It involved a small orchestra, most of whom had far more rigid instructions than I did. I had my violin and my music stand, and I had carefully stuffed the violin with matches and lighter fluid ahead of time. I didn't tell anybody except Richard, who I thought should know, because I felt certain that they would not allow me to do it. Fortunately, they did not stop the performance; the instruments were playing, while the violin went blazing away.

KOSTELANETZ - Was this a theatre piece?

YOUNG - Both theatre and music. The definition of theatre can be expanded

in much the same way we expanded the definition of music, and in many cases the two areas overlap.

KOSTELANETZ - Do you consider yourself the author of the visual element?

YOUNG - In this piece, yes. Particularly so, perhaps, because I was performing an aspect of my Composition 1960 #2, which calls for a performer to build a fire where the audience can see it. Here the emphasis was displaced from the fire alone to the violin as combustible fuel for the fire.

KOSTELANETZ - Where does the piece in which you drew a line for an entire evening belong in your development?

YOUNG - As we have observed, I have been interested in the study of a singular event, in terms of both pitch and other kinds of sensory situations. I felt that a line was one of the more sparse, singular expressions of oneness, although it is certainly not the final expression. Somebody might choose a point. However, the line was interesting because it was continuous - it existed in time. A line is a potential of existing time. In graphs and scores one designates time as one dimension. Nonetheless, the actual drawing of the line did involve time, and it did involve a singular event - "Draw a straight line and follow it."

In 1961, I became more and more interested in the idea of this sort of singular event, and I decided to polish off my entire output for 1961 in a singular manner. My book, *LY 1961*, published by Fluxus, reads Composition 1961 #1 (January 1), "Draw a straight line and follow it"; Composition 1961 #2 (January 14), "Draw a straight line and follow it"; Composition 1961 #3 (January 27), "Draw a straight line and follow it."

KOSTELANETZ - Did you do that same piece on all those nights?

YOUNG - No, what I did was this. On January 6, 1961, I determined the concept. Then I took a yearly average of the number of pieces I had completed over a given period of time, and spaced that number equally throughout 1961, with one composition on the first day of the year, and one on the last day. It came out to one every thirteen days, and that night I quite coldly wrote out the dates.

KOSTELANETZ - Were they the 1960 pieces written over and over again?

YOUNG - It was Composition 1960 #10 written over and over again. What is also important historically is that I performed all of them in March, long before many of them had ever been written according to their dates of composition. I think that was interesting.

KOSTELANETZ - How did you actually perform it?

YOUNG - Well, it can be performed in many ways. At that time, I employed a style in which we used plumb lines. I sighted with them, and then drew along the floor with chalk.

KOSTELANETZ - As you were performing, did you announce each piece - to separate one from the other?

YOUNG - No, I distributed programs in which each one was listed, and it was up to the audience to keep track of which one I was doing.

KOSTELANETZ - Did you erase each line after you drew it?

YOUNG - No, I didn't erase. I drew over the same line each time, and each time it invariably came out differently. The technique I was using at the time

was not good enough.

KOSTELANETZ - Did you fix duration at the commencement of the piece?

YOUNG - No.

KOSTELANETZ - How, then, did you decide to terminate it?

YOUNG - After I had completed the last line, which was Composition 1961 #29 (December 31).

KOSTELANETZ - How long did it take to draw each line?

YOUNG - It must have been a few minutes - I forget exactly; but a whole performance must have taken a few hours.

KOSTELANETZ - Weren't there times when nobody was in the audience - you and your assistant were performing merely for yourselves?

YOUNG - That's very possible. People came and went and came back again.

KOSTELANETZ - Would you call this a successful piece?

YOUNG - I did enjoy it very much, because I like becoming involved in a singular event.

KOSTELANETZ - Is your desire to concentrate upon one thing influenced by Eastern philosophy?

YOUNG - It's both an influence and a parallel, because at the time I started to

do this I was becoming aware of various concepts of mysticism. I've been interested in Taoism since the time I became acquainted with it, which was about the same time I began to become aware of these areas of my experience. I had already started reading *haiku* in high school, for instance.

KOSTELANETZ - What other steps did you take before the *Tortoise* piece?

YOUNG - There is the "dream chord," which I used to hear in the telephone poles, which is the basis for the Trio for Strings. It is, for instance, G, C, C-sharp, D.

KOSTELANETZ - Which is one to four, to four-sharp to five.

YOUNG - Let's think of it in the key of C, in which case it is five, to one, to two-flat or one-sharp, to two. The entire work, *The Second Dream of the High-Tension Line Step-Down Transformer* (1962), which Lukas Foss's group from Buffalo played at Carnegie Recital Hall in January, 1965, consists of this chord. It is one of the few pieces of the genre notated in frequency ratios that I have released in score form. In the most primitive form, I think of the ratios as 12, 16, 17, 18, which represent the intervals for G, C, C-sharp, D. However, in the version I gave them, I suggested 24, 32, 35, 36, because I was interested in the smaller interval of 35/36, which I felt was a ratio I may have been hearing all along.

This then leads us to the fact that in the *Tortoise* we have an incredibly large vocabulary of pitches available to us, each of which is related by very simple mathematical proportions.

KOSTELANETZ - This increase occurs basically because, whereas your ratios are fixed, your pitches aren't.

YOUNG - You mean, whereas the ratios are fixed, the number of notes is infi-

nite. I haven't taken a count; but just glancing over at Tony Conrad's chart on the wall here, I can see, roughly, in *O*-tonalities we have used about twenty-seven frequencies to the octave, which is more than double the number used in the twelve-note system. Of course, there is no limit upon the number we can eventually squeeze into an octave, because we don't necessarily hear them as one coming after another, filling up an octave. We hear them as various relationships to a pitch we have established very clearly in our ears and minds. We approach each new pitch, which then provides another identification point in an octave, from some very simply established interval. That is, every new pitch very simply relates to the previous point of departure. Let's say that we begin with one, which will be the fundamental; and let's say that we put a drone sound on one.

KOSTELANETZ - Can one be arbitrarily established?

YOUNG - It can be any frequency. Given a fundamental, which we call one, only the frequencies thereafter must be precisely derived - must be in precise relationship to the fundamental. In theory, however, these other pitches can exist at any frequency.

KOSTELANETZ - Therefore, as soon as you establish a fundamental pitch, you thereby also establish, metaphorically, a row of possibilities for the entire piece.

YOUNG - If we establish a fundamental frequency represented by the number one, all of the other frequencies considered for use are related to this fundamental as positive integers, exactly as established in the overtone series of strings, pipes, and certain electronic instruments. From one we proceed to two, which is twice as great a frequency, or twice as many impulses per unit of time; this is perceived by the ear as what we call an octave.

KOSTELANETZ - Can the human ear hear an octave of notes which are not duplicable on a piano?

YOUNG - Yes, the octave consists of frequencies in the relationship of two to one, and it doesn't matter where the one is.

Then in going up to three we have the simple relationships of three to two and three to one. If we call the fundamental one C, then two is C an octave higher, and three is G a perfect fifth above two. Four, a C, is a perfect fourth above three; five is a major third above four; six is the octave above three, or two times three. Then, with seven, we introduce a new frequency which is not a factor of the C-major scale, and consequently has no name in the European classical system. It is not the same B-flat found on the piano, but lower, some 31. odd cents lower, or 231. odd cents below eight, which is two to the third power ( $2^3$ ) or C again. Nine is three times three, and is a major second above eight, of the type represented by the interval between D and C in a C-major scale; it is called a major tone in just-intonation. Ten is two times five, and is a major second above nine of the type represented by the interval between E and D in a C-major scale; it is called a minor tone in just-intonation. Eleven is another new frequency that is not a factor of the C-major scale as it would fall between F and F-sharp; it is approximately 150 cents below twelve, which is three times two to the second power ( $3 \times 2^2$ ), or two octaves above our first G. Thirteen, like seven and eleven, is not a factor of the C-major scale, as it would fall between A-flat and A at 138. odd cents above G, and 128. odd cents below fourteen, which is two times seven. Fifteen is five times three, or B a major third above G. Sixteen is two to the fourth power ( $2^4$ ) or C. Seventeen is very close to the equal-tempered C-sharp on the piano. We can go on infinitely in one dimension with these numbers.

KOSTELANETZ - Won't you go out of the range of hearing?

YOUNG - How quickly we go out of the range of hearing depends upon where we start, but we will eventually go out of the range of hearing. Theoretically, you can still plot where all these other notes are; this is demonstrated in Alain Danielou's book *Tableau Comparatif des Intervalles Musicaux*.

KOSTELANETZ - Haven't we always been conscious of these harmonic relationships?

YOUNG - I do think that certain instrumentalists and singers have. These pitches are available to the singer and the violin player, because the latter has no frets to predetermine his frequencies. He doesn't have to put his finger down on either five or six, because he can play any of the points between. That's one of the reasons I stopped playing saxophone and began singing. The blues singer does use flat sevens, which are real seventh harmonics, occasionally. I referred to the use of harmonic intervals in South Indian music earlier. Also, many reputable Western classical musicians play their major thirds beautifully in tune, whereas on the piano they are, as I said, very seriously out of tune. If you sustain these on a piano or particularly on an equal-tempered organ, they sound terrible.

One of the structural bases I have established for the *Tortoise* is that the most frequently used numbers are one, two, three, and seven, and certain other prime numbers, and multiples of these numbers by two, three, and seven, and the chosen primes. By the mathematical processes I have outlined, then, we get to a larger number like 63, and we can have a relationship of 63 to 64. 63 is a very interesting pitch; it is just below 64 by 27.27 cents, which is a very small interval, just a little larger than an eighth of a tone. 64 is the fifth power of two, and 63 is achieved in several ways: as nine times seven, and as three times 21.

KOSTELANETZ - Is this an *a priori* system?

YOUNG - No, I determined all of this by ear, before I decided I would use certain numbers. In fact, I always work by ear first, and later, by number, I analyze what I've done. Of course, as I become more sophisticated about what I'm doing, I start plotting and making devious schemes and plans.

KOSTELANETZ - In sum, then, how do the musical elements of the *Tortoise* piece function?

YOUNG - In advance, we determine which frequencies we are going to use and which combinations of frequencies we are going to allow. At this point enters the only element of improvisation in the work we are doing right now.

KOSTELANETZ - How do your musicians divide the task?

YOUNG - In the past, we were using one viola, one violin, and two voices. The violist, John Cale, used a flat bridge that he had especially designed to allow three strings to be bowed simultaneously. Tony Conrad used double-stop technique on the violin, giving us five pitches. Each of the voices, of course, can sing only one note at a time; in sum, we had seven frequencies. Right now, The Theatre of Eternal Music consists of three voices - Terry Riley, Marian, and myself. Tony has two pitches, which makes five. We now use an audio-frequency generator at one pitch (210 Hertz \*) and a turtle motor, which also has a pitch. Again we have seven. The motor is now the primary drone at 120 Hertz, which is twice the 60 Hertz we get off the house current.

\* Cycles per second

KOSTELANETZ - Do you make the turtle motor the fundamental, or one?

YOUNG - These days, we are interpreting the drone as three, or the dominant, and playing in the mode of the dominant much of the time, and occasionally modulating back to the real fundamental.

KOSTELANETZ - What you have then, in the metaphor of the Western scale, are the notes C and G playing constantly.

YOUNG - If we call the fundamental, one C, then the notes you are referring to are G and D in the dominant, or six and nine. In the most recent concert you heard [the Midsummer concert in Amagansett, N.Y.] the only pitch that was being sustained at all times during the music was six, played by the motor. Other pitches were used as drones above the G in addition to D, but no one of them was sounding at all times.

KOSTELANETZ - What is the turtle motor?

YOUNG - It's just a little tiny vibrator which is used to run an aquarium filter. I started using this motor because it was conveniently around the house and I knew it sounded pretty good as a constant frequency source.

KOSTELANETZ - What do the rest of the people do?

YOUNG - They play frequencies in agreed-upon combinations.

KOSTELANETZ - Such as?

YOUNG - Eight, seven, six, four.

KOSTELANETZ - In relation to one, by the system we outlined before.

YOUNG - Right. If we happen to play it over the drone three and transpose it .

..

KOSTELANETZ - How do you transpose?

YOUNG - Very easily. It's just by multiplying by the number of the key or frequency to which we wish to transpose. If we've already established that the turtle motor sings on three, I can either sustain this chord, for instance, by going eight, seven, six, four, while the turtle motor is a drone on three. Or, if we modulate temporarily to the key of three, which is to say the key of the dominant, we can have the same complex at 24, 21, 18, 12.

KOSTELANETZ - If you arbitrarily decide to make the turtle motor not one but three, then you can use these arrangements of multiples. What does that sound like?

YOUNG - In this case it sounds like a modulation to the dominant.

KOSTELANETZ - On the piano, the equivalent is the shift from a C-chord to a G-chord.

YOUNG - Or, on the piano, the equivalent of going from C, G, (B-flat), C, to G, D, (F), G - from a C-seventh chord with no third to a G-seventh chord with no third.

If we have already determined in advance the frequencies that we are going to use and we allow only certain frequency combinations - certain chords which we have determined are harmonious to our ears - then we find that as soon as one or two people have started playing, the choices left are greatly reduced and limited; so that each performer must be extremely responsible. He must know exactly what everyone else is playing; he must hear at all times every

other frequency that is being played and know what it is. This is the assumption on which we perform. That's why we rehearse every day.

KOSTELANETZ - In what terms do you hear so exactly?

YOUNG - Familiar frequency-pitch-interval relationships.

KOSTELANETZ - If you sang a note now and I sang a note in relation to yours, you could tell at once the frequency relationship.

YOUNG - Yes. That's what I've spent my life learning to do. Even though Marian had no previous musical training, in the last year she has learned to hear and sing two new pitches, giving her a total of three pitches.

KOSTELANETZ - That makes Marian basically a drone voice, while you, Terry, and Tony shift tones.

YOUNG - Right. We move quite a bit. In our present format, the turtle motor and the generator are constant, and Marian is fairly constant in that she moves around only in three notes. We've given her a little ostinato that, over a long period of time, she goes over and over again.

KOSTELANETZ - In terms of timbre, what kinds of sounds do you make?

YOUNG - We make throat tones and nose tones.

KOSTELANETZ - The latter is a kind of humming.

YOUNG - Well, nose tones are humming, but they become more interesting when you use a microphone. You can direct a more concise and, consequently,

louder stream of air at the microphone, because the air comes from a smaller enclosure than a throat tone. However, you get a different timbre, because whereas the throat tone resonates harmonics, the nose tones are much closer to a simple wave structure that has less harmonics. When you use the mouth, you have a resonating chamber which, like that of violins and guitars, can emphasize a tone. For instance, we've developed a technique through which we can emphasize the seventh harmonic by using a certain syllable, "uh."

KOSTELANETZ - When I hear the *Tortoise* piece, the timbre of the sound continually changes, and I notice that certain timbral textures seem to go and return. Is this because one voice is dominant?

YOUNG - One voice or another might predominate at different times. Basically, we are interested in the blend, as we are working with timbre at many levels. The whole complex is a form of timbre, from its definition, which is various emphases of phase relationships, number, and amplitude of the different harmonics. Not only do we have individual timbres, but we also have a cumulative timbre, which corresponds to the component partials of an assumed lowest fundamental frequency one.

KOSTELANETZ - Then you send out the blend at an extremely loud amplitude, almost at the pitch of aural pain.

YOUNG - It's getting up there. To me it is not painful, but to a newcomer it often is. This is a threshold of sensitivity that is developed. One learns, I believe, to hear loud sounds without feeling pain. I don't think that I have lost much hearing over the past few years. When I worked with Ann Halprin and heard loud sounds from close up, I often did not regain my normal hearing until a few hours later. Currently, I don't get that effect. I find that I can still hear up to 17,500 Hertz, which is probably as high as I've ever been able to hear. Although

I have no way of proving that I can hear something very soft as easily as I used to be able to, my assumption is that my ears are not deteriorating.

There are two very important reasons for my interest in sounds at levels of 120 and 130 decibels. One, we know from studies of the Fletcher-Munson curve that the ear does not hear bass at lower amplitude as loudly in proportion to treble. In other words, if we take a given sound situation that has basses and highs and middle-range tones and it's not too loud, the ear really doesn't perceive all the bass that is there. It can't pick it up as easily. We find, however, that at louder amplitudes the ear hears bass more in proportion to the way it is actually being produced. This gives you a fuller chord. Secondly, combination-tones, particularly difference-tones, are more audible. The least frequent, or lowest of these at frequencies below 15 Hertz, are called beats and can be very valuable in helping the musician tune intervals to a very fine tolerance, and they only become audible at the loudest levels.

KOSTELANETZ - The louder the volume is, the more difference-tones you can hear.

YOUNG - And the greater the intonation-precision potential, as well as the richer the complex.

KOSTELANETZ - What do these difference-tones sound like?

YOUNG - Well, they add these tubas, trombones, double basses, and cellos that, you notice, we don't have in the group but whose sounds are apparent on the speakers.

KOSTELANETZ - How would you characterize the result I hear?

YOUNG - By the time someone walks into our environment, the sound is

extremely complex. We've got seven fundamentals going. This means a large number of combination-tones.

KOSTELANETZ - Why isn't there any dissonance?

YOUNG - Everything functions in whole-number relationships. There can never be any dissonance in this system, unless things get out of hand - somebody wavers, somebody misses his pitch, the machinery goes haywire. If one or another of the fundamentals are off pitch from the established drone, then the difference-tone will not appear in tune. Therefore, if you have two fundamentals, there is no way in the world to know, except by what your ear tells you, if they are in any particular ratio to each other; but if you have a third sound - a third point on your plumb line - then you can talk about a fixed series of ratios.

KOSTELANETZ - Thus, because the fundamental one is constant, if you deviate from the correct seventh, you can hear the difference-tone out of tune.

The sound I used to hear in your piece was absolutely unfluctuating - it wasn't interrupted by any beats or rhythms; but now that you've introduced the generator, there is a kind of beat.

YOUNG - One of the things happening now is that we get the piece going with such precise synchronization at such a high level, that we hear every little impulse more clearly, because we are really concentrating on them. When you get down into the bass range, these impulses are slowed down to such a rate of speed that one starts to hear them as rhythms. Once you get down to 30 Hertz, you can almost distinguish individual sounds; and by the time you get down to 10 Hertz, or three, you don't hear a constant pitch any longer but a rapid succession of pulses or rhythms, which are precisely related to the over-all complex. The other pulse situation comes from beats, which occur when you play closely related intervals. If the pitches are up high, the difference-tone will be so low

that you will hear little pulses instead of a resonating tone. This relates rhythm to frequencies, because the frequencies are actually in positive integral relationship to the rhythms.

KOSTELANETZ - How do you use your electronic apparatus?

YOUNG - Much time and care have gone into the selection of what we feel is some of the best equipment available for our purposes. Each of the performers' sounds is picked up with a microphone. The violin uses a magnetic pick-up which Tony has installed himself, and the voices use two Sennheiser MKH 405 and one PML EC 61 condensor microphones. These connect to custom mixing equipment which directs the information through the Marantz 7T stereo pre-amp and through the Futterman Model H, 100 watts RMS at 16 ohms per channel, power amplifier which drives four Argus-X Custom 450 speaker systems on one channel and six Leak Mark II Sandwich speaker systems on the other. We use a large number of speakers now because at the levels we are interested in, a lesser number will break down. Even so, we drive our speakers at peak power.

KOSTELANETZ - Why does *The Tortoise, His Dreams and Journeys* have a different title each time I hear it?

YOUNG - Each section has its own title, which is a way of characterizing one particular area of time, in which we are doing one kind of work, in the over-all duration of the piece. Although the piece may sound pretty much the same each time, each performance is basically quite different.

KOSTELANETZ - Recently, you've substituted Terry Riley's voice for John Cale's three-string drone and, after that, added the turtle motor and the generator. Aside from this change in instrumentation, how is the piece different?

YOUNG - It's partly timbral, partly a difference in the availability of other types of pitches. With generators and motors, I have the most sustained pitches I've had to date. Also, a third voice offers a less sustained pitch than John Cale could produce with a bow on his three-string drone. With two male voices, I can produce certain timbral blends impossible with one male and one female voice. Similarly, Tony Conrad on the violin doesn't have as much to relate to, now that John Cale has gone.

Also, at the Film-Makers' Cinematheque, in December of 1965, we were using 80 Hertz as a constant drone; at a recent concert, we put our primary drone on 120 Hertz, which put the concert in the mode of the dominant.

KOSTELANETZ - Why give each concert a different subtitle?

YOUNG - I feel that since each concert does represent work in different areas it is very important to have a method of categorizing each concert. A library likes to have a name or a number for something. This becomes a means for referring to an area of work I did at a particular time.

KOSTELANETZ - Do you expect to devote your whole life to this piece?

YOUNG - I suspect that I might easily, because it seems to become more and more inclusive. I'm trying to include many of the areas I'm interested in, and the steps from one area to another seem to be gradual, as I gradually leave one emphasis and move on to another.

KOSTELANETZ - Such as . . .

YOUNG - Now I've become more interested in controlling which harmonics are present at any given time. This is not easy to do with conventional instru-

ments and voices, but I have developed a technique that allows me to emphasize, for instance, the seventh harmonic or the third harmonic, or, quite possibly, some other harmonics. With the use of electronic equipment, I should be able to set up situations in which I can have precisely, and only, the seventh harmonic or the ninth harmonic as they are required. In other words I'm really interested in a very precisely articulated situation - I always have been. I'm interested in the most clear and sparse sounds - in control and in knowing what I'm doing.

KOSTELANETZ - In traditional terms, how do you classify *The Tortoise, His Dreams and Journeys*?

YOUNG - Music and theatre. The music might dominate, but it does so in a theatrical situation.

KOSTELANETZ - What is the design you project on yourselves and the wall behind you?

MARIAN ZAZEELA - I designed it as a cut-out which, although it exists originally on cut paper, was intended to have light either behind it, or projected through it. Then the slides were made from the design. There are two patterns; one is a development of the other. They are both used in their negative and positive forms, and there is some variation within the negative form itself. The black-and-white patterns have been treated with colored theatrical gells. The colors are in ranges of either pink or green, as are the lights that project upon us. I have found that my interest in these particular colors has extended into my work in light, which is natural as they are two of the three primaries of the light media. In different superimpositions they produce or suggest nearly every other color.

The designs themselves are symmetrical, derived from calligraphic forms. Part of the projection falls upon us as we play and re-programs us, or

actually re-costumes us visually into the larger pattern, which is intended as a mode for visual concentration - as votive image.

KOSTELANETZ - Objective elements intended to inspire subjective responses - this is a strategy aesthetically similar to your music.

YOUNG - The areas we are working with in light are the earlier stages of development toward directions that may relate to some of the things we're trying with the music. I feel there are parallels already. This concentration on the light images does not distract the mind from the music but rather gives the eyes something to rest on and become absorbed in, as the ears have the sound to become absorbed in.

KOSTELANETZ - What theatre tradition do you consider yourself in, if any?

YOUNG - Although my present work with The Theatre of Eternal Music is establishing a tradition of its own, just as did my earlier work in The Theatre of the Singular Event, it will be informative to consider some of the kinds of theatre I have been aware of over the years: Theatre as Ritual; Theatre as Ceremony; Theatre as Trance (such as Temiar Dream Music); Gagaku; Bugaku; Chinese Opera; Classical Indian Dancing; Indonesian Theatre; Total Awareness; Cage accepting as theatrical whatever occurs; Audience Participation; Dada; Futurism; Surrealism; Artaud; Total Theatre; Theatre as Environment. It is interesting to note that although the scope of the two periods, that of The Theatre of Eternal Music and that of The Theatre of the Singular Event appears divergent, they both relate to some of the same theatre traditions. For instance, *The Tortoise, His Dreams and Journeys* and my Compositions 1961 have some relation to Theatre as Ritual.

KOSTELANETZ - Do you like to work as theatre?

YOUNG - Yes, but I would prefer Dreamhouses or truly Eternal Theatres with a more permanent installation, which would allow us to perform in one location for longer periods - weeks, months, and hopefully, in time, years - without having to move on like traveling musicians to the next concert site. Constant moving about interrupts the continuity of the work and prevents the realization of its full potential as a living organism with a life and tradition of its own.

KOSTELANETZ - That remark about life and tradition applies to your audience as well. Why did you choose the title *The Tortoise, His Dreams and Journeys*?

YOUNG - "Tortoises have been tortoises for two hundred million years, which is 199 million years longer than people have been people." I refer you to a very nice book on turtles by Robert J. Church, which I'm very fond of not only because he treats the subject with love and precision, but also because each line of every caption is precisely centered under the picture. He points out that while other creatures over the years have been changing, tortoises and turtles remain essentially the same. I'm interested in this, because I'm interested in long durations. I'm interested in stasis, and in things that stay the same although they change in detail.

KOSTELANETZ - Are you perhaps developing a turtle aesthetic for human art?

YOUNG - I'm going in this direction because of my own natural tendencies. There still is considerable variation in the piece, because variation is such an unavoidable factor of life that nothing exists without it. No matter how exact you try to be, no matter how many times you try to draw the line exactly the same, things will always be different. This is one of the inherent characteristics of my work.

KOSTELANETZ - What kind of time does the *Tortoise* piece create?

YOUNG - Its own time, which is determined by and measured in terms of the frequencies we are sustaining.

KOSTELANETZ - Could someone find the *Tortoise* piece boring?

YOUNG - Somebody certainly could. I feel that the audience must be free to come and go as they choose. I do not like to impose limitations on people, but I am interested in organization and precision - in controlling a situation to a considerable degree.

KOSTELANETZ - Should the piece induce in the audience a particular psychological state?

YOUNG - The tradition of modal music has always been concerned with the repetition of limited groups of specific frequencies called modes throughout a single work and, as a rule, the assignation of a particular mood or psychological state to each of the modes. There is evidence that each time a particular frequency is repeated it is transmitted through the same parts of our auditory system. When these frequencies are continuous, as in my music, we can conceive even more easily how, if part of our circuitry is performing the same operation continuously, this could be considered to be or to simulate a psychological state. My own feeling has always been that if people just aren't carried away to heaven I'm failing. They should be moved to strong spiritual feeling.

KOSTELANETZ - Does your theatre have a therapeutic value?

YOUNG - I suppose it could. People have said that they have come in depressed and left fantastically elated.

#### 4. THE SOUL OF THE WORD

by Marian Zazeela

If I choose to inscribe a word I begin in the center of the page. The word first written is awkward and leans a little to the left. I go over the letters adding characteristic curves, making the lines heavier. The letters grow larger, extend curled tentacles out toward each other, begin rubbing and burying their shoots in each other. I move the pen from left to right adding ornaments. The word begins to act as a single unit. Repeated strokes perform continual changes as the letters shift and grow.

The word is still discernible. A sweeping ornament is fastened to the first letter which is now perfect and needs no adjustment.

Now the end letter must have a flourish giving the extra length needed to be exactly centered. Some of the letters have sent wriggling lines beneath them and the balance again requires correction compensation. The word has now spread out of its letters. The letters are more and more obscured as the writing takes precedence. The word no longer matters; it can be spoken.

But the writhing rising out of the word is a dragon devouring itself. Like a cat cleaning her fur the tongue of the word licks its scales with flame and the body of the word ignites and takes the shape of its destruction, which must be perfect and lie perfectly still in the center of the page. If it happens, as it sometimes has, that the flames are not satisfied by the assumption of the word alone and continue to writhe and curl, then the soul of the word is imprisoned and must be set free. And the flames must be brought slowly to the edge of the page where the cool sea waters will soothe them and let them rest. When the fires die out and only the record of flame remains the soul of the word will be carried out to sea and be born again in a raindrop. While it falls to earth in this

form it perceives everything through the distorted lens of water; then as it hits the ground all these preconceptions shatter. The soul of the word is dried and warmed by the sun and feeling drowsy falls asleep. Upon waking it recalls two dreams; the first a dream of its future life, tells of the great heights it will reach as the soul of a word highly respected by people upon whose tongues it will be carried into the richest courts in the world and gently whispered to the ears of noble men and beautiful women. The second dream is the story of its past life, but it does not recognize itself in its previous form. Several lives later the dream recurs. Several dreams later the life recurs.

New York

1963

(included is a Zazeela drawing – “La Monte Young Composition 1960 #13  
Performance 10 20 62)

## 5. LECTURE 1960

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This lecture was first delivered to a class in contemporary music at the Ann Halprin Dancer's Workshop, Summer Session 1960, Kentfield, California. The lecture is written in sections, which are separated below. Each section originally was one page or a group of pages stapled together. Any number of them may be read in any order. The order and selection are determined by chance, thereby bringing about new relationships between parts and consequently new meanings. Three sections of the lecture were originally published in KULCHUR 10, Summer, 1963.

My "Composition 1960 No.9" consists of a straight line drawn on a piece of paper. It is to be performed and comes with no instructions. The night I met Jackson Mac Low we went down to my apartment and he read some of his poems for us. Later, when he was going to go home, he said he'd write out directions to get to his place so we could come and visit him sometime. He happened to pick up "Composition 1960 No.9" and said, "Can I write it here?" I said, "No, wait. That's a piece. Don't write on that." He said, "Whadaya mean a piece? That's just a line."

While Dennis Johnson was preparing *Avalanche No.1* in Los Angeles he sent me a letter describing parts of the concert. The last piece on the program was to be his composition, "Din". In "Din" the performers (he hoped for at least forty) are placed in the audience ahead of time. The composition is performed

in the dark. The performers have various noises to articulate. There are solo noises, noises produced by small groups and noises produced by the entire ensemble. Some of the noises are shouting, clapping, screaming, talking about anything, stamping of feet, shuffling of feet, and various combinations of these. Most of the solo sounds are unique and not easily described. Some of the sound textures in the piece are two and three minutes long, and there are often long silences between them. The spectators, of course, were not to be told that the performers were among them. As I mentioned, this piece was to end the program. Dennis wrote, "After clap piece (he had not then named it "Din") is over (and concert over also) the people will remain in the dark and silence forever or at least until they decide to leave as we will not prompt them with any more lights or any kind of please leave signal." When we performed *Avalanche No.1* it was an intense and very new situation. "Din" was glorious. After it was over we sneaked out of the auditorium to watch and see if and when the audience would ever come out. One of the few readable sentences on the programs we had distributed at the doors read, "Concert is three hours long Concert is three hours long Concert is thr" written all the way across the page. There was at least half an hour left. We waited. What little of the audience still remained finally came out a few at a time. At last two enraged critics from the UCLA paper came over to us and asked if we had any statement to make about the concert before they crucified us in Monday's edition. I looked around and found a paper in my pocket. It was the performing instructions for "Din". I said, "Yes, I would like to say something." I read, "Shuffle feet for 260." They said, "Is that all?" I said, "Yes". They went away. Then somebody asked, "Are you a part of Zen?" Dennis said, "No, but Zen is a part of us."

One night Diane\* said, "Maybe the butterfly piece should begin when a butterfly happens to fly into the auditorium."

\*The poet Diane Wakoski.

Diane suggested that perhaps the reason the director of the noon concerts at the University would not allow me to perform “Composition 1960 No.5” on the third concert of contemporary music that we gave was that he thought it wasn’t music. “Composition 1960 No.5” is the piece in which the butterfly or any number of butterflies is turned loose in the performance area. I asked her if she thought the butterfly piece was music to any less degree than “Composition 1960 No.2” which consists of simply building a fire in front of the audience. She said, “Yes, because in the fire piece at least there are some sounds.” I said that I felt certain the butterfly made sounds, not only with the motion of its wings but also with the functioning of its body and that unless one was going to dictate how loud or soft the sounds had to be before they could be allowed into the realms of music that the butterfly piece was music as much as the fire piece. She said she thought that at least one ought to be able to hear the sounds. I said that this was the usual attitude of human beings that everything in the world should exist for them and that I disagreed. I said it didn’t seem to me at all necessary that anyone or anything should have to hear sounds and that it is enough that they exist for themselves. When I wrote this story out for this lecture I added, “If you think this attitude is too extreme, do you think sounds should be able to hear people?”

When I sent “Composition 1960, Nos. 2-5” to some of my friends, received different comments from all of them concerning which ones they liked or disliked with one exception. Almost all of them wrote back to me saying they liked “Number 5” which consists, quite simply, of turning a butterfly or any number of butterflies loose in the auditorium. Diane agreed that it was a very lovely

piece and said it would seem almost impossible for anyone not to like it. At any rate, I had hoped to perform either “Composition 1960 No.2,” which consists of building a fire in front of the audience, or “Composition 1960 No.5,” the butterfly piece, on whatever program came up next. Thus, when the time arrived to do another noon concert of contemporary music at the University in Berkeley, I told a friend who was communicating with the director of the noon concerts that I would like to do either “Composition 1960 No.2” or “No.5.” The next day he phoned and said he had asked the director. The director had said that both pieces were absolutely out of the question. I was shocked. I could easily understand anyone’s concern for a fire in the auditorium, but what could be wrong with a butterfly? Well, “Compositions 1960 Numbers 2 and 5” were banned from the auditorium and we performed “Composition 1960 No.4” instead.

Sometime afterward Diane received a letter from Susan, who was visiting in New York. At the end of the letter she wrote, “I saw a boy in the park today running, quite terrified, from a small yellow butterfly.”

When Dennis Johnson and I were staying at Richard Maxfield’s apartment in New York, we discussed the amount of choice that a composer retained in a composition that used chance or indeterminacy. We generally agreed that the composer was always left with some choices of one sort or another. At the very least, he had to decide what chances he would take or what he would leave to indeterminacy in his composition. Some time after Dennis and I had both left New York he visited me from Los Angeles. He brought me a copy of his then new composition, “The Second Machine,” which we were going to do on a program of contemporary music at the University in Berkeley along with Cage’s “Imaginary Landscapes No.4 For Twelve Radios” (which Dennis was conducting), Richard Maxfield’s “Cough Music,” and “Vision,” a piece of my own. A

short time after he had arrived at my apartment in Berkeley Dennis mentioned that he had been thinking of what we had discussed in New York and that he had discovered a piece which was entirely indeterminacy and left the composer out of it. I asked, "What is it?" He tore off a piece of paper and wrote something on it. Then he handed it to me. It said, "LISTEN."

I recently completely "Composition 1960, Numbers 2 Through 5".

"Composition 1960, No.2" reads:

Build a fire in front of the audience. Preferably, use wood although other combustibles may be used as necessary for starting the fire or controlling the smoke. The fire may be of any size, but it should not be the kind which is associated with another object, such as a candle or a cigarette lighter. The lights may be turned out.

After the fire is burning, the builder(s) may sit by and watch it for the duration of the composition; however, he (they) should not sit between the fire and the audience in order that its members will be able to see and enjoy the fire.

The composition may be of any duration.

In the event that the performance is broadcast, the microphone may be brought up close to the fire.

"Composition 1960, No.5" reads:

Turn a butterfly (or any number of butterflies) loose in the performance area.

When the composition is over, be sure to allow the butterfly to fly away outside.

The composition may be any length, but if an unlimited amount of time is available, the doors and windows may be opened before the butterfly is turned loose and the composition may be considered finished when the butterfly flies away.

Some time after the pieces were finished I sent copies around to some of my friends. After a few weeks, Tony Conrad wrote back from Denmark that he enjoyed the fire music very much, that he thought the sounds of a fire were very lovely and that he had even, himself, once considered using the sounds of fire in a composition although he had not at that time been prepared to write anything like “Composition 1960, No.2.” He said, however, that he didn’t understand “Composition 1960, No.5.” In my answering letter I wrote, “Isn’t it wonderful if someone listens to something he is ordinarily supposed to look at?”

In another letter Terry Jennings wrote, “the cat is in the middle of time. His tail sometimes hits the sky (just the low parts below the branches) he lies down a lot”

I have finally begun to hear from Dennis Johnson again. Terry Riley wrote me from San Francisco: “guess what? —- dennis is here —- he came in new years eve —- we went out to ann halprins yesterday and dennis did some real good things like take a shower in her shower while her little girls looked on and went down the road and borrowed an onion from a neighbor and stuff like that ...”

Before we gave the first noon concert of contemporary music which I conducted at the University of California at Berkeley, I asked Dennis Johnson if he would write something about his composition, “The Second Machine,” which we were doing on the program because I planned to comment on each piece.

Dennis wrote:

Spin the needle three times. If it ever falls off, don't bother. Cheating is all right, as much as comfortable. I don't know how many possibilities and see if I care. The scores are fire and water proof. Play on either side of the edge, if you get tired, and don't call me for information while I'm burning old scores. May be played under water.

At the end he signed his name, Dennis Johnson.

Last year on one of the occasions I was in Los Angeles, several of us were at my grandmother's house listening to electronic music by Richard Maxfield which he had just sent me from New York. As we were listening my grandmother, who has never been particularly good at keeping things straight, asked Dennis Johnson, "Did you write this?" referring to Maxfield's composition, "Sine Music." Dennis replied, "Oh, many times."

When Karlheinz Stockhausen gave a lecture at the University in Berkeley he talked of some work he had been doing with television. He said he tried to let the new medium, the television machine, inspire the form of the composition. At this point someone in the audience said to his neighbor, "But I thought music was supposed to be for people."

One of my favorite poets is Po Chu-i. He lived from 772-846. This poem is translated by Ching Ti.

### The Harp

I lay my harp on the curved table,  
Sitting there idly, filled only with emotions.  
Why should I trouble to play?  
A breeze will come and sweep the strings.

I wish I could remember what Terry Jennings told us about that spider that is found in Antarctica. It was when Terry visited New York. We were having dinner and I started asking him about what kinds of animals and plants lived in Antarctica. He said that the scientists had discovered a spider that stays frozen most of the year around. It seems like he said, “about eleven months of the year.” Then, when the warmer weather comes, the spider thaws out and comes to life – for about a month. He also said that maybe the spider lives to be many years old. I think he said, “Maybe a hundred and sixty years old.”

When I asked Diane to write down Dennis’ statement about his having written Maxfield’s “Sine Music” many times, Dennis said, “What for? Are you going to give another concert?”

The trouble with most of the music of the past is that man has tried to make the sounds do what he wants them to do. If we are really interested in learning about sounds, it seems to me that we should allow the sounds to be sounds instead of trying to force them to do things that are mainly pertinent to human

existence. If we try to enslave some of the sound and force them to obey our will, they become useless. We can learn nothing or little from them because they will simply reflect our own ideas. If, however, we go to the sounds as they exist and try to experience them for what they are – that is, a different kind of existence – then we may be able to learn something new. A while back, when Terry Riley and I first met Ann Halprin, we worked with her many times doing improvisations. It was very enjoyable. I remember one night when it took one of the dancers, who was hanging from the wall, at least half an hour to work his way around the room. These evenings were especially conducive to the discovery of new sounds. We found many we had never heard before. Along with the new sounds, of course, we found new ways of producing them, and we also reconsidered sounds we had never previously listened to so closely. Sometimes we produced sounds that lasted over an hour. If it was a loud sound my ears would often not regain their normal hearing for several hours, and when my hearing slowly did come back it was almost as much a new experience as when I had first begun to hear the sound. These experiences were very rewarding and perhaps help to explain what I mean when I say, as I often do, that I like to get inside of a sound. When the sounds are very long, as many of those we made at Ann Halprin's were, it can be easier to get inside of them. Sometimes when I was making a long sound, I began to notice I was looking at the dancers and the room from the sound instead of hearing the sound from some position in the room. I began to feel the parts and motions of the sound more, and I began to see how each sound was its own world and that this world was only similar to our world in that we experienced it through our own bodies, that is, in our own terms. I could see that sounds and all the other things in the world were just as important as human beings and that if we could to some degree give ourselves up to them, the sounds and other things that is, we enjoyed the possibility of learning something new. By giving ourselves up to them, I mean getting inside of them to some extent so that we can experience another world. This is not so easily explained but more easily experienced. Of course if one is

not willing to give a part of himself to the sound, that is to reach out to the sound, but insists on approaching it in human terms, then he will probably experience little new but instead find only what he already knows defined within the terms with which he approached the experience. But if one can give up a part of himself to the sound, and approach the sound as a sound, and enter the world of the sound, then the experience need not stop there but may be continued much further, and the only limits are the limits each individual sets for himself. When we go into the world of a sound, it is new. When we prepare to leave the world of a sound, we expect to return to the world we previously left. We find, however, that when the sound stops, or we leave the area in which the sound is being made, or we just plain leave the world of the sound to some degree, that the world into which we enter is not the old world we left but another new one. This is partly because we experienced what was the old world with the added ingredient of the world of the sound. Perhaps it is safe for me to mention now that once you enter a new world, of a sound, or any other world, you will never really leave it. Still, the fact that one carries some parts of previous worlds with him does not in the least prevent one from entering new ones. In fact, if one considers a new combination of old ingredients to be something new, these carried parts of previous worlds may enhance new ones although they (the new combinations) need by no means be the main substance of a new world.

When I told Richard Brautigan that I liked to get inside of sounds, he said that he didn't really understand what I meant because he didn't visualize a shape when he heard a sound, and he imagined that one must conceive of a shape if he is to speak of getting inside of something. Then he asked, "Is it like being alone?" I said, "Yes."

I used to talk about the new eating. One time Terry Riley said, "Yeah,

even the cooks'll get rebellious. We'll walk into a hamburger stand and order something to eat. In a few minutes the cook'll give us some salt. Just salt. Then one of us will say, 'What? Is this all?' And the cook'll answer, 'Whatsmatter, don't cha like static eating?'"

In his lecture, "Indeterminacy," John Cage mentions going to a concert and finding that one of the composers had written in the program notes that he felt there was too much suffering in the world. After the concert John Cage said to this composer that he had enjoyed the music but he didn't agree with his statement about too much suffering in the world. The composer said, "What? Don't you think there is enough?" to which Cage replied that he thought there was just the right amount. Later, in a letter, Dennis Johnson wrote to me, "Do you think there is too much Evil in the world? John Cage thinks there is just the right amount. I think there is too much world in the Evil." Some time after Dennis' letter I remembered that Richard Huelsenbeck had contributed another permutation to that sentence. At one of those Dada lectures he gave in Berlin, he had made the statement that the war had not been bloody enough.

Once I tried lots of mustard on a raw turnip. I liked it better than any Beethoven I had even heard.

The summer I lived in San Francisco Terry Jennings wrote me in one of his letters, "Have you ever seen any pictures of Antarctica? I saw a book of color pictures of the sea and ice and mountains and cliffs. Colors I hadn't seen before for water and ice. Down there the explorers (in certain places above hidden cravasses) could hear ice breaking and falling underneath their tents all the time and the sounds would get louder during the day and softer at night."

Tulane Drama Review  
Volume 10, Number 2  
Winter, 1965

**7. POEM TO DIANE**

Came

a tiger

with

dew

on

his

paws

La Monte

1959

