sunday, 23/3 2003, 15h-20h:

I.

- jeanne fremaux: track01 (2002)
- random inc. meets dub taylor in mahane yehuda (walking in jerusalem)
- 833-45: solar maximum (solar cycle 23)
- ehlers, ekkehard: danach (betrieb)
- jan jelinek: do dekor (loopfinding jazz records)
- andreas tilliander: track01 (ljud)
- ehlers, ekkehard: aud (betrieb)
- andreas tilliander: ashor livs (elit)
- aphex twin: avril 14th (drukqs)
- crunch: art pylon (crunch)
- ehlers, ekkehard: zu (betrieb)
- dj spooky: dementia absentia (dialectical triangulation II) (optometry)
- frank bretschneider: rand (rand)
- crunch: emedril (crunch)
- aphex twin: jynweythek (drukqs)
- mouse on mars: schelecktron (iaora tahiti)
- random inc: random inc in katamon (walking in jerusalem)
- jeanne fremaux: track03 (2002)

- aphex twin: kesson daslef

II.

- john cage: prelude for meditation
- john cage: in a landscape
- john cage: williams mix
- john cage: rozart mix
- john cage: radio music
- iannis xenakis: concret PH
- robert ashley: automatic writing
- jean-claude risset: mutations
- paul lansky: six fantasies on a poem by thomas campion: her song
- charles dodge: speech songs: he destroyed her image
- morton subotnick: silver apples of the moon, pt.1
- holger czukay: boat-women-song
- luc ferrari: music promenade

III.

- george de decker: le citta invisibili – part 6 [stasisfield]

- zen savauge: natural and artificial [subsource.de]
- zen savauge: strange attractors [subsource.de]
- stud: parole plz [63music.de]
- esem: thinmute [monotonik]
- rokoa: mimo [kikapu]
- red lines: myelin year (original mix)
- grandma: abortions rock [monotonik]
- grandma: have sex with a tree [monotonik]
- stud: cellophane invention [kahvi]
- polygon ring: collage [kahvi]
- mar.ch: decent [kikapu]
- die: beetheeve [kahvi]
- kratzke: 01302 [pilot.fm]
- vae: lynn brook [kahvi]

Max V. Mathews was born in Columbus, Nebraska, on November 13, 1926. He studied electrical engineering at the California Institute of Technology and the Massachusetts Institute of Technology receiving a Sc.D. in 1954.

He worked in acoustic research at AT&T Bell Laboratories from 1955 to 1987 where he directed the Behavioral and Acoustic Research Center. This laboratory carried out research in speech communication, visual communication, human memory and learning, programmed instruction, analysis of subjective opinions, physical acoustics, and industrial robotics.

From 1974 to 1980 he was the Scientific Advisor to the Institute de Recherche et Coordination Acoustique/Musique (IRCAM), Paris, France. In 1987 Mathews joined the Stanford University Music Department in the Center for Computer Research in Music and Acoustics (CCRMA) as Professor of Music (Research) where he developed a new pickup for electronic violins and a real-time computer system for music performance called the Conductor and Improv Programs and a 3D MIDI Controller called the Radio Baton.

AT Bell Labs in 1957, Mathews demonstrated synthesis of music on a digital computer with his Music I program. Music I was followed by Music II through Music V and GROOVE, all were involved in the composition and performance of music on and with computers. These programs have been influential in the development of computer music. For this pioneering work he has been called the "father of computer music," and most recently, "the great grandfather of techno!"

Max Mathews has conducted research on computer methods for speech processing, human speech production and auditory masking, and developed techniques for computer drawing of typography. He created the first computer singing, "Bicycle Built for Two," made famous by the Kubrick movie 2001 as the swan song of the dying computer. The developer of "Music V" synthesis software and "Groove," the first computer system for live performance, he is also the inventor of the Radio Baton, a computer-driven device that allows the user to conduct their own orchestral performances from MIDI files stored in the computer. This gives the user control over tempo, dynamics and balance among all the orchestral instruments. The commercial software product "Max" was based on Mathews' ideas for a flexible, user-

patchable sound generating system.

Mathews is a member of the National Academy of Sciences, the National Academy of Engineering and is a fellow in the American Academy of Arts and Sciences, the Acoustical Society of America, the IEEE, and the Audio Engineering Society.

Among the more idiosyncratic forms of recognition he has received, Mathews' Electronic Violin was featured recently on the cover of Playboy magazine. He has won the IEEE Gold Medal, Acoustical Society of America Silver Medal, and the Chevalier de l'Ordre des Arts et Lettres, République Française.

History of Computer Music According to Mathews Max Mathews wrote the following summary of his work in computer music for "Horizons in Computer Music", an event that took place March 8-9, 1997 at the Simon Recital Center of the School of Music, Indiana University, Bloomington, Indiana:

"Computer performance of music was born in 1957 when an IBM 704 in NYC played a 17 second composition on the Music I program which I wrote. The timbres and notes were not inspiring, but the technical breakthrough is still reverberating. Music I led me to Music II through V. A host of others wrote Music 10, Music 360, Music 15, Csound, Cmix, and SuperCollider. Many exciting pieces are now performed digitally.

"The IBM 704 and its siblings were strictly studio machines--they were far too slow to synthesize music in real-time. Chowning's FM algorithms and the advent of fast, inexpensive, digital chips made real-time possible, and equally important, made it affordable.

"Starting with the Groove program in 1970, my interests have focused on live performance and what a computer can do to aid a performer. I made a controller, the Radio-Baton, plus a program, the Conductor Program, to provide new ways for interpreting and performing traditional scores. In addition to contemporary composers, these proved attractive to soloists as a way of playing orchestral accompaniments. Singers often prefer to play their own accompaniments.

"Recently I have added improvizational options which make it easy to write compositional algorithms. These can involve precomposed sequences, random functions, and live performance gestures. The algorithms are written in the "C" language. We have taught a course in this area to Stanford undergraduates for two years. To our happy surprise, the students liked learning and using "C". Primarily I believe it gives them a feeling of complete power to command the computer to do anything it is capable of doing."

One of the Many Legends... Max Mathews spent the majority of his career at Bell Labs as an engineer, conducting behavioral and acoustic research. Legend has it that in the 1950's Max Mathews would pipe the music of his late night computer noodling through the Murray Hill labs intercom system. There's no information on the effect it had on the custodial staff, but it would hardly have raised an eyebrow in the collaborative research community of the time. Mathews' music was not an "official" AT&T project -- but he was allowed free access to any equipment he wanted to use on his "socially desirable" side project.

Computer Music: Music1-V & GROOVE MUSIC 1, which was quickly replaced by MUSIC II running on an IBM 704 and written in assembler code was the first real computer synthesis programme, developed by Max Mathews of Bell Laboratories in 1957. MUSIC III was written in 1959 for the new generation of IBM transistorised 7094 machines which were much faster and easier to use than the older models. The MUSIC series software went through a stage of elvolution folowing the deleopment of the IBM computer whhich ended in 1968 with MUSIC V written in FORTRAN and running on the IBM 360 machines. MUSIC V was picked up and developed by various other programmers such as Barry vercoe at MIT who designed MUSIC 360 and MUSIC 10 by John Chowning and James Moorer at Stanford University.
The GROOVE System (1970)
(Generated Real-time Output Operations on Voltage-controlled Equipment)

in 1970, Mathews pioneered GROOVE (Generated Real-time Output Operations on Voltage-controlled Equipment), the first fully developed hybrid system for music synthesis, utilising a HoneywellDDP-224 computer with a simple cathode ray tube display, disk and tape storgae

devices. The synthesiser generated sounds via an interface for analogue devices and two 12 bit digital to analogue convertors. Input deices consisted of a qwerty keyboard a 24 note keyboard, four rotary knobs and a three dimensional rotary joystick.

Mathews saw the function of the GROOVE system as being a compositional tool which the composer/conductor manipulates in real time:

"The composer does not play every note in a (traditional) score, instead he influences (hopefully controls) the way in which the instrumentalists play the notes. The computer performer should not attempt to define the entire sound in real time. Instead the computer should retain a score and the performer should influence the way in which the score is played..... the mode of conducting consist of turning knobs and pressing keys rather than waving a stick, but this is a minor detail.....The programme is basically a system for creating storing, retrieving and editing functions of time. It allows the composition of time functions byt turning knobs and pressing keys in real time: it sotores the functions on the disk file, it retrieves the stored functions (the score), combines them with the input functions (the conductor) in order to generate control functions which drive the analogue synthesiser and it provides for facile editing of functions via control of the programme time..."

The GROOVE system remained in operation until the end of the seventies when Honeywell withdrew form the computer market.Max Mathews (Now professor emeritus at Stanford) is still actively involved in digital music performance. His "radio baton" hyperinstrument allows him to conduct a computer orchestra by simply waving a wand over an electromagnetic field. The father of computer music predicts that by 2010, "almost all music will be made electronically, by digital circuits."
"**We** have also sound-houses, where we practise and demonstrate all sounds and their generation. We have harmony which you have not, of quarter-sounds and lesser slides of sounds. Divers instruments of music likewise to you unknown, some sweeter than any you have; with bells and rings that are dainty and sweet. We represent small sounds as great and deep, likewise great sounds extenuate and sharp; we make divers tremblings and warblings of sounds, which in their originalare entire. We represent and imitate all articulate sounds and letters, and the voices and notes of beasts and birds. We have certain helps which, set to the

ear, do further the hearing greatly; we have also divers strange and artificial echoes, reflecting the voice many times, and, as it were,tossing it; and some that give back the voice louder than it came, some shriller and some deeper; yea, some rendering the voice, differing in the letters or articulate sound from that they receive. We have all means to convey sounds in trunks and pipes, in strange lines and distances."

Sir Francis Bacon, THE NEW ATLANTIS (1624)

It's a story that keeps rearing its head throughout history. Around the end of the last millennium, groups of marauders were at first the most troublesome people in Europe but would later settle and assimilate and became an important part of the development of civilization. Is it such a stretch to think of some of the boldest composers of this century in the same light? And just as any new technology is ridiculed, so are innovators in art. Time is a great equalizer that reveals charlatans for who they are and the true revolutionaries and visionaries as harbingers of our present and future. Electronic music began in this century as a strange curio and developed into an inseparable part of the musical landscape, spanning many styles and boundaries andmaking itself felt outside the arts.

Of course, even the most radical movements always find some kind of basis in the time when they develop. It's no coincidence that it was the industrial age when electronic music was spawned and grew. While machines were seen for a long time as soulless enemies threatening our well-being, not even the most hardened luddite would deny that they are an integral part of our lives today.

It was also a change in philosophy that helped usher in an acceptance of electronic music. Nietsche and post-modern critique allowed for previously undreamed of vistas of imagination concerning the world around us. Suddenly, everything was subjective. Alfred Jarry, Jackson Pollock, the Dadaists, Arnold Schoenberg and Little Richard dismantled and reassembled their art and flung the doors open for anyone else bold and crazy enough to take up the mantle. Possibilities were ripe and ready to be exploited. Music was no longer a singularly organized collection of audio signals. Seemingly chaotic, random bursts of sound were not necessarily 'noise.' The stunning and disturbing would become the norm.

If we want to think about this (r)evolution in music, we can start at the beginning but where exactly is it? Music is like matter- it cannot be created or destroyed. In other words, everything comes from somewhere and it does not die out or disappear, it evolves. What we hear today came into being thanks to what preceded it. Even if some snobs may turn their nose up at the notion that electronica is the classical music of today, there is at least some basis in this idea as you imagine its origin.

A way to see this connection is the most obvious one- the collaborations between composers and electronica artists. Steve Reich, Brian Eno, Holger Czukay, Jon Hassell, Pierre Henry, Iannis Xenakis have all worked in this vibrant new music in one way or another.

Even if none of these partnerships or mutual admiration societies existed, the best proof of all is in the music itself. Strip away the rhythmic flutter and you have many of the same elements: extended, meditative, electronic examinations of notes and tones. If this is marketed today as pop music, that's just another sign that the crusty, obsolete walls that separate musical styles are coming down again.

from the essay to "The Early Gurus of Electronic Music" by Jason Gross and Thomas Zeigler

John Cage
An Autobiographical Statement

I once asked Arragon, the historian, how history was written. He said, "You have to invent it." When I wish as now to tell of critical incidents, persons, and events that have influenced my life and work, the true answer is all of the incidents were critical, all of the people influenced me, everything that happened and that is still happening influences me.

My father was an inventor. He was able to find solutions for problems of various kinds, in the fields of electrical engineering, medicine, submarine travel, seeing through fog, and travel in space without the use of fuel. He told me that if someone says "can't" that shows you what to do. He also told me that my mother was always right even when she was wrong.

My mother had a sense of society. She was the founder of the Lincoln Study Club, first in Detroit, then in Los Angeles. She became the Women's Club editor for the Los Angeles Times. She was never happy. When after Dad's death I said, "Why don't you visit the family in Los Angeles? You'll have a good time," she replied, "Now, John, you know perfectly well I've never enjoyed having a good time." When we would go for a Sunday drive, she'd always regret that we hadn't brought so-and-so with us. Sometimes she would leave the house and say she was never coming back. Dad was patient, and always calmed my alarm by saying, "Don't worry, she'll be back in a little while."

Neither of my parents went to college. When I did, I dropped out after two years. Thinking I was going to be a writer, I told Mother and Dad I should travel to Europe and have experiences rather than continue in school. I was shocked at college to see one hundred of my classmates in the library all reading copies of the same book. Instead of doing as they did, I went into the stacks and read the first book written by an author whose name began with Z. I received the highest grade in the class. That convinced me that the institution was not being run correctly. I left.

In Europe, after being kicked in the seat of my pants by José Pijoan for my study of flamboyant Gothic architecture and introduced by him to a modern architect who set me to

work drawing Greek capitals, Doric, Ionic, and Corinthian, I became interested in modern music and modern painting. One day I overheard the architect saying to some girl friends, "In order to be an architect, one must devote one's life to architecture." I then went to him and said I was leaving because I was interested in other things than architecture. At this time I was reading Leaves of Grass of Walt Whitman. Enthusiastic about America I wrote to Mother and Dad saying, "I am coming home." Mother wrote back, "Don't be a fool. Stay in Europe as long as possible. Soak up as much beauty as you can. You'll probably never get there again." I left Paris and began both painting and writing music, first in Mallorca. The music I wrote was composed in some mathematical way I no longer recall. It didn't seem like music to me so that when I left Mallorca I left it behind to lighten the weight of my baggage. In Sevilla on a street corner I noticed the multiplicity of simultaneous visual and audible events all going together in one's experience and producing enjoyment. It was the beginning for me of theater and circus.

Later when I returned to California, in the Pacific Palisades, I wrote songs with texts by Gertrude Stein and choruses from The Persians of Aeschylus. I had studied Greek in high school. These compositions were improvised at the piano. The Stein songs are, so to speak, transcriptions from a repetitive language to a repetitive music. I met Richard Buhlig who was the first pianist to play the Opus II of Schoenberg. Though he was not a teacher of composition, he agreed to take charge of my writing of music. From him I went to Henry Cowell and at Cowell's suggestion (based on my twenty-five tone compositions, which, though not serial, were chromatic and required the expression in a single voice of all twenty-five tones before any one of them was repeated) to Adolph Weiss in preparation for studies with Arnold Schoenberg. When I asked Schoenberg to teach me, he said, "You probably can't afford my price." I said, "Don't mention it; I don't have any money." He said, "Will you devote your life to music?" This time I said "Yes." He said he would teach me free of charge. I gave up painting and concentrated on music. After two years it became clear to both of us that I had no feeling for harmony. For Schoenberg, harmony was not just coloristic: it was structural. It was the means one used to distinguish one part of a composition from another. Therefore he said I'd never be able to write music. "Why not?" "You'll come to a wall and won't be able to get through." "Then I'll spend my life knocking my head against that wall."

ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

I became an assistant to Oskar Fischinger, the film maker, to prepare myself to write the music for one of his films. He happened to say one day, "Everything in the world has its own spirit which can be released by setting it into vibration." I began hitting, rubbing everything, listening, and then writing percussion music, and playing it with friends. These compositions were made up of short motives expressed either as sound or as silence of the same length, motives that were arranged on the perimeter of a circle on which one could proceed forward or backward. I wrote without specifying the instruments, using our rehearsals to try out found or rented instruments. I didn't rent many because I had little money. I did library research work for my father or for lawyers. I was married to Xenia Andreyevna Kashevaroff who was studying bookbinding with Hazel Dreis. Since we all lived in a big house my percussion music was played in the evening by the bookbinders. I invited Schoenberg to one of our performances. "I am not free." "Can you come a week later?" "No, I am not free at any time."

I found dancers, modern dancers, however, who were interested in my music and could put it to use. I was given a job at the Cornish School in Seattle. It was there that I discovered what I called micro-macrocosmic rhythmic structure. The large parts of a composition had the same proportion as the phrases of a single unit. Thus an entire piece had that number of measures that had a square root. This rhythmic structure could be expressed with any sounds, including noises, or it could be expressed not as sound and silence but as stillness and movement in dance. It was my response to Schoenberg's structural harmony. It was also at the Cornish School that I became aware of Zen Buddhism, which later, as part of oriental philosophy, took the place for me of psychoanalysis. I was disturbed both in my private life and in my public life as a composer. I could not accept the academic idea that the purpose of music was communication, because I noticed that when I conscientiously wrote something sad, people and critics were often apt to laugh. I determined to give up composition unless I could find a better reason for doing it than communication. I found this answer from Gira Sarabhai, an Indian singer and tabla player: The purpose of music is to sober and quiet the mind, thus making it susceptible to divine influences. I also found in the writings of Ananda K. Coomaraswammy that the responsibility of the artist is to imitate nature in her manner of operation. I became less disturbed and went back to work.

Before I left the Cornish School I made the prepared piano. I needed percussion instruments for music for a dance that had an African character by Syvilla Fort. But the theater in which she was to dance had no wings and there was no pit. There was only a small grand piano built in to the front and left of the audience. At the time I either wrote twelve-tone music for piano or I wrote percussion music. There was no room for the instruments. I couldn't find an African twelve tone row. I finally realized I had to change the piano. I did so by placing objects between the strings. The piano was transformed into a percussion orchestra having the loudness, say, of a harpsichord.

It was also at the Cornish School, in a radio station there, that I made compositions using acoustic sounds mixed with amplified small sounds and recordings of sine waves. I began a series, Imaginary Landscapes.

I spent two years trying to establish a Center for Experimental Music, in a college or university or with corporate sponsorship. Though I found interest in my work I found no one willing to support it financially.

I joined the faculty of Moholy Nagy's School of Design in Chicago. While there I was commissioned to write a sound effects music for a CBS Columbia Workshop Play. I was told by the sound effects engineer that anything I could imagine was possible. What I wrote, however, was impractical and too expensive; the work had to be rewritten for percussion orchestra, copied, and rehearsed in the few remaining days and nights before its broadcast. That was The City Wears a Slouch Hat by Kenneth Patchen. The response was enthusiastic in the West and Middle West. Xenia and I came to New York, but the response in the East had been less than enthusiastic. We had met Max Ernst in Chicago. We were staying with him and Peggy Guggenheim. We were penniless. No job was given to me for my composing of radio sound effects, which I had proposed. I began writing again for modern dancers and doing library research work for my father who was then with Mother in New Jersey. About this time I met my first virtuosi: Robert Fizdale and Arthur Gold. I wrote two large works for two prepared pianos. The criticism by Virgil Thomson was very favorable, both for their performance and for my composition. But there were only fifty people in the audience. I lost a great deal of money that I didn't have. I was obliged to beg for it, by letter and personally.

I continued each year, however, to organize and present one or two programs of chamber music and one or two programs of Merce Cunningham's choreography and dancing. And to make tours with him throughout the United States. And later with David Tudor, the pianist, to Europe. Tudor is now a composer and performer of electronic music. For many years he and I were the two musicians for Merce Cunningham. And then for many more we had the help of David Behrman, Gordon Mumma, or Takehisa Kosugi. I have in recent years, in order to carry out other projects (an opera in Frankfurt and the Norton Lectures at Harvard University), left the Cunningham Company. Its musicians now are Tudor, Kosugi, and Michael Pugliese, the percussionist.

Just recently I received a request for a text on the relation between Zen Buddhism and my work. Rather than rewriting it now I am inserting it here in this story. I call it From Where'm'Now. It repeats some of what is above and some of what is below.

When I was young and still writing an unstructured music, albeit methodical and not improvised, one of my teachers, Adolph Weiss, used to complain that no sooner had I started a piece than I brought it to an end. I introduced silence. I was a ground, so to speak, in which emptiness could grow.

At college I had given up high school thoughts about devoting my life to religion. But after dropping out and traveling to Europe I became interested in modern music and painting, listening-looking and making, finally devoting myself to writing music, which, twenty years later, becoming graphic, returned me now and then for visits to painting (prints, drawings, watercolors, the costumes and decors for Europeras 1 & 2).

In the late thirties I heard a lecture by Nancy Wilson Ross on Dada and Zen. I mention this in my forward to Silence then adding that I did not want my work blamed on Zen, though I felt that Zen changes in different times and places and what it has become here and now, I am not certain. Whatever it is it gives me delight and most recently by means of Stephen Addiss' book The Art of Zen. I had the good fortune to attend Daisetz Suzuki's classes in the philosophy of Zen Buddhism at Columbia University in the late forties. And I visited him twice in Japan. I have never practiced sitting cross-legged nor do I meditate. My work is what I do

and always involves writing materials, chairs, and tables. Before I get to it, I do some exercises for my back and I water the plants, of which I have around two hundred.

In the late forties I found out by experiment (I went into the anechoic chamber at Harvard University) that silence is not acoustic. It is a change of mind, a turning around. I devoted my music to it. My work became an exploration of non-intention. To carry it out faithfully I have developed a complicated composing means using I Ching chance operations, making my responsibility that of asking questions instead of making choices.

The Buddhist texts to which I often return are the Huang-Po Doctrine of Universal Mind (in Chu Ch'an's first translation, published by the London Buddhist Society in 1947), Neti Neti by L. C. Beckett of which (as I say in the introduction to my Norton Lectures at Harvard) my life could be described as an illustration, and the Ten Oxherding Pictures (in the version that ends with the return to the village bearing gifts of a smiling and somewhat heavy monk, one who had experienced Nothingness). Apart from Buddhism and earlier I had read the Gospel of Sri Ramakrishna. Ramakrishna it was who said all religions are the same, like a lake to which people who are thirsty come from different directions, calling its water by different names. Furthermore this water has many different tastes. The taste of Zen for me comes from the admixture of humor, intransigence, and detachment. It makes me think of Marcel Duchamp, though for him we would have to add the erotic.

As part of the source material for my Norton lectures at Harvard I thought of Buddhist texts. I remembered hearing of an Indian philosopher who was very uncompromising. I asked Dick Higgins, "Who is the Malevich of Buddhist philosophy?" He laughed. Reading Emptiness -- a Study in Religious Meaning by Frederick J. Streng, I found out. He is Nagarjuna.

But since I finished writing the lectures before I found out, I included, instead of Nagarjuna, Ludwig Wittgenstein, the corpus, subjected to chance operations. And there is another good book, Wittgenstein and Buddhism, by Chris Gudmunsen, which I shall be reading off and on into the future.

My music now makes use of time-brackets, sometimes flexible, sometimes not. There are no

scores, no fixed relation of parts. Sometimes the parts are fully written out, sometimes not. The title of my Norton lectures is a reference to a brought-up-to-date version of Compositions in Retrospect:

MethodStructureIntentionDisciplineNotationIndeterminacy
InterpenetrationImitationDevotionCircumstancesVariableStructure
NonunderstandingContingencyInconsistencyPerformance(I-VI).

When it is published, for commercial convenience, it will just be called IVI.

I found in the largely German community at Black Mountain College a lack of experience of the music of Erik Satie. Therefore, teaching there one summer and having no pupils, I arranged a festival of Satie's music, half-hour after-dinner concerts with introductory remarks. And in the center of the festival I placed a lecture that opposed Satie and Beethoven and found that Satie, not Beethoven, was right. Buckminster Fuller was the Baron Méduse in a performance of Satie's Le Piège de Méduse. That summer Fuller put up his first dome, which immediately collapsed. He was delighted. "I only learn what to do when I have failures." His remark made me think of Dad. That is what Dad would have said.

It was at Black Mountain College that I made what is sometimes said to be the first happening. The audience was seated in four isometric triangular sections, the apexes of which touched a small square performance area that they faced and that led through the aisles between them to the large performance area that surrounded them. Disparate activities, dancing by Merce Cunningham, the exhibition of paintings and the playing of a Victrola by Robert Rauschenberg, the reading of his poetry by Charles Olsen or hers by M. C. Richards from the top of a ladder outside the audience, the piano playing of David Tudor, my own reading of a lecture that included silences from the top of another ladder outside the audience, all took place within chance-determined periods of time within the over-all time of my lecture. It was later that summer that I was delighted to find in America's first synagogue in Newport, Rhode Island, that the congregation was seated in the same way, facing itself.

From Rhode Island I went on to Cambridge and in the anechoic chamber at Harvard

University heard that silence was not the absence of sound but was the unintended operation of my nervous system and the circulation of my blood. It was this experience and the white paintings of Rauschenberg that led me to compose 4'33", which I had described in a lecture at Vassar College some years before when I was in the flush of my studies with Suzuki (A Composer's Confessions, 1948), my silent piece.

In the early fifties with David Tudor and Louis and Bebe Barron I made several works on magnetic tape, works by Christian Wolff, Morton Feldman, Earle Brown, and myself. Just as my notion of rhythmic structure followed Schoenberg's structural harmony, and my silent piece followed Robert Rauschenberg's white paintings, so my Music of Changes, composed by means of I Ching chance operations, followed Morton Feldman's graph music, music written with numbers for any pitches, the pitches notated only as high, middle, or low. Not immediately, but a few years later, I was to move from structure to process, from music as an object having parts, to music without beginning, middle, or end, music as weather. In our collaborations Merce Cunningham's choreographies are not supported by my musical accompaniments. Music and dance are independent but coexistant.

It was in the fifties that I left the city and went to the country. There I found Guy Nearing, who guided me in my study of mushrooms and other wild edible plants. With three other friends we founded the New York Mycological Society. Nearing helped us also with the lichen about which he had written and printed a book. When the weather was dry and the mushrooms weren't growing we spent our time with the lichen.

In the sixties the publication of both my music and my writings began. Whatever I do in the society is made available for use. An experience I had in Hawaii turned my attention to the work of Buckminster Fuller and the work of Marshall McLuhan. Above the tunnel that connects the southern part of Oahu with the northern there are crenelations at the top of the mountain range as on a medieval castle. When I asked about them, I was told they had been used for self-protection while shooting poisoned arrows on the enemy below. Now both sides share the same utilities. Little more than a hundred years ago the island was a battlefield divided by a mountain range. Fuller's world map shows that we live on a single island. Global village (McLuhan), Spaceship Earth (Fuller). Make an equation between human needs and

world resources (Fuller). I began my Diary: How Improve the World: You Will Only Make Matters Worse. Mother said, "How dare you!"

I don't know when it began. But at Edwin Denby's loft on 21st Street, not at the time but about the place, I wrote my first mesostic. It was a regular paragraph with the letters of his name capitalized. Since then I have written them as poems, the capitals going down the middle, to celebrate whatever, to support whatever, to fulfill requests, to initiate my thinking or my nonthinking (Themes and Variations is the first of a series of mesostic works: to find a way of writing that, though coming from ideas, is not about them but produces them). I have found a variety of ways of writing mesostics: Writings through a source: Rengas (a mix of a plurality of source mesostics), autokus, mesostics limited to the words of the mesostic itself, and "globally," letting the words come from here and there through chance operations in a source text.

I was invited by Irwin Hollander to make lithographs. Actually it was an idea Alice Weston had (Duchamp had died. I had been asked to say something about him. Jasper Johns was also asked to do this. He said, "I don't want to say anything about Marcel." I made Not Wanting to Say Anything About Marcel: eight plexigrams and two lithographs. Whether this brought about the invitation or not, I do not know. I was invited by Kathan Brown to the Crown Point Press, then in Oakland, California, to make etchings. I accepted the invitation because years before I had not accepted one from Gira Sarabhai to walk with her in the Himalayas. I had something else to do. When I was free, she was not. The walk never took place. I have always regretted this. It was to have been on elephants. It would have been unforgettable...

Every year since then I have worked once or twice at the Crown Point Press. Etchings. Once Kathan Brown said, "You wouldn't just sit down and draw." Now I do: drawings around stones, stones placed on a grid at chance determined points. These drawings have also made musical notation: Renga, Score and Twenty-three Parts, and Ryoanji (but drawing from left to right, halfway around a stone). Ray Kass, an artist who teaches watercolor at Virginia Polytechnic Institute and State University, became interested in my graphic work with chance operations. With his aid and that of students he enlisted I have made fifty-two watercolors.

And those have led me to aquatints, brushes, acids, and their combination with fire, smoke, and stones with etchings.

These experiences led me in one instance to compose music in the way I had found to make a series of prints called On the Surface. I discovered that a horizontal line that determined graphic changes, to correspond, had to become a vertical line in the notation of music (Thirty Pieces for Five Orchestras). Time instead of space.

Invited by Heinz Klaus Metzger and Rainer Riehn with the assistance of Andrew Culver I made Europeras 1 & 2 for the Frankfurt Opera. This carries the independence but coexistence of music and dance with which Cunningham and I were familiar, to all the elements of theater, including the lighting, program booklets, decors, properties, costumes, and stage action.

Eleven or twelve years ago I began the Freeman Etudes for violin solo. As with the Etudes Australes for piano solo I wanted to make the music as difficult as possible so that a performance would show that the impossible is not impossible and to write thirty-two of them. The notes written so far for the Etudes 17-32 show, however, that there are too many notes to play. I have for years thought they would have to be synthesized, which I did not want to do. Therefore the work remains unfinished. Early last summer ('88) Irvine Arditti played the first sixteen in fifty-six minutes and then late in November the same pieces in forty-six minutes. I asked why he played so fast. He said, "That's what you say in the preface: play as fast as possible." As a result I now know how to finish the Freeman Etudes, a work that I hope to accomplish this year or next. Where there are too many notes I will write the direction, "Play as many as possible."

Thinking of orchestra not just as musicians but as people I have made different translations of people to people in different pieces. In Etcetera to being with the orchestra as soloists, letting them volunteer their services from time to time to any one of three conductors. In Etcetera 2/4 Orchestras to begin with four conductors, letting orchestra members from time to time leave the group and play as soloists. In Atlas Eclipticalis and Concert for Piano and Orchestra the conductor is not a governing agent but a utility, providing the time. In Quartet

no more than four musicians play at a time, which four constantly changing. Each musician is a soloist. To bring to orchestral society the devotion to music that characterizes chamber music. To build a society one by one. To bring chamber music to the size of orchestra. Music for -----. So far I have written eighteen parts, any of which can be played together or omitted. Flexible time-brackets. Variable structure. A music so to speak that's earthquake proof. Another series without an underlying idea is the group that began with Two, continued with One, Five, Seven, Twenty-three, 1O1, Four, Two2, One2, Three, Fourteen, and Seven2. For each of these works I look for something I haven't yet found. My favorite music is the music I haven't yet heard. I don't hear the music I write. I write in order to hear the music I haven't yet heard.

We are living in a period in which many people have changed their mind about what the use of music is or could be for them. Something that doesn't speak or talk like a human being, that doesn't know its definition in the dictionary or its theory in the schools, that expresses itself simply by the fact of its vibrations. People paying attention to vibratory activity, not in reaction to a fixed ideal performance, but each time attentively to how it happens to be this time, not necessarily two times the same. A music that transports the listener to the moment where he is.

Just the other day I received a request from Enzo Peruccio, a music editor in Torino. This is how I replied:

I have been asked to write a preface for this book, which is written in a language that I do not use for reading. This preface is therefore not to the book but to the subject of the book, percussion.

Percussion is completely open. It is not even open-ended. It has no end. It is not like the strings, the winds, the brass (I am thinking of the other sections of the orchestra), though when they fly the coop of harmony it can teach them a thing or two. If you are not hearing music, percussion is exemplified by the very next sound you actually hear wherever you are, in or out of doors or city. Planet?

Take any part of this book and go to the end of it. You will find yourself thinking of the next step to be taken in that direction. Perhaps you will need new materials, new technologies. You have them. You are in the world of X, chaos, the new science.

The strings, the winds, the brass know more about music than they do about sound. To study noise they must go to the school of percussion. There they will discover silence, a way to change one's mind; and aspects of time that have not yet been put into practice. European musical history began the study (the iso-rhythmic motet) but it was put aside by the theory of harmony. Harmony through a percussion composer, Edgard Varèse, is being brought to a new open-ended life by Tenney, James Tenney. I called him last December after hearing his new work in Miami and said "If this is harmony, I take back everything I've ever said; I'm all for it." The spirit of percussion opens everything, even what was, so to speak, completely closed.

I could go on (two percussion instruments of the same kind are no more alike than two people who happen to have the same name) but I do not want to waste the reader's time. Open this book and all the doors wherever you find them. There is no end to life. And this book proves that music is part of it.

John Cage: Williams Mix
Category: Musical composition
Dated: N.Y.C., October 1952 (end of first part); January 16, 1953 (end of splicing)
Instrumentation: Magnetic tape
Duration: 4'15"
Premiere and performer(s): March 22, 1953 at the University of Illinois as a part of the University of Illinois Festival of Contemporary Music.

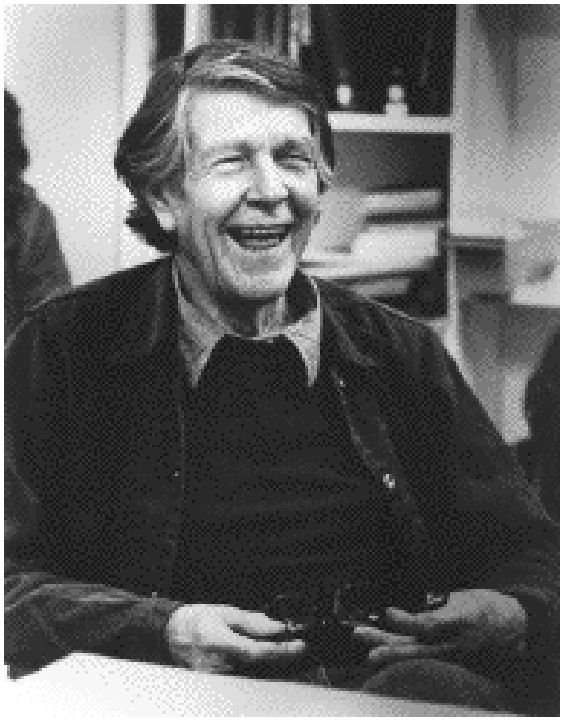
This is a work for eight tracks of ¼ inch magnetic tape. The score is a pattern for the cutting and splicing of the sounds recorded on the tape.
The rhythmic structure is 5-6-16-3-11-5.
The sounds are in 6 categories: A (city sounds), B (country sounds), C (electronic sounds), D (manually produced sounds), E (wind produced sounds) and F ("small" sounds, which need to be ampified). Pitch, timbre and loudness are notated as well. Approximately 600 recordings are necessary to make a version of the piece. The compositional means were I Ching chance operations. Cage made a version of the work in 1952/53 with the assistance of Earle Brown, Louis and Bebe Barron, David Tudor, Ben Johnston and others, but it also possible to create other versions, using the score.

John Cage: Radio Music
Category: Musical composition
Dated: Stony Point, N.Y., May 1956
Instrumentation: for one to eight performers, each at one radio
Duration: 6'
Premiere and performer(s): May 30, 1956 at the Carl Fisher Hall in New York City. Performance by John Cage, Maro Ajemian, David Tudor, Grete Sultan and the four members of the Juilliard String Quartet

Radio Music is a work composed using chance operations. The score indicates 56 different frequencies between 55 and 156 kHz, notated using numbers (and not using conventional staves, like in Imaginary Landscape No.4). Cage mentions that the work is in 4 sections, with or without silences between them, to be programmed by the player(s).

John Cage: Rozart Mix
Category: Musical composition
Dated: April 1965
Instrumentation: Notes re preparation of a magnetic tape. For at least 4 performers with at least 12 taperecorders and at least 88 tape-loops.
Duration: indeterminate (about 2 hours during first performance)
Premiere and performer(s): May 5, 1965 at the Rose Art Museum , Brandeis University, Waltham, Massachusetts. Performance by Alvin Lucier and students of the University.
Dedicated to: for Alvin Lucier

'Score' consists of correspondence between John Cage and Alvin Lucier, concerning the prepations for the Brandeis University concert, mentioned above. The tapes may contain any material and may vary in length (up to around 45 feet). If a loop breaks, it should be fixed or replaced by another. A performance of the piece starts with the audience entering, and ends when the last member of the audience has left.



1953
Iannis Xenakis first uses a computer in calculation of the varable speed glissandi for his orchestral work 'Metastasis'.

1955
Xenakis performs 'Metastasis', a composition based on stochastic formulas written out by

hand.

1956
Iannis Xenakis coins the term 'Stochastic Music' to describe music based on the laws of probabilities and laws of large numbers, exemplified by his composition 'Achorripsis' (1957).

1956
Iannis Xenakis designs the Philips Pavilion for the Brussels World's Fair, to take place in 1958, as a shell for sound and image projection.

1957
Iannis Xenakis composes 'Diamorphoses' using the sounds of jet engines, car crashes, earthquake shocks, and other noises contrasted with thin high-pitched bell sounds.

1958
Pierre Schaeffer establishes the Groupe de Recherche Musicales (GRM), with Luc Ferrari, François-Bernard Mâche, Michel Philippot, and Iannis Xenakis, at the Radiodiffusion Francais, Paris.

1958
Iannis Xenakis composes 'Concret P.H.' by varying the tape recorder speed and overlaying sections of a sound recording of burning charcoal. The work was played as an interlude between performances of Edgar Varése' 'Poeme Electronique' in the Philips Pavilion at the Brussels World Fair in 1958.

1960s
Iannis Xenakis develops the Stochastic Music Program (SMP) based on formulas recently developed by scientists to describe the behavior of particles in gases. This allowed for creation of compositions that Xenakis viewed as 'Clouds of sound', with each particle corresponding to an individual note.

1962

Iannis Xenakis composes 'Bohor' for eight tracks of sound using the sounds of bracelets, other jewelry, and a Laotian mouth organ. He describes the idea: "I was interested in the tiny sounds because you could expand them and find different sounds in them."

1964
Xenakis composes 'Eonta' for piano and brass using his newly developed Stochatsic Music Program.

1967
Iannis Xenakis writes Musiques Formelles (Formalized Music). The first discussion of granular synthesis, clouds and grains of sound is presented in this book.

1970
Xenakis prforms 'Hibiki Hana Ma' ('Reverberation-Flower-Interval'), a twelve channel composition played on a sytem of 800 loudspeakers distributed above the heads and under the chairs of the audience at EXPO 70 in Osaka.

1972
Iannis Xenakis develops the UPIC. This device represented a new approach to composition, translating shapes drawn on a graphic pad to control musical parameters.

1972
Xenakis performs 'Polytope de Cluny', a twelve channel sound and light spectacle, inside the ancient Cluny Museum of Paris, France.

1977
Iannis Xenakis introduces the first version of his UPIC sytem ...

1978
Xenakis' multimedia performance 'Diatope' uses 1,600 pinpoint lights, four lasers, 400 mirrors, diverse optical effects and sound. Each show lasted twenty minutes and was viewed from above through a plexiglass floor installed outside the Centre Pompidou in Paris.

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ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

DJ SPOOKY ON XENAKIS

I'll put it bluntly: Xenakis is one of my all time favorite composers. I like to think of him as the Lee Scratch Perry of classical music. The main characteristics of his compositional process - playing with time signature and micro-scopic/mirco-tonal interventions in the structure of sound as humans can conceive of it, and a will to create music as a pan-humanist enterprise - foster a sonic environment where Xenakis's tries as much as possibe to show that we are part of a continuum where almost all human endeavor must be understood to be part of a larger framework. His work is truly cybernetic. But is it nature or nurture?

Norbert Weiner, the inventor of many of the core concepts of cybernetics and information theory wrote in his classic treatise on cybernetics "The Human Use of Human Beings" back in 1954 made an observation that I sometimes let echo in my mind when I think about a lot of the informing tropes of sound as motion and architecture as flowing movement/patterns that Xenakis's music brings to mind. "Our tissues change as we live: the food we eat and the air we breathe become flesh of our flesh and bone of our bone," he said in his classic book that launched cybernetics into science culture as one of the core issues of contemporary methods of organizing information. But the notion of the body caught in a cycle of continuous change and transformation was only the beginning for Weiner. The adage continues with an investigation that resonates with Xenakis's own investigations into sound and culture that seems almost uncanny: "and the momentary elements of our flesh and bone pass out of our body every day with our excreta. We are but whirlpools in a river of ever flowing water. We are not stuff that abides, but patterns that perpetuate themselves." It's this motif that resonates so strongly with Xenakis's attempts to see music as a pan humanist project, and his electronic works are all attempts to portray a place where culture acts as a formalized code and becomes transcendant and utterly translateable.

"Hibiki-Hana-Ma" is part of a larger attempt to try as much as possible to create a forum where music can be a bridge between radically different cultures. From the shores of a Japan in the midst of reconstruction after the devastation of WW II, Xenakis attempts a music that through exploring the ways that sound can portray the emotive qualities of an absurd world where racism, ethnic strife, and human betrayal of any and all sense of compassion for your

fellow man created one of the most horrific centuries in human history, a new music arrives. A music that by exploring the pain of a world devastated by human greed, attempts to transcend that conditions that created the context of its creation. Hibiki-Hana-Ma translated into English simply means "reverberation-flower-interval." Patterns and pain, transcendence and translation: these are the tropes that Xenakis uses to guide his listeners into a hypothetical place where all aspects of human nature can be celebrated.

Jean-Claude Risset, the composer, researcher and pioneer of computer music (born in Le Puy in 1938) began his musical career by studying piano under Robert Trimaille and Huguette Goullon. He studied composition under the Parisian Suzanne Demarquez and André Jolivet the latter of whom, one of the founder members of the so-called Le Jeune France group, is a link between Risset and his teacher Edgard Varèse, the pioneer of tape music. Risset studied Natural Sciences, mainly Physics and Mathematics, at the Ecole Normale Supérieure where he gained his Ph. D. in 1967. His background anchored him firmly to the French musical tradition which had already stood out for centuries as rich and colourful but also as analytic and investigative. Risset wrote his first works for traditional acoustic instruments but he informs us that even at that stage he was particularly interested in timbre, not in a decorative or cosmetic way but as a functional factor inseparably linked with musical expression. The aesthetism of music concrète got no sympathy from him - although the number of prerecorded sounds was unlimited in principle, the tools and methods of transforming them did not do justice to the richness of the sounds themselves. On the other hand, the electronically produced sounds were easier to deal with in a more controlled way, but they were often simple and boring. Rissett sought a solution elsewhere - he decided to concentrate on the fundamental level of the world of sound which was at that time still quite unexplored. He found a place at the Bell telephone laboratory in Max V. Mathews group which had investigated digital voice and speech synthesis from the late 50's onwards. Sound synthesis shatters the romantic picture of a composer as a scribe of sounds of the heart and of processes arising from deep inside. In order to find something comparable to this one must go back in history to the time when music making was part of the tetrad of human activities and thought: sister to Arithmetic, Astronomy and Geometry. One must return to the stage when music was not only a singing source of aesthetic pleasure but also an immaterial, abstract subject of study for speculative and theoretical Philosophy - an object of knowledge. Sound synthesis requires at least some predisposition to precision from the person who does it, awareness of the physical-acoustic properties of sound, knowledge of methods and of sophisticated equipment, above all, knowledge of computers.

Synthesis is a process in which a computer is given as clear a description of the physical structure of the sound required as possible. After processing the information given the machine rewards its user by producing an audible sound corresponding more or less to the

expectations. This often presupposes a reverse, analytic stage in which a real existing sound is dismantled into basic factors and in which the necessary information required to produce the sound synthetically is thus revealed. At its best the synthesis will lead to an expansion of the world of sounds - by setting digits an unprejudiced researcher can discover entirely new, previously unheard sounds. A synthesis is a musical voyage of discovery, of forcing one's way to the origins of the sound, to its fundamental existence. It is quite natural that sound synthesis first concentrated mainly on the imitation of the sound qualities of natural instruments. Instrumental sounds were agreeable and quite useful subjects of study from the standpoint of the general progress of music, especially in a situation where the more usual phenomena of the sound world were for the most part unexplored. Risset also participated in this laboratory work, e.g. his experiments on imitations of brass wind instruments are very well known and in 1969 he published his results up to that point in catalogue form, a sort of cookery book with recipes. Risset was also interested in psychoacoustics, the study of the

process of sensing and receiving sound, which led to synthetic so-called sound paradoxes in which the impossible, e.g. indefinitely lowering sound, becomes possible like M.C. Escher's steps. Producing different hallucinatory images is, however, a rather marginal area of application of synthesis. The main reason why a composer spends his time on synthesis is probably an inextinguishable curiosity regarding the deepest essence of sound and a burning desire to broaden the world of timbres. Risset describes the reasons that led him to his decision Not being content to compose with sounds, I longed to extend my compositional activity to the level of the sound structure to compose my own sounds

At Time of Music one can hear Risset's music from a historical perspective. The earliest work is 'Computer Suite from Little Boy' (1968), an abridgement of the music Risset composed for Pierre Halet's play 'Little Boy'. Approximately half of the original music was written for soprano and chamber ensemble, the other half was made by a computer. Risset made the completely synthetic computer part in Bell's laboratories using the programme MUSIC V developed by Max Mathews, mainly applying the synthesis experiments and results of the Bell era. He employed sound paradoxes and simulated instruments. Structurally disharmonious acoustic timbre also played a major rôle in his music. Halet's play describes the tragic events of Hiroshima through the retrospective nightmares of the pilot who delivered the bomb ('Little Boy'). The three part abstract of the computer part of the music loosely reflects the plot of the play, e.g. in the second part Risset creates a paradoxical illusion of a fall (the bomb?) that never reaches its target. The professorship that Risset was awarded in 1972 took him to the University of Marseilles where the creative work connected with MUSIC V continued. It was three years later when Risset was invited to Paris to run the department of computer music at IRCAM. Works of this time such as 'Inharmonique' and 'Moments newtonies' (both in 1977) belong to a category in which Risset combines an entirely synthetic tape element with live music: human voice (soprano) in the former and seven instruments in the latter. Arranging the human voice ('L'autre face'), a choir ('Derives') or instruments ('Profiles') and a computer-produced tape section in a parallel position is the departure point of Risset's work up to that time. Combining the mechanical and human is natural according to Risset because The flexibility of computer synthesis and the refined control it provides permit to set up quite precise relations with the instrumental tones, thus avoiding the arbitrariness often encountered in associating live and electronic sounds . In 1979 Risset finished working with

IRCAM and returned to the University of Marseilles where he worked as professor until 1985. From the Marseilles period the Time of Music programme selects 'Passages' (1982) for flute and tape, originally composed for the Venice Biennale. 'Passages' continues a series of works which have, in addition to an acoustic instrument, a synthetic tape sequence produced using the MUSIC V programme. Risset characterizes his work as an identity test where one tests the degree of blending of the flute into its synthetic sound environment. The title of the work refers to those changing sound landscapes through which the flute must tramp its chamber music journey. The composition 'Sud' (1985) commissioned by the French Ministry of Culture is slightly different in its origins compared with Risset's other productions. The work was realized in the GRM studios in Paris, the historic headquarters of concrete tape music. 'Sud' was born in an environment of analog equipment , its nuclear elements are some sounds recorded in the open air of the Marseilles countryside e.g. bird song, the buzzing of insects, the roar of the sea. The synthetic part is minimized and the computer is mainly used to process the sound element that is the basic material of the composed work. In this work the synthesist Risset is closer to musique concrète than ever before. 'Voilements' (1987) for tenor saxophone and tape commisioned by Daniel Kientzy represents Risset's more recent productions.
The title of the work, deriving from the verb voiler, has several meanings e.g. dimming, warping or covering and refers to the fluxing relation between the tape and saxophone part. At first the tape functions as an echoing doppelganger for the instrument, as a shadow emphasizing the simplicity of the texture. Later as it draws further away from the soloist's performance the tape begins to influence from a distance in an alienating way the rôle of the saxophonist, covering, distorting. The tape was made in Marseilles at the Luminy Faculty of Natural Sciences and it includes not only the enhanced sounds of the saxophone played by Kientzy but also synthetic material. In the Saturday concert in the chapel we will hear the latest Risset. A work from last year 'Huit esquisses en duo pour un pianiste' (Eight duo sketches for one pianist) is a programmatic suite for keyboard instruments following the thoroughbred French tradition in presenting the composer also as a soloist.

from Time of Music Programmebook

ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

Morton Subotnick is one of the United States' premier composers of electronic music and an innovator in works involving instruments and other media, including interactive computer music systems. Most of his music calls for a computer part, or live electronic processing; his oeuvre utilizes many of the important technological breakthroughs in the history of the genre.

The work which brought Subotnick celebrity was "Silver Apples of the Moon". Written in 1967 using the Buchla modular synthesizer (an electronic instrument built by Donald Buchla utilizing suggestions from Subotnick and Ramon Sender), this work contains synthesized tone

colors striking for its day, and a control over pitch that many other contemporary electronic composers had relinquished. There is a rich counterpoint of gestures, in marked contrast to the simple surfaces of much contemporary electronic music. There are sections marked by very clear pulses, another unusual trait for its time; "Silver Apples of the Moon" was commissioned by Nonesuch Records, marking the first time an original large-scale composition had been created specifically for the disc medium -- a conscious acknowledgement that the home stereo system constituted a present-day form of chamber music. Subotnick wrote this piece (and subsequent record company commissions) in two parts to correspond to the two sides of an LP. The exciting, exotic timbres and the dance-inspiring rhythms caught the ear of the public -- the record was an American bestseller in the classical music category, an extremely unusual occurrence for any contemporary concert music at the time.

The next eight years saw the production of several more important compositions for LP, realized on the Buchla synthesizer: "The Wild Bull", "Touch", "Sidewinder" and "Four Butterflies". All of these pieces are marked by sophisticated timbres, contrapuntally rich textures, and sections of continuous pulse suggesting dance. In fact, "Silver Apples of the Moon" was used as dance music by several companies throughout the world.

In 1975, fulfilling another record company commission (this time, Odyssey), Subotnick composed "Until Spring", a work for solo synthesizer. In this work, changes in settings which Subotnick made in real time on the synthesizer were stored as control voltages on a separate tape, enabling him to duplicate any of his performance controls, and to subsequently modify them if he felt the desire to do so. While the use of control voltages was nothing new, it suggested to Subotnick a means to gain exact control over real-time electronic processing equipment.

The next step in Subotnick's use of control voltages was the development of the "ghost" box. This is a fairly simple electronic device, consisting of a pitch and envelope follower for a live signal, and the following voltage controlled units: an amplifier, a frequency shifter, and a ring modulator. The control voltages for the ghost box were originally stored on a tape, updated now to E-PROM. A performer, whose miced signal is sent into the ghost box, can then be

processed by playing back the pre-recorded tape of E-PROM, containing the control voltages. As neither the tape nor E-PROM produce sound, Subotnick refers to their sound modification as a "ghost score". By providing the performer with exact timings, coordination between performer and the ghost score is controlled.

"Two Life Histories" (1977) was the first piece involving an electronic ghost score; the bulk of Subotnick's output for the next six years was devoted to compositions involving performers and ghost scores. Some of the more notable works in the series include "Liquid Strata" (piano), "Parallel Lines" (piccolo accompanied by nine players), "The Wild Beasts" (trombone and piano), "Axolotl" (solo cello), "The Last Dream of the Beast" (solo voice) and "The Fluttering of Wings" (string quartet). The subtlety, sophistication and control over real-time electronic processing that Subotnick demonstrated in these innovative works secured his reputation as one of the world's most important electronic music composers.

Subotnick reached the apex of live electronic processing in his work "Ascent Into Air" (1981). Written for the powerful 4C computer at IRCAM, this piece involved many of the techniques which Subotnick had developed in his ghost scores. In addtion to the processing normally available to him with his ghost boxes, Subotnick was able to spatially locate sounds in a quadraphonic field and to modulate the timbres of the instruments. But perhaps the most significant aspect of this work is its use of live performers to control the computer music; the live performers, in effect, serve as "control voltages" to influence where a sound is placed, how it is modulated and by how much, etc. -- the reverse situation of the ghost score compositions. Even more remarkable is the ability of traditional musical instruments to control computer-generated sounds. The sophistication of this control is currently unavailable using the commercial MIDI devices which many electronic musicians, including Subotnick, favor today.

Since 1985, Subotnick has been using commercially available MIDI gear in works such as "The Key to Songs", "Return" and "all my hummingbirds have alibis". His more recent pieces are also marked not only by pulse-driven rhythms, but also by clear diatonic melodies and harmonies.

In addition to music in the electronic medium, Subotnick has written for symphony orchestra, chamber ensembles, theater and multimedia productions. His 'staged tone poem' "The Double Life of Amphibians", a collaboration with dirctor Lee Breuer and visual artist Irving Petlin, utilizing live interaction between singers, instrumentalists and computer, was premiered at the 1984 Olympics Arts Festival in Los Angeles.

The concert version of "Jacob's Room", a monodrama commissioned by Betty Freeman for the Kronos Quartet and singer Joan La Barbara, received its premiere in San Francisco in 1985. "Jacob's Room", Subotnick's multimedia opera (directed by Herbert Blau with video imagery by Steina and Woody Vasulke, featuring Joan La Barbara), received its premiere in Philadelphia in April 1993 under the auspices of The American Music Theater Festival. "The Key to Songs", for chamber orchestra and computer, was premiered at the 1985 Aspen Music Festival. "Return", commissioned to celebrate the return of Halley's Comet, premiered with an accompanying sky show in the planetarium of Griffith Observatory in Los Angeles in 1986. Subotnick's recent works utilize computerized sound generation, specially designed software Interactor and "intelligent" computer controls which allow the performers to interact with the computer technology.

Currently, Subotnick co-directs both the Composition program and the Center for Experiments in Art, Information and Technology (CEAIT) at the California Institute of the Arts. He tours extensively throughout the US and Europe as a lecturer and composer/performer. He is published by European-American.

ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

Holger Czukay interview by Billy Bob Hargus (February 1997)

HOW DID YOU MEET UP WITH DR. WALKER? I was introduced through an electronics dealer who gave me his address. I met up with him and I knew something about his music. U-She made this connection also- she knew that this was the most exciting music scene anywhere. He lives in my neighborhood, about five minutes walking distance away. We started to have a spontaneous session in a multi-room party and that turned out very well. Then slowly we started to make another session at Liquid Sky in Cologne and we recorded it. It was an excellent recording, last summer. I editted that for a live CD (coming later this year). We thought that it was wonderful to go on with that.

YOU'VE DONE A LOT OF WORK WITH 'FOUND SOUNDS' OVER THE YEARS. This is what I've usually done all the time. What is interesting is now is the fact that we can or cannot perform something like that live and we don't know what can we expect from such an event. For me, this is the most important question. It is interesting that he is somebody who understands me very well and he is able to react on that. We found out that this works out very well. It's become sort of a dance-techno or techno event. It's something which reminds me of the very first Can concerts. The concert yesterday that special quality and this is something completely different for a media. If you want to make a recording for an album or CD, this is a completely different way of working. This live performance is something different. It's changing all the time when we do the shows.

HOW DO YOU COMPOSE YOUR WORK? WHERE DO YOUR IDEAS COME FROM? Just by logic. First of all, you must have a vision, even with the roughest idea where this could lead to. This is the way that I usually work. Others can't feel that and they may not understand the way I work.

WHAT KIND OF INSTRUMENTS ARE YOU USING FOR YOUR SHOWS? It is a very small keyboard that I use actually. You can use special samples with it. Usually samples are very

short moments. But these are longer moments. With these, I can make it possible that the

music, and this is usually the best quality live, is playing itself. You are in the position of conducting. If this happens, you are lucky. This happened in Can as well. In performances, you try to enforce the music, then you have a brave character to do that but actually you are not that lucky.

JAKI (LIEBEZEIT) AND MICHAEL (KAROLI, BOTH FROM CAN) APPEAR ON YOUR 'MOVING PICTURES' CD. YOU'RE STILL CLOSE WITH THEM? This was recorded three years ago. From time to time, I see Jaki- he's a great drummer. He doesn't live far from me. Michael I see less of because he lives in South France. Irmin (Schmidt) is very involved in his own music. Television music and writing operas. His wife is my manager so we're still in close contact.

ON YOUR OWN AND WITH CAN, YOU'VE DONE A LOT OF SOUNDTRACK MUSIC. DO YOU TRY TO 'VISUALIZE' A LOT OF THE MUSIC THAT YOU MAKE? Very strongly. Actually I'm not thinking visually. It happens that the music comes to me. This is one of the reasons why 'Moving Pictures' is based 'non-existant pictures.' To make film music, for me, is that film is getting shot and then at the end they say 'aha, everything's finshed, let's get the film music.' Then they look for a composer and he looks at the film. This is the biggest mistake of all. I had a meeting with Ennio Morricone, talking about this. I also made a lot of film music with Can- we could have lived off of that. We were so lucky that Irmin was connected with theater and film. He talked to the director, he checked out the film, he went to the studio and told us the scenes but there is a difference if someone is telling you a scene or you are seeing it on a screen. When somebody tells me a story, your fantasy is so unlimited because you're not limited from what you see on a screen. With Can, the film music really became somehow extraordinary I must say. This is what Morricone said, that he was so lucky that he was a good friend with (director) Sergio Leone. Leone told him what his intention was and Morricone gave him an idea musically. In the beginning of the shooting, the music was somehow sketched. Then they started shooting. This is a very good way to do that. It doesn't have a strong seperation between the shooting and the music then.

I was once involved in a video musical. I played the main role. It was for television. The way

that it was produced was that I was working the light and the music and the cutting of the scenes were done all together. Cutting and performing the scenes was done exactly at the same time. It was at different studios but when the picture came out and I saw what I was doing, then the picture was re-edited again. Watch out for a film director who thinks this is a good idea! This is one of the reasons why I made 'Moving Pictures.' It has something to do with images and pictures. Maybe someone has made a film and he knows something about this music and it would fit perfectly. Then this is the best way to rely on music for the film and not the other way around.

I had working with radio also. I have something to do where I am trying to create an outside world. What has the man in the radio to do with me? He doesn't know I exist and I just listen to him. We don't know each other at all. If these two worlds work perfectly together, we are very lucky. It is very exciting as well, this sort of synchronicity. If I make this music and someone has made a film for his music, you have two worlds meeting together at the same point.

YOU STUDIED UNDER STOCKHAUSEN. WHAT KIND OF INFLUENCE WAS HE ON YOU? I'd like to know myself as he is a very powerful character. He is one of the last classical composers from the traditional side. He is writing music into scores but not performing it or he is performing it with electronic music. At that time when I studied with him, he was the church in the village. Everything, all the houses were built around this church. For me, he has nothing to do with rock music or pop music. But that doesn't matter to me. I came along with him and his music. It is my pleasure to look into different kinds of music and enjoy that.

WHAT OTHER KIND OF MUSIC INFLUENCED YOU WHEN YOU WERE YOUNG? I was first thinking of becoming a composer when I was a child. To a child, a composer is the manager of all of the music. He must create it. Then I went to a music school and they said 'you must be a wonder child and you must be finished by fifteen.' I was a year too late! So I thought 'OK, you can become a jazz musician now.' I played guitar in a band in 1958 (Holger Schuering Jazz Band) and went to a Jazz Music festival. We had to play in front of a jury and

an audience. One of the judges said to us 'It's impossible for us to classify what you played but never mind. I'll take you on a radio show as something that can't be classified.' I was very proud of this fact because I didn't pass my A-level degree at school, in music I got the worst grade. But the next day I had my first performance on a radio show! It was wonderful. Then I thought 'I'm not a born jazz musician.' It wasn't my world. So who remained? It was only Stockhausen. He was the most fascinating figure. He invited all of these other composers like John Cage to come to Berlin to perform (winter, 1962). They were doing performances and speaking to people about their ideas. John Cage was incredible. It was a concentration of these world composers for a few monthes. I had an incredible impression about what these people were doing.

I moved to Berlin because I wanted to study classical music and the fact that he (Stockhausen) took me on after high school was a miracle. The Iron Wall was just established and I was looking for a flat. The cheapest flat was in a island that belonged to West Berlin but was in East Germany. You go to a corridor with petrol from the East Germans and you had to have a special visa. Inside on this island, I was guarded by three G.I.'s. Outside, I was protected by the East Germans. I just living with this barbed wire fence five meters away. It was great! It was fantasic! One day, I took my bicycle along the fence and saw these two East German soliders standing in front on the other side and watching two G.I.'s- one was white and one was a black guy, very tall. They faced each other wordless. Then this black guy took out these big mirror glasses and one of the East German guys just lost his face and disappeared when he saw this. Then the next miracle happened. It was 1962. General Clay was the commander of American forces in West Berlin. He flew in with a helicopter. I saw him as I was riding my bicycle. He came out and said 'come on, I'm inviting you for our greatest holiday, Thanksgiving.' He was wonderful. The mayor came as well. He served turkey and for the first time in my life I got drunk. It was incredible.

I had to pass the check-points of the East Germans. The guards were especially selected because they able to escape into West Berlin. One third was assholes, one third was in between and one third was in between, as usual. I brought them some stockings for their wifes and something to drink. They liked me because of my car. It had holes in it and looked like someone was shooting at it with a machine gun. Three of the East German soldiers, I

brought them with all of their weapons to the West Berlin check-point. The police there brought out some bottles of beer and we all drank. This was during this hot time (in the Cold War). Somehow I survived. What did Frank Sinatra sing? 'I did it my way.' So this is how I came to Stockhausen.

I actually met Stockhausen at the end of the fifties. Somehow he had invented electronic music. What I heard was so.... that I thought of flushing toilets in outer space. I was somehow effected. I really couldn't stop laughing because it was so new to me. One person in the audience said to him 'Hey, you do these weird sounds just to give us a shock and out of this shock you want to make a lot of money.' He said 'I can promise you that I do this only for musical reasons. I have just married a rich woman- I don't need the money.' I thought 'This man is right of you. You must get in contact with him.' The heckler caught up with him after the show and said 'Now we can talk frankly to each other. Was that true?' So Stockhausen said to his wife 'Hey Doris, come here. He doesn't believe I'm married to a rich woman.' I thought 'you must look for a rich woman too.' Then I studied with him. I really went out to look for a rich woman. So where do you find that? In Switzerland. There were these private schools for daughters of rich families and I tried to become a teacher around Lake Geneva. It happened that they took me on. I found a very rich girl there and I was paid so high that I forgot about the rest! With this money, I saved a little bit and that was the beginning of Can. I wanted to make for one year holidays. So I thought 'Let's see what's going on in the world otherwise.' That's how Can was established. With this money, I bought a tape recorder and with this tape recorder, we made our first album.

SO HOW DID YOU MET UP WITH MICHAEL, IRMIN AND JAKI TO FORM THE BAND? Michael was a pupil of mine. Irmin was a fellow student with me with Stockhausen. The rest was just the fact that Irmin knew Jaki. We were going to establish a new band that was somehow extraordinary and he asked Jaki to look out for a drummer and the next day Jaki came himself. Karoli left the school when I left the school. He studied in Switzerland and I got another job in Northern Germany. We were somehow always connected. So Irmin said to me 'Come on, let's form a band.' I said 'I have a guitar player, Karoli. I'll bring him with me.' This is how we got together. Then Malcolm Mooney came over from an exhibition in Paris. He just

came by and just on holidays and didn't think of singing at all. He participated in the whole thing and Can was there.

WHEN YOU STARTED THE BAND, DID YOU HAVE ANY IDEAS ABOUT WHAT DIRECTION YOU WANTED TO TAKE? We didn't even know if we wanted to become rock-orientated or rhythm-orientated or what. It happened that there was an exhibition in a little castle in Cologne. All the gallery people made a big party there and there was a Picasso exhibition. We played there for the first time. We had never all met and had never practiced but we played there for the first time. That became somehow very exciting. Wild and sometimes unorganized but at least exciting. Then we though 'maybe we should go into a rock direction- this is a good idea.' So we did it.

EVENTUALLY, A STUDIO WAS BUILT IN THE CASTLE, SCHLOSS NORVENICH. DID THAT HELP THE BAND WITH CREATING MUSIC OR WITH GIVING YOU MORE FREEDOM? Yes, this is what I was talking about. As we didn't have any money at the time, we were sponsered by the man who rented this castle. He gave us a room and in this room we established a studio with the most simple equipment you can imagine and went on recording straight away.

WITH THE CAN RECORDS, YOU ENGINEERED AND EDITED THE MUSIC. HAD YOU BEEN DOING THIS BEFORE WITH YOUR OWN MUSIC? What I had done as a pupil, I was working in a radio and television shop to repair equipment. I was interested in electronics so I learned everything there. I made a little side money to put away for myself, just five dollars a week. When we designed our studio, I just picked up the whole logic about that and we were able to do that without an engineer. We are very proud of that.

HOW DID THE SONGS COME TOGETHER WITH THE GROUP? WERE THEY LONG JAMS THAT YOU EDITTED? Yes but the editing was really a minor step. It was not so extensive as it is today. All of Can's music was live recordings, played in this castle.

HOW WERE THINGS DIFFERENT WHEN MALCOLM LEFT? It was a problem for us. We suddenly felt quite left alone in a way. But three months later, I found Damo Suzuki in Munich on the street. He was praying to the sun with wild gestures. I was in a cafe with Jaki and said to him 'See that guy there? He will become our next singer.'

HE MUST HAVE THOUGHT YOU WERE NUTS. Yeah, he said 'you're crazy!' So I went to him (Damo) and said 'We have a concert tonight in front of 5000 people. You want to sing?' He said 'Yeah, I have nothing else to do.' He did it. When he first started, without practicing or rehearsing, he was a calm and silent samuri. Like Japanese meditation. Suddenly, he became a very furious and wild warrior. Then all the audience left and disappeared. It was one of the wildest concerts I remember. But some people were left, about 30 Americans. And among these people was (actor) David Niven. He must have been fascinated by this whole thing. Only a very few people stayed there in this big hall. Most of the Americans were based in Munich.

HOW DID THE BAND BECOME DIFFERENT WHEN YOU WERE WORKING WITH DAMO? I think it was logical that think would change because we learned by that time. We learned to get along with our equipment much better. We knew how to produce the music until we started using a multi-track machine. Up to that point, we had been using a (2-track) stereo machine without mixing, without these multi-track facilties. I would take the tapes home at night and I would be editting a little bit.

THIS IS A QUOTE FROM JAKI: 'WHEN WE BEGAN IT WAS GREAT, EVERYBODY JUST HAD A FEW NOTES HE COULD PLAY SO IT STAYED SIMPLE. BUT OUR TECHINICAL ABILITIES INCREASED. HOLGER COULD PLAY BASS VERY FAST. IT BEGAN WITH TAGO MAGO AND IT REALLY WENT OFF WITH FUTURE DAYS. I THINK IT BECAME TOO SYMPHONIC.' WOULD YOU AGREE WITH THAT? I agree with what he says but I certainly judge about this in a

certain way. I feel about this in a different way. Somehow this was the beginning of the end. With Can, everything seemed like the beginning of the end. So we went into different directions after a certain time. The fact that I played bass very fast didn't mean that I played this typical dance bass. I had a very different techique to do that. I had made that with 'Father Cannot Yell,' our first recorded piece, the way I found out how I can play bass. Where Can as a group really had problems was with the introduction of a multi-track machine. Until this point, we played together as group. We recorded together as a group. We did everything together as a group and felt responsible. One for all. Jaki was the one who especially criticized us all the time. If something was not good, he would say 'hey, you should play better.' But it wasn't too easily analyzed by recording this on a two-track machine. 'Who made this mistake that the music didn't become as good as it should have become?'

At the moment when we got the multi-track machine, 'now we can find out who makes these mistakes.' This person now got so afraid that they'd say 'OK, I want to record my things alone.' It was natural but this was the end of the group. It took some other years and Can still made some very good albums after that. The fact is that somehow there remains this point that if you get out of this common responsibility, something is going to get changed. When I was first working alone, of course I was working with multi-track machines in the beginning. Then the digital devices came out. I immediately stopped multi-tracking recording. All the albums like MOVING PICTURES are not multi-track recordings at all. I don't mix these days anymore. Can you imagine that? Really high produced music without mixing. The digital technique pushed me back 30 years into the sixties, before multi-track machines came into existance. At that time, the engineers had to immediately mix things, to make decisions on the sound and recorded then straight away. This is what I'm doing now. In the beginning I bought a digital machine, the Akai DD 1000. I found immediately out that this is an incredible device. You can do endless multi-tracking somehow but the tracks you couldn't hear together so they became virtual. Then I got I went to the Akai company and said 'hey, do you want to waste money?' I told them about how I had sent them my product and how they send me their machine. They were surprised about what I could really do with that. This remains until today. I'm very happy that even when I'm working alone I'm not relying on multi-track machines. I still have everything completely under control but the decisions of sound and the vision to follow my vision, this is full in action. In the beginning when I record something this

will be the point that this will somehow be the sound of the final thing.

TOWARDS THE END OF CAN, YOU WEREN'T PLAYING BASS BUT WORKING ON TAPES AND SOUND EFFECTS INSTEAD. HOW WERE THINGS CHANGING FOR THE BAND? Suddenly, Can tried more or less to become more commercial. This was based on the idea that a few people should be able to play their instruments perfectly right. Jaki thought especially that we needed a different sort of bass player so we got a black bass player (Rosco Gee). And I had to look out for another instrument. I said 'With Can, we got a problem. The musicians don't really listen to each other very much.' I thought that it happens because nothing from the outside is coming in. I looked for the devices to bring a different world into the group again and they had to react on that. That was the idea, working with a radio or working with tapes or working with a telephone. I even had this idea that with a transmitter, we could transmit and receive things back again. Or to call up people like today's radio shows where people call up or you call people. This sort of interaction I wanted to establish. But the group was not interested in this. So I finished with Can and went my own way. And here, I really followed this. I was working on that for a few years (with Can) but then I found it that it wasn't fun anymore. I continued alone then worked with other people.

WHERE YOU SURPRISED WHEN THE PUNK MOVEMENT CAME ALONG AND PEOPLE LIKE JOHNNY LYDON AND THE BUZZCOCKS SAID THEY WERE BIG FANS OF CAN? I was more than surprised actually. I remember that in England I met Jah Wobble, of Public Image at that time, who had a six pack of beer. I didn't know what to think of him at the time but he said 'come on, I've booked a studio in Soho somewhere.' We recorded our first piece 'How Much Are They.' It was in a cellar of a chinese restaurant. Someone came in, it was two American girls who thought that this was a part of the restaurant. The engineer had an intercom microphone on to record this conversation. They were asking us these questions like 'how much are they?' This is the kind of interaction I like. When it comes up to this point with these spontaneous things, I think you're lucky when this happens. I should kiss the feet of these two girls.

A LOT HAS BEEN MADE OF THE WHOLE 'KRAUTROCK' PHENOMENON IN THE SEVENTIES. DO YOU THINK THAT CAN WAS PART OF THIS MOVEMENT OR WERE YOU ON YOUR OWN? I thought we were on our own. Faust didn't convince me that the time. I thought they were too intellectual and I missed the rhythm section. Can was very concentrated on getting along with genuine rhythms because of Jaki. Jaki was a very good drummer. He was a very good teacher for us. I must say that he really brought us to the point that we could really become a good band. When we played too many unnecessary things, there were too many ornaments in the music and they're not necessary. He took a lot of care that this didn't happen. But with the other bands, I thought first of all they were not that genuine from the rhythm point. They really didn't start from the very beginning. If you want to make something new, you shouldn't think too far outside. If you think 'I've reached a point and I have to think of something more' then you reach another point and you have to forget everything and start from the very beginning again. That means that you have to count until four, like that. And forget really everything. Like Amon Duul at that time, their heros were the Grateful Dead, by their philosophy and their ideas and everything like that. They played a little bit like this and this didn't convince me personally. I must say that I liked the people of Amon Duul a lot. They were very nice people. With Faust, I didn't have any connection. The fact that they worked with different medias was something that interested me. The whole multi-media idea was quite good but I was looking for the music. Where was it?

What happened was, we made several tours through England and suddenly it came up that the British press was aware of several of the other German bands and called it 'krautrock.' I asked an Englishmen 'how can I understand this? What does kraut mean? Is it something positive or negative?' That was a good question because it was something in between. It was not something negative or positive. Maybe 'krauts' come from the Second World War. What was happening in England was that we weren't reguarded as 'krauts' anymore. We were more or less naturalized into England. How this happened was a miracle. We were Germans but we came there several times. The English audience felt that this was something new for them as well. I think it meant to be a good band, to play spontaneous, you must end up in a punk version somehow. You must be delighted about the trash idea. This is what happened here in New York when we played yesterday.

SO YOU THINK OF CAN AS AN ORIGINATOR OF THE PUNK STYLE? Punk, what is punk? It's kicked-out people who had bad parents and never took care of the kids. They went out with their elbows (slam dancing) and tried to make their own way. I can very much understand this. This is happening with this underground electronic scene now. They're exactly the same people. But somehow they are the best people you can work with. I don't know why.

OTHER THAN WITH STYLE, WITH THE MUSICAL SIMPLICITY THAT CAN WAS DOING, DO YOU THINK THERE WAS A COMMON THREAD THAT LEAD TO THESE PUNK BANDS, USING A MINIMAL APPROACH? I could imagine that. Maybe. The minimalization was something that maybe Can had something to do with. Actually, this was the fruit of their own efforts. Me personally, I was fascinated by the idea that we could minimalize something. That was the greatest idea. That was a philosphy that I could really follow. Think small. I liked that idea.

WHAT KIND OF PLANS DO YOU HAVE AFTER THIS TOUR OF THE STATES? I'm producing five CD's. One of the artists will be U-She. One CD will be cover versions and the other will be old material as well. I made another piece called "La Luna" that is 45 minutes long like a gamelean orchestra session on a very electronic basis. U-She said it's the best that I've ever done in my life. Another musician from Los Angeles heard it and loved it also. I also have an album with Dr. Walker that is finished.

The grand scheme would be the live idea because I haven't played live for 20 years and I've suddenly started concentrating on that and found out how we can record this. Interactive things maybe, if people came to me to do concerts for the internet. That interests me as well.

CHARLES DODGE on "Speech Songs" Though vocorders and voice-guitar devices became common in popular music in the '70's, Dodge was a pioneer of voice-sythesis experiments before any of that, as witnessed in his series of "Speech Songs" compositions (available on Any Resemblance Is Purely Coincidental on New Albion).

In the early days of computer music in the sixties, one of the few places to actually hear what you were doing was at the Bell Laboratories (in New Jersey). In those days, it was a very special piece of equipment called the digital-analog converter that was used for that purpose. Bell was a friendly benevolent monopoly at this stage. The inventor of computer music, Max Matthews, was there. He encouraged some of us who had access to university computers to make musical sound in digital form on the computers and to listen to it and convert it to a form that could be heard in his laboratory.

That lab was used in the daytime for speech research. When you went there to listen to your music, you often heard speech research going on in the hall. I was fascinated by that and was so struck how much more interesting were the sounds of synthesized speech which were made by the researchers were than the attempts at musical sounds that my friends and I were making.

At some point in the early '70's, I had the opportunity to work at the Bell Labs in the evening, after hours, in an attempt to make music using some of the software there that had been developed for speech research. I had access to software written by a researching named Joseph Olive, who had a musical background and an interest in music composition. With Matthews' permission and Olive's active help, I was able to go to Bell after the workers had gone home and use the same computers that were used for speech research for music. That was the genesis of the speech synthesis techniques that were used in those pieces.

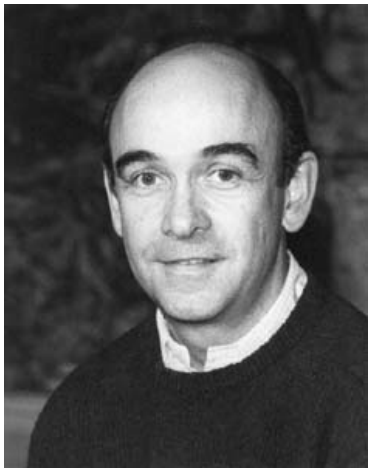
The poems themselves were sketches by Mark Strand, who was a friend of mine. We were both teaching at the School of Arts at Columbia University at the time. I asked him if he had any texts that I would be able to use and he suggested these. He had a whole bunch of them which he read over the phone and I copied down a few of them. I ended up using four of the surrealistic poems that he had written.

It was really fun to do it helped me discover... I'd never been able to write very effective vocal music and here was an opportunity to make music with words. I was really attracted to that. It wasn't singing in the usual sense. It was making music out of the nature of speech itself. With the early speech-synthesis computers, you could do two things: you could make the voice go faster or slower than the speed in which it was recorded at the same pitch or

you could shift the pitch independent of the speech rhythm. That was a kind of transformation that you couldn't make in the usual way of making tape music. It was fascinating to put my hands on two ways of modifying sound that were completely, newly available.

I've always liked humor and had an attraction to the bizarre, the surreal. These poems were almost dream-like in their take on reality. So that made me feel very at home somehow. This unreal voice taking about unreal life situations was a very congruent. The voices are very cartoon-like and that really pleased me- I was very interested in pop art like Lichtenstein. To make a cartoon-like voice, really struck a chord with the art at the time. People would listen to this and just giggle. It was really fun to be a part of that.

For "He Destroyed Her Image," I was interested in changing the tambre of the voice. That reversal from looking outside to being inwardly confused in the poem, I tried to depict with the changes of tone quality in the voice, back and forth between a electronic phrase that sounds speech-like (you can understand the words) and an electronic phrase that's less speech-like (where you can't understand the words). This happens even though the two the two have same pitch pattern.



sunday, 23/3 2003, 15h-20h:

I.

- jeanne fremaux: track01 (2002)
- random inc. meets dub taylor in mahane yehuda (walking in jerusalem)
- 833-45: solar maximum (solar cycle 23)
- ehlers, ekkehard: danach (betrieb)
- jan jelinek: do dekor (loopfinding jazz records)
- andreas tilliander: track01 (ljud)
- ehlers, ekkehard: aud (betrieb)
- andreas tilliander: ashor livs (elit)
- aphex twin: avril 14th (drukqs)
- crunch: art pylon (crunch)
- ehlers, ekkehard: zu (betrieb)
- dj spooky: dementia absentia (dialectical triangulation II) (optometry)
- frank bretschneider: rand (rand)
- crunch: emedril (crunch)
- aphex twin: jynweythek (drukqs)
- mouse on mars: schelecktron (iaora tahiti)
- random inc: random inc in katamon (walking in jerusalem)
- jeanne fremaux: track03 (2002)

- aphex twin: kesson daslef

II.

- john cage: prelude for meditation
- john cage: in a landscape
- john cage: williams mix
- john cage: rozart mix
- john cage: radio music
- iannis xenakis: concret PH
- robert ashley: automatic writing
- jean-claude risset: mutations
- paul lansky: six fantasies on a poem by thomas campion: her song
- charles dodge: speech songs: he destroyed her image
- morton subotnick: silver apples of the moon, pt.1
- holger czukay: boat-women-song
- luc ferrari: music promenade

III.

- george de decker: le citta invisibili – part 6 [stasisfield]

- zen savauge: natural and artificial [subsource.de]
- zen savauge: strange attractors [subsource.de]
- stud: parole plz [63music.de]
- esem: thinmute [monotonik]
- rokoa: mimo [kikapu]
- red lines: myelin year (original mix)
- grandma: abortions rock [monotonik]
- grandma: have sex with a tree [monotonik]
- stud: cellophane invention [kahvi]
- polygon ring: collage [kahvi]
- mar.ch: decent [kikapu]
- die: beetheeve [kahvi]
- kratzke: 01302 [pilot.fm]
- vae: lynn brook [kahvi]

Max V. Mathews was born in Columbus, Nebraska, on November 13, 1926. He studied electrical engineering at the California Institute of Technology and the Massachusetts Institute of Technology receiving a Sc.D. in 1954.

He worked in acoustic research at AT&T Bell Laboratories from 1955 to 1987 where he directed the Behavioral and Acoustic Research Center. This laboratory carried out research in speech communication, visual communication, human memory and learning, programmed instruction, analysis of subjective opinions, physical acoustics, and industrial robotics.

From 1974 to 1980 he was the Scientific Advisor to the Institute de Recherche et Coordination Acoustique/Musique (IRCAM), Paris, France. In 1987 Mathews joined the Stanford University Music Department in the Center for Computer Research in Music and Acoustics (CCRMA) as Professor of Music (Research) where he developed a new pickup for electronic violins and a real-time computer system for music performance called the Conductor and Improv Programs and a 3D MIDI Controller called the Radio Baton.

AT Bell Labs in 1957, Mathews demonstrated synthesis of music on a digital computer with his Music I program. Music I was followed by Music II through Music V and GROOVE, all were involved in the composition and performance of music on and with computers. These programs have been influential in the development of computer music. For this pioneering work he has been called the "father of computer music," and most recently, "the great grandfather of techno!"

Max Mathews has conducted research on computer methods for speech processing, human speech production and auditory masking, and developed techniques for computer drawing of typography. He created the first computer singing, "Bicycle Built for Two," made famous by the Kubrick movie 2001 as the swan song of the dying computer. The developer of "Music V" synthesis software and "Groove," the first computer system for live performance, he is also the inventor of the Radio Baton, a computer-driven device that allows the user to conduct their own orchestral performances from MIDI files stored in the computer. This gives the user control over tempo, dynamics and balance among all the orchestral instruments. The commercial software product "Max" was based on Mathews' ideas for a flexible, user-

patchable sound generating system.

Mathews is a member of the National Academy of Sciences, the National Academy of Engineering and is a fellow in the American Academy of Arts and Sciences, the Acoustical Society of America, the IEEE, and the Audio Engineering Society.

Among the more idiosyncratic forms of recognition he has received, Mathews' Electronic Violin was featured recently on the cover of Playboy magazine. He has won the IEEE Gold Medal, Acoustical Society of America Silver Medal, and the Chevalier de l'Ordre des Arts et Lettres, République Française.

History of Computer Music According to Mathews Max Mathews wrote the following summary of his work in computer music for "Horizons in Computer Music", an event that took place March 8-9, 1997 at the Simon Recital Center of the School of Music, Indiana University, Bloomington, Indiana:

"Computer performance of music was born in 1957 when an IBM 704 in NYC played a 17 second composition on the Music I program which I wrote. The timbres and notes were not inspiring, but the technical breakthrough is still reverberating. Music I led me to Music II through V. A host of others wrote Music 10, Music 360, Music 15, Csound, Cmix, and SuperCollider. Many exciting pieces are now performed digitally.

"The IBM 704 and its siblings were strictly studio machines--they were far too slow to synthesize music in real-time. Chowning's FM algorithms and the advent of fast, inexpensive, digital chips made real-time possible, and equally important, made it affordable.

"Starting with the Groove program in 1970, my interests have focused on live performance and what a computer can do to aid a performer. I made a controller, the Radio-Baton, plus a program, the Conductor Program, to provide new ways for interpreting and performing traditional scores. In addition to contemporary composers, these proved attractive to soloists as a way of playing orchestral accompaniments. Singers often prefer to play their own accompaniments.

"Recently I have added improvizational options which make it easy to write compositional algorithms. These can involve precomposed sequences, random functions, and live performance gestures. The algorithms are written in the "C" language. We have taught a course in this area to Stanford undergraduates for two years. To our happy surprise, the students liked learning and using "C". Primarily I believe it gives them a feeling of complete power to command the computer to do anything it is capable of doing."

One of the Many Legends... Max Mathews spent the majority of his career at Bell Labs as an engineer, conducting behavioral and acoustic research. Legend has it that in the 1950's Max Mathews would pipe the music of his late night computer noodling through the Murray Hill labs intercom system. There's no information on the effect it had on the custodial staff, but it would hardly have raised an eyebrow in the collaborative research community of the time. Mathews' music was not an "official" AT&T project -- but he was allowed free access to any equipment he wanted to use on his "socially desirable" side project.

Computer Music: Music1-V & GROOVE MUSIC 1, which was quickly replaced by MUSIC II running on an IBM 704 and written in assembler code was the first real computer synthesis programme, developed by Max Mathews of Bell Laboratories in 1957. MUSIC III was written in 1959 for the new generation of IBM transistorised 7094 machines which were much faster and easier to use than the older models. The MUSIC series software went through a stage of elvolution folowing the deleopment of the IBM computer whhich ended in 1968 with MUSIC V written in FORTRAN and running on the IBM 360 machines. MUSIC V was picked up and developed by various other programmers such as Barry vercoe at MIT who designed MUSIC 360 and MUSIC 10 by John Chowning and James Moorer at Stanford University.
The GROOVE System (1970)
(Generated Real-time Output Operations on Voltage-controlled Equipment)

in 1970, Mathews pioneered GROOVE (Generated Real-time Output Operations on Voltage-controlled Equipment), the first fully developed hybrid system for music synthesis, utilising a HoneywellDDP-224 computer with a simple cathode ray tube display, disk and tape storgae

devices. The synthesiser generated sounds via an interface for analogue devices and two 12 bit digital to analogue convertors. Input deices consisted of a qwerty keyboard a 24 note keyboard, four rotary knobs and a three dimensional rotary joystick.

Mathews saw the function of the GROOVE system as being a compositional tool which the composer/conductor manipulates in real time:

"The composer does not play every note in a (traditional) score, instead he influences (hopefully controls) the way in which the instrumentalists play the notes. The computer performer should not attempt to define the entire sound in real time. Instead the computer should retain a score and the performer should influence the way in which the score is played..... the mode of conducting consist of turning knobs and pressing keys rather than waving a stick, but this is a minor detail.....The programme is basically a system for creating storing, retrieving and editing functions of time. It allows the composition of time functions byt turning knobs and pressing keys in real time: it sotores the functions on the disk file, it retrieves the stored functions (the score), combines them with the input functions (the conductor) in order to generate control functions which drive the analogue synthesiser and it provides for facile editing of functions via control of the programme time..."

The GROOVE system remained in operation until the end of the seventies when Honeywell withdrew form the computer market.Max Mathews (Now professor emeritus at Stanford) is still actively involved in digital music performance. His "radio baton" hyperinstrument allows him to conduct a computer orchestra by simply waving a wand over an electromagnetic field. The father of computer music predicts that by 2010, "almost all music will be made electronically, by digital circuits."
"**We** have also sound-houses, where we practise and demonstrate all sounds and their generation. We have harmony which you have not, of quarter-sounds and lesser slides of sounds. Divers instruments of music likewise to you unknown, some sweeter than any you have; with bells and rings that are dainty and sweet. We represent small sounds as great and deep, likewise great sounds extenuate and sharp; we make divers tremblings and warblings of sounds, which in their originalare entire. We represent and imitate all articulate sounds and letters, and the voices and notes of beasts and birds. We have certain helps which, set to the

ear, do further the hearing greatly; we have also divers strange and artificial echoes, reflecting the voice many times, and, as it were,tossing it; and some that give back the voice louder than it came, some shriller and some deeper; yea, some rendering the voice, differing in the letters or articulate sound from that they receive. We have all means to convey sounds in trunks and pipes, in strange lines and distances."

Sir Francis Bacon, THE NEW ATLANTIS (1624)

It's a story that keeps rearing its head throughout history. Around the end of the last millennium, groups of marauders were at first the most troublesome people in Europe but would later settle and assimilate and became an important part of the development of civilization. Is it such a stretch to think of some of the boldest composers of this century in the same light? And just as any new technology is ridiculed, so are innovators in art. Time is a great equalizer that reveals charlatans for who they are and the true revolutionaries and visionaries as harbingers of our present and future. Electronic music began in this century as a strange curio and developed into an inseparable part of the musical landscape, spanning many styles and boundaries andmaking itself felt outside the arts.

Of course, even the most radical movements always find some kind of basis in the time when they develop. It's no coincidence that it was the industrial age when electronic music was spawned and grew. While machines were seen for a long time as soulless enemies threatening our well-being, not even the most hardened luddite would deny that they are an integral part of our lives today.

It was also a change in philosophy that helped usher in an acceptance of electronic music. Nietsche and post-modern critique allowed for previously undreamed of vistas of imagination concerning the world around us. Suddenly, everything was subjective. Alfred Jarry, Jackson Pollock, the Dadaists, Arnold Schoenberg and Little Richard dismantled and reassembled their art and flung the doors open for anyone else bold and crazy enough to take up the mantle. Possibilities were ripe and ready to be exploited. Music was no longer a singularly organized collection of audio signals. Seemingly chaotic, random bursts of sound were not necessarily 'noise.' The stunning and disturbing would become the norm.

If we want to think about this (r)evolution in music, we can start at the beginning but where exactly is it? Music is like matter- it cannot be created or destroyed. In other words, everything comes from somewhere and it does not die out or disappear, it evolves. What we hear today came into being thanks to what preceded it. Even if some snobs may turn their nose up at the notion that electronica is the classical music of today, there is at least some basis in this idea as you imagine its origin.

A way to see this connection is the most obvious one- the collaborations between composers and electronica artists. Steve Reich, Brian Eno, Holger Czukay, Jon Hassell, Pierre Henry, Iannis Xenakis have all worked in this vibrant new music in one way or another.

Even if none of these partnerships or mutual admiration societies existed, the best proof of all is in the music itself. Strip away the rhythmic flutter and you have many of the same elements: extended, meditative, electronic examinations of notes and tones. If this is marketed today as pop music, that's just another sign that the crusty, obsolete walls that separate musical styles are coming down again.

from the essay to "The Early Gurus of Electronic Music" by Jason Gross and Thomas Zeigler

John Cage
An Autobiographical Statement

I once asked Arragon, the historian, how history was written. He said, "You have to invent it." When I wish as now to tell of critical incidents, persons, and events that have influenced my life and work, the true answer is all of the incidents were critical, all of the people influenced me, everything that happened and that is still happening influences me.

My father was an inventor. He was able to find solutions for problems of various kinds, in the fields of electrical engineering, medicine, submarine travel, seeing through fog, and travel in space without the use of fuel. He told me that if someone says "can't" that shows you what to do. He also told me that my mother was always right even when she was wrong.

My mother had a sense of society. She was the founder of the Lincoln Study Club, first in Detroit, then in Los Angeles. She became the Women's Club editor for the Los Angeles Times. She was never happy. When after Dad's death I said, "Why don't you visit the family in Los Angeles? You'll have a good time," she replied, "Now, John, you know perfectly well I've never enjoyed having a good time." When we would go for a Sunday drive, she'd always regret that we hadn't brought so-and-so with us. Sometimes she would leave the house and say she was never coming back. Dad was patient, and always calmed my alarm by saying, "Don't worry, she'll be back in a little while."

Neither of my parents went to college. When I did, I dropped out after two years. Thinking I was going to be a writer, I told Mother and Dad I should travel to Europe and have experiences rather than continue in school. I was shocked at college to see one hundred of my classmates in the library all reading copies of the same book. Instead of doing as they did, I went into the stacks and read the first book written by an author whose name began with Z. I received the highest grade in the class. That convinced me that the institution was not being run correctly. I left.

In Europe, after being kicked in the seat of my pants by José Pijoan for my study of flamboyant Gothic architecture and introduced by him to a modern architect who set me to

work drawing Greek capitals, Doric, Ionic, and Corinthian, I became interested in modern music and modern painting. One day I overheard the architect saying to some girl friends, "In order to be an architect, one must devote one's life to architecture." I then went to him and said I was leaving because I was interested in other things than architecture. At this time I was reading Leaves of Grass of Walt Whitman. Enthusiastic about America I wrote to Mother and Dad saying, "I am coming home." Mother wrote back, "Don't be a fool. Stay in Europe as long as possible. Soak up as much beauty as you can. You'll probably never get there again." I left Paris and began both painting and writing music, first in Mallorca. The music I wrote was composed in some mathematical way I no longer recall. It didn't seem like music to me so that when I left Mallorca I left it behind to lighten the weight of my baggage. In Sevilla on a street corner I noticed the multiplicity of simultaneous visual and audible events all going together in one's experience and producing enjoyment. It was the beginning for me of theater and circus.

Later when I returned to California, in the Pacific Palisades, I wrote songs with texts by Gertrude Stein and choruses from The Persians of Aeschylus. I had studied Greek in high school. These compositions were improvised at the piano. The Stein songs are, so to speak, transcriptions from a repetitive language to a repetitive music. I met Richard Buhlig who was the first pianist to play the Opus II of Schoenberg. Though he was not a teacher of composition, he agreed to take charge of my writing of music. From him I went to Henry Cowell and at Cowell's suggestion (based on my twenty-five tone compositions, which, though not serial, were chromatic and required the expression in a single voice of all twenty-five tones before any one of them was repeated) to Adolph Weiss in preparation for studies with Arnold Schoenberg. When I asked Schoenberg to teach me, he said, "You probably can't afford my price." I said, "Don't mention it; I don't have any money." He said, "Will you devote your life to music?" This time I said "Yes." He said he would teach me free of charge. I gave up painting and concentrated on music. After two years it became clear to both of us that I had no feeling for harmony. For Schoenberg, harmony was not just coloristic: it was structural. It was the means one used to distinguish one part of a composition from another. Therefore he said I'd never be able to write music. "Why not?" "You'll come to a wall and won't be able to get through." "Then I'll spend my life knocking my head against that wall."

ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

I became an assistant to Oskar Fischinger, the film maker, to prepare myself to write the music for one of his films. He happened to say one day, "Everything in the world has its own spirit which can be released by setting it into vibration." I began hitting, rubbing everything, listening, and then writing percussion music, and playing it with friends. These compositions were made up of short motives expressed either as sound or as silence of the same length, motives that were arranged on the perimeter of a circle on which one could proceed forward or backward. I wrote without specifying the instruments, using our rehearsals to try out found or rented instruments. I didn't rent many because I had little money. I did library research work for my father or for lawyers. I was married to Xenia Andreyevna Kashevaroff who was studying bookbinding with Hazel Dreis. Since we all lived in a big house my percussion music was played in the evening by the bookbinders. I invited Schoenberg to one of our performances. "I am not free." "Can you come a week later?" "No, I am not free at any time."

I found dancers, modern dancers, however, who were interested in my music and could put it to use. I was given a job at the Cornish School in Seattle. It was there that I discovered what I called micro-macrocosmic rhythmic structure. The large parts of a composition had the same proportion as the phrases of a single unit. Thus an entire piece had that number of measures that had a square root. This rhythmic structure could be expressed with any sounds, including noises, or it could be expressed not as sound and silence but as stillness and movement in dance. It was my response to Schoenberg's structural harmony. It was also at the Cornish School that I became aware of Zen Buddhism, which later, as part of oriental philosophy, took the place for me of psychoanalysis. I was disturbed both in my private life and in my public life as a composer. I could not accept the academic idea that the purpose of music was communication, because I noticed that when I conscientiously wrote something sad, people and critics were often apt to laugh. I determined to give up composition unless I could find a better reason for doing it than communication. I found this answer from Gira Sarabhai, an Indian singer and tabla player: The purpose of music is to sober and quiet the mind, thus making it susceptible to divine influences. I also found in the writings of Ananda K. Coomaraswammy that the responsibility of the artist is to imitate nature in her manner of operation. I became less disturbed and went back to work.

Before I left the Cornish School I made the prepared piano. I needed percussion instruments for music for a dance that had an African character by Syvilla Fort. But the theater in which she was to dance had no wings and there was no pit. There was only a small grand piano built in to the front and left of the audience. At the time I either wrote twelve-tone music for piano or I wrote percussion music. There was no room for the instruments. I couldn't find an African twelve tone row. I finally realized I had to change the piano. I did so by placing objects between the strings. The piano was transformed into a percussion orchestra having the loudness, say, of a harpsichord.

It was also at the Cornish School, in a radio station there, that I made compositions using acoustic sounds mixed with amplified small sounds and recordings of sine waves. I began a series, Imaginary Landscapes.

I spent two years trying to establish a Center for Experimental Music, in a college or university or with corporate sponsorship. Though I found interest in my work I found no one willing to support it financially.

I joined the faculty of Moholy Nagy's School of Design in Chicago. While there I was commissioned to write a sound effects music for a CBS Columbia Workshop Play. I was told by the sound effects engineer that anything I could imagine was possible. What I wrote, however, was impractical and too expensive; the work had to be rewritten for percussion orchestra, copied, and rehearsed in the few remaining days and nights before its broadcast. That was The City Wears a Slouch Hat by Kenneth Patchen. The response was enthusiastic in the West and Middle West. Xenia and I came to New York, but the response in the East had been less than enthusiastic. We had met Max Ernst in Chicago. We were staying with him and Peggy Guggenheim. We were penniless. No job was given to me for my composing of radio sound effects, which I had proposed. I began writing again for modern dancers and doing library research work for my father who was then with Mother in New Jersey. About this time I met my first virtuosi: Robert Fizdale and Arthur Gold. I wrote two large works for two prepared pianos. The criticism by Virgil Thomson was very favorable, both for their performance and for my composition. But there were only fifty people in the audience. I lost a great deal of money that I didn't have. I was obliged to beg for it, by letter and personally.

I continued each year, however, to organize and present one or two programs of chamber music and one or two programs of Merce Cunningham's choreography and dancing. And to make tours with him throughout the United States. And later with David Tudor, the pianist, to Europe. Tudor is now a composer and performer of electronic music. For many years he and I were the two musicians for Merce Cunningham. And then for many more we had the help of David Behrman, Gordon Mumma, or Takehisa Kosugi. I have in recent years, in order to carry out other projects (an opera in Frankfurt and the Norton Lectures at Harvard University), left the Cunningham Company. Its musicians now are Tudor, Kosugi, and Michael Pugliese, the percussionist.

Just recently I received a request for a text on the relation between Zen Buddhism and my work. Rather than rewriting it now I am inserting it here in this story. I call it From Where'm'Now. It repeats some of what is above and some of what is below.

When I was young and still writing an unstructured music, albeit methodical and not improvised, one of my teachers, Adolph Weiss, used to complain that no sooner had I started a piece than I brought it to an end. I introduced silence. I was a ground, so to speak, in which emptiness could grow.

At college I had given up high school thoughts about devoting my life to religion. But after dropping out and traveling to Europe I became interested in modern music and painting, listening-looking and making, finally devoting myself to writing music, which, twenty years later, becoming graphic, returned me now and then for visits to painting (prints, drawings, watercolors, the costumes and decors for Europeras 1 & 2).

In the late thirties I heard a lecture by Nancy Wilson Ross on Dada and Zen. I mention this in my forward to Silence then adding that I did not want my work blamed on Zen, though I felt that Zen changes in different times and places and what it has become here and now, I am not certain. Whatever it is it gives me delight and most recently by means of Stephen Addiss' book The Art of Zen. I had the good fortune to attend Daisetz Suzuki's classes in the philosophy of Zen Buddhism at Columbia University in the late forties. And I visited him twice in Japan. I have never practiced sitting cross-legged nor do I meditate. My work is what I do

and always involves writing materials, chairs, and tables. Before I get to it, I do some exercises for my back and I water the plants, of which I have around two hundred.

In the late forties I found out by experiment (I went into the anechoic chamber at Harvard University) that silence is not acoustic. It is a change of mind, a turning around. I devoted my music to it. My work became an exploration of non-intention. To carry it out faithfully I have developed a complicated composing means using I Ching chance operations, making my responsibility that of asking questions instead of making choices.

The Buddhist texts to which I often return are the Huang-Po Doctrine of Universal Mind (in Chu Ch'an's first translation, published by the London Buddhist Society in 1947), Neti Neti by L. C. Beckett of which (as I say in the introduction to my Norton Lectures at Harvard) my life could be described as an illustration, and the Ten Oxherding Pictures (in the version that ends with the return to the village bearing gifts of a smiling and somewhat heavy monk, one who had experienced Nothingness). Apart from Buddhism and earlier I had read the Gospel of Sri Ramakrishna. Ramakrishna it was who said all religions are the same, like a lake to which people who are thirsty come from different directions, calling its water by different names. Furthermore this water has many different tastes. The taste of Zen for me comes from the admixture of humor, intransigence, and detachment. It makes me think of Marcel Duchamp, though for him we would have to add the erotic.

As part of the source material for my Norton lectures at Harvard I thought of Buddhist texts. I remembered hearing of an Indian philosopher who was very uncompromising. I asked Dick Higgins, "Who is the Malevich of Buddhist philosophy?" He laughed. Reading Emptiness -- a Study in Religious Meaning by Frederick J. Streng, I found out. He is Nagarjuna.

But since I finished writing the lectures before I found out, I included, instead of Nagarjuna, Ludwig Wittgenstein, the corpus, subjected to chance operations. And there is another good book, Wittgenstein and Buddhism, by Chris Gudmunsen, which I shall be reading off and on into the future.

My music now makes use of time-brackets, sometimes flexible, sometimes not. There are no

scores, no fixed relation of parts. Sometimes the parts are fully written out, sometimes not. The title of my Norton lectures is a reference to a brought-up-to-date version of Compositions in Retrospect:

MethodStructureIntentionDisciplineNotationIndeterminacy
InterpenetrationImitationDevotionCircumstancesVariableStructure
NonunderstandingContingencyInconsistencyPerformance(I-VI).

When it is published, for commercial convenience, it will just be called IVI.

I found in the largely German community at Black Mountain College a lack of experience of the music of Erik Satie. Therefore, teaching there one summer and having no pupils, I arranged a festival of Satie's music, half-hour after-dinner concerts with introductory remarks. And in the center of the festival I placed a lecture that opposed Satie and Beethoven and found that Satie, not Beethoven, was right. Buckminster Fuller was the Baron Méduse in a performance of Satie's Le Piège de Méduse. That summer Fuller put up his first dome, which immediately collapsed. He was delighted. "I only learn what to do when I have failures." His remark made me think of Dad. That is what Dad would have said.

It was at Black Mountain College that I made what is sometimes said to be the first happening. The audience was seated in four isometric triangular sections, the apexes of which touched a small square performance area that they faced and that led through the aisles between them to the large performance area that surrounded them. Disparate activities, dancing by Merce Cunningham, the exhibition of paintings and the playing of a Victrola by Robert Rauschenberg, the reading of his poetry by Charles Olsen or hers by M. C. Richards from the top of a ladder outside the audience, the piano playing of David Tudor, my own reading of a lecture that included silences from the top of another ladder outside the audience, all took place within chance-determined periods of time within the over-all time of my lecture. It was later that summer that I was delighted to find in America's first synagogue in Newport, Rhode Island, that the congregation was seated in the same way, facing itself.

From Rhode Island I went on to Cambridge and in the anechoic chamber at Harvard

University heard that silence was not the absence of sound but was the unintended operation of my nervous system and the circulation of my blood. It was this experience and the white paintings of Rauschenberg that led me to compose 4'33", which I had described in a lecture at Vassar College some years before when I was in the flush of my studies with Suzuki (A Composer's Confessions, 1948), my silent piece.

In the early fifties with David Tudor and Louis and Bebe Barron I made several works on magnetic tape, works by Christian Wolff, Morton Feldman, Earle Brown, and myself. Just as my notion of rhythmic structure followed Schoenberg's structural harmony, and my silent piece followed Robert Rauschenberg's white paintings, so my Music of Changes, composed by means of I Ching chance operations, followed Morton Feldman's graph music, music written with numbers for any pitches, the pitches notated only as high, middle, or low. Not immediately, but a few years later, I was to move from structure to process, from music as an object having parts, to music without beginning, middle, or end, music as weather. In our collaborations Merce Cunningham's choreographies are not supported by my musical accompaniments. Music and dance are independent but coexistant.

It was in the fifties that I left the city and went to the country. There I found Guy Nearing, who guided me in my study of mushrooms and other wild edible plants. With three other friends we founded the New York Mycological Society. Nearing helped us also with the lichen about which he had written and printed a book. When the weather was dry and the mushrooms weren't growing we spent our time with the lichen.

In the sixties the publication of both my music and my writings began. Whatever I do in the society is made available for use. An experience I had in Hawaii turned my attention to the work of Buckminster Fuller and the work of Marshall McLuhan. Above the tunnel that connects the southern part of Oahu with the northern there are crenelations at the top of the mountain range as on a medieval castle. When I asked about them, I was told they had been used for self-protection while shooting poisoned arrows on the enemy below. Now both sides share the same utilities. Little more than a hundred years ago the island was a battlefield divided by a mountain range. Fuller's world map shows that we live on a single island. Global village (McLuhan), Spaceship Earth (Fuller). Make an equation between human needs and

world resources (Fuller). I began my Diary: How Improve the World: You Will Only Make Matters Worse. Mother said, "How dare you!"

I don't know when it began. But at Edwin Denby's loft on 21st Street, not at the time but about the place, I wrote my first mesostic. It was a regular paragraph with the letters of his name capitalized. Since then I have written them as poems, the capitals going down the middle, to celebrate whatever, to support whatever, to fulfill requests, to initiate my thinking or my nonthinking (Themes and Variations is the first of a series of mesostic works: to find a way of writing that, though coming from ideas, is not about them but produces them). I have found a variety of ways of writing mesostics: Writings through a source: Rengas (a mix of a plurality of source mesostics), autokus, mesostics limited to the words of the mesostic itself, and "globally," letting the words come from here and there through chance operations in a source text.

I was invited by Irwin Hollander to make lithographs. Actually it was an idea Alice Weston had (Duchamp had died. I had been asked to say something about him. Jasper Johns was also asked to do this. He said, "I don't want to say anything about Marcel." I made Not Wanting to Say Anything About Marcel: eight plexigrams and two lithographs. Whether this brought about the invitation or not, I do not know. I was invited by Kathan Brown to the Crown Point Press, then in Oakland, California, to make etchings. I accepted the invitation because years before I had not accepted one from Gira Sarabhai to walk with her in the Himalayas. I had something else to do. When I was free, she was not. The walk never took place. I have always regretted this. It was to have been on elephants. It would have been unforgettable...

Every year since then I have worked once or twice at the Crown Point Press. Etchings. Once Kathan Brown said, "You wouldn't just sit down and draw." Now I do: drawings around stones, stones placed on a grid at chance determined points. These drawings have also made musical notation: Renga, Score and Twenty-three Parts, and Ryoanji (but drawing from left to right, halfway around a stone). Ray Kass, an artist who teaches watercolor at Virginia Polytechnic Institute and State University, became interested in my graphic work with chance operations. With his aid and that of students he enlisted I have made fifty-two watercolors.

And those have led me to aquatints, brushes, acids, and their combination with fire, smoke, and stones with etchings.

These experiences led me in one instance to compose music in the way I had found to make a series of prints called On the Surface. I discovered that a horizontal line that determined graphic changes, to correspond, had to become a vertical line in the notation of music (Thirty Pieces for Five Orchestras). Time instead of space.

Invited by Heinz Klaus Metzger and Rainer Riehn with the assistance of Andrew Culver I made Europeras 1 & 2 for the Frankfurt Opera. This carries the independence but coexistence of music and dance with which Cunningham and I were familiar, to all the elements of theater, including the lighting, program booklets, decors, properties, costumes, and stage action.

Eleven or twelve years ago I began the Freeman Etudes for violin solo. As with the Etudes Australes for piano solo I wanted to make the music as difficult as possible so that a performance would show that the impossible is not impossible and to write thirty-two of them. The notes written so far for the Etudes 17-32 show, however, that there are too many notes to play. I have for years thought they would have to be synthesized, which I did not want to do. Therefore the work remains unfinished. Early last summer ('88) Irvine Arditti played the first sixteen in fifty-six minutes and then late in November the same pieces in forty-six minutes. I asked why he played so fast. He said, "That's what you say in the preface: play as fast as possible." As a result I now know how to finish the Freeman Etudes, a work that I hope to accomplish this year or next. Where there are too many notes I will write the direction, "Play as many as possible."

Thinking of orchestra not just as musicians but as people I have made different translations of people to people in different pieces. In Etcetera to being with the orchestra as soloists, letting them volunteer their services from time to time to any one of three conductors. In Etcetera 2/4 Orchestras to begin with four conductors, letting orchestra members from time to time leave the group and play as soloists. In Atlas Eclipticalis and Concert for Piano and Orchestra the conductor is not a governing agent but a utility, providing the time. In Quartet

no more than four musicians play at a time, which four constantly changing. Each musician is a soloist. To bring to orchestral society the devotion to music that characterizes chamber music. To build a society one by one. To bring chamber music to the size of orchestra. Music for -----. So far I have written eighteen parts, any of which can be played together or omitted. Flexible time-brackets. Variable structure. A music so to speak that's earthquake proof. Another series without an underlying idea is the group that began with Two, continued with One, Five, Seven, Twenty-three, 1O1, Four, Two2, One2, Three, Fourteen, and Seven2. For each of these works I look for something I haven't yet found. My favorite music is the music I haven't yet heard. I don't hear the music I write. I write in order to hear the music I haven't yet heard.

We are living in a period in which many people have changed their mind about what the use of music is or could be for them. Something that doesn't speak or talk like a human being, that doesn't know its definition in the dictionary or its theory in the schools, that expresses itself simply by the fact of its vibrations. People paying attention to vibratory activity, not in reaction to a fixed ideal performance, but each time attentively to how it happens to be this time, not necessarily two times the same. A music that transports the listener to the moment where he is.

Just the other day I received a request from Enzo Peruccio, a music editor in Torino. This is how I replied:

I have been asked to write a preface for this book, which is written in a language that I do not use for reading. This preface is therefore not to the book but to the subject of the book, percussion.

Percussion is completely open. It is not even open-ended. It has no end. It is not like the strings, the winds, the brass (I am thinking of the other sections of the orchestra), though when they fly the coop of harmony it can teach them a thing or two. If you are not hearing music, percussion is exemplified by the very next sound you actually hear wherever you are, in or out of doors or city. Planet?

Take any part of this book and go to the end of it. You will find yourself thinking of the next step to be taken in that direction. Perhaps you will need new materials, new technologies. You have them. You are in the world of X, chaos, the new science.

The strings, the winds, the brass know more about music than they do about sound. To study noise they must go to the school of percussion. There they will discover silence, a way to change one's mind; and aspects of time that have not yet been put into practice. European musical history began the study (the iso-rhythmic motet) but it was put aside by the theory of harmony. Harmony through a percussion composer, Edgard Varèse, is being brought to a new open-ended life by Tenney, James Tenney. I called him last December after hearing his new work in Miami and said "If this is harmony, I take back everything I've ever said; I'm all for it." The spirit of percussion opens everything, even what was, so to speak, completely closed.

I could go on (two percussion instruments of the same kind are no more alike than two people who happen to have the same name) but I do not want to waste the reader's time. Open this book and all the doors wherever you find them. There is no end to life. And this book proves that music is part of it.

John Cage: Williams Mix
Category: Musical composition
Dated: N.Y.C., October 1952 (end of first part); January 16, 1953 (end of splicing)
Instrumentation: Magnetic tape
Duration: 4'15"
Premiere and performer(s): March 22, 1953 at the University of Illinois as a part of the University of Illinois Festival of Contemporary Music.

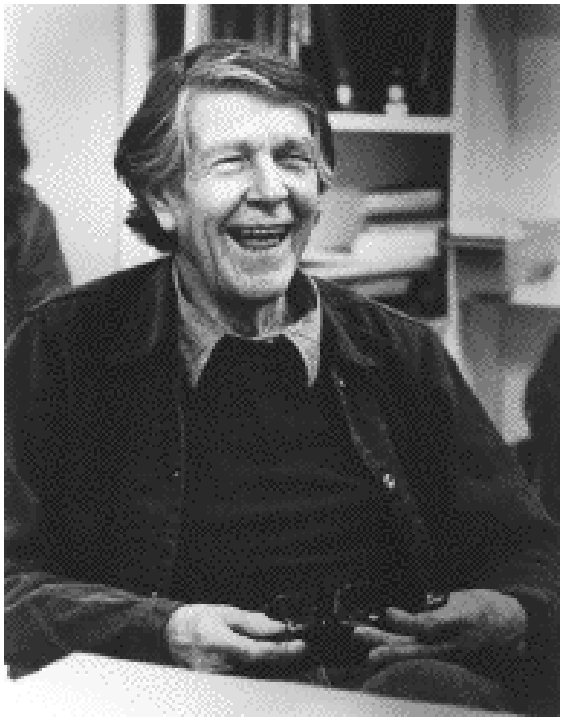
This is a work for eight tracks of ¼ inch magnetic tape. The score is a pattern for the cutting and splicing of the sounds recorded on the tape.
The rhythmic structure is 5-6-16-3-11-5.
The sounds are in 6 categories: A (city sounds), B (country sounds), C (electronic sounds), D (manually produced sounds), E (wind produced sounds) and F ("small" sounds, which need to be ampified). Pitch, timbre and loudness are notated as well. Approximately 600 recordings are necessary to make a version of the piece. The compositional means were I Ching chance operations. Cage made a version of the work in 1952/53 with the assistance of Earle Brown, Louis and Bebe Barron, David Tudor, Ben Johnston and others, but it also possible to create other versions, using the score.

John Cage: Radio Music
Category: Musical composition
Dated: Stony Point, N.Y., May 1956
Instrumentation: for one to eight performers, each at one radio
Duration: 6'
Premiere and performer(s): May 30, 1956 at the Carl Fisher Hall in New York City. Performance by John Cage, Maro Ajemian, David Tudor, Grete Sultan and the four members of the Juilliard String Quartet

Radio Music is a work composed using chance operations. The score indicates 56 different frequencies between 55 and 156 kHz, notated using numbers (and not using conventional staves, like in Imaginary Landscape No.4). Cage mentions that the work is in 4 sections, with or without silences between them, to be programmed by the player(s).

John Cage: Rozart Mix
Category: Musical composition
Dated: April 1965
Instrumentation: Notes re preparation of a magnetic tape. For at least 4 performers with at least 12 taperecorders and at least 88 tape-loops.
Duration: indeterminate (about 2 hours during first performance)
Premiere and performer(s): May 5, 1965 at the Rose Art Museum , Brandeis University, Waltham, Massachusetts. Performance by Alvin Lucier and students of the University.
Dedicated to: for Alvin Lucier

'Score' consists of correspondence between John Cage and Alvin Lucier, concerning the prepations for the Brandeis University concert, mentioned above. The tapes may contain any material and may vary in length (up to around 45 feet). If a loop breaks, it should be fixed or replaced by another. A performance of the piece starts with the audience entering, and ends when the last member of the audience has left.



1953
Iannis Xenakis first uses a computer in calculation of the varable speed glissandi for his orchestral work 'Metastasis'.

1955
Xenakis performs 'Metastasis', a composition based on stochastic formulas written out by

hand.

1956
Iannis Xenakis coins the term 'Stochastic Music' to describe music based on the laws of probabilities and laws of large numbers, exemplified by his composition 'Achorripsis' (1957).

1956
Iannis Xenakis designs the Philips Pavilion for the Brussels World's Fair, to take place in 1958, as a shell for sound and image projection.

1957
Iannis Xenakis composes 'Diamorphoses' using the sounds of jet engines, car crashes, earthquake shocks, and other noises contrasted with thin high-pitched bell sounds.

1958
Pierre Schaeffer establishes the Groupe de Recherche Musicales (GRM), with Luc Ferrari, François-Bernard Mâche, Michel Philippot, and Iannis Xenakis, at the Radiodiffusion Francais, Paris.

1958
Iannis Xenakis composes 'Concret P.H.' by varying the tape recorder speed and overlaying sections of a sound recording of burning charcoal. The work was played as an interlude between performances of Edgar Varése' 'Poeme Electronique' in the Philips Pavilion at the Brussels World Fair in 1958.

1960s
Iannis Xenakis develops the Stochastic Music Program (SMP) based on formulas recently developed by scientists to describe the behavior of particles in gases. This allowed for creation of compositions that Xenakis viewed as 'Clouds of sound', with each particle corresponding to an individual note.

1962

Iannis Xenakis composes 'Bohor' for eight tracks of sound using the sounds of bracelets, other jewelry, and a Laotian mouth organ. He describes the idea: "I was interested in the tiny sounds because you could expand them and find different sounds in them."

1964
Xenakis composes 'Eonta' for piano and brass using his newly developed Stochatsic Music Program.

1967
Iannis Xenakis writes Musiques Formelles (Formalized Music). The first discussion of granular synthesis, clouds and grains of sound is presented in this book.

1970
Xenakis prforms 'Hibiki Hana Ma' ('Reverberation-Flower-Interval'), a twelve channel composition played on a sytem of 800 loudspeakers distributed above the heads and under the chairs of the audience at EXPO 70 in Osaka.

1972
Iannis Xenakis develops the UPIC. This device represented a new approach to composition, translating shapes drawn on a graphic pad to control musical parameters.

1972
Xenakis performs 'Polytope de Cluny', a twelve channel sound and light spectacle, inside the ancient Cluny Museum of Paris, France.

1977
Iannis Xenakis introduces the first version of his UPIC sytem ...

1978
Xenakis' multimedia performance 'Diatope' uses 1,600 pinpoint lights, four lasers, 400 mirrors, diverse optical effects and sound. Each show lasted twenty minutes and was viewed from above through a plexiglass floor installed outside the Centre Pompidou in Paris.

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ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

DJ SPOOKY ON XENAKIS

I'll put it bluntly: Xenakis is one of my all time favorite composers. I like to think of him as the Lee Scratch Perry of classical music. The main characteristics of his compositional process - playing with time signature and micro-scopic/mirco-tonal interventions in the structure of sound as humans can conceive of it, and a will to create music as a pan-humanist enterprise - foster a sonic environment where Xenakis's tries as much as possibe to show that we are part of a continuum where almost all human endeavor must be understood to be part of a larger framework. His work is truly cybernetic. But is it nature or nurture?

Norbert Weiner, the inventor of many of the core concepts of cybernetics and information theory wrote in his classic treatise on cybernetics "The Human Use of Human Beings" back in 1954 made an observation that I sometimes let echo in my mind when I think about a lot of the informing tropes of sound as motion and architecture as flowing movement/patterns that Xenakis's music brings to mind. "Our tissues change as we live: the food we eat and the air we breathe become flesh of our flesh and bone of our bone," he said in his classic book that launched cybernetics into science culture as one of the core issues of contemporary methods of organizing information. But the notion of the body caught in a cycle of continuous change and transformation was only the beginning for Weiner. The adage continues with an investigation that resonates with Xenakis's own investigations into sound and culture that seems almost uncanny: "and the momentary elements of our flesh and bone pass out of our body every day with our excreta. We are but whirlpools in a river of ever flowing water. We are not stuff that abides, but patterns that perpetuate themselves." It's this motif that resonates so strongly with Xenakis's attempts to see music as a pan humanist project, and his electronic works are all attempts to portray a place where culture acts as a formalized code and becomes transcendant and utterly translateable.

"Hibiki-Hana-Ma" is part of a larger attempt to try as much as possible to create a forum where music can be a bridge between radically different cultures. From the shores of a Japan in the midst of reconstruction after the devastation of WW II, Xenakis attempts a music that through exploring the ways that sound can portray the emotive qualities of an absurd world where racism, ethnic strife, and human betrayal of any and all sense of compassion for your

fellow man created one of the most horrific centuries in human history, a new music arrives. A music that by exploring the pain of a world devastated by human greed, attempts to transcend that conditions that created the context of its creation. Hibiki-Hana-Ma translated into English simply means "reverberation-flower-interval." Patterns and pain, transcendence and translation: these are the tropes that Xenakis uses to guide his listeners into a hypothetical place where all aspects of human nature can be celebrated.

Jean-Claude Risset, the composer, researcher and pioneer of computer music (born in Le Puy in 1938) began his musical career by studying piano under Robert Trimaille and Huguette Goullon. He studied composition under the Parisian Suzanne Demarquez and André Jolivet the latter of whom, one of the founder members of the so-called Le Jeune France group, is a link between Risset and his teacher Edgard Varèse, the pioneer of tape music. Risset studied Natural Sciences, mainly Physics and Mathematics, at the Ecole Normale Supérieure where he gained his Ph. D. in 1967. His background anchored him firmly to the French musical tradition which had already stood out for centuries as rich and colourful but also as analytic and investigative. Risset wrote his first works for traditional acoustic instruments but he informs us that even at that stage he was particularly interested in timbre, not in a decorative or cosmetic way but as a functional factor inseparably linked with musical expression. The aesthetism of music concrète got no sympathy from him - although the number of prerecorded sounds was unlimited in principle, the tools and methods of transforming them did not do justice to the richness of the sounds themselves. On the other hand, the electronically produced sounds were easier to deal with in a more controlled way, but they were often simple and boring. Rissett sought a solution elsewhere - he decided to concentrate on the fundamental level of the world of sound which was at that time still quite unexplored. He found a place at the Bell telephone laboratory in Max V. Mathews group which had investigated digital voice and speech synthesis from the late 50's onwards. Sound synthesis shatters the romantic picture of a composer as a scribe of sounds of the heart and of processes arising from deep inside. In order to find something comparable to this one must go back in history to the time when music making was part of the tetrad of human activities and thought: sister to Arithmetic, Astronomy and Geometry. One must return to the stage when music was not only a singing source of aesthetic pleasure but also an immaterial, abstract subject of study for speculative and theoretical Philosophy - an object of knowledge. Sound synthesis requires at least some predisposition to precision from the person who does it, awareness of the physical-acoustic properties of sound, knowledge of methods and of sophisticated equipment, above all, knowledge of computers.

Synthesis is a process in which a computer is given as clear a description of the physical structure of the sound required as possible. After processing the information given the machine rewards its user by producing an audible sound corresponding more or less to the

expectations. This often presupposes a reverse, analytic stage in which a real existing sound is dismantled into basic factors and in which the necessary information required to produce the sound synthetically is thus revealed. At its best the synthesis will lead to an expansion of the world of sounds - by setting digits an unprejudiced researcher can discover entirely new, previously unheard sounds. A synthesis is a musical voyage of discovery, of forcing one's way to the origins of the sound, to its fundamental existence. It is quite natural that sound synthesis first concentrated mainly on the imitation of the sound qualities of natural instruments. Instrumental sounds were agreeable and quite useful subjects of study from the standpoint of the general progress of music, especially in a situation where the more usual phenomena of the sound world were for the most part unexplored. Risset also participated in this laboratory work, e.g. his experiments on imitations of brass wind instruments are very well known and in 1969 he published his results up to that point in catalogue form, a sort of cookery book with recipes. Risset was also interested in psychoacoustics, the study of the

process of sensing and receiving sound, which led to synthetic so-called sound paradoxes in which the impossible, e.g. indefinitely lowering sound, becomes possible like M.C. Escher's steps. Producing different hallucinatory images is, however, a rather marginal area of application of synthesis. The main reason why a composer spends his time on synthesis is probably an inextinguishable curiosity regarding the deepest essence of sound and a burning desire to broaden the world of timbres. Risset describes the reasons that led him to his decision Not being content to compose with sounds, I longed to extend my compositional activity to the level of the sound structure to compose my own sounds

At Time of Music one can hear Risset's music from a historical perspective. The earliest work is 'Computer Suite from Little Boy' (1968), an abridgement of the music Risset composed for Pierre Halet's play 'Little Boy'. Approximately half of the original music was written for soprano and chamber ensemble, the other half was made by a computer. Risset made the completely synthetic computer part in Bell's laboratories using the programme MUSIC V developed by Max Mathews, mainly applying the synthesis experiments and results of the Bell era. He employed sound paradoxes and simulated instruments. Structurally disharmonious acoustic timbre also played a major rôle in his music. Halet's play describes the tragic events of Hiroshima through the retrospective nightmares of the pilot who delivered the bomb ('Little Boy'). The three part abstract of the computer part of the music loosely reflects the plot of the play, e.g. in the second part Risset creates a paradoxical illusion of a fall (the bomb?) that never reaches its target. The professorship that Risset was awarded in 1972 took him to the University of Marseilles where the creative work connected with MUSIC V continued. It was three years later when Risset was invited to Paris to run the department of computer music at IRCAM. Works of this time such as 'Inharmonique' and 'Moments newtonies' (both in 1977) belong to a category in which Risset combines an entirely synthetic tape element with live music: human voice (soprano) in the former and seven instruments in the latter. Arranging the human voice ('L'autre face'), a choir ('Derives') or instruments ('Profiles') and a computer-produced tape section in a parallel position is the departure point of Risset's work up to that time. Combining the mechanical and human is natural according to Risset because The flexibility of computer synthesis and the refined control it provides permit to set up quite precise relations with the instrumental tones, thus avoiding the arbitrariness often encountered in associating live and electronic sounds . In 1979 Risset finished working with

IRCAM and returned to the University of Marseilles where he worked as professor until 1985. From the Marseilles period the Time of Music programme selects 'Passages' (1982) for flute and tape, originally composed for the Venice Biennale. 'Passages' continues a series of works which have, in addition to an acoustic instrument, a synthetic tape sequence produced using the MUSIC V programme. Risset characterizes his work as an identity test where one tests the degree of blending of the flute into its synthetic sound environment. The title of the work refers to those changing sound landscapes through which the flute must tramp its chamber music journey. The composition 'Sud' (1985) commissioned by the French Ministry of Culture is slightly different in its origins compared with Risset's other productions. The work was realized in the GRM studios in Paris, the historic headquarters of concrete tape music. 'Sud' was born in an environment of analog equipment , its nuclear elements are some sounds recorded in the open air of the Marseilles countryside e.g. bird song, the buzzing of insects, the roar of the sea. The synthetic part is minimized and the computer is mainly used to process the sound element that is the basic material of the composed work. In this work the synthesist Risset is closer to musique concrète than ever before. 'Voilements' (1987) for tenor saxophone and tape commisioned by Daniel Kientzy represents Risset's more recent productions.
The title of the work, deriving from the verb voiler, has several meanings e.g. dimming, warping or covering and refers to the fluxing relation between the tape and saxophone part. At first the tape functions as an echoing doppelganger for the instrument, as a shadow emphasizing the simplicity of the texture. Later as it draws further away from the soloist's performance the tape begins to influence from a distance in an alienating way the rôle of the saxophonist, covering, distorting. The tape was made in Marseilles at the Luminy Faculty of Natural Sciences and it includes not only the enhanced sounds of the saxophone played by Kientzy but also synthetic material. In the Saturday concert in the chapel we will hear the latest Risset. A work from last year 'Huit esquisses en duo pour un pianiste' (Eight duo sketches for one pianist) is a programmatic suite for keyboard instruments following the thoroughbred French tradition in presenting the composer also as a soloist.

from Time of Music Programmebook

ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

Morton Subotnick is one of the United States' premier composers of electronic music and an innovator in works involving instruments and other media, including interactive computer music systems. Most of his music calls for a computer part, or live electronic processing; his oeuvre utilizes many of the important technological breakthroughs in the history of the genre.

The work which brought Subotnick celebrity was "Silver Apples of the Moon". Written in 1967 using the Buchla modular synthesizer (an electronic instrument built by Donald Buchla utilizing suggestions from Subotnick and Ramon Sender), this work contains synthesized tone

colors striking for its day, and a control over pitch that many other contemporary electronic composers had relinquished. There is a rich counterpoint of gestures, in marked contrast to the simple surfaces of much contemporary electronic music. There are sections marked by very clear pulses, another unusual trait for its time; "Silver Apples of the Moon" was commissioned by Nonesuch Records, marking the first time an original large-scale composition had been created specifically for the disc medium -- a conscious acknowledgement that the home stereo system constituted a present-day form of chamber music. Subotnick wrote this piece (and subsequent record company commissions) in two parts to correspond to the two sides of an LP. The exciting, exotic timbres and the dance-inspiring rhythms caught the ear of the public -- the record was an American bestseller in the classical music category, an extremely unusual occurrence for any contemporary concert music at the time.

The next eight years saw the production of several more important compositions for LP, realized on the Buchla synthesizer: "The Wild Bull", "Touch", "Sidewinder" and "Four Butterflies". All of these pieces are marked by sophisticated timbres, contrapuntally rich textures, and sections of continuous pulse suggesting dance. In fact, "Silver Apples of the Moon" was used as dance music by several companies throughout the world.

In 1975, fulfilling another record company commission (this time, Odyssey), Subotnick composed "Until Spring", a work for solo synthesizer. In this work, changes in settings which Subotnick made in real time on the synthesizer were stored as control voltages on a separate tape, enabling him to duplicate any of his performance controls, and to subsequently modify them if he felt the desire to do so. While the use of control voltages was nothing new, it suggested to Subotnick a means to gain exact control over real-time electronic processing equipment.

The next step in Subotnick's use of control voltages was the development of the "ghost" box. This is a fairly simple electronic device, consisting of a pitch and envelope follower for a live signal, and the following voltage controlled units: an amplifier, a frequency shifter, and a ring modulator. The control voltages for the ghost box were originally stored on a tape, updated now to E-PROM. A performer, whose miced signal is sent into the ghost box, can then be

processed by playing back the pre-recorded tape of E-PROM, containing the control voltages. As neither the tape nor E-PROM produce sound, Subotnick refers to their sound modification as a "ghost score". By providing the performer with exact timings, coordination between performer and the ghost score is controlled.

"Two Life Histories" (1977) was the first piece involving an electronic ghost score; the bulk of Subotnick's output for the next six years was devoted to compositions involving performers and ghost scores. Some of the more notable works in the series include "Liquid Strata" (piano), "Parallel Lines" (piccolo accompanied by nine players), "The Wild Beasts" (trombone and piano), "Axolotl" (solo cello), "The Last Dream of the Beast" (solo voice) and "The Fluttering of Wings" (string quartet). The subtlety, sophistication and control over real-time electronic processing that Subotnick demonstrated in these innovative works secured his reputation as one of the world's most important electronic music composers.

Subotnick reached the apex of live electronic processing in his work "Ascent Into Air" (1981). Written for the powerful 4C computer at IRCAM, this piece involved many of the techniques which Subotnick had developed in his ghost scores. In addtion to the processing normally available to him with his ghost boxes, Subotnick was able to spatially locate sounds in a quadraphonic field and to modulate the timbres of the instruments. But perhaps the most significant aspect of this work is its use of live performers to control the computer music; the live performers, in effect, serve as "control voltages" to influence where a sound is placed, how it is modulated and by how much, etc. -- the reverse situation of the ghost score compositions. Even more remarkable is the ability of traditional musical instruments to control computer-generated sounds. The sophistication of this control is currently unavailable using the commercial MIDI devices which many electronic musicians, including Subotnick, favor today.

Since 1985, Subotnick has been using commercially available MIDI gear in works such as "The Key to Songs", "Return" and "all my hummingbirds have alibis". His more recent pieces are also marked not only by pulse-driven rhythms, but also by clear diatonic melodies and harmonies.

In addition to music in the electronic medium, Subotnick has written for symphony orchestra, chamber ensembles, theater and multimedia productions. His 'staged tone poem' "The Double Life of Amphibians", a collaboration with dirctor Lee Breuer and visual artist Irving Petlin, utilizing live interaction between singers, instrumentalists and computer, was premiered at the 1984 Olympics Arts Festival in Los Angeles.

The concert version of "Jacob's Room", a monodrama commissioned by Betty Freeman for the Kronos Quartet and singer Joan La Barbara, received its premiere in San Francisco in 1985. "Jacob's Room", Subotnick's multimedia opera (directed by Herbert Blau with video imagery by Steina and Woody Vasulke, featuring Joan La Barbara), received its premiere in Philadelphia in April 1993 under the auspices of The American Music Theater Festival. "The Key to Songs", for chamber orchestra and computer, was premiered at the 1985 Aspen Music Festival. "Return", commissioned to celebrate the return of Halley's Comet, premiered with an accompanying sky show in the planetarium of Griffith Observatory in Los Angeles in 1986. Subotnick's recent works utilize computerized sound generation, specially designed software Interactor and "intelligent" computer controls which allow the performers to interact with the computer technology.

Currently, Subotnick co-directs both the Composition program and the Center for Experiments in Art, Information and Technology (CEAIT) at the California Institute of the Arts. He tours extensively throughout the US and Europe as a lecturer and composer/performer. He is published by European-American.

ELKTRBLEF LIVE 0. NFOTXT ++++++++ 23.03.03 @ salon minimal

Holger Czukay interview by Billy Bob Hargus (February 1997)

HOW DID YOU MEET UP WITH DR. WALKER? I was introduced through an electronics dealer who gave me his address. I met up with him and I knew something about his music. U-She made this connection also- she knew that this was the most exciting music scene anywhere. He lives in my neighborhood, about five minutes walking distance away. We started to have a spontaneous session in a multi-room party and that turned out very well. Then slowly we started to make another session at Liquid Sky in Cologne and we recorded it. It was an excellent recording, last summer. I editted that for a live CD (coming later this year). We thought that it was wonderful to go on with that.

YOU'VE DONE A LOT OF WORK WITH 'FOUND SOUNDS' OVER THE YEARS. This is what I've usually done all the time. What is interesting is now is the fact that we can or cannot perform something like that live and we don't know what can we expect from such an event. For me, this is the most important question. It is interesting that he is somebody who understands me very well and he is able to react on that. We found out that this works out very well. It's become sort of a dance-techno or techno event. It's something which reminds me of the very first Can concerts. The concert yesterday that special quality and this is something completely different for a media. If you want to make a recording for an album or CD, this is a completely different way of working. This live performance is something different. It's changing all the time when we do the shows.

HOW DO YOU COMPOSE YOUR WORK? WHERE DO YOUR IDEAS COME FROM? Just by logic. First of all, you must have a vision, even with the roughest idea where this could lead to. This is the way that I usually work. Others can't feel that and they may not understand the way I work.

WHAT KIND OF INSTRUMENTS ARE YOU USING FOR YOUR SHOWS? It is a very small keyboard that I use actually. You can use special samples with it. Usually samples are very

short moments. But these are longer moments. With these, I can make it possible that the

music, and this is usually the best quality live, is playing itself. You are in the position of conducting. If this happens, you are lucky. This happened in Can as well. In performances, you try to enforce the music, then you have a brave character to do that but actually you are not that lucky.

JAKI (LIEBEZEIT) AND MICHAEL (KAROLI, BOTH FROM CAN) APPEAR ON YOUR 'MOVING PICTURES' CD. YOU'RE STILL CLOSE WITH THEM? This was recorded three years ago. From time to time, I see Jaki- he's a great drummer. He doesn't live far from me. Michael I see less of because he lives in South France. Irmin (Schmidt) is very involved in his own music. Television music and writing operas. His wife is my manager so we're still in close contact.

ON YOUR OWN AND WITH CAN, YOU'VE DONE A LOT OF SOUNDTRACK MUSIC. DO YOU TRY TO 'VISUALIZE' A LOT OF THE MUSIC THAT YOU MAKE? Very strongly. Actually I'm not thinking visually. It happens that the music comes to me. This is one of the reasons why 'Moving Pictures' is based 'non-existant pictures.' To make film music, for me, is that film is getting shot and then at the end they say 'aha, everything's finshed, let's get the film music.' Then they look for a composer and he looks at the film. This is the biggest mistake of all. I had a meeting with Ennio Morricone, talking about this. I also made a lot of film music with Can- we could have lived off of that. We were so lucky that Irmin was connected with theater and film. He talked to the director, he checked out the film, he went to the studio and told us the scenes but there is a difference if someone is telling you a scene or you are seeing it on a screen. When somebody tells me a story, your fantasy is so unlimited because you're not limited from what you see on a screen. With Can, the film music really became somehow extraordinary I must say. This is what Morricone said, that he was so lucky that he was a good friend with (director) Sergio Leone. Leone told him what his intention was and Morricone gave him an idea musically. In the beginning of the shooting, the music was somehow sketched. Then they started shooting. This is a very good way to do that. It doesn't have a strong seperation between the shooting and the music then.

I was once involved in a video musical. I played the main role. It was for television. The way

that it was produced was that I was working the light and the music and the cutting of the scenes were done all together. Cutting and performing the scenes was done exactly at the same time. It was at different studios but when the picture came out and I saw what I was doing, then the picture was re-edited again. Watch out for a film director who thinks this is a good idea! This is one of the reasons why I made 'Moving Pictures.' It has something to do with images and pictures. Maybe someone has made a film and he knows something about this music and it would fit perfectly. Then this is the best way to rely on music for the film and not the other way around.

I had working with radio also. I have something to do where I am trying to create an outside world. What has the man in the radio to do with me? He doesn't know I exist and I just listen to him. We don't know each other at all. If these two worlds work perfectly together, we are very lucky. It is very exciting as well, this sort of synchronicity. If I make this music and someone has made a film for his music, you have two worlds meeting together at the same point.

YOU STUDIED UNDER STOCKHAUSEN. WHAT KIND OF INFLUENCE WAS HE ON YOU? I'd like to know myself as he is a very powerful character. He is one of the last classical composers from the traditional side. He is writing music into scores but not performing it or he is performing it with electronic music. At that time when I studied with him, he was the church in the village. Everything, all the houses were built around this church. For me, he has nothing to do with rock music or pop music. But that doesn't matter to me. I came along with him and his music. It is my pleasure to look into different kinds of music and enjoy that.

WHAT OTHER KIND OF MUSIC INFLUENCED YOU WHEN YOU WERE YOUNG? I was first thinking of becoming a composer when I was a child. To a child, a composer is the manager of all of the music. He must create it. Then I went to a music school and they said 'you must be a wonder child and you must be finished by fifteen.' I was a year too late! So I thought 'OK, you can become a jazz musician now.' I played guitar in a band in 1958 (Holger Schuering Jazz Band) and went to a Jazz Music festival. We had to play in front of a jury and

an audience. One of the judges said to us 'It's impossible for us to classify what you played but never mind. I'll take you on a radio show as something that can't be classified.' I was very proud of this fact because I didn't pass my A-level degree at school, in music I got the worst grade. But the next day I had my first performance on a radio show! It was wonderful. Then I thought 'I'm not a born jazz musician.' It wasn't my world. So who remained? It was only Stockhausen. He was the most fascinating figure. He invited all of these other composers like John Cage to come to Berlin to perform (winter, 1962). They were doing performances and speaking to people about their ideas. John Cage was incredible. It was a concentration of these world composers for a few monthes. I had an incredible impression about what these people were doing.

I moved to Berlin because I wanted to study classical music and the fact that he (Stockhausen) took me on after high school was a miracle. The Iron Wall was just established and I was looking for a flat. The cheapest flat was in a island that belonged to West Berlin but was in East Germany. You go to a corridor with petrol from the East Germans and you had to have a special visa. Inside on this island, I was guarded by three G.I.'s. Outside, I was protected by the East Germans. I just living with this barbed wire fence five meters away. It was great! It was fantasic! One day, I took my bicycle along the fence and saw these two East German soliders standing in front on the other side and watching two G.I.'s- one was white and one was a black guy, very tall. They faced each other wordless. Then this black guy took out these big mirror glasses and one of the East German guys just lost his face and disappeared when he saw this. Then the next miracle happened. It was 1962. General Clay was the commander of American forces in West Berlin. He flew in with a helicopter. I saw him as I was riding my bicycle. He came out and said 'come on, I'm inviting you for our greatest holiday, Thanksgiving.' He was wonderful. The mayor came as well. He served turkey and for the first time in my life I got drunk. It was incredible.

I had to pass the check-points of the East Germans. The guards were especially selected because they able to escape into West Berlin. One third was assholes, one third was in between and one third was in between, as usual. I brought them some stockings for their wifes and something to drink. They liked me because of my car. It had holes in it and looked like someone was shooting at it with a machine gun. Three of the East German soldiers, I

brought them with all of their weapons to the West Berlin check-point. The police there brought out some bottles of beer and we all drank. This was during this hot time (in the Cold War). Somehow I survived. What did Frank Sinatra sing? 'I did it my way.' So this is how I came to Stockhausen.

I actually met Stockhausen at the end of the fifties. Somehow he had invented electronic music. What I heard was so.... that I thought of flushing toilets in outer space. I was somehow effected. I really couldn't stop laughing because it was so new to me. One person in the audience said to him 'Hey, you do these weird sounds just to give us a shock and out of this shock you want to make a lot of money.' He said 'I can promise you that I do this only for musical reasons. I have just married a rich woman- I don't need the money.' I thought 'This man is right of you. You must get in contact with him.' The heckler caught up with him after the show and said 'Now we can talk frankly to each other. Was that true?' So Stockhausen said to his wife 'Hey Doris, come here. He doesn't believe I'm married to a rich woman.' I thought 'you must look for a rich woman too.' Then I studied with him. I really went out to look for a rich woman. So where do you find that? In Switzerland. There were these private schools for daughters of rich families and I tried to become a teacher around Lake Geneva. It happened that they took me on. I found a very rich girl there and I was paid so high that I forgot about the rest! With this money, I saved a little bit and that was the beginning of Can. I wanted to make for one year holidays. So I thought 'Let's see what's going on in the world otherwise.' That's how Can was established. With this money, I bought a tape recorder and with this tape recorder, we made our first album.

SO HOW DID YOU MET UP WITH MICHAEL, IRMIN AND JAKI TO FORM THE BAND? Michael was a pupil of mine. Irmin was a fellow student with me with Stockhausen. The rest was just the fact that Irmin knew Jaki. We were going to establish a new band that was somehow extraordinary and he asked Jaki to look out for a drummer and the next day Jaki came himself. Karoli left the school when I left the school. He studied in Switzerland and I got another job in Northern Germany. We were somehow always connected. So Irmin said to me 'Come on, let's form a band.' I said 'I have a guitar player, Karoli. I'll bring him with me.' This is how we got together. Then Malcolm Mooney came over from an exhibition in Paris. He just

came by and just on holidays and didn't think of singing at all. He participated in the whole thing and Can was there.

WHEN YOU STARTED THE BAND, DID YOU HAVE ANY IDEAS ABOUT WHAT DIRECTION YOU WANTED TO TAKE? We didn't even know if we wanted to become rock-orientated or rhythm-orientated or what. It happened that there was an exhibition in a little castle in Cologne. All the gallery people made a big party there and there was a Picasso exhibition. We played there for the first time. We had never all met and had never practiced but we played there for the first time. That became somehow very exciting. Wild and sometimes unorganized but at least exciting. Then we though 'maybe we should go into a rock direction- this is a good idea.' So we did it.

EVENTUALLY, A STUDIO WAS BUILT IN THE CASTLE, SCHLOSS NORVENICH. DID THAT HELP THE BAND WITH CREATING MUSIC OR WITH GIVING YOU MORE FREEDOM? Yes, this is what I was talking about. As we didn't have any money at the time, we were sponsered by the man who rented this castle. He gave us a room and in this room we established a studio with the most simple equipment you can imagine and went on recording straight away.

WITH THE CAN RECORDS, YOU ENGINEERED AND EDITED THE MUSIC. HAD YOU BEEN DOING THIS BEFORE WITH YOUR OWN MUSIC? What I had done as a pupil, I was working in a radio and television shop to repair equipment. I was interested in electronics so I learned everything there. I made a little side money to put away for myself, just five dollars a week. When we designed our studio, I just picked up the whole logic about that and we were able to do that without an engineer. We are very proud of that.

HOW DID THE SONGS COME TOGETHER WITH THE GROUP? WERE THEY LONG JAMS THAT YOU EDITTED? Yes but the editing was really a minor step. It was not so extensive as it is today. All of Can's music was live recordings, played in this castle.

HOW WERE THINGS DIFFERENT WHEN MALCOLM LEFT? It was a problem for us. We suddenly felt quite left alone in a way. But three months later, I found Damo Suzuki in Munich on the street. He was praying to the sun with wild gestures. I was in a cafe with Jaki and said to him 'See that guy there? He will become our next singer.'

HE MUST HAVE THOUGHT YOU WERE NUTS. Yeah, he said 'you're crazy!' So I went to him (Damo) and said 'We have a concert tonight in front of 5000 people. You want to sing?' He said 'Yeah, I have nothing else to do.' He did it. When he first started, without practicing or rehearsing, he was a calm and silent samuri. Like Japanese meditation. Suddenly, he became a very furious and wild warrior. Then all the audience left and disappeared. It was one of the wildest concerts I remember. But some people were left, about 30 Americans. And among these people was (actor) David Niven. He must have been fascinated by this whole thing. Only a very few people stayed there in this big hall. Most of the Americans were based in Munich.

HOW DID THE BAND BECOME DIFFERENT WHEN YOU WERE WORKING WITH DAMO? I think it was logical that think would change because we learned by that time. We learned to get along with our equipment much better. We knew how to produce the music until we started using a multi-track machine. Up to that point, we had been using a (2-track) stereo machine without mixing, without these multi-track facilties. I would take the tapes home at night and I would be editting a little bit.

THIS IS A QUOTE FROM JAKI: 'WHEN WE BEGAN IT WAS GREAT, EVERYBODY JUST HAD A FEW NOTES HE COULD PLAY SO IT STAYED SIMPLE. BUT OUR TECHINICAL ABILITIES INCREASED. HOLGER COULD PLAY BASS VERY FAST. IT BEGAN WITH TAGO MAGO AND IT REALLY WENT OFF WITH FUTURE DAYS. I THINK IT BECAME TOO SYMPHONIC.' WOULD YOU AGREE WITH THAT? I agree with what he says but I certainly judge about this in a

certain way. I feel about this in a different way. Somehow this was the beginning of the end. With Can, everything seemed like the beginning of the end. So we went into different directions after a certain time. The fact that I played bass very fast didn't mean that I played this typical dance bass. I had a very different techique to do that. I had made that with 'Father Cannot Yell,' our first recorded piece, the way I found out how I can play bass. Where Can as a group really had problems was with the introduction of a multi-track machine. Until this point, we played together as group. We recorded together as a group. We did everything together as a group and felt responsible. One for all. Jaki was the one who especially criticized us all the time. If something was not good, he would say 'hey, you should play better.' But it wasn't too easily analyzed by recording this on a two-track machine. 'Who made this mistake that the music didn't become as good as it should have become?'

At the moment when we got the multi-track machine, 'now we can find out who makes these mistakes.' This person now got so afraid that they'd say 'OK, I want to record my things alone.' It was natural but this was the end of the group. It took some other years and Can still made some very good albums after that. The fact is that somehow there remains this point that if you get out of this common responsibility, something is going to get changed. When I was first working alone, of course I was working with multi-track machines in the beginning. Then the digital devices came out. I immediately stopped multi-tracking recording. All the albums like MOVING PICTURES are not multi-track recordings at all. I don't mix these days anymore. Can you imagine that? Really high produced music without mixing. The digital technique pushed me back 30 years into the sixties, before multi-track machines came into existance. At that time, the engineers had to immediately mix things, to make decisions on the sound and recorded then straight away. This is what I'm doing now. In the beginning I bought a digital machine, the Akai DD 1000. I found immediately out that this is an incredible device. You can do endless multi-tracking somehow but the tracks you couldn't hear together so they became virtual. Then I got I went to the Akai company and said 'hey, do you want to waste money?' I told them about how I had sent them my product and how they send me their machine. They were surprised about what I could really do with that. This remains until today. I'm very happy that even when I'm working alone I'm not relying on multi-track machines. I still have everything completely under control but the decisions of sound and the vision to follow my vision, this is full in action. In the beginning when I record something this

will be the point that this will somehow be the sound of the final thing.

TOWARDS THE END OF CAN, YOU WEREN'T PLAYING BASS BUT WORKING ON TAPES AND SOUND EFFECTS INSTEAD. HOW WERE THINGS CHANGING FOR THE BAND? Suddenly, Can tried more or less to become more commercial. This was based on the idea that a few people should be able to play their instruments perfectly right. Jaki thought especially that we needed a different sort of bass player so we got a black bass player (Rosco Gee). And I had to look out for another instrument. I said 'With Can, we got a problem. The musicians don't really listen to each other very much.' I thought that it happens because nothing from the outside is coming in. I looked for the devices to bring a different world into the group again and they had to react on that. That was the idea, working with a radio or working with tapes or working with a telephone. I even had this idea that with a transmitter, we could transmit and receive things back again. Or to call up people like today's radio shows where people call up or you call people. This sort of interaction I wanted to establish. But the group was not interested in this. So I finished with Can and went my own way. And here, I really followed this. I was working on that for a few years (with Can) but then I found it that it wasn't fun anymore. I continued alone then worked with other people.

WHERE YOU SURPRISED WHEN THE PUNK MOVEMENT CAME ALONG AND PEOPLE LIKE JOHNNY LYDON AND THE BUZZCOCKS SAID THEY WERE BIG FANS OF CAN? I was more than surprised actually. I remember that in England I met Jah Wobble, of Public Image at that time, who had a six pack of beer. I didn't know what to think of him at the time but he said 'come on, I've booked a studio in Soho somewhere.' We recorded our first piece 'How Much Are They.' It was in a cellar of a chinese restaurant. Someone came in, it was two American girls who thought that this was a part of the restaurant. The engineer had an intercom microphone on to record this conversation. They were asking us these questions like 'how much are they?' This is the kind of interaction I like. When it comes up to this point with these spontaneous things, I think you're lucky when this happens. I should kiss the feet of these two girls.

A LOT HAS BEEN MADE OF THE WHOLE 'KRAUTROCK' PHENOMENON IN THE SEVENTIES. DO YOU THINK THAT CAN WAS PART OF THIS MOVEMENT OR WERE YOU ON YOUR OWN? I thought we were on our own. Faust didn't convince me that the time. I thought they were too intellectual and I missed the rhythm section. Can was very concentrated on getting along with genuine rhythms because of Jaki. Jaki was a very good drummer. He was a very good teacher for us. I must say that he really brought us to the point that we could really become a good band. When we played too many unnecessary things, there were too many ornaments in the music and they're not necessary. He took a lot of care that this didn't happen. But with the other bands, I thought first of all they were not that genuine from the rhythm point. They really didn't start from the very beginning. If you want to make something new, you shouldn't think too far outside. If you think 'I've reached a point and I have to think of something more' then you reach another point and you have to forget everything and start from the very beginning again. That means that you have to count until four, like that. And forget really everything. Like Amon Duul at that time, their heros were the Grateful Dead, by their philosophy and their ideas and everything like that. They played a little bit like this and this didn't convince me personally. I must say that I liked the people of Amon Duul a lot. They were very nice people. With Faust, I didn't have any connection. The fact that they worked with different medias was something that interested me. The whole multi-media idea was quite good but I was looking for the music. Where was it?

What happened was, we made several tours through England and suddenly it came up that the British press was aware of several of the other German bands and called it 'krautrock.' I asked an Englishmen 'how can I understand this? What does kraut mean? Is it something positive or negative?' That was a good question because it was something in between. It was not something negative or positive. Maybe 'krauts' come from the Second World War. What was happening in England was that we weren't reguarded as 'krauts' anymore. We were more or less naturalized into England. How this happened was a miracle. We were Germans but we came there several times. The English audience felt that this was something new for them as well. I think it meant to be a good band, to play spontaneous, you must end up in a punk version somehow. You must be delighted about the trash idea. This is what happened here in New York when we played yesterday.

SO YOU THINK OF CAN AS AN ORIGINATOR OF THE PUNK STYLE? Punk, what is punk? It's kicked-out people who had bad parents and never took care of the kids. They went out with their elbows (slam dancing) and tried to make their own way. I can very much understand this. This is happening with this underground electronic scene now. They're exactly the same people. But somehow they are the best people you can work with. I don't know why.

OTHER THAN WITH STYLE, WITH THE MUSICAL SIMPLICITY THAT CAN WAS DOING, DO YOU THINK THERE WAS A COMMON THREAD THAT LEAD TO THESE PUNK BANDS, USING A MINIMAL APPROACH? I could imagine that. Maybe. The minimalization was something that maybe Can had something to do with. Actually, this was the fruit of their own efforts. Me personally, I was fascinated by the idea that we could minimalize something. That was the greatest idea. That was a philosphy that I could really follow. Think small. I liked that idea.

WHAT KIND OF PLANS DO YOU HAVE AFTER THIS TOUR OF THE STATES? I'm producing five CD's. One of the artists will be U-She. One CD will be cover versions and the other will be old material as well. I made another piece called "La Luna" that is 45 minutes long like a gamelean orchestra session on a very electronic basis. U-She said it's the best that I've ever done in my life. Another musician from Los Angeles heard it and loved it also. I also have an album with Dr. Walker that is finished.

The grand scheme would be the live idea because I haven't played live for 20 years and I've suddenly started concentrating on that and found out how we can record this. Interactive things maybe, if people came to me to do concerts for the internet. That interests me as well.

CHARLES DODGE on "Speech Songs" Though vocorders and voice-guitar devices became common in popular music in the '70's, Dodge was a pioneer of voice-sythesis experiments before any of that, as witnessed in his series of "Speech Songs" compositions (available on Any Resemblance Is Purely Coincidental on New Albion).

In the early days of computer music in the sixties, one of the few places to actually hear what you were doing was at the Bell Laboratories (in New Jersey). In those days, it was a very special piece of equipment called the digital-analog converter that was used for that purpose. Bell was a friendly benevolent monopoly at this stage. The inventor of computer music, Max Matthews, was there. He encouraged some of us who had access to university computers to make musical sound in digital form on the computers and to listen to it and convert it to a form that could be heard in his laboratory.

That lab was used in the daytime for speech research. When you went there to listen to your music, you often heard speech research going on in the hall. I was fascinated by that and was so struck how much more interesting were the sounds of synthesized speech which were made by the researchers were than the attempts at musical sounds that my friends and I were making.

At some point in the early '70's, I had the opportunity to work at the Bell Labs in the evening, after hours, in an attempt to make music using some of the software there that had been developed for speech research. I had access to software written by a researching named Joseph Olive, who had a musical background and an interest in music composition. With Matthews' permission and Olive's active help, I was able to go to Bell after the workers had gone home and use the same computers that were used for speech research for music. That was the genesis of the speech synthesis techniques that were used in those pieces.

The poems themselves were sketches by Mark Strand, who was a friend of mine. We were both teaching at the School of Arts at Columbia University at the time. I asked him if he had any texts that I would be able to use and he suggested these. He had a whole bunch of them which he read over the phone and I copied down a few of them. I ended up using four of the surrealistic poems that he had written.

It was really fun to do it helped me discover... I'd never been able to write very effective vocal music and here was an opportunity to make music with words. I was really attracted to that. It wasn't singing in the usual sense. It was making music out of the nature of speech itself. With the early speech-synthesis computers, you could do two things: you could make the voice go faster or slower than the speed in which it was recorded at the same pitch or

you could shift the pitch independent of the speech rhythm. That was a kind of transformation that you couldn't make in the usual way of making tape music. It was fascinating to put my hands on two ways of modifying sound that were completely, newly available.

I've always liked humor and had an attraction to the bizarre, the surreal. These poems were almost dream-like in their take on reality. So that made me feel very at home somehow. This unreal voice taking about unreal life situations was a very congruent. The voices are very cartoon-like and that really pleased me- I was very interested in pop art like Lichtenstein. To make a cartoon-like voice, really struck a chord with the art at the time. People would listen to this and just giggle. It was really fun to be a part of that.

For "He Destroyed Her Image," I was interested in changing the tambre of the voice. That reversal from looking outside to being inwardly confused in the poem, I tried to depict with the changes of tone quality in the voice, back and forth between a electronic phrase that sounds speech-like (you can understand the words) and an electronic phrase that's less speech-like (where you can't understand the words). This happens even though the two the two have same pitch pattern.