

1/30 What will it be like?

Americans — interesting americans.

you do what you do and think about it afterward, and you →
play what you play.
and get the pieces in your brain.

access

idea will emerge to make a piece.

Two things are going on: ① global village of electronic media;
global cross style music vs ② ethnicity

Artists know what's going to happen before it happens and
they do it. Cage is ① — new, global, non-ethnic, random
music

Musical artists we will listen to will show the split ① + ②
First group is reacting against Cage, though they respect
him. Draw on ethnic.

Terry Riley

I want beautiful music. He gets high.

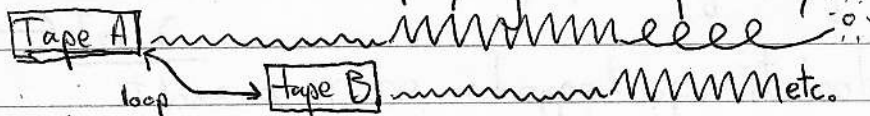
Played jazz, studied Indian and Japanese music. He wants
to play, he wants to improvise, where as Cage did not but
wanted to produce an idea.

Modal, which backtracks to...

Harmony in western music, Order and direction in time, vertical
space. Indian, eastern (+ earlier western) music focus ^{entirely} on horizontal
network, melodic line — differences in mode, Harmony distracts
from melody, limits it Each mode had its own feeling
and meaning. Chordal harmony made modes too complex.

reduced them to two - major ("c") minor ("a" of sorts)
Riley and others say that they can't find spiritual value
in my culture/surroundings. Went to India and absorbed
and studied and rejected harmony. Modal improvisation,
static (no harmonic motion).

Electronic. Started playing with tape delay. one guy two parts.



right there like Bach.

→ Terry Riley, A Rainbow in Curved Air

electric keyboards, tape delay, percussion → dumberc

↳ organ, piano, harpsichord

multiple track recording. improvisation, studio realization
of real-time performance with tape delays (multiple instruments
in imitation instead of delay on single instrument)

2/1 "Young composers I like" so it's no survey course.

Terry Riley

Turned away from random chance. Studied Indian music but "doesn't do it" — not a blatant influence. Jazz, improvisation, electric but instrumental, dope, all night, high fantasy music.

→ In C

it has a score, chopped up. it looks like every tune that you ever heard in that key — short motifs, 1-53 of them. Any number of players, any instruments. Everyone starts by playing first motif as many times as she/he wants, then go to the next, play as long as you/he/she wants, then go on to the next and so on — hocket-hiccup style of medieval music, Java, and elsewhere: phrases together form other phrases. Compose it and take the composition out — withdrawing the preciseness, adding something else, improvisation. Phrase overlap — phase shift: an electronic idea. [Morton Feldman, 2, 3, or 4 pianos, first phase piece]. What keeps everybody together is the pulse, played by piano trumpet, flute, oboe, clarinet, viola, trombone, vibes, piano 10 instruments in all, recorded twice so so really.

PHASE →

a little complex, too much. Perhaps only one recording, not too. ←

Brahms and Beethoven as developers — industrial, capitalistic idea: urban development, utilization of raw materials, etc.; a parallel

3/6
Movement in the arts. Terry Riley is not doing this — he is not pushing the music around. An image of the way life could be: no one pushing anyone else around.

Symphony orchestra grew up when the mills did: assembly line image.

→ Poppy Nogood and his Phantom Band

Terry plays everything — his girl-kid calls him "Poppy Nogood."

Different quality from Rainbow.

electronic switch + phase aspects.

soprano sax and tape loops against organ drone

PHASE music mmmm...

a guy a little dopey nothing too heavy

come back next time

2/6

on the board:

La Monte Young.

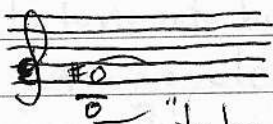
The Tortoise, His Dreams and Journeys.

"Map of 49's Dream ~~and~~ The Two Systems of Eleven Sets of Galactic Intervals Ornamental Lightyear's Tracery"

31 VII 69 10:26-10:49 PM

La Monte Young was the most extreme musician of the 60's. Studied with Cage. Went to Darmstadt, Germany 1960. 1960 published a magazine, An Anthology, of composers, extremists (on reserve) — paragraph scores, ideas.

Composition 1960 #7



perfect fifth

"to be held for a very long time"

Idea. Is it dumb? If so why? P5, not any other interval. ah — overtones, harmonic series — like oxygen, it's there, a natural phenomenon: c, c, g, c, e etc.: from whence all the intervals arise, mathematical ratios. Harmony, implied in any pitched musical sound. Combination tones: two notes produce/generate ~~an~~ a third tone; one kind is a difference tone (300 cps and 350 cps produce a 50 cps tone). All this is done with sine waves.

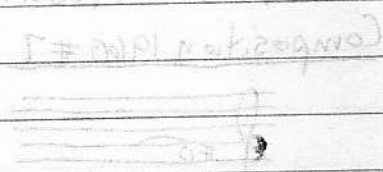
Standing waves (sine) — constructive and destructive interference, in and out of phase. Hyperbolas of peaks and troughs. In tune, hyperbolas are stable; if ~~two~~ two oscillators are slightly out of tune, hyperbolas will move toward source of higher frequency along elliptical path.

chance intervals of two dice

contact inches on basketball court floor.

"The Tactile Interval" by J. J. Gibson
1912, The Journal of Experimental Psychology

1910 published a paper on "The Tactile Interval" in the Journal of Experimental Psychology. This paper was one of the first to discuss the concept of the tactile interval, which is the time between two successive touches of the hand on a surface.



"to be held for a very long time"

Idea: Is it dumb? If so, why? It's not dumb, it's just a different way of looking at the same thing. The tactile interval is the time between two successive touches of the hand on a surface. This is a very important concept in the study of human perception and motor control. It is the time between two successive touches of the hand on a surface. This is a very important concept in the study of human perception and motor control. It is the time between two successive touches of the hand on a surface. This is a very important concept in the study of human perception and motor control.

In functional terms, the Fifth is the strongest, most fundamental interval (oh the history!). Doing La Monte Young's piece, you learn that a Fifth is not a constant stable thing — it is always changing in small ways, unnoticed in most music, but in this piece..... By staying on it and in it, you experience it, pay attention to the movement/shifting. Like the painting of 100 Green Stamps, or Warhol — it can save you but making you see that your culture is not infinitely boring but everything is different. Very beautiful

He is a secretive man. Expensive, too.

He reads: in some other cultures, there a fundamental frequency. Birds tune to it; in America, power lines hum at 60 cps. He wants to tune into his environment. Tunes an oscillator to 60 cps. Live a 24 hour cycle (I should meet this man).

Tortoise: This piece is a huge piece, made up of lots of pieces, that he will play until he dies. "Map" is part of this Tortoise. It is a drone piece — something of other cultures. Lock into spiritual thing.

Try to hear. Things happen that aren't in the drone or notes: difference tones, other combination tones. A place for this music he calls a Dream House.

2/8 on the board:

La Monte Young and Marian Zazeela

"Map of 49's Dream of the Two Systems of Eleven Sets of Galactic Intervals Ornamental Lightyears Tracery"
(begun 1966)

Complexity of music, Viennese school: Webern, Schoenberg, Berg, Freud, Decay of Austro-Hungarian empire. German expressionism in painting. Dark, painful, torturous, introverted. Cosmos I do not understand.

Studied in America ~~in America~~. What the hell did it have to do with American culture? American artists (painters) predict, are 10 years ahead. Post-war isolation from Europe produced amazing movement/school of painting, surge of art.

Painting — an idea comes, that you don't have to do something complicated: minimal art. Taken into music, by such as La Monte Young.

Amplifying and focus. John Cage — "give me all the speakers in the university" — wants to unfocus the audience, out of electronic multiples culture — this is Cage, this is old American. La Monte Young takes the opposite view: sine wave oscillator and voice, and play it until you have absolute focus/understanding — minimal thing, an experience.

Artist Bob Morris makes objects (metal). Made a gong-like object which he gave to La Monte Young.

→ Studies for Bowed Disc

gong as opposite of ~~single~~ tone — most complex sound.

Computer score for Recordmusic!

- random points, lines, waves, functions
- superimpose paper over record + scribe,
- different color pens for intensity (multiple track plotter recording) (this with Amy)
- for 1 or more record players.

amplifier as basic electronic instrument. gong is amplified, brings you inside the sound. does not use electronics superficially. can be played at any speed. A strong piece. It shakes speakers.
2:50 AM - 3:11 AM 1964 ←→

Sine and voice piece. Decided to do a piece with waves instead of ocean instead of with sine wave/60 cps environment

Drone: where is it done? why? how?

play with filters on waves:

- 1) trimming harmonics, V_c , random or wave controlled low pass
- 2) drop down through high harmonics to two fundamental waves using/using high pass or band pass. try it with all waves

2/13

performing a La Monte Piece: composition #7 1960



to be held for a very long time

and we go very out of tune.

amplifying the interval by playing it for a long time.

art as an image of how you would like things to be.

tuning — two people in tune ~~can~~ is the most beautiful thing.
harmony of the spheres/planets, no contrasts, conflicts.
generating beautiful, natural harmonic series.
universe

→ 2 Sounds (1960)

minimal art — if you are an artist, you love that chalk;
if you just write with it you don't. art is what artists do, that
is art.

image of PHASE: basic essential electronic idea.

tape loops of ² different sounds, different lengths, different screens.

Cunningham uses it ~~for~~ and the audience leaves a
lot.

try high-pass or band pass on harmonics of a chord

stt slow sample $1/c$ of two oscillators; envelope and parallel filter.

MUSIC AS A GRADUAL PR

I do not mean the process of composition, but rather pieces of music that are, literally, processes.

The distinctive thing about musical processes is that they determine all the note-to-note (sound-to-sound) details and the overall form simultaneously. (Think of a round or an infinite canon.)

I am interested in perceptible processes. I want to be able to hear the process happening throughout the sounding music.

To facilitate closely detailed listening, a musical process should happen extremely gradually.

Performing and listening to a gradual musical process resembles:

pulling back a swing, releasing it, and observing it gradually;

turning over an hour glass and watching the sand slowly run through to the bottom;

placing your feet in the sand by the ocean's edge and watching, feeling, and listening to the waves gradually bury them.

Though I may have the pleasure of discovering musical processes and composing the musical material to run through them, once the process is set up and loaded, it runs by itself.

Material may suggest what sort of process it should be run through (content suggests form), and processes may suggest what sort of material should be run through them (form suggests content). If the shoe fits, wear it.

As to whether a musical process is realized through live, human performance or through some electro-mechanical means is not, in the final analysis, very important. One of the most beautiful concerts I ever heard consisted of four composers playing their tapes in a dark hall. (A tape is interesting when its an interesting tape.)

It's quite natural to think about musical processes if one is frequently working with electro-mechanical sound equipment. (All music turns out to be ethnic music.)

Musical processes can give one a direct contact with the impersonal and also a kind of complete control, and one doesn't always think of the impersonal and complete control as going together. By "a kind" of complete control I mean: by running this material through this process I completely control all that results, but also I accept all that results without changes.

John Cage has used processes and has certainly accepted their results, but the processes he used were compositional ones that could not be heard when the piece was performed. The process of using the *I Ching* or imperfections in a sheet of paper to determine musical parameters can't be heard when listening to music composed that way. The compositional processes and the sounding music have no audible connection. Similarly in serial music, the series itself is seldom audible. This is a basic difference between serial (basically European) music and serial (basically American) art, where, in the latter, the perceived series is usually the focal point of the work.

What I'm interested in is a compositional process and a sounding music that are one and the same thing.

James Tenney said in conversation, "Then the composer isn't privy to anything." I don't know any secrets of structure that you can't hear. We all listen to the process together since it's quite audible, and one of the reasons it's quite audible is because it's happening extremely gradually.

The use of hidden structural devices in music never appealed to me. Even when all the cards are on the table and everyone hears what is gradually happening in a musical process, there are still enough mysteries to satisfy all. These mysteries are the impersonal, unintended, psycho-acoustic by-products of the intended process. These might include sub-melodies heard within repeated melodic patterns, effects due to listener location, slight irregularities in performance, harmonics, difference tones, etc.

PROCESS

Steve Reich

Listening to an extremely gradual musical process opens my ears to it, but *it* always extends farther than I can hear, and that makes its interesting to listen to that musical process again. That area of every gradual (completely controlled) musical process, where one hears the details of the sound moving out away from intentions, occurring for their own acoustic reasons, is *it*.

I begin to perceive these minute details when I can sustain close attention, and a gradual process invites my sustained attention. By "gradual" I mean extremely gradual; a process happening so slowly and gradually that listening to it resembles watching the minute hand on a watch — you can perceive it moving after you slay with it a little while. Several surrenly popular model musics, such as Indian Classical and drug-oriented rock and roll, may make us aware of minute sound details; because in being modal (constant key center, hypnotically droning and repetitious) they naturally focus on these details rather than on key modulation, counterpoint, and other peculiarly Western devices. Nevertheless, these modal musics remain more or less strict frameworks for improvisation. They are not processes.

The distinctive things about musical processes is that they determine all the note-to-note details and the overall form simultaneously. One can't improvise in a musical process — the concepts are mutually exclusive.

While performing and listening to gradual musical processes one can participate in a particularly liberating and impersonal kind of ritual. Focusing in on the musical process makes possible that shift of attention away from *he* and *she* and *you* and *me* outwards towards *it*.



3/15 Steve Reich

from California

his whole life style based on phase — got the idea from Terry Riley but don't tell him.

PHASE

From electronics to The study of the music of Africa.

His first pieces:

Speech, tape loops. Sound of a young black guy speaking about encounter ~~for~~ with police. Two loops of same phrase, started in sync.; then he squeezed one tape a bit so that little by little it goes out of sync. Gradual Process; two loops, two machines, delay. — then copied and added the copy. Only possible because of tape; an electronic piece: tape, phase, sync., speech processing.

→ Come Out
into noise ←

→ Violin Phase

violinist records 12 ^(beats) ~~note~~ phase on one channel
next ² channels out of phase each by 4 beats the same thing

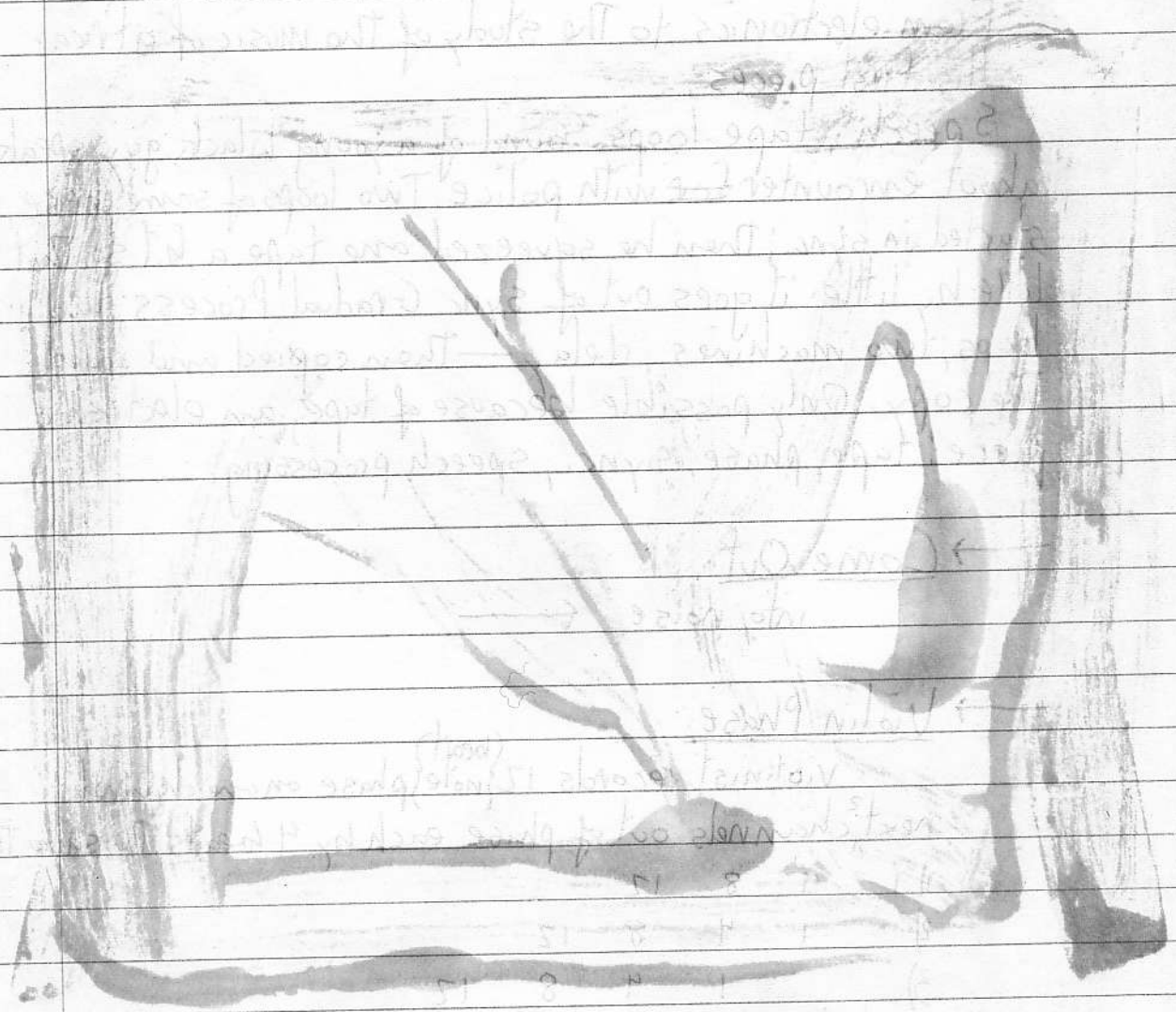
1) 1 4 8 12

2) 1 4 8 12

3) 1 4 8 12

live violin 4) starts in phase with ①, with 2+3 attenuated. Moves out of phase until in sync. with channel 2. Then 1 faded out and 2 faded in. ~~the~~ other channels brought in out of phase when he has reached 3.

phase: put waves through inverter,
through reverb and inverter — stretch in and out.
bring out of phase signal up and down with Vca.



PENDULUM MUSIC

FOR MICROPHONES, AMPLIFIERS,
SPEAKERS AND PERFORMERS

2, 3, 4 or more microphones are suspended from the ceiling by their cables so that they all hang the same distance from the floor and are all free to swing with a pendular motion. Each microphone's cable is plugged into an amplifier which is connected to a speaker. Each microphone hangs a few inches directly above or next to its speaker.

The performance begins with performers taking each mike, pulling it back like a swing, and then in unison releasing all of them together. Performers then carefully turn up each amplifier just to the point where feedback occurs when a mike swings directly over or next to its speaker. Thus a series of feedback pulses are heard which will either be all in unison or not depending on the gradually changing phase relations of the different mike pendulums.

Performers then sit down to watch and listen to the process along with the audience.

The piece is ended sometime after all mikes have come to rest and are feeding back a continuous tone by performers pulling out the power cords of the amplifiers.

Violinist improvises; take from both and create another figure.

This piece must be very difficult to perform.
beautiful

Starts on 1, moves to phase of 2; 2 brought in, violinist improvises, then moves to phase of 3; 3 brought in; violinist improvises on all.

2/20 Who is John Cage?

Nam June Paik, Video

Russell Connor, interviewer of Alvin
WNET, N.Y.C.

Nam June Paik

Korean composer, studied in Japan, then Cologne;
shifted to video art; built the first video synthesizer with
a Japanese engineer. Built a robot.

A documentary on John Cage. Alvin The academician.
Stutter on "m", "s", and others. Cue cards. It went on and
on....

visionary aspect of art ↔ pre-echo on tape.

Moebius score

Also Who is John Cage?
Rusell Connor Interview
WNET, NY

John Cage
John Cage (composer) studied in Japan then returned
to the US and studied at MIT. He was a pioneer in
modern music. He was a composer and a pianist.
He was a member of the New York School.
He was a student of Arnold Schoenberg.
He was a student of Charles Ives.
He was a student of Henry Cowell.
He was a student of Varèse.
He was a student of Stravinsky.
He was a student of Debussy.
He was a student of Ravel.
He was a student of Prokofiev.
He was a student of Shostakovich.
He was a student of Tchaikovsky.
He was a student of Liszt.
He was a student of Chopin.
He was a student of Schumann.
He was a student of Brahms.
He was a student of Beethoven.
He was a student of Mozart.
He was a student of Haydn.
He was a student of Vivaldi.
He was a student of Corelli.
He was a student of Scarlatti.
He was a student of Bach.
He was a student of Handel.
He was a student of Purcell.
He was a student of Monteverdi.
He was a student of Stradella.
He was a student of Frescobaldi.
He was a student of Cesti.
He was a student of Cavalli.
He was a student of Peri.
He was a student of Monteverdi.
He was a student of Stradella.
He was a student of Frescobaldi.
He was a student of Cesti.
He was a student of Cavalli.
He was a student of Peri.

2/22 Phil Glass

lumped with Terry Riley, Steve Reich, and (to a lesser extent) LaMonte Young.

Glass and Reich don't like to release scores — they assemble groups and perform. ~~Minimum~~ Reich: group improvises on basic structure, sketch out piece — Reich controls them. Very different from Cage. Ego

Reich and Glass were pals; discovered phase thing at the same time; are not such good pals any more. Their music sounds similar. After college, Glass went to Paris, studied with Nadia Boulanger — American inferiority complex —: solfege, elementary four-part harmony (hundreds of rules) (motion of two parts: ① similar ② opposite/contrary ③ oblique; intervals: unison, $m2^{nd}$, $M2^{nd}$, $m3^{rd}$, $M3^{rd}$, $P4$, tritone, $P5$, $m6^{th}$, $M6^{th}$, $m7^{th}$, $M7^{th}$, 8 — octave is mirror of root, no similar/parallel motion because it sounds like one voice, same with unison, 5^{th} .

Soprano
Alto
Tenor
Bass

you want I-V-I in C major
want it strong, G in bottom

I-V-I motion takes dominance over the interval itself) and was disturbed. Studied Indian music, wrote some pieces...

→ Music in Similar Motion

Violin, Viola, Electric Organ, Soprano saxophone, cello, all amplified. Recorded at The Guggenheim, 1971 ←

Phil Class

444343

Explore

Use first the shortest possible tape loop. Play as long as you wish
 Stop/pause ^{and to} Change to the longest practical tape loop (offering
 a minimum of 5 seconds of delay between speaker(s)). Play as
 long as you wish

my length Δ -
 for as long a time as you wish



you want I-V-I
 want it played in a pattern

Phil did all this still
 action tape dance over the
 interval itself and was described as
 music wrote some pieces

→ Music in similar notation

Val's notes: I-V-I
 all completed recorded at the Cunningham

Gregorian chant started as unison melody. Around 12th century, began ~~parallel~~ part motion — Alvin thinks that cathedral architecture was conducive to producing/inspiring combination tones — organum, the beginning of polyphonic western music; lead/led to similar, contrary, oblique motion.

Bach: in one line you can imply more than one line. This is in Phil's piece; Phil plays, other players accentuate particular fragments, creating

→ Music in Fifths ←

2/27

PHIL GLASS

→ Music with Changing Parts →

Time for a project. These four composers (Riley, Reich, Young, Glass) have all moved from experimental electronic to "a more traditional sort of thing" because they became interested in/studied music of other cultures. Electronic instruments, ensemble music. Everybody (do a lot of work); extract fundamental principles (terms) and inquire into other cultures that use them — choose one: La Monte Young — drone (has not existed or focused in western culture for a long time) — how, why, where is it done, physical and psychological why; Terry Riley — phase (in and out of) — is it only electronic or does it occur someplace else and why; interlocking/hocket/? — Reich; cycling (patterns and repetition, thematic return of western classical — you can do things and they return, tal); mode — ~~Reich~~ Riley (vs. harmony); tuning — La Monte Young (tuning up to fundamental combination tones), one two three four five six; choose one of the six. Do it for two weeks. from

→ Barbara Benary: Performed 1971. 3 electric organ, electric piano, two soprano saxophones, trumpet, flutes, electric piano. Score in notes. Six lines of 3 notes falling into different chords. Each measure is infinitely repeatable until a nod from the leader. Every six measures there is a changing point — change to another of the six lines — textural change. Process music — logic as to why one measure follows another.

phase — music of the planets : force of gravitational attraction
between planets — energy, voltage conversion (direct) —
all around the sun. Wait — little pull between planets —
try sun/planet pull, instead of (spheres I and II) angular
velocity.

yawning timbre

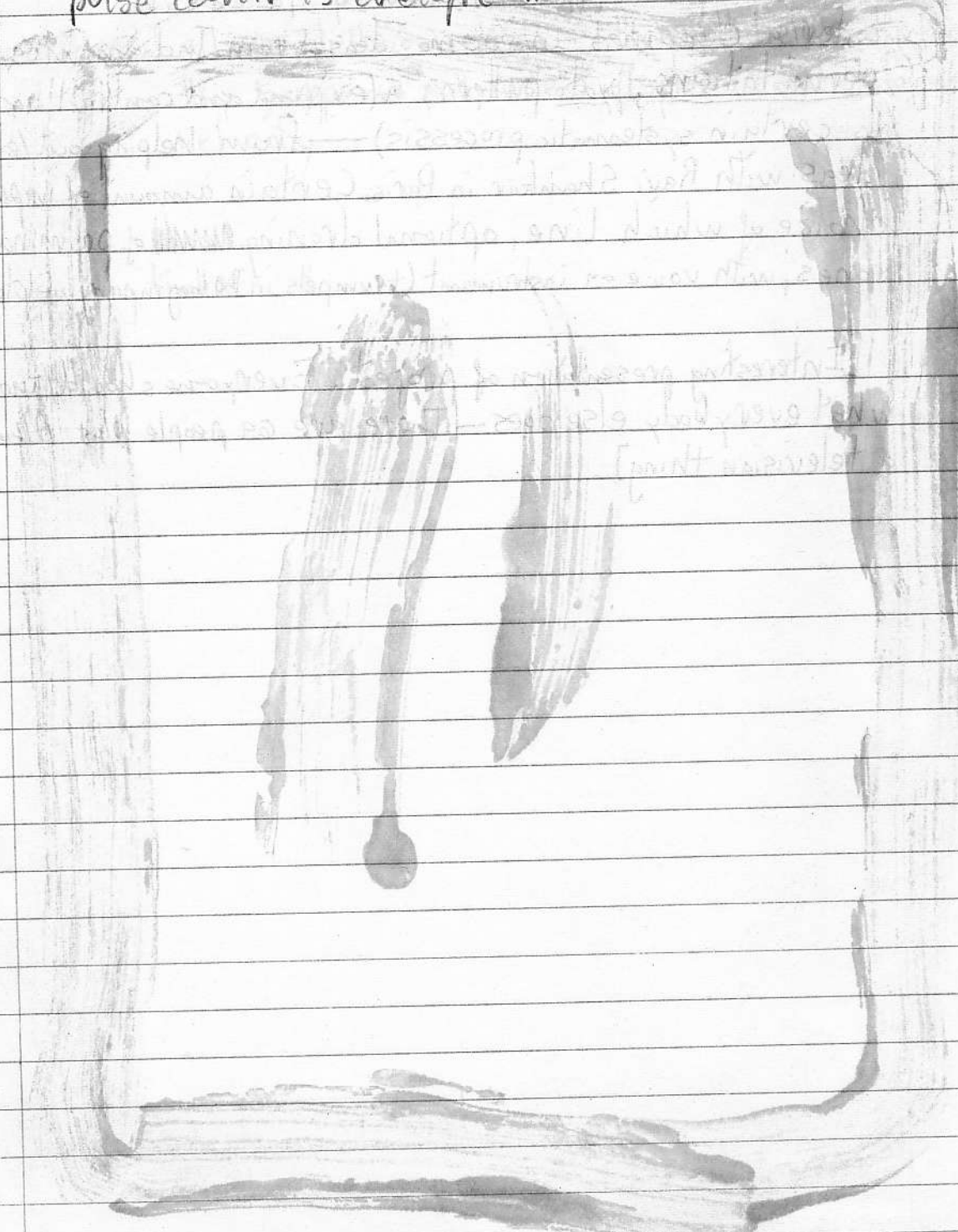
Only two parts heard at first, each having two patterns

1) a a b b 2) a b 2 a 2 b 3) 2 a b a 2 b 4) a 2 b 2 a b

Later a C comes in. Some ideas from Indian music — permutations, yati patterns (expand and contract according to certain systematic process) — from helping out/exchanging ideas with Ravi Shankar in Paris. Certain amount of improvisation; choice of which line, optional droning ~~amount~~ of prominent tones, with voice on instrument (trumpets in the beginning, flutes) ←

[Interesting presentation of project. Everyone should know what everybody else does — there are 69 people plus Alvin — a television thing]

Vc pulse width, frequency,
pulse controls envelope with noise



AVIN LUCIER

THE QUEEN OF THE SOUTH (1972)

for players, responsive surfaces, strewn material and closed-circuit television monitor systems

Sing, speak or play electronic or acoustic musical instruments in such a way as to activate metal plates, drumheads, sheets of glass or any wood, copper, steel, glass, cardboard, earthenware or other responsive surfaces upon which is strewn quartz sand, silver salt, iron filings, lycopodium, granulated sugar, pearly barley or grains of other kinds or other similar materials suitable for making visible the effects of sound.

Surfaces may be excited by making sounds either directly on or very near the vibrating media, through the use of loudspeakers or directly-coupled audio transducers.

As the strewn material responds to the disturbances caused by the musical sounds in the vibrating media, observe, while playing, continuous variations of concentric radial patterns in round surfaces, parallel diagonal patterns in rectangular surfaces, increases in the number of elements with increases in frequency, whole movements or migrations with increases in amplitude, interference phenomena, visible beats and imperfectly formed patterns caused by the peculiarities of both the musical sounds and the vibrating media.

Make musical activity either to discover in real time the visual images characteristic of the identity of the performing ensemble with respect to the time and place of the performance, or make pre-determined patterns including lattices, networks, labyrinths, flows, currents, rotations, bridges, streams, beams, heaps, eddies, dunes, honeycombs, imbrications, cells, textures, turbulences, vortices, layers, figure-eights, lemniscates, spirals, rings, rivulets, trees,

branches, pools, dendrites, bushes, balls, pigeon eggs, quadrants, tetragons, pentagons, hexagons, flowers, hollows, ramparts, figurines, walls, peaks, pillars, columns, volutes, annuli, fissures, plates, rams' horns, crypts, spicules, worms, webs, clouds, storms, spherules, zebras, plumes, embryos, rills, buttes, mesas, grooves, fountains, swastikas, mandalas, crowns, crosses, scapulas, beads, medallions, topologies of near or far environs, plaids, tweeds, road signs, floor plans, tapestries, diamonds, stars of David, gardens, corals, sunbursts, faces, angels' wings, fans, berms, gullies, washes, mosses, daisies, weaves, signs of the zodiac, almonds, clock faces, calendars, moons, planets, mirrors, demons, gems, stigmata, sanctuaries, playing fields, wheels, whales, palms, ferns, cypresses, blindfolds, ladders, urns, Adams and Eves, cisterns, sepulchres, tongues, dragons, toads, eagles, swans, fishes, plumes, rooms, tombs, hosts, hats, animal tracks, fossils, footprints, rugs, bones and ghosts.

From time to time, apply fire and ice to the vibrating surfaces to change their temperature environment and thereby alter their characteristics.

Make liquid versions using water, glycerine, mercury, plasma, heated rosin paste or other viscous liquids to bring about hydrodynamic phenomena including frequency-dependent site locations, constant directions of eddy-rotations, amplitude-dependent rotation speeds, the creation of *lissajous* figures and anti-gravitation effects which occur if sounds remain constant and the vibrating media are tilted or held vertically.

Take sounds from the vibrating media by contact, vibration or air microphones in order to discover and amplify changes in the original sounds due to the physical characteristics of the media through which they travel and for purposes of single or multi-channelled playback during performance or recording on electro-magnetic tape.

Use closed-circuit television monitor systems in fixed close-up positions with rear-screen projectors to verticalize and enlarge for the players and audience the visual images made by the players' sounds on the material-strewn surfaces.

All musical considerations including pitch, timbre, lengths of sounds, texture, density, attack and decay and continuity are determined only by the real-time decisions necessary to the image-making processes.

Do not touch the vibrating surfaces except at points through which nodal lines pass.

Thanks to E.F.P. Chladni (1756-1827) and Hans Jenny (1904-). (Commissioned by and dedicated to Gerald Shapiro and the New Music Ensemble, under a grant from the Rhode Island Council on the Arts.)

Alvin Lucier
January 20, 1972
Middletown, Connecticut

Source

10

3/1 Queen of the South, May 1972

Chladni - sound vibrates in a medium: thin steel/metal, sand sprinkled, bowed - sand disperses, nodes and anti-nodes.

Play into a plate and a visual image occurs, imagery defines player(s). Social mystical idea. Improvise or pre-determine pattern you want. Plate becomes a score: feedback loop (change or continue), action score. Television so the audience can see.

plywood, galvanized metal, plexiglass - 4x4. Best with electronic instruments, simple continuous sound.

Jung: Alchemy, imagery, Marx and Mao, ideas in art: material, physical reality, wisdom, in touch. Putting the players in touch with physical reality. Queen of the South - alchemy is about transforming, with fire, continual repetitive operations; queen of the south is female image for "sapiencia dei," wisdom which can be found anywhere, material rising.
amazing!

March 5,
1973

GOING OUT Guide

SHOW AND TELL At least two media will mix tonight and tomorrow at 8 in the Kitchen, that chamber of electronic wonderment in the Mercer Arts Center, 240 Mercer Street. The work to be performed is Alvin Lucier's "The Queen of the South," a last year's piece by the composer, who will also be one of the six performers playing it. Mr. Lucier, who has been associated with the Sonic Arts Union and Wesleyan University, is an old-guard avant-garde music man who has long been searching for the esthetic in unusual sources.

This piece is billed "for players, responsive surfaces, strewn material and closed-circuit television monitor systems." What happens is this: Six synthesizers are connected, two each, to three plates; on the plates are sand and other material that jiggle to the tune of the synthesizers. The result can be heard by the audience and also seen (the strewn stuff's patterns, that is) on TV in the room.

Admission, \$2. Information: 475-9865 (after 2).

March 7, 73

'QUEEN OF SOUTH' STAGED AT MERCER

Multimedia Music Is Based
on Vibration Principles

Most music of the past has dealt with the shaping of time. Audiences could go to a musical performance and expect it to begin, to assume a recognizable structure, perhaps to point toward a climax, and to end. But a good deal of contemporary music, particularly of the multimedia variety, comes closer to an environment in an art gallery: the music is steady-state, and the audience may come and go as it pleases.

Alvin Lucier's "The Queen of the South" was staged at the Kitchen, Mercer Arts Center, 240 Mercer Street, Monday evening (with a repeat last night), and it managed to seize one's attention unassertively and appealingly. But once begun, it was the kind of piece that could (and perhaps did) go on for days.

What Mr. Lucier has done—his title alludes to alchemical transformation—is bend an old acoustical principle to new esthetic uses. The principle is that loose particles on an even, flat surface will arrange themselves into patterns if the surface is vibrated by sound. Mr. Lucier offers three surfaces, of wood, metal and plastic, and particles of different size, weight and color (sand, seed, Tang, etc.). The surfaces are agitated by transducers linked to several synthesizers. The synthesizers also feed directly into loudspeakers, and television monitors give the viewers another, rather lunar, perspective on the surfaces.

The over-all impression was rather like a junior-high science fair, with areas devoted to different project-demonstrations and parents strolling proudly about, savoring the gentle cacophony. The sounds blended in a sweet Cageian flux, the particles danced with the illusion of life and the resultant patterns emerged with an intriguingly asymmetrical complexity.

JOHN ROCKWELL




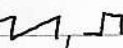
3/6 nada

3/8 Robert Ashley

~~Mills College~~ Once Festivals, 1959-1965, in The VFW [Ann Arbor?] ballroom. Out of this came the Once Group, 6-8 expandable people. Continual party, every single night of the year, talk and drink - musicians, filmmakers, architects. Created some staggering beautiful total pieces.

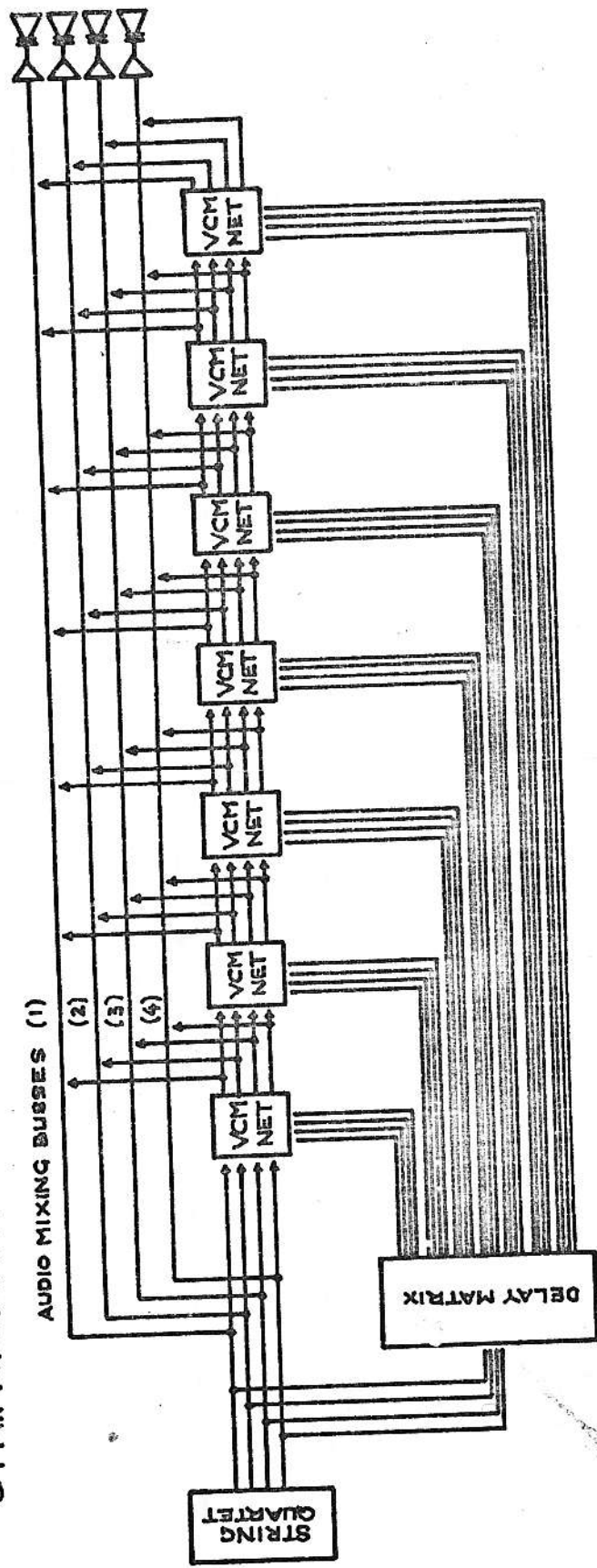
[Left Detroit/Ann Arbor for Mills College.] For Alvin, the most interesting composer - complicated ideas that don't always succeed.

Started one of the first electronic studios in US, in Ann Arbor; homemade, cheap, 1958. Working with junk, you have an aversion to polished studios. Bob Ashley wrote performance pieces that were not hi-fi, using cheap equipment - speech, voice amplification, etc. Age of 39 he gets his first job at Mills, with moog synthesizer, which "we all hated" because it is "a package deal" - now they're getting better....

What a synthesizer is? A box, of any size. 800-50,000 dollars. A package filled with electronic components. Ours an Arp 2600: 3 oscillators ( ,  ,  , ); 1 noise source (white, pink); 2 mic input - those are sound sources; processors: low pass filter; envelopes (ADSR, AR); sample and hold; voltage controlled filter; keyboard. Ah the idea of voltage control: everything in the box is voltage; programmable, things can control each other. Where does the signal go?

signal $\left\{ \begin{array}{l} \rightarrow \text{sound} \\ \rightarrow \text{control} \end{array} \right.$

STRING QUARTET DESCRIBING THE MOTIONS OF LARGE REAL BODIES

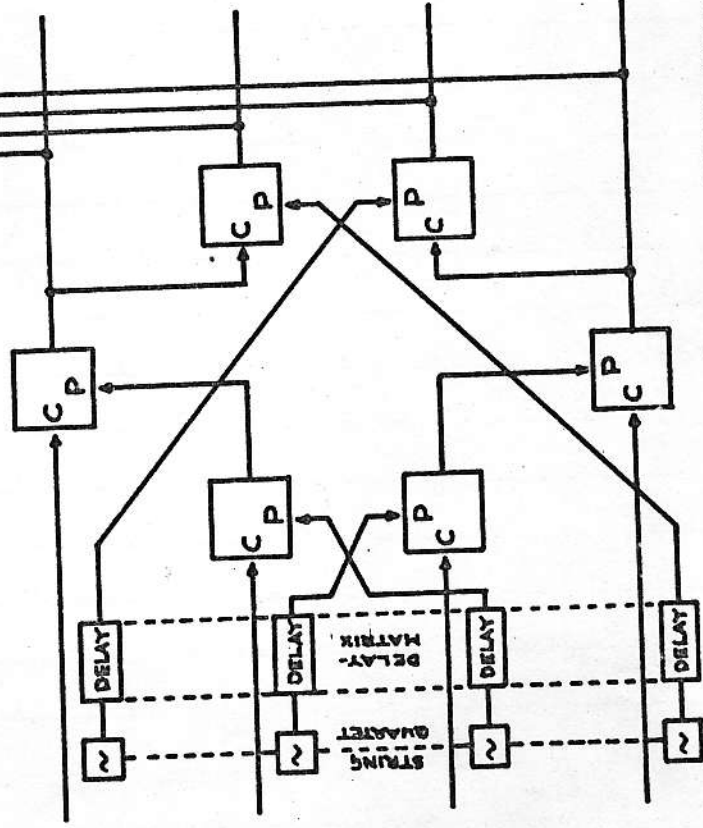


THE BOW IS DRAWN CONTINUOUSLY BUT SO SLOWLY AND WITH SUCH GREAT PRESSURE ON THE STRING THAT THE STRING RESPONDS IN RANDOMLY OCCURRING SINGLE "PULSES." IN THIS MANNER OF PLAYING THERE IS MORE SILENCE THAN SOUND. TYPICALLY, A SINGLE DIRECTION OF THE BOW MAY TAKE 10 MINUTES. INSTRUMENTS SHOULD BE TUNED UNIFORMLY LOW. USE DIRECTIONAL MICROPHONES EXTREMELY CLOSE (WITHIN 3 INCHES) TO THE SOUND-HOLES OF THE INSTRUMENTS. THE DELAY MATRIX SHOULD PROVIDE DIFFERENT SIGNAL DELAY TIMES IN A RANGE BETWEEN 5 MILLISECONDS AND 250 MILLISECONDS FOR EACH OF THE SEVEN GROUPS OF OUTPUTS. DELAY TIME IS THE SAME FOR ALL OUTPUTS IN A GROUP. WITHIN EACH VOLTAGE - CONTROLLED-MODIFIER NET ANY VC DEVICES MAY BE USED (WITHOUT REGARD TO SYMMETRY). USE AT LEAST ONE, OR AS MANY AS SEVEN, VCM NETS, ALTERNATING A-TYPE AND B-TYPE IN SERIES. ALWAYS OBSERVE THE SYMMETRY OF CONTROL-SIGNAL AND PROGRAM-SIGNAL ROUTINGS. IDEALLY, THE SUM OF THE SIGNALS AT THE LOUDSPEAKERS SHOULD BE NO LOUDER THAN THE UNAMPLIFIED SOUND OF THE STRINGED INSTRUMENTS.

VOLTAGE-CONTROLLED-MODIFIER NETS

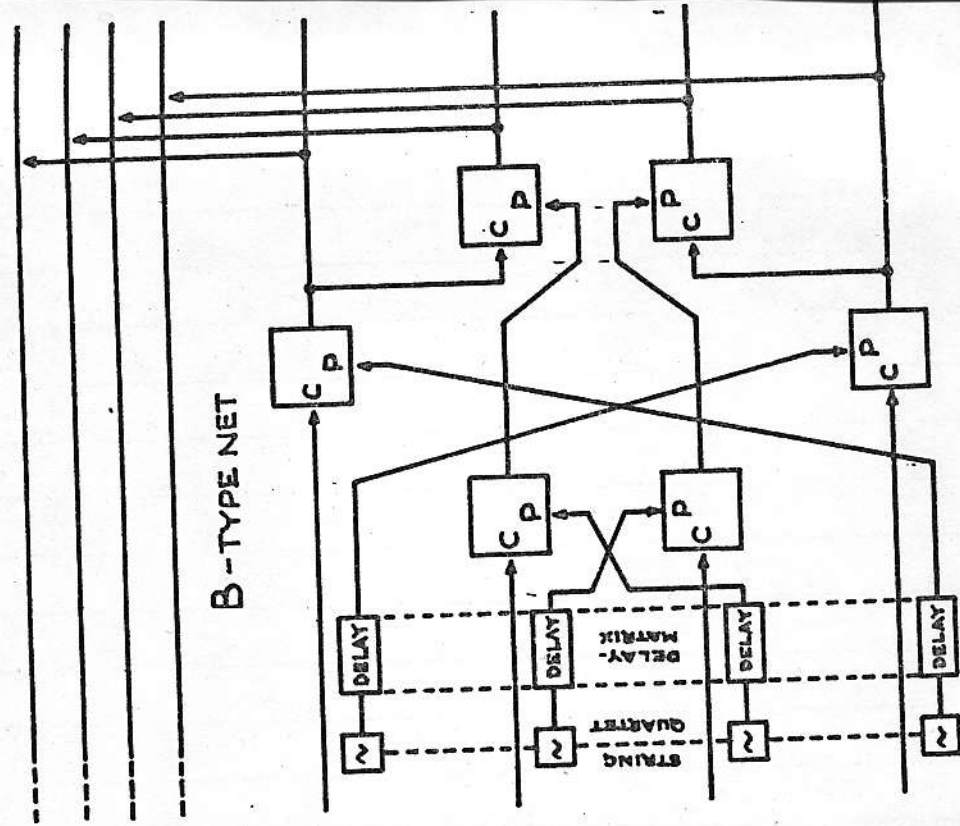
AUDIO MIXING BUSES (1)
(2)
(3)
(4)

A-TYPE NET



C: CONTROL SIGNAL INPUT P: PROGRAM SIGNAL INPUT

B-TYPE NET



→ String Quartet Describing the Motions of Large Bodies ^{Real}

any strings, tuned low, complex sounds — oscillator
sounds are too simple. Input to any voltage controlled devices
(modifiers) after delay 5-250 mil. sec. P is program signal,
C is control signal — everybody controls everybody else,
complex. Delay adds the sound to the sound, process. $\frac{1}{200}$ - $\frac{1}{4}$ sec.
When Worlds Collide: phenomena out of our scale we observe in discrete
moments. — too big, small, slow, fast. A live piece, often with
programming a large body.



VOICE

TRACK 1

TRACK 2

TRACKS 3 }
4 }
5 }

TRACKS 6 }
7 }
8 }

"VOICE PATCH" - Sub audio state: brought to audio range by manual trigger immediately after a "mis-pronounced" word.

"intermittent sounds (sub audio or supra audio) brought to audio range by trigger pulses

continuously heard sounds: change of activity/sampling/mute/range/etc by trigger pulses

in all cases (tracks 2-8) the patch is operative, but "unstable". The trigger pulses alter the condition (relationships) of the patch (as opposed to a modification of the audio aspects of the voice track)

4-track version: Voice and "continuously heard" tracks mixed to even-distribution matrix ERROR and "intermittent" tracks through panning matrix activated by "falling whistle" sound.

2-track version: normal stereo mix-down with panned "falling whistle" sound.

3/13 projects due 1 week from thurs. 1 page of interesting information.
thurs: David Behrman.
tues: preparation for Pauline Oliveros
thurs: Pauline Oliveros

Robert Ashley

Talking about synthesizers: an American phenomena, a package deal, successor to the classic electronic studios of Europe. What Alvin finds interesting [~democracy in music, performer interfaced with instrument~]: electronic instrument as instrument, with relation to performer — instrument as source and/or control voltage through synthesizer.

This piece: moog with speech [speech is very interesting to Bob Ashley]:

→ In Sara, Menckel, Christ, and Beethoven, There were men and women, poem by John Barton Wolgamot, 1944.
8 channels: recitation recorded ch. 1; ~~the~~ ch 3-8 use voice as trigger for components/patches; ch. 2 is error patch, manually gated sound. This to Alvin is a gigantic epic, big art, being hit hard, not made for being polite.

MOVE
NOBS QUIETLY

Until x after

10 12 17 18

INITIAL TUNINGS

TIME 7 3 2 5
START

Kathy

B-16

1,191
792
596
Low 64

#13 off
gliss max
slow

(A)

(B)

(C)

(D)

TUNE (gliss 71)
#16: 192
#15: 160

7-12

632
530
477
457

no gliss fast shallow
gliss max slow

⊙ ⊙ ⊙

↑ obobob
no gliss

#14 out
TUNE LO #196
(gliss 71)

5-8

593
530
177
148

↑ 9: 8 of 00
together

1-4

199
165
98
66

↑ 00
00
00

David

A B C D

3-16

1,191
792
596
Low 63

↑ 00
00
00
#13 off
gliss max
slow

A

B

C

D

↓ 0010
#14 OUT

7-12

1,191
792
596
Low 62

↑ 00
00
00
#9 off

↓ 0010
#14 OUT

5-8

1,191
792
596
528 low 67

↑ 00
00

TUNE
200
167
100
67

speed ⊙ depth ⊙
↑ 8
010

1-4

195
163
97 1/2
65

↑ 8
010

MOVES
NOBS
QUIETLY

25 38

less th!
depth!

max

Kathy

(E) (F) (G) (H) (I) (J) (K)

16 9: ↑ 8
↓ 8

TUNE (gliss. off)
183
153
91
61

gliss. on max
gliss. spread depth

switch to high #15 & 16
switch to high #11 & 12
switch others

TUNE
180
150
90
60

↑ 8
↓ 8

E F G H I J K

TUNE (gliss. off)

D

16 TUNE #14: 94
TUNE #10: 93

↓

#16: 188
#15: 157
(#14: 94)
(#13: 63)

9: ↑ 8
↓ 8

gliss off

TUNE
#12: 186
#11: 155
(#10: 93)
#9: 62

↑ 8
↓ 8

Switch to high #15 & 16
switch to high #11 & 12
switch others

E F G H I J K

964
766
572
501

1002
854
572
428

644
430
390
323

320
215
162, 160

3/15 David Behrman and Katherine Morton are here, as is
Home-made synthesizer
Music with Sliding Pitches

[Next project: make a patch on the arp, one phrase of electronic sound]

→ Music with Sliding Pitches

It does not use a normal synthesizer, but a specialized configuration, built for this piece but works for others.

2 elements in it (vs. 12-18); oscillators, vca's; 32 oscillators (vs 3-12 of most synthesizers), 8 vca's, 8 sub audio oscillators (40 oscillators in all) cps - 1 per 1/2 minutes; triangle wave oscillators.

Cycle becomes event in sub audio range, control signal/voltage.

Some of control oscillators hard wired to oscillators (vcf).

Thick sonorities. Cost per oscillator: about \$7. Frequency analyzer.

Wavering impression of homemade equipment is something, gives something to the sound.

Initial tunings - many oscillators tuned to same pitch; some are stable, some move away or towards pitch (vcf).

Move on to next tuning when you feel like it - ~~sound off~~ attenuate audio, retune, bring up again for each group of oscillators.

Triangle wave can be ~~neatly~~ controlled with simple bass and (especially) treble controls

[difference frequency as beat frequency $\frac{3000}{2000} \rightarrow 1000$ cps.]

→ an early simple tape, November 72, Mills college studio

3/20 Pauline Oliveros

she will be here Thursday to perform Sonic Meditations, her new piece in progress.

Born in west, wrote instrumental music, she is a player, worked in first tape studio in California, now at UC at San Diego. Tai Chi - deep breathing, self-defense using other person's energy, making positive out of what originally isn't (the clumpy sound system example). Tuning into environment, reinforcing aspects, listen to breathing, make it audible.

The ♀ (mirror of venus) Ensemble - energy between and among people, spiritual connections can be observed. Sonic Meditation done trans-continental, Pauline in California, Alvin in Connecticut, with students. String piece where you play what you think another player will play, project your next note by thought.

Prepare: as you fall asleep, think of a sound and a visual image, both nights - Pauline will do the same and ask.

Early works:

→ Sound Patterns, for chorus (1965?)

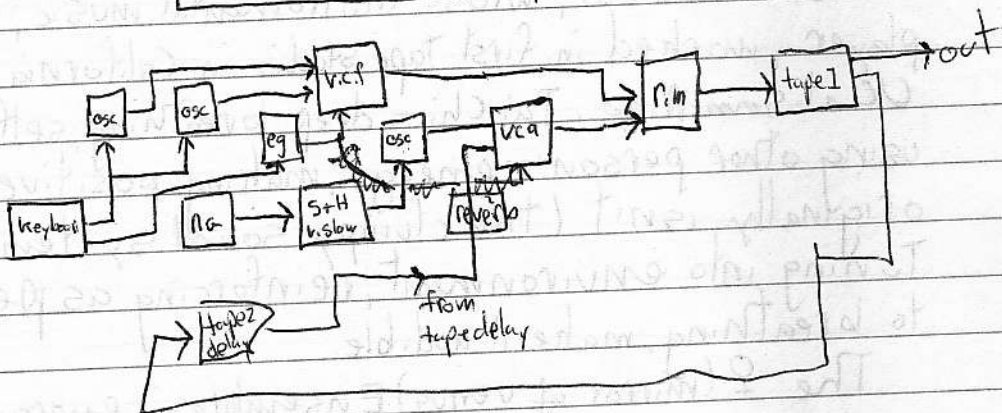
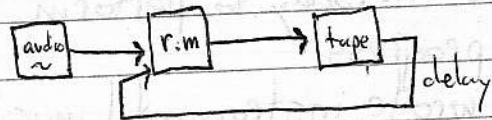
Hard piece to perform; almost conventional score: particular notes and approximate notes (x, ↑, x, etc), which generate tone clusters. Speed up, slow down - pitches easy to get but continuity, exposure, beauty were problems. Recorded measure by measure. Very nice. Electronic. ←

Went...

Went to Toronto studio to learn electronic music - conservative European studio technique, tape production/splicing

real time! tape delay processing

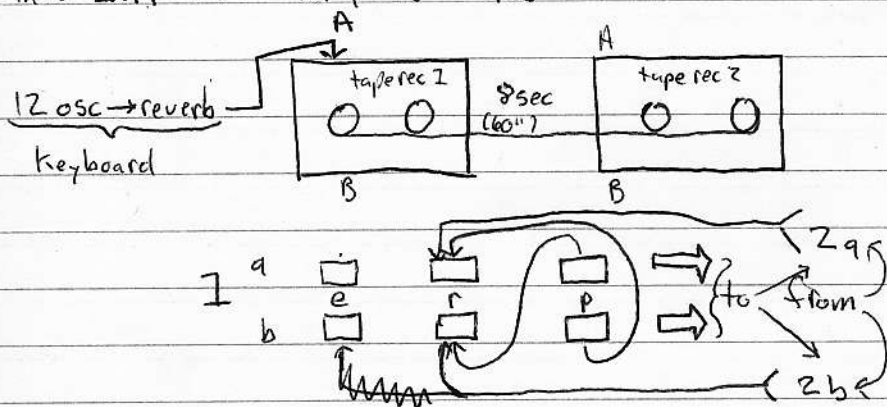
ex:



Tape alone, tape with instrument, tape(s) with instrument live.
 Pauline wanted to work in real time, no editing, incorporating variables.

→ I of IV

12 sine and square wave oscillators - 11 tune above audio, 1 tuned below audio. Combination tones (summation, difference).
 Oscillators played against bias frequency of tape recorder, producing audible sounds, though her materials are inaudible.
 Low oscillator acted as a pulse/gate. Record ch 1a, playback 8sec delay ch. 2a, ch 1a playback into 1b playback, back again into 1a, 2a → 1a, 2b → 1b



3/22 Pauline Oliveros is here

sound in time

organized

10 more classes

so pretty amazing

→ She likes a

group but not

sh. & or. &

3/4 of it.

① ② ③ ④

puts sound

people in a

one — de

whole piece

Alvin Lucier

Markus & George

group 2. etc

7/10/73


To whom it may concern:

Nicholas Collins, my student in Electronic Music, has the right to access to my office, 227 Science Tower. He may borrow any key.

Alvin Lucier

4/10 make a patch, a sound, a complex, that can be put on a tape
sound in time ~ a sound block ~ from point to point, electronically
organized.

10 more classes. go back to Bob Ashley, early pieces which
are pretty amazing and we can perform one (She was a visitor)

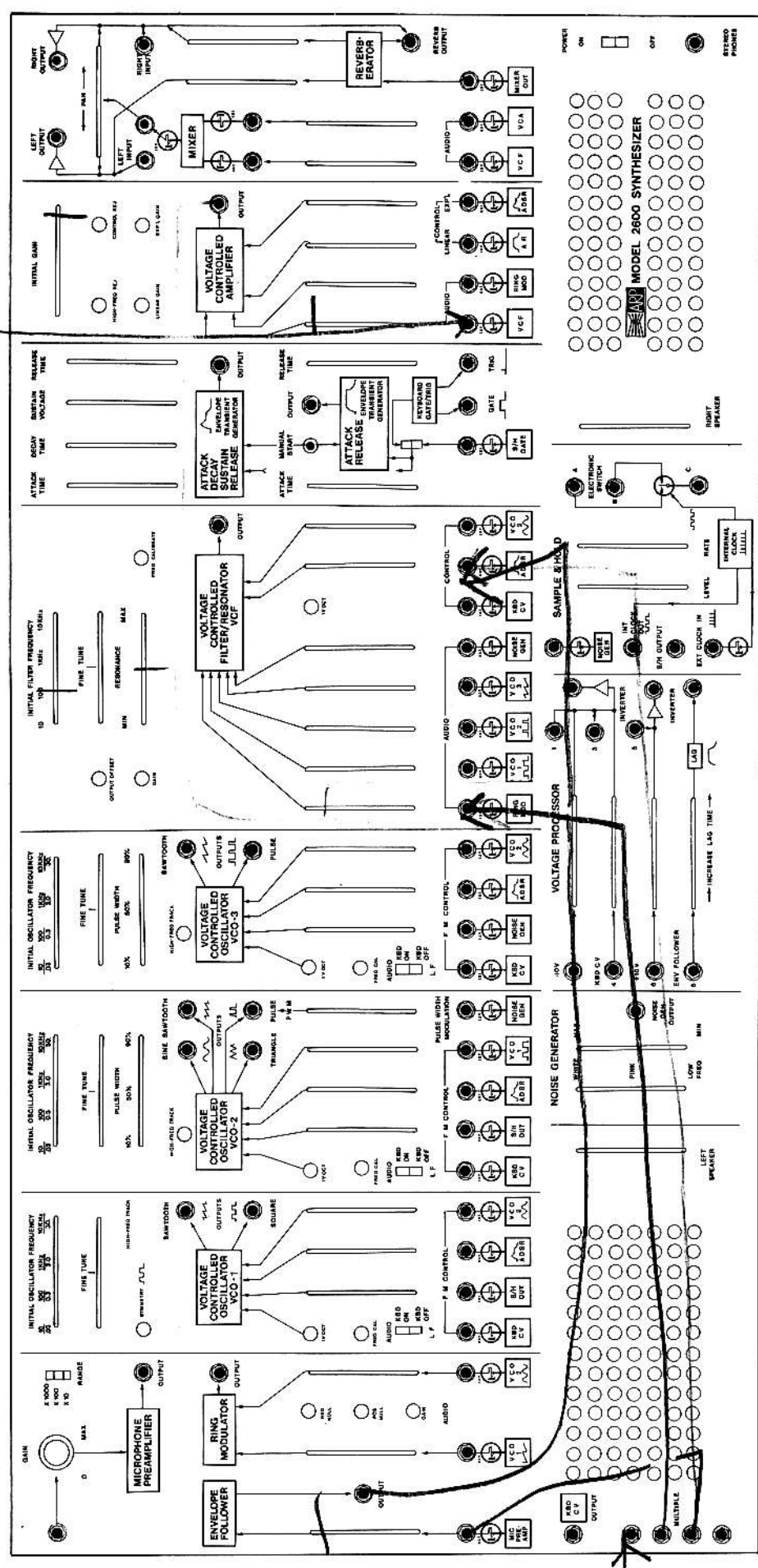
→ She Was a Visitor, for a large group of people who
sing but don't have to, anyone who can talk. The sounds:
sh e oo a z a v i z i t e r . only t cannot be sustained
 $\frac{3}{4}$  pulse of piece - 1 person recites
line in this rhythm.

① ② ③ ④ four (4) groups, each with leader; leader
picks sound in time of speaker and sustains it quietly;
people in group sustain it when they perceive it, each
one — delay, spacial movement within group. so
whole piece is like a wierd chant.

Alvin Lucier and Brandeis chorus — multiple track recording;
track 1 speaker; track 2 whole chorus (38) did group 1; track 3
group 2, etc.

Instrument process
 1 channel: straight (vca)
 2 channel: delay, res. filter

Envelope



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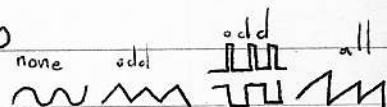
the European studio - equipment was not designed for musical composition

the synthesizer - an American idea and invention. ~~it~~ it all began with RCA wanting to synthesize expensive music cheaply. The name stuck, the idea stuck, and it's a bad idea. produce and process electronic sounds, decisions.

Sources: preamp (mike, tape, lp, electronic instrument, any sound source, radio, etc.)

3 voltage controlled oscillators - VCO

energy distribution of overtones



noise - white \rightarrow pink

Processors: voltage controlled low pass filter - vcf

voltage controlled amplifier - vca

ring modulator, voltage processors, lag, invert

Controls: envelope generators - ADSR, AR.

anything else.

ring mod - difference tone and combination (additive) tone.

audio \rightarrow distinct event with changing voltage/amplitude
oscillator become control signal.

Wesleyan University and the Music Department present

Z A J - esther ferrer, juan hidalgo, walter marchetti

The Wesleyan Memorial Chapel

Wednesday, April 18th at 4 P.M.

mandala

6 minutes for 2 performers & 3 positions
with bodily contact

40th parallel

speculations in "v"

arprocrate sitting on the lotus flower 8 & 7
plus "red, green or yellow"

intimate & personal

black & white

the nine sevens

closing the eyes

the japanese tour

arms up 1, 2 & 3

blood & champagne

mask

music for a glass not too big

the gentleman with the hand on the breast

visible music

the secret

chair is a thing

Vespers (1968)

for any number of players who would like to pay their respects to all living creatures who inhabit dark places and who, over the years, have developed acuity in the art of echolocation, i.e., sounds used as messengers which, when sent out into the environment, return as echoes carrying information as to the shape, size and substance of that environment and the objects in it.

Play in dark places indoors, outdoors or underwater; in dimly-lit spaces wear dark glasses and in lighted spaces wear blindfolds. In empty spaces objects such as stacked chairs, large plants or human beings may be deployed.

Equip yourselves with Sondols (sonar-dolphin), hand-held echolocation devices which emit fast, sharp, narrow-beamed clicks whose repetition rate can be varied manually.

Accept and perform the task of acoustic orientation by scanning the environment and monitoring the changing relationships between the outgoing and returning clicks. By changing the repetition rate of the outgoing clicks, using as a reference point a speed at which the returning clicks are halfway between the outgoing clicks, distances can be measured, surfaces can be made to sound and clear signatures of the environment can be made. By changing the angle of reflection of the outgoing clicks against surfaces, multiple echoes of different pitches can be produced and moved to different geographical locations in the space. Scanning patterns should be slow, continuous and non-repetitive.

Move as non-human migrators, artificial gatherers of information or slow ceremonial dancers. Discover routes to goals, find clear pathways to center points or outer limits and avoid obstacles.

Decisions as to speed and direction of outgoing clicks must be made only on the basis of usefulness in the process of echolocating. Any situations that arise from personal preferences based on ideas of texture, density, improvisation or composition that do not directly serve to articulate the sound personality of the environment should be considered deviations from the task of echolocation.

Silences may occur when echolocation is made impossible by the masking effect on the players' returning echoes due to the saturation of the space by both the outgoing and returning clicks, by interferences due to audience participation or by unexpected ambient sound events. Players should stop and wait for clear situations or stop to make clear situations for other players.

Endings may occur when goals are reached, patterns traced or further movement made impossible.

For performances in which Sondols are not available, develop natural means of echolocation such as tongue-clicks, finger-snaps or footsteps or obtain other man-made devices such as hand-held foghorns, toy crickets, portable generators of pulsed sounds, thermal noise or 10,000 cps pure tones.

Dive with whales, fly with certain nocturnal birds or bats (particularly the common bat of Europe and North America of the family Vespertilionidae) or seek the help of other experts in the art of echolocation.

Activities such as billiards, squash and water-skimming may be considered kindred performances of this work.

Note: a kit of four Sondols is available on rental from either GPE or the composer.

Thanks to Donald R. Griffin.

Alvin Lucier

4/17 i am digging, supposedly a Gordon Mumma day, with Hornpipe.

4/19 Gordon Mumma

Hornpipe - a classical dance but Gordon uses the French horn, with oboe reed and normal reed, electronic processing which responds to acoustical nature of the room.

Space as a problem or space included in piece, environment taken into consideration/integration. In Gordon's piece, improvisation with the space, interaction: player, instrument, electronics, space — feedback quite literally.

Alvin himself Lucier

→ Vespers, by Alvin Lucier

A catholic church evening service but he did not want that just evening and anyway he was a choirboy. Spaces - architects think of space but few others do; people get caught in terrible spaces; thinking about spaces. A dream - on the outside, an alien environment, another planet; he saw beams moving through darkness with stylized electronic instruments, sending sound out and receiving information, collecting it in central unit/brain. Discovered a guy working on sound, underwater dolphins; company designed sondols (sonar dolphins) for blind to echo locate. A book: Donald R. Griffin, Echoes of Bats and Men, science of echo-location. If you live in the dark you have to move around; sound emitted and returned carry information and environment. Wavelength has to be one half size of object to be located - high/"supersonic" pitch → short wavelength. Human hearing:

20-20,000 hz; bats up to at least 150,000 hz. Objective aspects (versus emotional/romantic) — not exploiting bats by "recording and slowing down," but survival aspects. American exploitation of dolphins. Learning from the bats, crude imitation.

Bat sounds are pulses (1 1) — lots of harmonics, momentary; by received sound they can ① distance 1130 cps space in time ② quality by harmonic alteration. In awe of the bat, the purely physical thing.

The sondol is beautifully built, light, but crude in relationship to bats, who change sound from idle while cruising to scanning frequency range while searching/testing/hunting.

Alvin wrote a piece. Invited to Once Group, University of Michigan ballroom, which is huge. Didn't want anyone's personality in the piece, wanted to cut art out. Reality of the situation; bats are blinded — performer wore dark sunshades because of that and "because they look good" and all the weirdness associated with them. Idea was to articulate the environment, hear the space — an objective piece, getting the emotions out of the piece so something else will come in. Teach someone about the environment. Personal decisions interfered with articulating.

Performers placed in corners of room, obstacles set up (plants, bodies); choreographic situation: movement from outer extremities to inside core of space, imperceptible micro-movement (mechanical), stop if you get into complex situation and cannot monitor echo [a series of solos, duets, trios, quartets]. Audience hears acoustic signature of room. A musical piece, a dance piece. An audience can sense screwing around — use non-musicians.

Music as a social situation — players have to help each other; is quiet, serene

Binaural recording — very spacial, listen with earphones.
oh and vespers is part of the latin name for the American bat (family Vespertilionidae).

2/2 Tom Lehrer plays his standing waves

3/3 Computer music — go to the next page

4/24 i am digging. Alvin and Mary perform i am sitting in a room

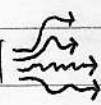
4/26 Brandenburg concerto !? a guest lecturer with his oral project.
and Walter Carlos

5/1 i am digging. Alvin does his standing waves.

5/3 Computer music — go to the next page —————→

5/3 Computer Music

Computers help people solve problems; They can count and do simple things very fast. They are involved in everything we do. "A computer is electronic and it can count therefore it can be an electronic instrument."

There are two ideas: analog, digital — analog/measure, digital/count — musicians have always been concerned with both. Synthesizers are analog, voltage measuring, not discrete; most musical instruments themselves are only analog, the player is digital. Counting — speed — fast sampling can outline a wave — computer generated audio: analyze wave, program, run, digital to analog conversion — complex, time consuming — interface digital to analog so that d-to-a out voltages control Vc devices. The PDP 10 now has four D/A converters, 1-10 volts by a few thousand steps, interfaced with arp. 

Also: computer as an aid, non-subjectivity, high speed. Example: get all the music in the world, input, let the computer mix and change styles over real time, programmed style ratios, score output.

John Cage/Eric Satie:: interface. Satie made wierd music, Cage liked it. I Ching (which answers problems by psychic interface, tuning in) recomposed Eric Satie piece, reordered it, and it still was Satie. Then, for Boston philharmonic, did Cheap Imitation, computer/I Ching generated ^{or} orchestration of Satie piano piece (already processed with I Ching); consulted the I Ching to find out if he should use the computer, and it said go ahead.

→ Hpschd — John Cage hated the harpsichord. Commissioned,

play sine tone, record, playback, picks up with mike at a distance, put through synthesizer. Random VCA, filtering

These are two ideas: analog of digital - analog (continuous) vs digital (discrete) - musical notes are always discrete. Both synthesizers are analog, voltage measuring not discrete. Most musical instruments transducers are only analog to digital. Computer is digital. Counting - speed - fast sampling rate. Wave - program, can digital to analog conversion - complex time consuming - interface digital to analog so that other not voltage control is chosen. The 8080 is now a few MHz converters, 1-10 volts by a few thousand steps, interface with org.

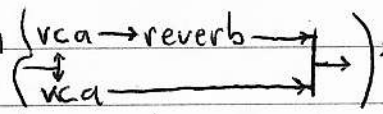
Also: computer as an aid, non-substantive, high speed. For all the music in the world, input, let the computer mix and change styles over real time. Programming styles, rates, cross output. John Cage/Eric Satie interface. Satie made weird music. Cage liked it. I think which answers problems by graphic interface. Turing (recomposed Eric Satie piece, recorded it, and it still was Satie. Then for Boston Philharmonic, did (re)mixing. Computer (I think generated a variation of Satie piece, already processed with I Ching), could be I Ching to find out. It should use the computer, and it should be about

→ The end - John Cage noted the hierarchical command

went to Illinois on invitation from Miller. First six columns of IBM cards are for title; changing the language. Plucked strings, analysis of envelope, simulated by computer, deviations (artificial instruments) - programmed with tremendously small points in time, artificially created scales (80 tones per octave) (simulation and deviation to extremes). Output recorded, 57 channels; 7 scores for 1-7 harpsichordists, using Mozart dice piece, collages of Beethoven, Schubert, Schumann, Schoenberg. Two channel record; 12 channels of tape, a few harpsichords, computer generated score for two player modulating controls of amplifier (every score is different) so you can perform the piece

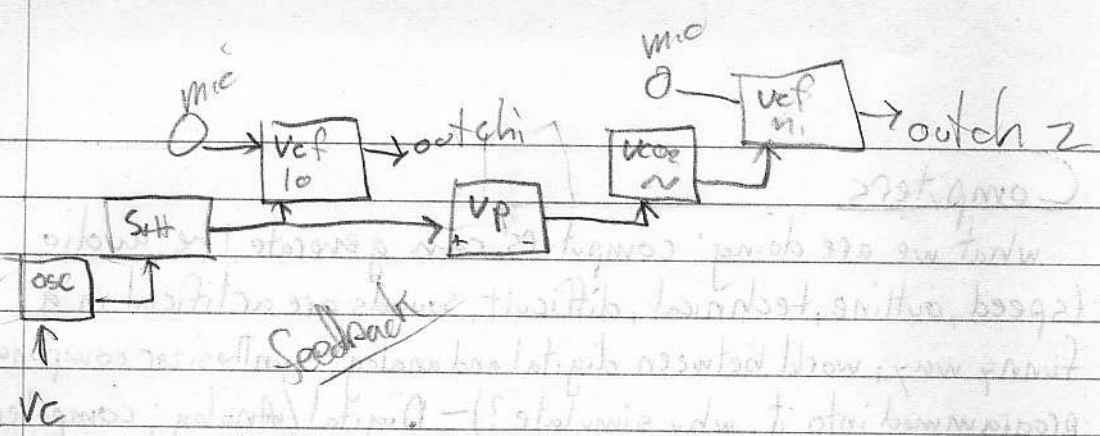
5/8 Computers

what we are doing: computers can generate the audio (speed, outline, technical, difficult, sounds are artificial in a funny way; world between digital and analog, synthesizer components programmed into it, why simulate?) - Digital/Analog; computer can be an extremely accurate, flexible voice control voltage source; computer as an aid

A piece by Alvin, computer as a Vc device. Environment is a popular word, frequent. - computer generated video environment by Bell for landing patterns, philosophy of simulations. Vespers - articulation of space → computer controlled environmental simulation. Each room has its ambient sounds; moving from one room to another sounds like moving through filters, bandpass filters. Take a microphone, put it in a room, input to simple configuration of electronic components that can simulate changes in room dimensions: reverberation (vca → reverb →), filter (center frequency, resonance);


bird flying through computer program (60 beats per sec), wing height gives room height, wingspan gives width, random length (wing beats are sine waves); very long rooms, relative to travel time (1130 feet per second); reverb vca according to coefficient of absorption I-VII in 70 steps for different resonant frequencies, derived from speed and volume. Four simultaneous outputs from Vcf, mixed down (this take) to 2 channel stereo.

→ Rmsim I, The Bird of Bremen Flies Through the Houses of The Burglers
amazing



A block diagram of a control system. The system consists of several interconnected blocks. An external input labeled 'VC' enters a block labeled 'osc'. The output of 'osc' goes to a block labeled 'S+H'. The output of 'S+H' goes to a block labeled 'Vc10'. A 'mic' input is also connected to 'Vc10'. The output of 'Vc10' is labeled 'outch 1'. This signal goes to a block labeled 'VP'. The output of 'VP' goes to a block labeled 'Vc20'. The output of 'Vc20' goes to a block labeled 'Vc n1'. The output of 'Vc n1' is labeled 'outch 2'. A feedback path is shown from 'outch 2' back to 'osc', passing through a block labeled 'Vc20'. The word 'Feedback' is written across this path.

WESLEYAN UNIVERSITY
MIDDLETOWN, CONNECTICUT 06457
DEPARTMENT OF MUSIC

presents

A CONCERT OF COMPUTER MUSIC AND FILMS

RMSIM 1, The Bird Of Bremen Flies Through The Houses Alvin Lucier
Of The Burghers (1972)

An imaginary bird, its wings flapping 60 times per second, flies through a digital computer (program) at the speed of sound. Via digital/analog converters, filters, voltage-controlled amplifiers and a reverberation unit, the computer simulates changes in the size and acoustic characteristics of a source room in which is deployed an omni-directional microphone. The positions of the bird's wings, at sampled moments, determine the width, length and height of the newly generated rooms plus the reflective and absorptive qualities of the materials of which the rooms are made.

RMSIM 1 is conceived as a real-time environmental sound control system. The present version is a stereo mix of a 4-channel recording.

CIRCLES
music by Morton Subotnick

Doris Chase

POEM FIELD NUMBER 1

Stan Vanderbeek

SEE SAW SEEMS

Stan Vanderbeek

CYBERNETIK 5.3

John Stehura

LAPIS - solar + tabla

James Whitney

Wednesday, May 9, 1973
150 Science Tower
5 PM
Admission Free

5/10 Computer films

music - live electronic music -

something happens when you play together, improvisation

Musica Electronica Viva (MEV) - Rzewski, Curran, Bryant, Teitelbaum.

They thought of it as an image of what the world could be.

a good place to end.

ok goodbye

SONIC ARTS UNION

WBAI Studio C
May 25, 26, 27, 2973

The Sonic Arts Union is an electronic music ensemble. Its members are Robert Ashley, David Behrman, Alvin Lucier, and Gordon Mumma. Their purpose is to make possible the performance of musical ideas that lie outside the scope of ordinary concert situations and to explore resources of sound production which result from the broadest application of electronic technology.

During their three days at WBAI the group will provide a variety of sonic experiences throughout the afternoon and evening. The situation is informal so that the audience can come and go at will, at any time during the day. The Sonic Arts Union presentation makes the process of electronic music accessible in a more informal atmosphere than is usually associated with the traditional concert situation.

Robert Ashley is director of the Tape Music Center of Mills College, Oakland, California.

David Behrman is a composer and musician with the Merce Cunningham Dance Company, and producer of contemporary music recordings in New York City.

Alvin Lucier is on the music faculty of Wesleyan University, Middletown, Connecticut, and music director of the Viola Farber Dance Company.

Gordon Mumma is a composer and musician with the Merce Cunningham Dance Company, and an author and electronic designer in New York City.

Music by the Sonic Arts Union is recorded on Mainstream MS 5010.

Administration: Artservices
463 West St.
New York, N.Y. 10014
(212) 989-4953

This program is made possible by a grant to the Sonic Arts Union from the New York State Council on the Arts.

Gordon Mumma: notes for CYBERSONIC CANTILEVERS

CYBERSONIC CANTILEVERS is a process of music. Anyone may participate.

CYBERSONIC CANTILEVERS is related to other processes in which people participate in discovery, perceptual and intellectual challenge, and entertainment. Among these processes are satellite communication, data processing, bio-medical telemetry, and space exploration. These are processes in which information is electronically transformed.

The electronic sound transformations of CYBERSONIC CANTILEVERS range from very simple to extremely complex. The most extreme processing of CYBERSONIC CANTILEVERS transforms the original sounds into entirely new sounds, which may have no perceptible resemblance to the original.

The process is in five stages. All are stereophonic. The first stage consists of sound sources (for example, microphones, cassette recorders, electronic circuits.) Stages two, three, and four are electronic transformations which change the pitch, articulation, and timbre of the sound sources. The last stage presents the transformations in a quadraphonic environment.

Participants are invited to monitor any stage of the process. At electronic monitoring stations participants may hear (with stereophonic headphones) and see (with stereophonic oscilloscopes) any stage of the process they choose. Also, participants are invited to add to the sounds of the process, and may bring their own pre-recorded sounds on cassette tapes, or produce sound live through microphones.

A word about the words:

CYBERSONIC: Cyber --from the Greek "kybernan" to steer or guide. (Cybernetics, the science of control and communication, is concerned with interactions between automatic control and living organisms.)

Sonic --pertaining to sound.

In CYBERSONIC CANTILEVERS some of the electronic transformations are automatically derived from the sounds themselves, and some from the interaction of people with the electronic system.

CANTILEVERS: Cantilever --a projecting beam, anchored at one end, and supporting a load along its length by means of tensions and compressions which are distributed within the beam. (Typical cantilevers; flagpoles, airplane wings, diving boards, certain bridge structures, and the seesaw.)

Anchored in the original sounds, or in parts of the modification process, the sonic transformations of CYBERSONIC CANTILEVERS are projected through the supporting stages of the electronic system.

David Behrman: notes for HOME MADE SYNTHESIZER MUSIC WITH SLIDING PITCHES

Many people are now working directly with the raw materials of electronic technology to make sounds, lights, or video images. The availability of cheap integrated circuits and paper-back how-to books has made it possible for a self-styled musician to design his or her own electronic music synthesizer; just as, in the stone age, the availability of the chisel made it possible to fashion one's own hand-hewn wood-log drum. The practice of making one's own instrument is a venerable one, though it may have been inhibited during the past industrial centuries.

Although several brands of commercial music synthesizers have been around for half a decade, they tend, when used alone, to produce sounds which are quickly used up by our culture (become clichés.) This is probably because they are designed as general-purpose, saleable packages adept at producing everything from TV commercial sound effects to imitation of conventional instruments.

The instrument used in "Home Made Synthesizer Music" is incapable of making most kinds of electronic sound. But it does make one variety (extremely dense, slowly shifting harmony) more easily than even three or four of the largest, most expensive commercial synthesizers. It cost about one-tenth of its equivalent in store-bought units and is small and light enough to be packed into two suitcases.

Programmed initially and then left to itself, it can provide a sound environment of indefinite duration. It can also be played by one or two people. A flashlight photocell signal distribution system may be added for a third or fourth player. Or it can be used by an improvisatory ensemble--such as the one currently making music coincident with the Merce Cunningham Dance Company.

Its hardware consists of 32 stable voltage-controllable oscillators, eight envelope generators, eight voltage-controlled amplifiers, and mixers. Tuning during performance can be done with frequency counters. The sound is best heard surrounding its listeners via a four channel loudspeaker system.

Robert Ashley; notes for IN SARA, MENCKEN, CHRIST AND BEETHOVEN
THERE WERE MEN AND WOMEN (1972)

Text by John Barton Wolgamot (1944). Printed privately in two editions (of which this reading is the latter), differing in title and, reputedly --- though I have not had the opportunity to confirm this ---length (one page.) A poem of 128 stanzas, each stanza the same sentence with four variables, three of which are names or name groups or name constructions, the fourth, the adverb of the active verb. To my mind one of the most unusual and beautiful (and memory-defying) sentences in English.

"In its very truly great manners of Ludwig van Beethoven very heroically the very cruelly ancestral death of Sara Powell Haardt had very ironically come amongst his very really grand men and women to Rafael Sabatini, George Ade, Margaret Storm Jameson, Ford Madox Hueffer, Jean-Jacques Bernard, Louis Bromfield, Friedrich Wilhelm Nietzsche and Helen Brown Norden very titanically."

The permutation of the four variables over the 128 stanzas give the poem a clear musical form (suggesting both fugue and sonata), binding together groups of names and adverbs into "themes" that are as obvious and as difficult to paraphrase as music. Fourteen names (seven each men and women) reappear in various number hierarchies throughout the poem. These I understand to be the heroes and heroines of the story. Other names are repeated, apparently as secondary "themes." And finally there are hundreds of names that occur only once (all of the great names of Western culture since the Greek philosophers, with the list becoming more comprehensive and enigmatic as it includes the American literary and musical culture of the early 20th century), whose poetic function I have not deciphered.

My score suggests an alternative of two electronic settings in which the poem may be read. These are distinguished by reading speed and by the effect of the electronic devices on the vocal sounds. The setting from which this realization is derived allows for the possibility of any number of thickenings that follow the stanza structure of the poem synchronously, and includes instrumental accompaniment, vocal embellishments, and elaboration of the physical environment in visual, temperature and tactile modes.

In this realization the sounds of the voice are analyzed by means of filtering to plot the frequency of occurrence of seven different sound components (plosive attacks, fundamental frequencies, and five harmonics), each of which guides the synthesizer in synchronization with the reading of the poem. The seven tracks of synthesizer activity are mixed together with the voice and distributed over the four channel matrix.

(realization for Moog synthesizer by Paul DeMarinis and Robert Ashley, January, 1973)

Robert Ashley: notes for STRING QUARTET DESCRIBING THE MOTIONS
OF LARGE REAL BODIES (1972)

For the past few years I have been interested in the phenomenon of the identity of sounds--how we distinguish among sounds by their causes or origins or meanings. These interests were expressed in various ways in the form of four pieces, called ILLUSION MODELS, which were designs for hypothetical, computer-controlled sound environments. In an attempt to illustrate the ideas of the ILLUSION MODELS I designed performance pieces that were based on the same principles as the hypothetical models, hoping to suggest through technical concepts how the aural illusions might occur in the time domain of music.

From the technical solution to the requirement of one of the performance pieces (extremely precise synchronization of very short sounds) came the ideas of the STRING QUARTET DESCRIBING THE MOTIONS OF LARGE REAL BODIES, in which, through the process of mixing together short sounds from different points of origin in time, a single "line" of sounds of different "identities" is synthesized from each instrument.

There are two kinds of sound in the STRING QUARTET DESCRIBING THE MOTIONS OF LARGE REAL BODIES, quasi-random, discrete pulses from the string instruments (from a particular manner of playing) and those same pulses delayed and electronically modified. The two kinds of sounds (identities) are intermingled, because of the delay mechanism operating on one of them, to form a series of pulses, some of which are "original" and others of which have had their identity changed electronically.

The ensemble factor of the work (a "quartet") is composed not in the actions of the performers---each instrumentalist carries out the requirements of the score independently---but in the interconnection of the electronic components, where the alteration of the sound materials is dependent upon the coincidence of events from the various instruments.

The title comes from the images that kept occurring to me while I was reading Worlds in Collision (Immanuel Velikovsky) for the first time, which coincided with working on the STRING QUARTET DESCRIBING THE MOTIONS OF LARGE REAL BODIES.

Realization by Robert Sheff and Robert Ashley, January, 1972

Robert Ashley: notes for REVISED, FINALLY (APRIL, 1961-APRIL, 1973),
FOR GORDON MUMMA

For any number of pairs of players of similar sounds. The idea of the composition has been to provide a situation where the player's sense of tempo is used in a way that is similar to the use of his sense of pitch relations in part-singing. The title refers to my problem of finding a musical representation of this idea and to the time when so many of my musical thoughts were inspired by my association with Gordon Mumma. I think this revision is final.

Robert Ashley: notes for QUARTET (1965) for any number of wind
or string instruments

A program of sound-actions for any number of players acting independently, not a time schedule of ensemble events. Each action has its own duration, based on the mechanics of sound production for the instrument involved (breath length for wind instruments, bow length for strings.) The score suggests optional actions for performances by more than one player that recognize the ensemble situation without restricting the individual player's freedom, including the possibility that the players may develop an ensemble silence of indefinite length. The title refers to the design of the score and to the fact that the program was derived from an earlier work, in memoriam...ESTEBAN GOMEZ (quartet.)

Alvin Lucier: notes for RMSIM 1, THE BIRD OF BREMEN FLIES THROUGH
THE HOUSES OF THE BURGHERS (1972)

An imaginary bird, its wings flapping 60 times per second, flies through a digital computer (program) at the speed of sound. Via digital/analog converters, filters, voltage-controlled amplifiers and a reverberation unit, the computer simulates changes in the size and acoustic characteristics of a source room in which is deployed an omni-directional microphone. The positions of the bird's wings, at sampled moments, determine the width, length and height of the newly generated rooms plus the reflective and absorptive qualities of the materials of which the rooms are made.

RMSIM 1 is conceived as a real-time environmental sound control system. The present version is a 4-channel recording.

RMSIM 1 was commissioned by Radio Bremen for the 1972 Pro Musica Nova Festival. It was composed and recorded at the Wesleyan University Computer Arts Studio.

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