Lecture III 10-6-09

I. Electronic Music

Electronic music is a synthesis of many different aspects: the array of loudspeakers, or acousmatic situation; the creation of new electronic instruments; the exploration of novel tunings and timbres; the use of recording and reproduction technologies; the relationship between science, mathematics and music.

Quick Overview of Early Electronic Instruments:
The Telleharmonium invented by Thaddeus Chill in 1901

- **DYNAMOS** - the first electrical generators capable of delivering power for industry, and the foundation upon which many other later electronic power conversion devices were based.

Leon Theremin invented the *Aetherphone* later known as the *Theremin* in 1920

Various organ instruments that expanded on timbral nuances.
- Jorg Mager’s *Spharophon* (c.1926)
- Rene Bertrand’s *Dynaphone* (c.1928)
- George Jenny’s *Onioline* (c.1938)
- Hugh Le Caine’s *Electronic Sackbut* (c.1948)

II. Musique Concrete

“Real Sounds”

“Musique Concrete wasn’t at all a music of noises, not at all a music of provocation. It was the contrary. It was a music that uses all the resources that are available to us, a music that uses all the sounds of life. Musique concrete sounds have meanings for us, as photographs and films have meanings. They show life as we experience it, as we live it in the everyday world.” - Francois Bayle

Play “Five Noise Studies” CD#1 trk. 1-5 (1st Musique concrete) (LCD2666)
Of Schaeffer:
“Such an eruption of problematic sonorities cannot happen without both an irrepressible flood of unthinking intuition and troubled ideas. In fact, which was the echo of the other? Was it a question of the other? Was it a question of someone who intuitively liberated sounds from his anxieties, or, on the other hand, of someone who had the serious mission of delivering profound understanding?”
(September 1990. Francois Bayle. L’oeuvre musicale, 44-45)

Meanwhile, in 1958, with Luc Ferrari and Francois-Bernard Mache, and also with Michel Phillopot and Ianis Xenakis, Schaeffer established a new studio called Groupe de Researches Musicales (GRM) Xenakis, in particular, emerged as an original and significant voice. As he puts it, “The idea of musique concrete was that you could use all sorts of sounds or noises-I discovered the noises.”

*Concrete P.H.* (c.1958) is a minimal, short piece based on the grainy, sandy sounds of burning charcoal, with varying density and register achieved by the overlays of tapes played at different speeds.

**Play** “*Concrete P.H.*” by Iannis Xenakis c.1958 trk. 22 (MUSIC 80C-CD#1)

**Play** “*Etude aux allures*” 3’28 by Schaeffer c.1958 (LCD2666)

### III. Electronische Musik

“an extension of serialism”

It is certain that no means of musical control could have been established over electronic material had it not been for the revolutionary thought of Anton Webern... Alone among the twelve-tone composers, Anton Webern conceived the row non-subjectively...In his work, for the first time, we see the beginnings of three-dimensional row technique—of what, in short, we know as *serial technique*...everything, to the last element of the single note, is subjected to serial permutation...This electronic music is not ‘another’ music, but a serial music...Talk of ‘humanized’ electronic sound may be left to unimaginative instrument makers.” - Herbert Eimert

**Read from OHM+ Guide page 30**

AEG Magnetophone - keyboard controlled electronic instrument

**Play** “Kontakte” by Stockhausen c.1959-1960 trk.5-9 (LCD1596)

**Tape Music Studios and Radio Continued**:
IV. Varese

The Composer Edgard Varese was even replacing the word ‘music’ with the phrase ‘organized sound’. Varese spent the majority of his life dreaming of a day when the technologies available to him would be capable of realizing his musical ideas. As he remarked, bitterly: ‘in music we composers are forced to use instruments that have not changed for two centuries.’ In his manifesto ‘The Liberation of Sound’, published in 1936, he wrote:

   The Raw Material of music is sound. That is what the ‘reverent approach’ has made people forget – even composers. Today when science is equipped to help the composer realize what was never before possible…. the composer continues to be obsessed by traditions which are nothing but limitations of his predecessors….

   As far back as the twenties, I decided to call my music ‘organized sound’ and myself, not a musician, but ‘a worker in rhythms, frequencies, and intensities.’ Indeed, to stubbornly conditioned ears, anything new in music has always been called noise. But after all what is music but organized noises? And a composer, like all artists, is an organizer of disparate elements…

   The electronic medium is adding an unbelievable variety of new timbres to our musical store, but most important of all, it has freed music from the tempered system, which has prevented music from keeping pace with the other arts and with science. Composers are now able, as never before, to satisfy the dictates of that inner ear of imagination. They are also lucky so far in not being hampered by aesthetic codification – at least not yet! But I am afraid it will not be long before musical mortification begins embalming electronic music in rules

Between 1950-1954 Varese composed Deserts for orchestra and tape, supported by Pierre Schaeffer who provided facilities at the Radiodiffusion-Television Francaise (RTF) studios, where he was working on musique concrete.

In 1958 at age 75, Varese was invited by architect Le Corbusier to create Poeme Electronique for the Phillips Pavilion at the 1958 World’s Fair. This was essentially a sound installation, which used four hundred loudspeakers to create a walk-through sonic experience that combined synthesized and recorded and processed sounds.

Read from website:
Poeme Electronique was not merely a piece of music, but a multimedia artwork that constituted the Philips Pavilion during the Brussels World’s Fair of 1958.
Philips commissioned renowned architect Le Corbusier to conceive this project of film, light, sound, and architecture, who in turn relied on a team of collaborators to carry out its various components. The architecture itself was largely the work of Ianis Xenakis, who was Le Corbusier's engineer and assistant at the time. Making use of the hyperbolic paraboloids that were first employed in his composition *Metastassis* (1954), the strikingly warped surfaces of the Pavilion proved to be one of the most eccentric structures at the World's Fair. In addition, Xenakis also composed *Concret-PH* to accompany the intermission, a tape piece based solely on the sounds of heated charcoal.

Intended to showcase Philips's most advanced technologies at the time, the entire eight-minute production was automated through control tapes. Although the complexity of the system would delay the opening of the pavilion by a month, its features were extremely sophisticated even by today's standards. Another notable aspect of this early spectacle was the independence of sight and sound, which were created without synchronization outside of the predetermined duration. Although each performance of *Poème Electronique* would be identical, the relation between its two principle components was the result of chance, much like the Cage/Cunningham collaborations.

Varese created his work at the Philips Studio in Eindhoven, assisted by Willem Tak and S.L. de Bruin, using both concret ("real" sounds such as machines in operation and fragments composed for voice, organ and percussion) and synthesized sonorities. The final tape was essentially a single channel (mono) work, with two extra tracks containing "reverberation and stereophonic effects." Listening to the work today, we must be reminded that *Poème Electronique* was intended to be distributed over 400 loudspeakers placed across the surface of the pavilion interior. Controlled by an automated switching system, sounds traveled pre-programmed routes—horizontally around the audience as well as vertically—as trails of speakers were switched on-and-off like Christmas lights.

Play *Poème Electronique* CD#1 Track 20

V. RCA Mark II Synthesizer

http://www.wikipedia/wiki/RCA_Mark_II_Sound_Synthesizer

Read Chadabe p.44-46

Read from OHM+ p.43

Play "Philomel" by Milton Babbit c.1964 trk.5 (MUSIC 80C-CD#2)
VI. “Outsiders”

Cage “Williams Mix”

Read Chadabe p.54-58

Play “Williams Mix” by John Cage c.1953 trk.16 (MUSIC 80C-CD#1)

Louis and Bebe Barron

Play OHM+ Interview (DVD3983)

Play Excerpt from “Forbidden Planet” scored by Louis and Bebe Barron c.1956 (DVD1025)

Eliane Radigue

Read Chadabe p.76-77

Read Vice Versa Guide (LCD10576)

Superimposition – place (or lay) one thing over another, typically so that both are still evident.

Montage - the process or technique of selecting, editing and piecing together separate sections of film/tape to form a continuous whole.

Play “Vice Versa” by Eliane Radigue c.1970 (LCD10576)

Pauline Oliveros

Read Chadabe p.77-78

Play “I of IV” by Pauline Oliveros c.1966 (LCD2535)

Alvin Lucier

Read Chadabe p.75-76
Perform: *I am sitting in a room*

I am sitting in a room different from the one you are in now. I am recording the sound of my speaking voice and I am going to play it back into the room again and again until the resonant frequencies of the room reinforce themselves so that any semblance of my speech, with perhaps the exception of rhythm, is destroyed…

**VII. Radio**

Review readings:
*Radio: Audio Art’s Frightful Parent* – Bruce Barber  
*Radical Radio* – R. Murray Schafer

“What I am urging for is a phenomenological approach to broadcasting to replace the humanistic. Let the voice of the announcer be stilled. Let situations be presented as they occur without the interruption of sponsors, clocks or editorial manipulation.” – Murray Schafer