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Assignment 4

The first piece I listened to was *Concrete P.H.* By Iannis Xenakis written in 1958. The sounds in this piece are all examples of music concrète, meaning the sounds were recorded and manipulated rather than synthesized. The only sound source for this piece is burning charcoal, and Xenakis overlaps this sound with itself creating different textures and densities, as well as plays is back at different speeds, all of which are combined to create this piece. Given a similar source file, Metasynth would certainly be able to create a 'replication' of *Concrete P.H.,* by taking the source file into the effect room, and using the Pitch and Time effect to generate modified sounds being played at different rates, then using the montage room to put them together into a similar piece. There also seems to be a slight spring reverb, but whether it was added or was present in the source file is impossible to tell. The structure of this piece seems to generally suggest a rondo form, ABAC(A), where the A sections are comprised of the initial static sound which occurs throughout the piece, and nothing else. The B section which begins around 0:47, introduces the first variation, where the sounds are played back at a faster rate, giving more discernible pitches that pop out of the texture. This higher line begins to fade and by 1:30 we are more or less back to the A section. At the 2:00 mark the density of the texture increases and there are little events of sound and color that happen, then there is a thinning of the texture from 2:29 till the end of the piece that I think of as an A codetta section. Interestingly the first two sections seem to be about equal durations, (ca 45 seconds) while the last two sections, A & C, are similarly equal durations (ca 30 seconds), then there is a small codetta section that fades out. Xenakis is a Greek architect turned composer, and is most famous for his use of stochastic process (as well as game theory), in his music. An interesting connection I found with this piece is an orchestra piece *Pithoprakta*, which utilizes the Maxwell-Boltzmann equation for gas distribution (basically a random dot plot generator), which is then transcribed from graph to musical notation. What is similar between these two pieces is Xenakis' use of

density of texture in his music. With the electronic piece, he is controlling density based on the number of overlays are occurring at any given time, while in the orchestra piece he controls the density by varying the temperature coefficient in the Maxwell-Boltzmann equation (hotter = less dense, colder = more dense).

The second piece *Incantations*, by Vladimir Ussachevsky and Otto Luening is drastically different from *Concrete P.H.* in terms of sound content and form. This piece also uses synthesized music in addition to concrète sounds (most of which are modified singing). The synthesized sounds (possibly computer generated) are very similar to Metasynth's Image Synth room, and after working with it I can almost picture the images that would be associated with the events throughout the piece. They seem to mostly be ascending and descending figures, over a drone static that morphs as the piece progresses. The concrète sounds, (singing, a bell, and what sounds like insects) are mostly a male singing with what sounds like a warped effect, possibly a pitch shift below the original recording and played in reverse, the other two sounds I heard only happen once in the piece. The structure of this piece seems to be a simple rounded binary, ABA', with an introduction section at the beginning of the piece. From the start till about 0:35 is an introduction which starts off slow and introduces the voice as well as the computer generated sounds. At 0:35 there is the bell sound, and then the computer generated sound 'takes the lead,' till 1:09 there is a gong-like synthesized sound and the singing is re-introduced, the B section. Then at 1:46 the synthesizer takes the lead again, A', with what sounds at first like a modified flute, but I think it is synthesized. The piece then fades out slowly mirroring the introduction. Ussachevsky and Luening were colleagues at Columbia University at the time they wrote this piece (1953). Together they also established the Columbia-Princeton electronic Music Center in 1958. Both composers are known for their work in tape music, music concrète, although Ussachevsky would turn back to writing acoustic music in the 70's, writing mostly choral music. Both pieces were very different, but the interesting similarity I noticed was the simplicity of the form in both pieces. It seems that since the music concrète is being explored and developed, composers had to adopt seemingly

recognizable forms early on to help them understand and relate to one anothers work. One of the problems with electronic music from this period is the nearly infinite possibility of sounds and sound sources, (compared to acoustic music, which is limited by the number of instruments available to the composer).