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Much of my recent work examines the archaeology of sound recording in an effort to explore the hidden dimensions of technology and culture as they intertwine within and among our perceptions of sound, memory and communication.

(Brief adlib on Music as a Second Language, Edison Effect, Gray Matter)

In his "Ninth Bridgewater Treatise Fragment" of 1838, Charles Babbage, commonly cited as an ancestor of digital media, portrays a world filled with non-dissipative sound waves. Each sound, as it is created, propagates amongst the hard Newtonian billiard balls of matter, adding to an eternal din from which the cosmic maker, at the end of his creation can discern every act, word and deed. By this eternity-windowed FFT, it is assured that no good will go unrewarded at the end of time, and no evil unpunished. The atmosphere is in effect, a cosmic recording medium, and the hush we hear in still air holds, encoded, the words of all time.

The invention of the phonograph a few decades later presented a different set of observations: That of multiplying sounds. And not merely as direct copies. The earliest phonographers discovered that when they recorded a sound that, upon playback, three sounds were heard. The first sound they heard, was of course, the sound they intended to record, perhaps with some distortions but always faithful and accurate enough to satisfy - for a while. In fact the similitude of the first faint scratchings on foil and wax were so startlingly faithful at the time that Edison was accused of perpetrating a hoax when the sound-writer was displayed in Paris in 1878.

The second set of sounds heard coming from the horn of the phonograph were the inadvertent sounds of the environment, which rode along unnoticed during the recording process. These sounds had been little noticed before, and simultaneously presented a set of problems to be solved and the discovery of a new world to be explored - the vast variety of sound art, soundscape, sound sculpture and sound design which have been discovered in this century and are still being charted. As far as the solution of the problem of interfering environmental sound, the relative isolation of the recording studio and the absolute numerical isolation of direct synthesis often cause their sounds to go begging when it comes to combining or contexting them with other sounds.

But a third sound was heard as well - the sound of the recording apparatus itself and this presented both a subtler set of problems and a new and paradoxical sort of territory of its own. The rumblings of the mechanism, too, register upon the wax, and the texture and grain of the wax has its own raspy voice, a voice that sang along with every diva and accompanied every chance sound passing by the microphone. Surface noise, channel noise, the song of long ago and far away, presented a gift in disguise to the recordist and artist alike. This noise is an audible indication that information is being sent. In effect this "noise-floor" is the sound of silence of any given channel.

Theodor Adorno noticed the new role that surface noise was taking in the sound cinema as a backdrop for continued attention and suspended disbelief and coined a term for it - Horspielstreifen, or hear-strip, "the delicate buzz during a film of recorded silence whose purpose it is to subliminally confirm the presence of a reproduction underway, thereby establishing the minimum existence of some type of presence." (Kahn)

In earlier times silence had to be created before music could fill it. In various musical cultures, a variety of sounds and figurations assumed the role of creating the presence of silence - The omnipresent drone of the tamboura in Indian music is an example. In western classical music, the Alberti bass served European music well this role for over a century, and its variations were still at work in the century that created mechanical recording.

EXAMPLE 1 (opening of 2nd movement Beethoven's 6th)

With little variation, the bourdon basses, the quiet repetitive figures, and pianissimo trillings created and sustained an artificial background of figurative silence while keeping the listeners rapt in attention.

With the advent of surface noise and channel noise as an omnipresent musical experience, these representations of silence gradually disappeared. That is, they became foreground features of the music and took on a life of their own. Many examples can be heard in works of the so-called minimal music style of Glass others.

Popular music continued compressing, normalizing and filling every moment and crevice of the groove with sound, perhaps in order to suppress a feared existential confrontation with the surface noise. At the same time, almost in opposition, classic and academic circles elevated a new, idealized acoustic silence to the very highest position in the pantheon of sounds. The work and writings of John Cage come immediately to mind. The various (and ambiguous) meanings he ascribed to the word silence in his writings, as well as his very ambivalent position on recording itself (ref. to Yasunao Tone's article) attest to the continuing discomfort composers and sound artists were having with the sounds of surface noise. It was, so to speak, "a scratch that no needle could itch."

The role of surface noise and channel noise became, in our century, analogous to the sfumato that DaVinci describes in his treatise on painting - a smoke or haze layered over distant areas in the painting to increase the perception of a space separating them from the foreground subjects. These continuous noises served as a kind of sonic perspective and also as a measure of realism, as in detections of insertions or deletions in recorded documents (ref. white house tapes) or forensic evidence - e.g. the confirmation of multiple shots in Dallas.

The understanding and interpretation of surface noise, due to its many and unspoken roles, can give rise to spurious readings and strange illusions.

In the 1970's a recording emerged of an obscure classical pianist, an old and forgotten virtuoso playing in a long lost style. What everyone commented on when hearing this disc at the time was the pianist's tone - that when Nyiregyhazi moved from pianissimo to fortissimo the piano seems to leap forward 80 feet into the audience. Gregor Benko, the writer of the record's liner notes attests:

"Using an inadequate cassette machine, Terry had recorded the performance, and now insisted I hear the tape. Nyiregyhazi's playing came as a revelation. Although the tape was a miserable recording, it had captured enough to suggest that Nyiregyhazi possessed a bigger tone than either Hoffman or Horowitz. I was stunned." (liner notes IPA 111)

The Liszt "Legend" Nyiregyhazi plays titled "St. Francis of Assisi Preaching to the Birds" is constructed along classical pre-phonographic lines - the high pianissimo trills serving to describe and represent the silence of the forest and the singing of birds. The recording, made by an amateur, is buried in noise - both environmental and surface noise - abundantly provided by nearby traffic and the electronics of a cheap cassette recorder.

(I should point out a 4th recorded level of sound is present here as well - the "autobiographical" sound of wear and scratches that this particular copy of the vinyl record has acquired during its years in my library.)

EXAMPLE 2

Liszt Legend excerpt 1

The pianist plays along for a while. When at last the theme is announced and fortissimo octaves appear, we hear the effect mentioned as his magnificent dynamic range.

EXAMPLE 3

Liszt Legend excerpt 2

On a closer listening, it appears that the "tone" effect is due, in part at least, to a cross cultural reading of the background and surface/channel noise. The 1970's vintage amateur cassette recorder, likely equipped with an AGC circuit, responded to the quiet opening passages, those representing silence, by increasing its gain - and thus magnifying both the ambient noise of the hall and the channel noise of the microphone preamplifier - a

mechanical attempt to reduce the amount of "surface noise " in the form of tape-hiss. When the fortissimo octaves begin, the AGC circuit reduces the gain to keep everything within the window of the cassette's dynamic range. This had the effect of compressing the dynamics of the recording. Apparently, the record producer chose to correct this act of mechanical compression to recover the dynamics indicated by Liszt's score, lowering the volume of the pianissimo and raising the fortissimo to plausible listening levels. Thus we are left with a double set of cues - the quiet passages being muffled and distanced by the cloak of noise, and the loud passages emerging from it in relatively naked brilliance. Thus the pianist's apparent commanding dynamic range results from the simultaneous application of two very different readings of the noises that accompanied recordings in the age of analog.

I have elsewhere coined the term "mechanophor" to denote an artifact or side-effect of technology that rides along or accompanies the signal in a media channel but acquires an independent meaning for us. In this case, the surface and channel noise have become metaphors of distance in a sonic space.

Within the last 10 years we have all experience a loss of hearing, in a sense, with the demise of surface noise brought about by digital recording media. Any sound that is born naked into the world in the isolation of the studio or the parentage of algorithms and electrons is fated to remain naked forever. The music industry's tendency has been to smear a little reverb or chorusing on these sounds and assign them a stereo position to suggest their participation in a fictive acoustic space. Still they sound audibly uncomfortable mingling with the other sounds born in the hoary world of acoustic reality.

With realtime communication, too, the loss of channel noise is being felt. We observe people connecting cheap and hissy wireless telephone sets to their crystal clear fiber optic lines, perhaps in an attempt to recover some of the lost distance between their ear and the mouth and tongue of their correspondent. In analog times we used s/n ratio along with distinct noise coloration to discern how far nested in a communication network we were. It's possible to reach someone's voice mail greeting and think it is the live person because there is no change of noise level when the message comes on. Formerly, we would hear the tape hiss of the message machine added into the channel noise of the telephone line, letting us know subliminally that we were moving deeper into the system.

A recent digital audio plugin, the Steinberg "Grungifier" adds a variety of vinyl-type distortions to sounds. It's original intention, as a cloaking device for appropriated samples in the hiphop industry, was broadened to include stylizing original material in retro fashion, and a recent note in Stereophile magazine reports its use at low levels by audiophiles to sweeten the sound of their digital CD's. (Oct 97 issue)

The serendipitous dimensionality engendered by the artifacts of mechanical recording has disappeared from our digital media, leaving a void where silence once was heard. Its usefulness as a cue to distance, time and association has become a stylized retro-effect and is ultimately of limited use. It is perhaps the time to consider again how to compose silence, how to give it an artful presence without depending on the conventions and artifacts of lost analog media.

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