Tell-Tale of tones and tapes

0 Introduction

This essay talks about sound-related energies that overflow, reverb, reach everything, everywhere and how I can connect them. It derives from my project entitled *Echoes of pendulums: listening through gravity, electricity and textile.*

This text goes from *precision*, with pulsating waves remaining infinitely across universes, to *distortion*, with the different forms of echo and its impact on semantics, to *precision* again, with Steve Albini and analog recording, to *distortion* again, with magnetic tape effects, Józef Robakowski non-camera films, The Boredoms' sound spirals, and synesthesia, to *precision* again, with J Dilla and the MPC 3000, and *distortion* again with Frankenstein's angst, and descriptions of electrical noise.

In some subparts, the text becomes a collage, where I dispose instead of rewrite.

1 Echoes

"It is [the clarinet] the one of all wind instruments that can best create, swell, diminish and lose the sound. Hence the precious faculty to produce the distant, the echo, the echo of the echo, the crepuscular sound." ([1])

([1]) *Traité d'instrumentation*, Berlioz, 1844, p. 138.

1.a. Pulsating ad infinitum

Maybe you'll read this essay out loud, to reanimate the echo of how the words could have sounded to you if we would have talked. Reading out loud, you would set pulsations in the air around you. In the words of 19th century inventor Charles Babbage, presenting his theory of *equality of actions and reactions* as applied *ad infinitum* and acoustically: « thought inaudible to most ears, those pulsating waves persist across the globe and « in less than twenty hours every atom movement due to that infinitesimal portion of the primitive motion which has been conveyed to it through countless channels, and must continue to influence its path throughout its future existence. »» *Its future existence* being: « if we imagine the soul in an after stage of our existence, to be connected with a bodily organ of hearing so sensitive, as to vibrate with the motions of the air, even of infinitesimal force, and if it be still within the precincts of its ancient abode, all the accumulated words pronounced from the creation of mankind, will fall at once upon that ear. » ([2])

([2]) *Making Noise: From Babel to the Big-Bang and Beyond,* Hillel Schwartz, 2011, p. 234.

1.b. Echo, the punished Nymph

An essay is a beautiful example of what an (extra delayed) echo can be. The myth of Echo, with a capital e goes back to Greek mythology. Embodying a mountain nymph, she is punished by Hera wife of Zeus, losing the ability to talk, unless to repeat the last words she can hear. She personifies the acoustic phenomenon of echo, being the return of a sound wave by reflection against a fixed surface (with a delay of at least 1/15 seconds). ([3])

([3]) *Echo (mythology)*, https://en-.wikipedia.org/wiki/Echo_(mythology)

1.c. Echoes in popular music

But more than this, echo is by John Hollander, « a necessary in every human acoustical situation in order to avoid a sense of sound death. » ([4]) These last few days, I stumbled upon several songs using echo as an element magnifying the sound or emotions conveyed by the music. Here are a few musical echoes I like, knowing first that echo is essential for us to hear sounds, I see those as super-echoes conveying feelings, new narratives, messages of revolt against:

([4]) *The Figure of Echo: A Mode of Allusion in Milton and After,* John Hollander, 1981.

Echoes ([a]) by Pink Floyd, using extracts from older recordings brought together in 1971, fabricating space in the song, being the last piece from their album Meddle. The story is about two planets meeting in Space.

Brian Eno, in his first solo album *Here Comes The Warm Jets* is also making his sounds last longer than usual, blending crescendo, ending up gently dissonant as more things are added upon. This phenomenon is present in the otherworldly song *On Some Faraway Beach* ([b]), where you can hear a rumbling background noise becoming louder and louder until the graceful lyrics come in. A blissful experience accompanied by a text about the last thoughts before drifting away in the sand, alone and forgotten:

« With only one memory
A single syllable
Oh lie low, lie low

Lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie
Lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie
Lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie, lie
Lie, lie, lie, lie… »

The Beach Boys, with Brian Wilson mastering harmony with songs having multiple voices, used echo in the singing parts of *All I wanna do* ([c]). In the song, the main singer is followed by a faded echo of his words, becoming more present in the pre-chorus and both announcing

« My love is burning brightly - Like moon and stars shine nightly »,
« My love is burning brightly - Like moon and stars shine nightly ».

To be struck by such a soothing voice, meloding that *all he wanna do* is supporting his loved one, is reinforced with the warming echo of a second voice, a repetition, maybe making sure that the words of affection are really listened through, by making them live a little longer.

Echo translating affection and caring is also used in *La Femme Fetal* ([d]) by Digable Planets in their 1993 album *Reaching' (A new refutation of time and space),* through the theme of abortion in the U.S. The male narrator reenacts his talk with a pregnant friend wanting to abort but facing acts of hate and the laws controlling the body choices of so many women. First, a reverb effect is sometimes used on his voice, enlightening certain words, to soon become an echo in the verse:

« Land of the free
But not me, not me
Not me, not me
Not me, not me
Not me, not me
Not me, not me »
(So, repeated nine times).

Marking the evidence, that *The Land of the free* as described in the Star-Spangled Banner hymn is still full of oppressive restrictions based on gender, race and money.

If Digable Planets place their echo on the voices, the reggae and dub musician Augustus Pablo from Jamaica uses it on all his instruments at different times (melodica, voices and especially the drums and drum machine made rhythms), in *King Tubbys meets rockers uptown* ([e]), thus creating an even more laid-back feeling linked to his Rastafari way of life, a floating surround sound, playing with volume and excessive reverb, delay and half spoken words about love.

Far from them, the Icelandic musician and singer Bjork, has been walking outside, trying to sing and listen through the harsh northern weather, screaming

in the howling blizzard wind, whispering to grass and moss, and years after, as a professional musician, recording the song *Cover Me* ([f] in a cave which stone offers fantastic sound reflection.

1.d. Steve Albini

So, echo is everywhere, it is the sound we can perceive. It reminds us of the physicality of the sound and the major role that environment has on musicality as artists developed it until now. Let us show videos of the producer Steve Albini, explaining his working method and ethic towards recording the sound of other artists. The priority for Albini, is that the sound recorded should aims towards the sound heard when the band is playing live, because it should probably be the one that the band enjoys playing, thus hearing. This led him to record full albums in little garden sheds over famous professionally isolated studios, that would result in a *death of the sound* mentioned earlier.

2 Physicality of sound

2.a. Analog recording

Albini would then go as far as putting micro-delays on certain recording mics that were physically distant to the others so that the sound would become one, and you could feel as if being behind the actual instrument, like the musicians. To this day, Albini stands as an analog sound engineer and uses magnetic tape recording for its sound's 'special' quality and its reliance in case of long storage period (over digital recording creating digital files from proprietary software). ([5])

Magnetic tape recording is a technology from the 1930s that became very popular in the music industry for its many qualities and advantages. Some of them being the length of the tape, easy to manipulate and assemble in new ways, allowing complexity in music production, reusable many times without waste and accessible to non-professional musician.

It uses ferromagnetic steel on a plastic band dragged over a recording head made of an electro-magnetic coil. As the tape moves over the recording head, the head's magnetic field varies with the sound thus varying the magnetism on the passing particles of metal oxide on the tape. When editing the tape, you usually use a razor blade to slice the tape in a low angle (for better transition and stability). The simple fact of splicing the tape can create effects on the sound: 'dissolving' from one sound to the next or induce rhythm or pulsing effects if repeated periodically. ([7])

To edit a tape recording, physically splicing it up, poses us with a dilemma: how to decide between keeping the original tape recording intact (the master tape) and editing on a copy, losing overall sound quality? or, editing the original tape recording for the best sound, but losing the master tape since the editing process is destructing?

2.b. Tape echo

Besides from its use for high fidelity sound recording, the magnetic tape technic led to some specific sound effects that were later simulated digitally. By redirecting the signal through one or more tape machines while recording the composing result to another, can create effects of phasing, flaring, delays and echo. The main difference lies in the delay time ranges in which they operate. The magnetic tape recording can be considered as an example of transsectorial innovation: a specific technological innovation which gives rise to an invention in another field.

About, the importance that tape recorders played in *musique concrète* ([g]:

"*Musique concrète* was based mainly on manipulated recorded sound, where music was seen as a "sequence of sound objects". According to Schaeffer, these sound objects "must be distinguished from the sound body or from the device that creates it". This is also referred to as acousmatic sound, a sound that one hears without seeing the causes behind it. Schaeffer describes this disassociation of sound from the sound source or context by the listener as "reduced listening", which can be supported by artificial manipulation of sound. Indeed, Schaeffer laid out several postulates and rules for *musique concrète*, one of them stating the need to learn how to utilize "sound manipulating devices", such as tape recorders, microphones, and filters. Tape delay, manipulation of playback speed, and tape reversal became common practice."

About Les Paul ([h]: "by recording instruments with a tape recorder while playing back previously recorded tapes, he produced his music by layering the instruments one after the other. Here, the playback was sometimes played back at double speed, which as a result also transposes the audio material by one octave and changes the timbre due to the shifted spectrum. Another technique of Paul was to play back, for instance, a rhythm guitar at half speed while recording a guitar solo on top of it. In the final piece, the combined tracks would be played at normal speed again. This resulted in the solo being played tremendously fast. Indeed, due to the novelty of these techniques, listeners at the time were often clueless as to how this music could have been produced." ([7])

Other examples of the magnetic tape recording as a musical piece can be:

The 10CC song *I'm not in love* ([i] uses more than 600 tapes of voice recording to create a large chorus background throughout the whole song.

Eye Yamantaka from The Boredoms also uses specific tape recorder sounds in their song *Super ae* ([j]. Typical tape hisses and strident rewinding sounds are used over complex and fast drumbeats.

Frank Zappa in *Uncle meat* ([k], samples the famous click of the tape recorder, followed by some extended tape hiss and rewind sounds.

From manipulating speed and splicing tape, we can move on to scratching it.

2.d. Collective sound

In his non-camera piece named *22x*, Józef Robakowski conducted provided 22 students with several meters of unexposed film stock and asked them to carry out various procedures on it in order to formulate their short artistic statements. The invited students scratched their films mainly with knives, razors and chisels. Their

([5]) *Steve Albini on Recording Drums,* https://www.youtube.com/watch?v=FvLuP4Kya8U
Masterclass with Steve Albini, https://www.youtube.com/watch?v=s-KEzHie9tAI

([6]) *Tape recorder,* https://en.wikipedia.org/wiki/Tape_recorder

([7]) *A History of Audio Effects,* Thomas Wilmering, David Moffat, Alessia Milo, and Mark B. Sandler, 2019.

operations also affected the optical sound strip of the film stock, which lent the film a very interesting material soundtrack during projections. The resulting works were edited by Robakowski to form a single sequence. ([8])([l])

A collective of musicians that experimented with theimplementation of non-artists in art and musical performance is The Boredoms psych-noise-rock, from Japan.

On July 7th, 2007, The Boredoms organized a gigantic musical performance, *77 Boadrum* ([m], at the Empire–Fulton Ferry section of Brooklyn Bridge Park in, New York City.

The concert featured the core Boredoms lineup with Yamantaka Eye on electronics, vocals and Sevena (a custom-made instrument that, at the performance, was a vertically mounted array of seven electric lap steel guitars played with sticks). The band was joined by 74 other drummers (for a total of 77, plus Eye as member 0). The band organized a sequel concert, 88 *Boadrum*, on August 8, 2008, both featuring 88 drummers. The drummers played full drum kits arranged in a spiral formation with The Boredoms as the spiral's center. Yamantaka Eye decided on the number 77 after visiting the Sun Temple and counting 77 steps.

With 88 drummers playing at the same time, the volume was epic. To communicate with everybody, the band created a color code: The Boredom's Yamantaka Eye's blue poll meant make an accent (hit a cymbal) and keep playing the rhythm. Red meant hit a cymbal and stop. The white poll, which looked like a trident, meant go nuts, or free form. Instructions for the white poll were "Please play strong and powerfully." The rhythms began with Boredoms in the center and grew out sequentially around the drum spiral. The rule was to follow the drummer to the right for the pattern and follow Eye for tempo and volume swells. The many bands present from both performances included Unwound, A Minor Forest, Bauhaus, Black Flag and Thurston Moore.

The bigness of the sound made it that you could feel as much as you could hear. ([9])

([8]) https://artmuseum.pl/prace/msn-f-dep-462, 2023

([l])

([m])

([9]) *The Boredoms Revel in Rhythm, Numerology for 88 BoaDrums,* https://www.rollingstone.com/music/music-news/the-boredoms-revel-in-rhythm-numerology-for-88-boa-drums-250776/, 2008

2.c. Synesthesia

Synesthesia is the production of a sense impression relating to one sense or part of the body by stimulation of another sense or part of the body. Music is often associated to colors. The word tone comes from that association. ([10])

Music <— « *tone* » —> Color

Les Fleurs du mal, by Charles Baudelaire, 1857, have been described as « sonorous jewels ». Baudelaire was also translator of the words of Edgar Allan Poe at the time. Paying attention to his *unquiet lights, Tell-Tale heart, the murmurs,* or *waterlilies of silence*.

L.M. Montgomery, in *The Story girl*, depicts Sara with synesthesia and her *shades in meanings*: « she said that everything had color in her thought; the months of the year ran through all the tints of the spectrum, the days of the week were arrayed as Solomon in his glory, morning was golden, noon orange, evening crystal blue, and night violet. Every idea came to her mind robed in its own especial hue. Perhaps that was why her voice and words had such a charm, conveying to the listeners' perception such fine shadings of meaning and tint and music. »

([10]) *Synesthesia, https://en.wikipedia.org/wiki/Synesthesia, 2023*

Vladimir Nabokov wrote explicitly about synesthesia in several novels. Nabokov described his grapheme–color synesthesia at length in his autobiography, *Speak, Memory*:

« I present a fine case of colored hearing. Perhaps «hearing» is not quite accurate, since the color sensations seem to be produced by the very act of my orally forming a given letter while I imagine its outline. The long a of the English alphabet (and it is this alphabet I have in mind farther on unless otherwise stated) has for me the tint of weathered wood, but the French a evokes polished ebony. This black group also includes hard g (vulcanized rubber) and r (a sooty rag being ripped). Oatmeal n, noodle-limp l, and the ivory-backed hand mirror of o take care of the whites. I am puzzled by my French on which I see as the brimming tension-surface of alcohol in a small glass. Passing on to the blue group, there is steely x, thundercloud z, and huckleberry k. Since a subtle interaction exists between sound and shape, I see q as browner than k, while s is not the light blue of c, but a curious mixture of azure and mother-of-pearl. »

Sound as we hear it is the simple phenomenon of echo in our ears. After the process of physically recording it as best as possible, it can be manipulated and transformed ad infinitum, adding layers of complexity progressively. Audible complexity, bigness of the sound, that can then trigger our perceptions and expand out of the realm of music.

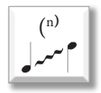
3 Simple - Complex

3.a. J Dilla

In 1994 was launched the sequencer MPC 3000 by Akai. This tool wasn't like any other before. Developed by Roger Linn, the control over tempo could be manipulated without automated rhythmic placement. It gave sequencer musicians the freedom thought to be reserved to real musicians. The goal being to create a new type of rhythm that no drummer could play.

For example, a new function was the ability to decelerate a sample to amplify/magnify rhythmic errors. You could also play manually with the faculty to displace each element individually with the « shift timing » option.

With these possibilities J Dilla was combining *swing time* ([n])([o]) *(short-long-short-long)* and *binary time (regular)*, thus creating an 'elastic sound' with acceleration and deceleration. With his peers, he named this approach simple-complex. ([11])



([n])

([o])

([11]) *Dilla Time,* Dan Charnas, 2022.

3.b. Frankenstein

The realm of sound and noise is rich and complex. But this complexity can become overwhelming for the unprepared. Here is a quote from Mary Shelley's famous book, when Frankenstein discovers sound for the first time:

« Sparked into life and then spurned, Frankenstein's brute is born into a

Condillac noise: « a strange multiplicity of sensations seized me, and I saw, felt, heard and distinguish between the operations of my various senses. » […] alert to the harsh notes of sparrows and sweet songs of thrushes, it learns to sort out its sensations. […] Trying its tongue at birdsong, […] and 'the uncouth and inarticulate sounds which broke from me frightened me into silence again.' »

But the complexity developed by musicians over the years is also what gives music its persistency, here is an example with jazz music:

« The reason jazz music is very very sophisticated is because of a spiritual need to generate an art form that would give them aesthetic solutions to the gigantic problems that you have facing adulthood throughout your life. This is what causes it to be available. We need the music of duke Ellington, we need the music of Beethoven, of Monk of Back. We'll have it because it's enduring. It faces the natural gravitation to anarchy very well. » from an interview with jazz pianist Marcus Roberts.

With the collision of sound and electricity, this complexity was getting even broader.

3.c. Electricity and sound

"It was the sound of electrical influence – the hum, the wheeze, the crackle – that must have persuaded toward rejuvenation, along with the faintest of electrical vibrations, the thrum of organ music, the lilt of woodwind melodies piped in through secret tubes, and the huffing duets of bed partners encouraged to sing their way toward bliss. The celestial fire of electricity in the 1700s had more sizzle than flame."

"Electrophonic noise, atmospheric scientists call it now. Some had already associated the noise of the aurora with the swish and crackle of electrical activity. Crossing the Canadian Rockies near the Artic Circle in 1897, Glenn Green heard the Northern Lights make a sound "like one heard in an electrical powerhouse." It also resembled the static that radiomen would listen through, and to, as if the atmosphere were not only "the great natural reservoir of sensible Electricity" but of a sometimes thunderous, sometimes hissing, sometimes teasing noise." ([12])

([12]) *Making Noise: From Babel to the Big-Bang and Beyond,* Hillel Schwartz, 2011, p. 142.

4 Conclusion

Sound as an infinitesimal energy, which movement makes it reverb until it reaches our ears and continue its path. Sometimes, bumping again, making itself hear several times.

Echo can create several ambiances and semantics in a piece. Artists used its tragic element, from its original myth, leading to feelings of gloom, ambience of twilight, coming from far way, fainted. And this soft quality of echo can then evocate warmth, care, disillusion, space, acceptance.

The omnipresence of echo in the musical field probably comes from its preferred medium, the magnetic tape. Where sound effect becomes accessible and not exclusive to musical virtuosos anymore. With a new access to richness, balancing the precision and distortion in the sound can take a very long time, until the sound is completely dissociated from its source.

Sound is also a connector of our many senses. And the 'musical event' an occasion to feel as we hear. That is why some people will lose themselves refining their audio gear for the ultimate experience, although albums for some artists are not as important as live shows. The Melvins for example, see their albums as sketches for the concerts and not the other way around ([13]), reminding us in fact, that sound is an experience to be physically lived. Saying in other words that, a real echo will always be better than a simulated one.

I like to think and care about my sonic surroundings. The more I do, the more I realize the cultural and historical presence visuality has over accoustics, and then try to softly switch that in me. I am interested in the physics of accoustics, as one of the many *invisible* energies on earth, the myths and legacy it has shaped, the people it freed, and the processes of keeping and deforming that energy into a touching experience.

([13]) *The Making of Houdini by Melvins - featuring Buzz Osborne,* https://www.youtube.com/watch?v=RewnNvkSgtw, 2023