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In Search of Queer Sound by Sergei Tcherepnin

I'm going to do a lecture in three parts, and in the first part I'll talk a lot about the ear, and something called 'combination tones,' and posing questions around potential relationships between combination tones and something like a queer listening, or queer sound. And the second part of the lecture I'll just say is more of putting these kinds of things into action, or into materiality, physicality. And the third part of the lecture will involve something different than the first parts which is to answer phone calls from the LGBT community around the States with their questions, but I'd say that all I'll be answering with my music and I took a kind of – its hard to exactly verbalize how I approached this – but this is actually sort of an ongoing project with another artist, Ei Arakawa, so this is the preliminary viewing, or listening.

So to begin, I'm going to – I'm not a seasoned lecturer so I'm going to start with the page, well if I can find the right page, and I might stray as I get excited by some of the ideas. So, what I would like to talk about to begin my lecture is the superposition of two pure tones. Many beautiful results follow from simply combining two tones. A pure tone is a sine wave, which is an artificial and very smooth-sounding tone. In nature, there are some frogs or peepers that resemble sine waves. In the city, there are some sirens that are used that are sine waves. In the orchestra, flutes and recorders closely resemble sine waves, to give you an idea of the sound.

When one sine wave penetrates your ear, it first reaches your eardrum, which in turn oscillates like a tight drum head. These oscillations are transmitted by the eardrum, or tympanic membrane, by a chain of three tiny bones called the anvil, stirrup, and hammer, to the entrance, or oval window of the inner ear. So there's this middle passage between the eardrum and the inner ear. And inside the inner ear is the cochlea, which is a spiraling tunnel that contains a complex hydro-dynamic system, meaning there is water inside the cochlea. Which sends a chain of vibrations streaming through the spiral. This is all the vibration from the initial sine wave, remember.

And so the paralymp, which is one of the liquids inside the inner ear, moves, which sets into motion the basilar membrane, which is also lining the cochlear spiral, and the organ of corti. That then gets relayed to thousands of hair cells, which are like nerve cells, hair cells, which detect and translate the motion into electrical signals, which are then communicated via neurotransmitters into neurons and then onto the brain.

So that was just a little background on the ear, so you'll believe me when I tell you what happens when you have two sine waves inside the ear. That's a very simple thing, and basically to sum up, the sine wave penetrates the ear, and inside the ear, it goes through the middle ear and the inner ear, and then inside the inner ear, the hair cells, these tiny tiny thousands of hairs, depending on the pitch, a certain section inside the spiral, the cochlea, will have a resonance region, so the hair cells will detect in that specific region, so it's spatially dependent – the pitch is spatially dependent inside the cochlea.

So when you have two sine waves that are very close together, they interfere with each other. And that causes a range of effects depending on how close or far apart they are from each other. So basically there are two different kinds of superposition effects, one is called first order combination tones, and one is second order combination tones. First order combination tones are a result of this interference or this distortion that happens in the ear itself, so it's a mechanical distortion that happens inside your ear. Whereas the second order superposition effects are the result of neural processing, so it happens inside your brain. For instance, you may think you hear some weird warble, but actually that's not happening in your ear, that's happening - your brain is making that up. There's a wide range of effects that relate to that such as fundamental tracking, which is the idea or the fact that if you hear two components of a given frequency – well this is going into something else, but basically you can play the shadow of a tone, and you'll think you hear the tone even though you don't hear the tone. That's a very simple, direct way of explaining it.

I have two slide whistles here, to give an idea of what I'm talking about.

The first order effects – there's beating, which is when the two tones are very close together, and what happens is that these two tones – one of which ordinarily will sound really dull, the two tones mix and sound like one tone that's pulsing, and that pulse is just the overlapping of these two very close together tones. As these two tones slide away from each other, they go through something called the critical band, and this critical band is like a very gnarly section where you start hearing real distortion, and you can't have any pitch discrimination at all. But once the two tones get past that critical band, you hear both tones independently for what they are, because they're separate from each other inside the cochlea. And then something really weird and kind of magical happens, which is that a third tone appears in your hear, you hear a third lower tone, and that's the difference tone, which is sort of what I could have just started off talking about in this lecture, but I thought I'd give you a little background about the ear.

So the difference tone actually is something that in a way is in all music, and same with beating – I mean, not in all music, but it's ever present – but it's also often times happening on a subliminal level, and it's just there.

So I've devoted a lot of time, as well as composers before me, particularly Maryanne Amacher, to studying difference tones and to really diving and delving into making connections between difference tones and the actual music.

Just to give you an idea – if you play a few tones [plays slide whistle] – that's one boring tone, [plays slide whistle again], another boring tone, now two together [plays slide whistle] –ooh! I was trying to start with the beating ones, but it went straight to the difference tone, because its hard to control! I'm trying to play it extra low, [plays slide whistle again] so you can hear this low zzzzz, that's the difference tone coming in and out [plays slide whistle again] that's just beating, you can hear d-d-d-d-d-d-d-d [plays slide whistle again] so that lower tone is the difference. I was gonna do this whole thing but I think that's enough.

So, ok, that's the part that I can speak somewhat definitively about, because it's just something that happens. But I always – not always – but I thought it would be really potentially interesting to think about – these difference tones and beating effects are extremely physical – I mean they are physiological, but then they are also psychological. And I think that this physicality of them sets music that's done in this way from other music just because of it's sheer physicality when you hear it. When you play these kind of dense sine waves in a room and move around, you start to really, really get a sense of how your body, the receptor, is affecting, is relating to the source, and also the medium, the room. So you become extremely aware of your interior subjective listening in relation to this thing that is the sound that you can't escape from.

I think to queer something is to re-orient or re-program, or to at least question how people are orientated. Orientation is accumulated agreements over time. An entire culture becomes orientated in a specific way. Listening is fluid, listening takes practice. I think we learn to listen. To be queer is to be open to change, but it's also to be open to listening to your own interior world. Sound that is decentering may be queer, but queer is also about sexual preference, so maybe in some ways it makes no sense to say that there is a queer sound, or to even think about it.

I think queer sound can be disorienting, and I think that this kind of confusion about where the sound is happening, with difference tones and beating effects can be also quite disorienting. I'm really interested in music where you lose your own orientation within the process of listening. So that could be done in a formal way, but when it's done in a more physical way, actually you can't hear, you can't decide if the sound is coming from inside your ear, inside your head, hovering over you, or if it's coming from way over there, or if it's moving across like this [gestures diagonal direction.] These kinds of things can be very physically disorienting, and I think that is actually a very beautiful thing.

But also I think that all these kinds of tones that are moving around, I think that – I just lost my train of thought. I think that, as I said, the... I'll sort of wrap up, about the difference tones, which is to reiterate – I'll reiterate through a quote of Maryanne Amacher's ... about her own interest in difference tones.

“We hear tones other than the given acoustic tones taking their shape inside our ears, as the membrane vibrates in response to the given acoustic tones. In music as we know it, such tone responses have been repressed. They have a subliminal existence, suppressed within the complex timbres of music. We're not aware that they exist, or that we're actually creating them as listeners. The experience of our own processing isn't available to us. I want to release this music, bring it out of subliminal existence.”

So, I was on a good roll... I actually forgot something I'll be right back [Sergei exits the stage, audience dissolves into murmur and chattering.]

[Sergei emerges from the back of the curtain in a brownish-red hooded costume. He moves slowly around the room, gesturing at individuals and performing with slow and steady dance-like movements as he steps around the audience. He reaches the back of the room, turns around so that the back of his head is facing the camera, and then moves back to the front of the room, where he ducks behind the curtain and disappears. This entire time, a combination of tones is playing from multiple speakers arranged around the space. The sound ends, and a few seconds later, Sergei returns to the space back in his normal clothes.]

So in the third part of the lecture, I'm going to, well I already told you, I'm going to take some phone calls, and I actually have somebody on the line right now, um, and, yeah, let me just take this call! I've figured out a way to play all the sound in the room, so you don't have to worry about that, you can hear the questions. So, here we go.

[Sergei picks up a phone] Hey, so you can go right ahead.

Voice on phone: “My name is Lee, I am a newly out gay man who is sixteen years old living on the belt buckle of the Bible Belt in Tennessee, and I am having some *serious* relationship troubles down here, okay. People already perceive gay people and black people to be evil down here, and it is really, really hard to get into a relationship with anyone, just because of that stereotype. I guess what I want to know is what are some tips in which I can be more approachable or more open to a relationship because normally whenever I meet people they normally think I'm either arrogant or – yeah, pretty much arrogant.”

[tones begin to play through the speakers as Sergei moves as if having a conversation and responding to the question.]

I'll take another call. [Picks up the phone again] Hello? Oh, yeah. Go ahead.

Voice on the phone: “Um, I’m calling because I need some slightly objective advice, and I’m hoping you can help me. I’m in a long-term relationship, I’ve been with my partner for almost four years now, we live together, you know, my parents have always been...fairly accepting of my relationship. They accept my partner, they welcome her into my home, they refer to her as my partner to everyone I know, as far as I can tell. My mom does have some issues however with my partner and I being together at her house and any time that we express any sort of physical affection to one another, particularly if other people are around. She called me last night to inform me that my step-grandmother might be coming over for Christmas, and she was asking that if my partner and I came, could we please sort of, like, knock off any sort of physical affection. [beeping tone starts and then stops playing abruptly] Now, the caveat to this is that I’ve never really been incredibly physically affectionate with my partner. I think my mom, because she’s a little bit sensitive to the fact of my sexual orientation, she sort of blows out of context any type of physical affection we might express around one another. I’ve seen my sister and her boyfriend do similar things; my mom and her husband do similar things – you know, a pat on the back, a kiss on the cheek, and we’ve never done anything beyond that, so I think it’s just because she’s overly sensitive. Anyway, I’m kind of trying to figure out do we go to their house over Christmas and adhere to this contingency, or do I continue to fight back and sort of say I’m not gonna have this discussion with my partner and I’m just not gonna go there. The other thing I guess is that I feel like my mom’s request is sort of hypocritical. She’s always been sort of an unconventional mother, my stepfather is her third marriage and he is 18 years younger than her, [bouncing noise starts] and I think what really blows a fuse for me and makes me so upset about her request is that she’s been criticized quite a lot by people in our life for some of the choices that she’s made in her life [noise starts, cutting off the caller for a few seconds] ... married a man who’s 18 years younger than her, who, he’s my stepfather and I should say that I love him to death and he’s like a father to me in every respect, but I’ve always adamantly defended her unconventional choices to other people including extended family and [bouncing noise cuts off caller again] ...so when she invites me to her home with sort of this slight little contingency, I guess it sort of hits a nerve and I feel like it’s a bit hypocritical [sounds] because I never asked her to change any of her things since the time I was a young age [sounds] So I guess what I’m asking you is do I go to her house over Christmas and sort of accept this contingency or do I really continue to fight back and say no, this is who I am...” [bouncing music starts, completely cutting caller.]

[music ends, Sergei hangs up the phone]

Did somebody say they wanted to answer the phone? [muffled response from the audience] You want to? Well there’s a few more callers, but we don’t have to take all of them, I know it’s been a long night. There’s a few more calls, let’s take a few more calls.

[Audience member [Ei Arakawa] joins Sergei at the table]

Voice on the phone: “My name is Lee, I am a newly out gay man who is sixteen years old living on the belt buckle...”

Sergei: [cuts the call off] Oh no! [Audience laughs] That was so weird! We lost that call, but...ok.

Voice on the phone: “I’m a 24-year-old gay male, I have a problem I was wondering if you would have some insight on. I recently found a guy, super hot guy, super hot foreign guy, who is HIV positive. And I never thought I would find myself in this kind of situation, I just thought no matter who I found who was HIV-positive it was ‘no, I don’t wanna put myself in that situation, no guy is worth it, yadda yadda, yadda’ but here I am with somebody who I don’t even – you know, I don’t even know him very well. But he’s super hot and I, you know, I’m still seeing him, I don’t know why. And I asked some friends if I’m stupid, and I got mixed advice. One was like ‘you should never do that I don’t know why you would ever put yourself in that situation’ the other was like ‘I dated’ ... he’s an older one, he said ‘I dated an HIV-positive guy and it didn’t last long and we were safe’ and whatever. Like I said, he’s someone I don’t even know. Am I stupid for seeing him still? I mean I know you can safely get around – well, relatively safely get around the stuff, but I mean its life or death virus so. Anyway, I don’t know what to do, I’m gonna see him again – I’m seeing him again tonight. But if, for somebody that I don’t necessarily care that much about yet, you know maybe I could, but, is it dumb to date somebody like this?”

[Tones start to play]

[Ei Arakawa begins to dance around with the phone on the desk. He attempts to hand the phone off to Sergei, who tries to decline it at first and eventually takes it and reluctantly brings it to his ear. He curls into the phone, as if to hear better, and moves into the corner with it, as though he does not want the audience to overhear what he is being told. As Ei Arakawa moves closer to try and eavesdrop, Sergei pulls himself closer into the corner. After about a minute, he hands the phone back to Ei Arakawa, who paces back and forth across the stage with the phone held to his ear. He begins to swing the phone by its cord like a pendulum for a second before holding it back to his ear and then returning it to Sergei as the music dies down. Sergei takes the phone and begins to speak into it.]

Sorry, sorry, my friend was jetlagged. Yeah, yeah, it was nice meeting you. Yeah. Alright. Ok. [Hangs up the phone.] Um...there's a few more but maybe I'll just take one more because I feel like I've far exceeded – actually, I forgot what time I started. Let's just take one more call, maybe? Do you want to take it again? One more call?

Ei Arakawa: “Okay. Okay I'm ready. Hello?”

Caller: “My question is this: how does one learn how to accept their sexuality when they are afraid that no one else will? I'm a black 25-year-old university educated young man who was raised in an extremely religious conservative home. My mother's a minister, my father's a deacon, and we go to an small all-black church in North Carolina, and I'm gay. And all the people I've come out to are family members who didn't know that I've always been slightly effeminate. And my mother caught porn on my computer before, and she's even found a love letter from my boyfriend. However, denial is the operative word of my family when it comes to sexuality, especially homosexuality. Here's the problem – the many years of religious homophobic talk that's been in my home has actually began to sink in now. I'm actually struggling with issues of self-acceptance. I don't believe in god so I'm probably not gonna do the whole damnation thing, but there is a part of me that wishes that I was straight, and I feel abnormal because it's been sinking in for so many years. I want to be a happy, confident, well-adjusted, proud gay man who gets married and has a partner and a beautiful kid or two, like yourself, but I'm just having a problem accepting myself. So again, how does one learn to accept their sexuality when they're afraid that no one else will when they're in this small southern town? Should I leave? Should I come out to my parents? I'm still in my parents home right now because I just graduated from college, what do I do?”

[Sounds]

[Ei Arakawa holds the receiver to Sergei's ear for him as he mouths a response to the caller. He is animated in his response, talking with his arms, and the two move a bit clumsily around the room with the phone. Ei Arakawa takes the phone and offers it to an audience member, but Sergei gives this action a look of disapproval, and the phone comes back to him. As the music winds down, Sergei refuses to take the phone back, and as he goes to sit down, the Ei Arakawa hangs up, and the sound stops.]