

# *Signal to Noise*

BY PAOLO PIETROPAOLI

**Natural silence used to be one of my favourite things.**

It's full of beautiful sounds, little and big. When I was a kid, some summers my family would rent a cottage on the Bruce Peninsula in Ontario for a week or two. I remember finally being old enough to be allowed to go down alone, at night, to the rocky beach on Lake Huron. I'd bring a long deck chair and a blanket and stay for a long time, gazing up at the night sky and taking in the show.

That's when, I think, I truly learned to listen. While my eyes were absorbed by the array of stars above, I was lulled by the gentle lapping of the waves, the crickets in the tall wild grass. I found the human sounds beautiful too: a voice drifting across the water from the other side of the bay; the creak of a far-off door. A laugh on the wind.

Those nights, the sounds around me felt like an aural embrace. We look out at the world from inside our heads, but sounds come to us from their source, outside us. Simply by lying still, I could be connected to all the life and motion around me.

It's one of my favourite feelings, but I haven't been able to experience it since the onset of my tinnitus in 2004.

I first noticed it late one evening in September. I was curled up on the couch, reading a book and looking out at English Bay. I remember suddenly finding it hard to concentrate because of a loud sound in my left ear: a high-pitched ringing. It sounded like an electrical whine, but it didn't seem to be the fridge simply changing its tune, as fridges do.

I reflexively covered my ear, only to discover that the sound seemed to be coming from somewhere inside my head.

I'd experienced this sort of thing before, at the end of loud rock concerts or the morning after a night of

clubbing. But I hadn't been to any loud concerts or clubs in the previous days.

The next morning, it was still there. And the next day, it seemed even louder.

My ear hasn't stopped ringing since then.

Fortunately, I can usually ignore it, except in the relatively perfect silence of night. The only time I'm forced to listen to this noise in my head is when all other noises of the day have faded away.

Then it's just me, that infernal whine, and the darkness, ready to spend another night together.

In the morning, when the sounds of traffic begin, when the radio comes on, when I turn on my computer, it's peace, it's bliss.

Thus, for me, noise is both a curse and a blessing.



The first few weeks were the toughest. I lay awake at night, trying to ignore the awful whine. Some nights, it woke me up. Those were the worst. It's peculiarly cruel to be awakened by a sound coming from the inside of your own head.

It's also easy to be unreasonably afraid in the middle of the night. After a period of panic, I realized I had to develop some kind of coping mechanism. I turned to music specifically composed as background music, reasoning that it might be easier to fall asleep to. I chose Brian Eno's [Music for Airports](#).

I'd put it on at night, at a fairly low volume, and it seemed to do the trick. It meant I didn't have to face my tinnitus in silence. It helped me sleep.

I don't know what I'd have done without that music, especially because it becomes even more frustrating to try to sleep with tinnitus after you learn a bit more about what it might be.

"Hearing involves a complex network of millions of neurons, running from the inner ear up to the brain's cortex. Tinnitus is the perception of abnormal firing of neurons anywhere along this hearing pathway," says Dr. Glynnis Tidball, an audiologist who runs the Tinnitus Clinic at St. Paul's Hospital in Vancouver.

One explanation for this is that the abnormal firing develops as the brain adapts to receiving less input from the ear, usually due to hearing loss. "When the brain interprets this activity as neurons being turned 'on,' the brain's owner may perceive it as sound."

In other words, my brain thinks that there's a sound there, but there isn't. I'm hearing a phantom sound created by my brain because it's not receiving enough of a signal. My brain is essentially fooling itself.



It's an odd thing to realize, because I know that every day my brain chooses to ignore dozens of sounds, in particular electrical hums or drones. It often happens when I'm in a room with other people. There's an electrical hum, sometimes even a really loud one, but none of us notice it until it stops. We notice it then by its sudden absence. Evidently, our brains are perfectly capable of choosing to ignore certain sounds.

According to one scientific model for understanding tinnitus, there's a flip side to that ability.

While the brain tends to ignore sounds that contain no useful information, "conversely, the brain promotes and prioritizes the perception of sounds that are meaningful," says Tidball. "Imagine that you are engaged in conversation with a friend at a restaurant. If the brain perceives someone at a nearby table saying, 'Paolo,' your brain will automatically divert your attention to this other conversation. This is because the brain identifies the sound of your own name as highly meaningful and automatically gives the sound priority."

But the whine in my head is hardly a meaningful sound, is it?

"Tinnitus can become one of those meaningful perceptions that the brain has difficulty ignoring when you perceive the tinnitus as a threat or danger. This may happen because you are concerned that the tinnitus signals some underlying medical condition, that the tinnitus will get worse, or simply because you are grieving the loss of much-cherished silence."



A year or so after the onset of my tinnitus, I went on a field recording trip for a radio project to a remote part of British Columbia that's completely off the grid. Late at night, there were no lights of any kind: no street lights, no car headlights, no blue television screens glowing, no campfires. There were no human-made sounds, either: no people chattering off in the distance, no cars passing by, no electrical hums of any kind.

It was dark and quiet, and the sky was full of stars. After my colleagues turned in, I tried to lie back on the grass for a while to take it all in, as I used to love doing on the Bruce. But I didn't last very long. For me, that night, there was nothing but my tinnitus. With no sounds around to mask it, it was louder than ever before. A ceaseless siren in my brain.

I remember I was relieved to have my iPod with me on that trip. I had to find a way to fall asleep in a cabin in the silent woods. I don't think I'd have been able to without putting in my earbuds and turning on some music, although I remember feeling slightly ridiculous. It seemed like the most outrageous imaginable

setting in which to use this particular form of modern technology. To have come all this way to interview people about living with less electricity, only to have to plug myself in just in order to be able to sleep.

It was when I returned from that trip that it first struck me how much of a refuge our noisy modern world had become for me. Especially all the small noises that are always there, precisely the ones that our brains usually choose to ignore: the fridge, the furnace, the air conditioner, the computer.



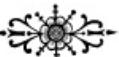
The funny thing is, although our brains naturally help us ignore all those noises, even some of the big ones, we seem to feel the need to block them all out with other sounds. We tend to fill every gap with some kind of aural information: radio, TV, our iPods.

For a time I worked in daily music radio. I'd spend every day in my cubicle, headphones on, listening to new music (and hype about new music). It might sound like a dream job. But when I got home, the last thing I wanted to do was listen to music. I eventually became depressed because the overload was sapping away my love of music.

I stopped listening away from work. I also stopped making music myself. My ears were tired.

I don't think they were just tired from overload. Most of the sounds we take in over speakers and headphones are heavily compressed. This means the soft sounds have been boosted to match the loud ones. Unlike acoustic and natural sounds, the volume never fluctuates beyond a narrow, loud level. The recordings we hear (i.e., commercials and songs competing for your attention on your radio, TV, or headphones) are all consistently loud.

All of this started me thinking that maybe, when you have that much signal, it becomes hard to discern one signal from another. That maybe, when you have so much signal, so many songs, so much music, so many ads, it all becomes noise, more meaningless background sound to add to all the electronic, mechanical and industrial sounds around us. That maybe, the silence in my brain had been crowded out by all that noise.



Try and think of the last time you experienced perfect, natural silence. Today, it's simply impossible to experience unless you're in the middle of nowhere. Even then, according to acoustic ecologist [Gordon Hempton](#), there are very few places left where you can go for much longer than fifteen minutes without hearing some human-made intrusion.

Hempton maintains that we've much to learn from the sounds of the natural world, and that we need to protect them by creating noise-free areas. That's an idea I can get behind. I think about sounds and listening on a daily basis. The [radio work that I do](#) asks that people listen carefully.

My tinnitus has presented me with an unsettling quandary, though. Since noise has become an ally that helps mask the noise in my head, this has undermined my strong conviction that we are living in a world of too much noise, that we don't listen enough, and that we don't give our ears enough of a break.

But then my listening fatigue makes me swing back in the other direction. I take off my headphones, turn off the music, try and escape the noise.

And then I hear the noise in my head all over again. And on go the headphones.

I like to think of my ears as antennae, or satellite dishes. We're all like living, breathing receivers, taking in broadcasts from all sources: from nature, from technology, from culture, from human interaction. And I'm caught in a sort of purgatory between signal and noise, and half the time I can't tell which is which.



In writing this and thinking about tinnitus, since I'm thinking about it, I'm noticing it all over again. It's the tinnitus trap.

What I'd like to do more than anything is lie on a beach again under the stars and really listen. Actually, it doesn't even have to be a clear night in the sky, just a clear night in my head. I'm almost afraid of trying that, since I know I'll probably just lie there and enter the tinnitus trap.

To my surprise, that's exactly what Gordon Hempton thinks I should do.

"If you can find a way in a quiet place to listen to your tinnitus more clearly and take interest in it – [I can say that] as a tinnitus sufferer myself – it still has its message, it still communicates to me. There's still something for you to hear in that that will help improve your life."

That reminds me of something the composer John Cage said: "Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating."

Remarkably, there's some [scientific evidence](#) that takes Cage's idea even further. It suggests that sounds that we like are less damaging to our ears than sounds that we don't like, sounds that we choose to resist.

I feel that in a way we are all suffering from a kind of societal tinnitus. Because of all the hums and clicks and whirrs around us, we seem to have forgotten what true silence is. Then there are all the aural annoyances that come with living with computers and cellphones: other people's conversations, the tinny music bleeding from their headphones. Compressed songs and commercials coming out of speakers in every public setting.

Perhaps in a subconscious effort to abate this societal tinnitus, this constant background noise we can't stop,

we often choose to mask it with noises of our own choice: our music, myTunes, so to speak.

Thinking of what Hempton and Cage said, I started to wonder if the best thing for me to do was just listen carefully to both my tinnitus, and societal tinnitus, and see if I could hear my way back through the noise to some kind of signal.



So I put away my headphones. In the past year, I've barely used my iPod. And as for my tinnitus, I decided that I would just have to learn to put up with it. I was just going to accept it. Maybe, if I didn't stress about it, it wouldn't seem so bad.

Miraculously, my strategy worked, most of the time.

An unexpected consequence of my decision was that it was if I'd pressed a reset button for my ears. Listening to the sounds around me on the bus, or walking down the street, I became much more attuned to the chatter of the city and the rhythm of the seasons.

I also rediscovered my love of music. I just listen to it a lot less frequently than I used to.

A few weeks ago, I was in Montreal at a friend's house, and she put on one of my favourite songs, [Drifters](#), by Patrick Watson. It had been a few months since I'd heard it last, and I hadn't been listening to much music in the previous weeks.

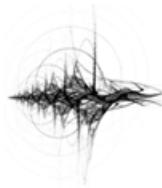
After a few seconds, I was overwhelmed with emotion. Somehow, perhaps because my ears had been refreshed, the song was affecting me much more deeply than it had all the other thirty-one times I'd listened to it (according to iTunes).

Sitting there, letting the notes wash over me, I closed my eyes and drifted into a reverie. I imagined that we are all neurons in one gigantic hearing canal, going about our business, jostling with each other and struggling with ourselves to tune in to our particular signal amidst all the noise all around us.

But maybe the key was to stop struggling so much and trying so hard to block out all that noise.

I realized each noise is what you make of it, whether it's inside your head or outside it.

In other words, if you listen carefully enough, there's a lot of signal in every little noise.

*Fin*[>> PAOLO PIETROPAOLO BIO](#)**BOULDER PAVEMENT: Arts and Ideas**

boulderpavement is a Canadian on-line multi-media journal. Volume 1, Issue 1 features work centered around music and nature and includes: an interview with composer John Luther Adams & percussionist Steven Schick; artwork by Peter von Tiesenhausen, poetry by Jennifer Still; memoir excerpt by climber and author James Perrin; an audio interview with artist Kate Hartman; and more.

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