

My headphones: saving my life more effectively

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Headphones are really essential for many types of music. Classical-type composers are writing for a concert hall where there's absolute silence, so the performers can play as quietly as they want, and three seconds later blast their violins at full throttle. Pull out your copy of Jeff Buckley's cover of *Hallelujah* (which I discussed in an earlier post in entry #184), and you'll notice that he sighs at the opening, setting the tone for the piece. Or, I dunno, the cello in the Beach Boys' *Good Vibrations*, which is mostly in background until the end.

Forget about hearing those details in the car. You'll need a reasonably quiet space and good speakers for these things to really be evident. Now, good speakers range from about \$100 for a pair to \$1e5 for a pair, depending on how much of an audiophile snob you want to be. The real audiophile then works on placement of the speakers, and adding acoustic absorption in the listening room, to ensure direct sound and prevent undesirable reflection. [If sound is both reflecting off the walls and coming to you direct, then it gets muddied. Next time you're at a concert hall, notice how the ceiling and walls have few wide, flat, or hard surfaces. Some performers will tell you that the concert sounds different with and without an audience, since bodies absorb sounds that empty seats reflect.]

Or you can get headphones. They're right against your ears, so it's easy for them to have better sound. Your \$10 headphones are equivalent to \$50 speakers, and \$150 headphones are equivalent to a thousand dollars worth of speakers. Room arrangement is not an issue.

Of course, there's some logistics. If you're in a social situation then headphones don't make a lot of sense [Last I checked in, headphone splitters didn't work all that well]. Wearing them all day gets uncomfortable. Also, the odds are good that if you're wearing headphones, you're walking around town.

Which brings us back to the automobile question. There are various tables of decibel ratings around the Web, listing the range of decibel levels from a quiet whisper at 30dB, to normal conversation at 60 or 70dB, up to a jet engine from a hundred feet at 140dB. Traffic ranges around 85-100dB, depending on which table you're reading, and whether you're inside or outside the car. OSHA starts imposing workplace regulations around that level: you can listen to 90dB for eight hours unprotected, and 100dB for 2 hours.

In every state law I know, it's illegal to bike in traffic with hearing protection such as ear plugs. OSHA regulations say it's illegal for a messenger company to send its employees into a full day's traffic noise without hearing protection such as ear plugs. So it goes.

Me, I wear the earplugs while biking, and regret the time I spent not doing so. I'm exactly as aware of an automobile making a muffled 65dB of noise as one making a full-bore 95dB. If I get the sense that the earplugs are too effective, it's easy for me to maladjust them so that I only get partial noise reduction.

Getting back on topic, music at reasonable levels (maybe 70dB, with those subtle sighs down to maybe 50dB) doesn't stand a chance against the automobile.

A decade or two ago, our headphone engineers gave us noise-cancelling headphones that actively dampen incoming sound waves, so your own preferred noise sounds better. This is terrible outside (wind throws these things off) but generally great if you're indoors (e.g., on public transportation, such as a plane). They don't dampen everything, so it's easy to hold a conversation, yet the engine noise really is damped. In short, they're fun, and I'm glad I have my \$50 pair.

The next piece of progress, though, is even niftier: the 'canalphone'. The idea here is to just take a pair of ear plugs and squish a small speaker through them, so you have what the snobs call the 'passive noise reduction' of earplugs, and smaller speakers a millimeter or two closer to your ear. Turns out this is a good combination with good results: you can hear Jeff Buckley sigh, even in a loud room. Thus, these canalphones ran \$150++.

But compared to noise-cancelling headphones, the technology is downright primitive. Seriously: small headphone speakers, earplugs, squish, you're done. No serious circuitry. Another relatively recent invention, bone-conducting speakers are higher on the innovation scale but also don't do as well as the simple speaker-in-earplug.

Because the manufacturing cost is not all that much more than a good pair of earplugs and a cheap pair of headphones, the \$150 price tag is based on rarity, novelty, and demand. But the jig is up. I got a pair for \$12, and they saved my life.

I've started listening to music that I just hadn't been listening to before. I'm walking down the street, wind in my face, cars at my back, and I'm listening to a bass solo off of *Giant Steps*.

Penecontemporaneous to getting these headphones, I got a copy of Schnittke's *Minnesang* b/w his *Choir Concerto*, which I promptly loaded onto my telephone. I'd already heard track two of the Choir Concerto adapted for strings and re-recorded by the Kronos Quartet under the first line of the lyrics ("I offer these collected songs where every verse is filled with grief..."), but I wasn't sure what to expect from *Minnesang*. As it turns out, my mind was fucking blown. Schnittke has just about every voice in the choir doing something slightly different, so at the same time as the overwhelming wash of voices is coming at and at you, there are individual voices walking around the room. With inferior headphones—i.e., without headphones driving the sound directly into your brain—you'd just hear the overall wash and think it was just whiny.

Now that I've told you how my headphones saved my life, next time I'll talk about the politics and intellectual property issues.