Listen to this!

I want to talk about three areas of hearing difficulties and some ways to protect our hearing. Then move on to demonstrating and listening to minor differences in unisons and intervals. Finally I have a couple of practical tools and tips to show you.

Hearing loss

I'm not a hearing specialist, and I don't play one at chapter meetings. But, I do want to share some of the knowledge and experience I have accumulated.

I have been heavily involved with music my entire life. I have always been active in woodworking, which requires using loud equipment. I have tried to be sensitive about hearing, and have ALWAYS used hearing protection around loud equipment.

https://www.healthline.com/human-body-maps/ear#1

From the moment we are born, we begin to lose our hearing. It is permanent and accumulative, we never get it back.
Daughter's reaction to my trying out a frequency generating app.
Demo the app.
I was sensitive to high frequencies coming from our old tube tv in the sixties.
"Can't you hear that?" No, they couldn't. It has only become clear to me recently that they couldn't.

Horror stories about customers; how do you tell them they may have hearing loss?

I was tuning at the Washington Center for the Performing Arts, listening to the highest notes on a Steinway D. The frequency of the note returns from the back wall faster than the knock of the wood in the hammer molding and the action. This noise is in the middle of every note on the piano. When someone says the top notes just don't sound the same anymore, I suspect they have a hearing loss. I will play C8 and get them to describe what they hear. I then play a note an octave down, and they say, "That one still sings!" I will then play the note, then put my finger on the strings and play again. "That sounds just like the top note!"

Tinnitus

Whistling, roar, pink or white noise.
I have had occasional, very high-pitched frequency from a very young age, similar to the whine from the TV. It is fortunately in a range that doesn't interfere with tuning or listening to music.
C2 and the high-altitude pilot.
I have had some tuners tell me they have tinnitus right in the middle of the temperament, or in another area of the piano. They can tune just fine with an ETD, but can they pass the tuning test?

Recruitment

Refers to several different conditions.
Sensitivity to particular frequencies.
Compensation for hearing loss?
This can change how people perceive the tone of a piano.

Lack of attenuation capacity.

Turning up our hearing, turning down our hearing.
Young vs. Old ears.
This is why it is the older people, with less hearing, complain about music being too loud.
Rather than the young, who can actually hear more.
Anechoic chambers - Kawai - hear your own heart beat.

Hearing Protection

I read an article years ago from a recording mastering engineer. They listen in a very fine focused manner making music sound balanced and level. They listen regularly at a very high volume. He suggested getting up and getting away from it every now and then to let your ears rest. When you are exposed to a very loud sound (gunshot, rock concert) the muscles around the bones in your ear clamp down to protect your hearing. This is why everything sounds muffled for a while.

When you wear hearing protection, you lower the overall volume and raise your hearing threshold. Let's go to tuning mode, and listen to the background noises we haven't been hearing. By raising the threshold, I find I am less frequently bothered by washing machines, dryers, fans, fish tank bubblers, etc.

Does it lessen your perception of higher partials? I don't find so. Especially if I tune the entire piano that way, I find I hear everything just fine. About 3/4 of the way through a piano, my Apple Watch sends me an alarm warning of loud sound. I smile, because I am already protecting my hearing. It also sounds off when I am using a vacuum, hair dryer, or blowing out an action. For those who don't feel like they can tune with protection, I would strongly recommend sticking with it. Most of us will find we are hearing all the upper frequencies with less stress.

Someone is going to say, "I don't have to play hard, I can tune with only a soft blow." That is fine, but you will still need to do test blows on most pianos, and some will only render the strings with consistent hard blows.
Accumulated sound can cause damage, even at lower levels.

I have worn some kind of ear plug since about 2005 on every piano I have tuned. I would wear some occasionally before that. Some kinds of protection I have tried:

- Foam: Overkill, and dampens higher frequencies more than lower. Not good for tuning.
- Hunter's ear valves (early, not the electronic kind): Meh.
- Custom ear molds with insertable filters: 5, 10, 15, 25 db
- Musician's ear plugs aka acoustic filters.

  Eargasms
  Etymotic
  Others
- Advanced noise cancellation technology, ear buds, headphones: Dampen too much for me. I have the Sony headphones. I love them! They are amazing on an airplane. When I watch a movie on my computer, my wife has to tap me on the shoulder to get my attention. Apple AirPods now have noice cancelling, and are helpful around some loud sounds. I haven't tried them with tuning.
- Shooters active noise controlling ear buds. I love them for shooting, but for me it distorts the initial attack in a piano note. This technology is not ready for me.

I'm currently liking the Etymotics because I can get new silicone "Flanged Eartips" and make the filter itself last months longer.

Each persons ear is shaped differently, and the ear canal path varies. My canal goes up, rather than forward. I had trouble wearing my Apple AirPods until I saw someone else wear them sideways, rather than up and down. New ear plugs are bound to be a bit uncomfortable, but they shouldn't hurt. Find the one that fits you, and wear it!

What does a cent sound like?

Some practical tips

My favorite screwdriver.
Folding sawhorses worth buying
How to wrap an action for transport