

Aquariums ...

Or how I learned to stop loving my loudspeakers and simply listen through them.

The Audio world is shackled by a perception that there is an Audio Holy Grail; an Audio Nirvana. Such a thing is not realistic, plausible or possible – audio reproduction should not be viewed in this context as it leads to an entirely wrong point of view. This is particularly true for loudspeakers.

I sometimes find that when an audio system is compared to an aquarium this point can be made clearer.

In an aquarium we strive to have a scene that is majestic, with colorful fish, natural plants, scenic backdrops, the works – a seascape if you will. A key piece of equipment in an aquarium, one that is often overlooked, is the glass that surrounds it. Consider for a moment that our particular aquarium has a single portal, a singular window into the aquarium through which we view this complex micro-chasm. In this story we will not be allowed any views other than what we can witness through this single portal.

The piece of glass from which this portal is constructed is critical to how we “see” the aquarium on the other side. If it is dirty, distorted, or, God forbid, colored, then what we perceive as the aquarium scene is disturbed, not as “clear” or “natural” as we might have otherwise enjoyed. These days, fortunately for us, glass is a highly refined technology (it is several hundreds of years old) and virtually perfect glass is readily available. For this reason no one ever really considers that simple piece of glass and the critical role it plays. It is, well, simply not there as far as what we perceive through this window. It serves its purpose; indeed, it keeps the water in the tank! But for all practical purposes we don’t notice it, and we don’t want it to be noticed.

Now imagine for a moment, like in the distance past, that we can’t actually make perfect glass, that the glass is prone to all sorts of errors in color and flatness, transparency or distortion. The scene that we “see”, that we “perceive”, is not reality, but is distorted in a wide range of ways that can be difficult to describe. This presents an interesting situation in that there now could be a myriad of differing opinions on which glass “looks” better, which is the least “distorted”, or “colored” and we could use an entirely new genre of words to describe what we see, hoping, of course, that our usage of terms is the same as others.

The imperfect glass could look “warm” or “detailed” or exhibit a whole array of various subjective attributes. In fact it is perfectly reasonable to imagine that some people may prefer one particular glass’ distortions to another’s; that a particular color of the glass might actually accentuates a particular fish or plant life or whatever personal opinions that one might have. There could even be whole groups of people with similar and/or

differing opinions and we could even argue ad-infinitum about which glass is best. This is all reasonable and human.

But we must never lose sight of the fact that this situation can only occur when the glass is apparent, distorted – if it were not apparent at all then there could be no discussion or differences of opinion, since there is nothing to discuss. These discussions and arguments are predicated on the glass having notable flaws that we can perceive. While these discussions and arguments could still exist, they are moot when the glass is perfect. Of course in a world of imperfect glass one might actually never know if a perfect glass came along based solely on subjective opinions.

We must also never lose sight of the fact that we can always have subjective opinions, differences and arguments about the aquatic seascape of the fish or anything within the tank that we care to discuss no matter how transparent the glass may or may not be. These arguments on the internal aspects of the aquarium are completely independent of the qualities of the glass and stand alone as a reasonable critic of the aquatic art. There are no rights or wrongs or absolute truths or perfection *inside of the tank*.

It is even a particularly interesting aspect of this scenario that it would be difficult to determine if the glass were colored or if the scene were colored, say by dye in the water or lighting that was not “full spectrum”. Or if the water were dirty, it would be difficult to judge if it were the water or the glass. Clearly there is an ambiguity as to what we might perceive through this portal is due to the scene and what is due to the glass. We can only say with certainty that the glass is colored if we know for certain that the water is not. One can, in fact, blithely go along enjoying a particularly colored or dirty scene that has resulted from a poor piece of glass oblivious to the fact that it is “not an accurate reproduction of the art”, simply because “it looks good to me”.

Objectively perfect or nearly perfect glass is easy to quantify, but subjectively it is not. A subjective argument or opinion can only be based on flaws in the glass – in a flawless glass there can be no subjective argument about the transmission itself – about the glass. If there is perfect transmission then there cannot be any valid subjective reference upon which to base an argument. As the transmission system approaches perfection, the only thing that can remain is an objective basis, all “subjectivity” is lost. To hold a subjective opinion that a transmission system approaches or reaches perfection is absurd and anyone taking such a position is naive. To quantify and exhibit objectively that a transmission system is approaching perfection is completely reasonable and is in fact the only valid demonstration of perfection.

Loudspeakers are our portal into the audio medium on the other side, the audio transmission system. They are a necessary piece of the technology, as unavoidable as the glass in our aquarium. But, unlike the typical glass in the aquarium, they have not yet been perfected (that we know of) – flaws abound, and may always be present at some level. However, we can use our aquarium analogy to highlight some very real problems associated with the perception and evaluation of a loudspeaker and the entire audio transmission system.

One of the more notable aspects of this analogy is that a loudspeaker, like the glass portal in the aquarium, should actually not be noticeable at all. Who could argue with the fact that the ideal would be not to perceive the loudspeaker at all – perfect transmission just like the glass. Further, it is erroneous to place any positive attributes on this perceptual transmission – basically the best that this portal can be is to be nothing at all. If the loudspeaker, like the glass, is doing its job to perfection, then it would be completely un-noteworthy, devoid of any attribute with which to describe it – except to say that it is completely “transparent” (but that’s not a positive attribute, it’s neutral). To imagine that this portal could actually have any desirable “positive” effects on the situation is simply ridiculous. It’s not the glass that we want to look at, it’s the fish!!! How often this simple fact is lost.

And what if our aquarium was dirty or the fish are ugly or sickly. If the portal masks this by making everything look colorful or healthy is this then to be called a “good” piece of glass, a good transmission system? Is it reasonable to expect that such a portal could exist? And would you want one in your aquarium if it did? Clearly there are some who might, and I wish them luck in their quest for this Holy Grail, the Audio Nirvana where everything “sounds good”. As for me, I prefer my portals to exhibit the scenery with the full spectrum of colors – or not, if they’re not actually present in the scene - uninhibited by any characteristics of the transmission medium so necessary to the technology. And if, at the end of the long road of technological development - as it reaches its eventual goal of perfection where only an objective quantification of the system is possible - then I’ll start now putting my trust in this inevitable sole valid evaluation mechanism.

When people cease to comment on the loudspeakers, when they fail to be able to describe them with subjective attributes, or subjective appraisals, when they apparently cease to exist, (and can be objectively shown to be devoid of perceptible aberrations), then ... then, I will have done my job. In the mean time, the use of positive attributes to describe a loudspeaker only means that the job is not done, that there is still something there to be removed.

At Ai we don’t talk about what our speakers sound like – they don’t sound like anything - we’d rather you didn’t notice them at all.

Dr. Earl Geddes
Chief Technical Officer
Audio Intelligence