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The Ten Biggest Lies in Audio

The punch line of Lincoln's famous bon mot, that you cannot fool all the people all of the time, appears to be just barely applicable to high-end audio. What follows here is an attempt to make it stick.

I strongly suspect that people are more gullible today than they were in my younger years. Back then we didn't put magnets in our shoes, the police didn't use psychics to search for missing persons, and no head of state since Hitler had consulted astrologers. Most of us believed in science without any reservations. When the hi-fi era dawned, engineers like Paul Klipsch, Lincoln Walsh, Stew Hegeman, Dave Hafler, Ed Villchur, and C. G. McProud were our fountainhead of audio information. The untutored tweako/weirdo pundits who don't know the integral of e^x were still in the benighted future.

Don't misunderstand me. In terms of the existing spectrum of knowledge, the audio scene today is clearly ahead of the early years; at one end of the spectrum there are brilliant practitioners who far outshine the founding fathers. At the dark end of that spectrum, however, a new age of ignorance, superstition, and dishonesty holds sway. Why and how that came about has been amply covered in past issues of this publication; here I shall focus on the rogues' gallery of currently proffered mendacities to snare the credulous.

1. The Cable Lie

Logically this is not the lie to start with because cables are accessories, not primary audio components. But it is the hugest, dirtiest, most cynical, most intelligence-insulting and, above all, most fraudulently profitable lie in audio, and therefore must go to the head of the list.

The lie is that high-priced speaker cables and interconnects sound better than the standard, run-of-the-mill (say, Radio Shack) ones. It is a lie that has been exposed, shamed, and refuted over and over again by every genuine authority under the sun, but the tweako audio cultists hate authority and the innocents can't distinguish it from self-serving charlatanry.

The simple truth is that resistance, inductance, and capacitance (R, L, and C) are the only cable parameters that affect performance in the range below radio frequencies. The signal has no idea whether it is being transmitted through cheap or expensive RLC. Yes, you have to pay a little more than rock bottom for decent plugs, shielding, insulation, etc., to avoid reliability problems, and you have to pay attention to resistance in longer connections. In basic electrical performance, however, a nice pair of straightened-out wire coat hangers with the ends scraped is not a whit inferior to a $2000 gee-whiz miracle cable. Nor is 16-gauge lamp cord at 18¢ a foot. Ultrahigh-priced cables are the biggest scam in consumer electronics, and the cowardly surrender of nearly all audio publications to the pressures of the cable marketers is truly depressing to behold.

(For an in-depth examination of fact and fiction in speaker cables and audio interconnects, see Issues No. 16 and No. 17.)

2. The Vacuum-Tube Lie

This lie is also, in a sense, about a peripheral matter, since vacuum tubes are hardly mainstream in the age of silicon. It's an all-pervasive lie, however, in the high-end audio market; just count the tube-equipment ads as a percentage of total ad pages in the typical high-end magazine. Unbelievable! And so is, of course, the claim that vacuum tubes are inherently superior to transistors in audio applications—don't you believe it.

Tubes are great for high-powered RF transmitters and microwave ovens but not, at the turn of the century, for amplifiers, preamps, or (good grief!) digital components like CD and DVD players. What's wrong with tubes? Nothing, really. There's nothing wrong with gold teeth, either, even for upper incisors (that Mideastern grin); it's just that modern dentistry offers more attractive options. Whatever vacuum tubes can do in a piece of audio equipment, solid-state devices can do better, at lower cost, with greater reliability. Even the world's best-designed tube amplifier will have higher distortion than an equally well-designed transistor amplifier and will almost certainly need more servicing (tube replacements, rebiasing, etc.) during its lifetime. (Idiotic designs such as 8-watt single-ended triode amplifiers are of course exempt, by default, from such comparisons since they have no solid-state counterpart.)

As for the "tube sound," there are two possibilities: (1) It's a figment of the deluded audiophile's imagination, or (2) it's a deliberate coloration introduced by the manufacturer to appeal to corrupted tastes, in which case a solid-state design could easily mimic the sound if the designer were perverse enough to want it that way.

Yes, there exist very special situations where a sophisticated designer of hi-fi electronics might consider using a tube (e.g., the RF stage of an FM tuner), but those rare and narrowly qualified exceptions cannot redeem the common, garden-variety lies of the tube marketers, who want you to buy into an obsolete technology.

3. The Antidigital Lie

You have heard this one often, in one form or another. To wit: Digital sound is vastly inferior to analog. Digitized audio is a like a crude newspaper photograph made up of dots. The Nyquist-Shannon sampling theorem is all wet. The 44.1 kHz sampling rate of the compact disc cannot resolve the highest audio frequencies where there are only two or three sampling points. Digital sound, even in the best cases, is hard and edgy. And so on and so forth—all of it, without exception, ignorant drivel or deliberate misrepresentation. Once again, the lie has little bearing on the mainstream, where the digital technology has gained complete acceptance; but in the byways and tributaries of the audio world, in unregenerate high-end audio salons and the listening rooms of various tweako mandarins, it remains the party line.

The most ludicrous manifestation of the antidigital fallacy is the preference for the obsolete LP over the CD. Not the analog master tape over the digital master tape, which remains a semi-respectable controversy, but the clicks, crackles and pops of the vinyl over the digital data pits' background silence, which is a perverse rejection of reality.

Here are the scientific facts any second-year E.E. student can verify for you: Digital audio is bulletproof in a way analog audio never was and never can be. The 0's and 1's are inherently incapable of being distorted in the signal path, unlike an analog waveform. Even a sampling rate of 44.1 kHz, the lowest used in today's high-fidelity applications, more than adequately resolves all audio frequencies. It will not cause any loss of information in the audio range—not an iota, not a scintilla. The "how can two sampling points resolve 20 kHz?" argument is an untutored misinterpretation of the Nyquist-Shannon sampling theorem. (Doubters are advised to take an elementary course in digital systems.)

The reason why certain analog recordings sound better than certain digital recordings is that the engineers did a better job with microphone placement, levels, balance, and equalization, or that the recording venue was acoustically superior. Some early digital recordings were indeed hard and edgy, not because they were digital but because the engineers were still thinking analog, compensating for anticipated losses that did not exist. Today's best digital recordings are the best recordings ever made. To be fair, it must be admitted that a state-of the-art analog recording and a state-of-the-art digital recording, at this stage of their respective technologies, will probably be of comparable quality. Even so, the number of Tree-Worshiping Analog Druids is rapidly dwindling in the professional recording world. The digital way is simply the better way.

4. The Listening-Test Lie

Regular readers of this publication know how to refute the various lies invoked by the high-end cultists in opposition to double-blind listening tests at matched levels (ABX testing), but a brief overview is in order here.

The ABX methodology requires device A and device B to be level-matched within ±0.1 dB, after which you can listen to fully identified A and fully identified B for as long as you like. If you then think they sound different, you are asked to identify X,

which may be either A or B (as determined by a double-blind randomization process). You are allowed to make an A/X or B/X comparison at any time, as many times as you like, to decide whether X=A or X=B. Since sheer guessing will yield the correct answer 50% of the time, a minimum of 12 trials is needed for statistical validity (16 is better, 20 better yet). There is no better way to determine scientifically whether you are just claiming to hear a difference or can actually hear one.

The tweako cultists will tell you that ABX tests are completely invalid. Everybody knows that a Krell sounds better than a Pioneer, so if they are indistinguishable from each other in an ABX test, then the ABX method is all wet—that's their logic. Everybody knows that Joe is taller than Mike, so if they both measure exactly 5 feet 11¼ inches, then there is something wrong with the Stanley tape measure, right?

The standard tweako objections to ABX tests are too much pressure (as in "let's see how well you really hear"), too little time (as in "get on with it, we need to do 16 trials"), too many devices inserted in the signal path (viz., relays, switches, attenuators, etc.), and of course assorted psychobabble on the subject of aural perception. None of that amounts to anything more than a red herring, of one flavor or another, to divert attention from the basics of controlled testing. The truth is that you can perform an ABX test all by yourself without any pressure from other participants, that you can take as much time as wish (how about 16 trials over 16 weeks?), and that you can verify the transparency of the inserted control devices with a straight-wire bypass. The objections are totally bogus and hypocritical.

Here's how you smoke out a lying, weaseling, obfuscating anti-ABX hypocrite. Ask him if he believes in any kind of A/B testing at all. He will probably say yes. Then ask him what *special insights* he gains by (1) not matching levels and (2) peeking at the nameplates. Watch him squirm and fume.

5. The Feedback Lie

Negative feedback, in an amplifier or preamplifier, is *baaaad*. No feedback at all is *gooood*. So goes this widely invoked untruth.

The fact is that negative feedback is one of the most useful tools available to the circuit designer. It reduces distortion and increases stability. Only in the Bronze Age of solid-state amplifier design, back in the late '60s and early '70s, was feedback applied so recklessly and indiscriminately by certain practitioners that the circuit could get into various kinds of trouble. That was the origin of the no-feedback fetish. In the early '80s a number of seminal papers by Edward Cherry (Australia) and Robert Cordell (USA) made it clear, beyond the shadow of a doubt, that negative feedback is totally benign as long as certain basic guidelines are strictly observed. Enough time has elapsed since then for that truth to sink in. Today's no-feedback dogmatists are either dishonest or ignorant.

6. The Burn-In Lie

This widely reiterated piece of B.S. would have you believe that audio electronics, and even cables, will "sound better" after a burn-in period of days or weeks or months (yes, months). Pure garbage. Capacitors will "form" in a matter of seconds after power-on. Bias will stabilize in a matter of minutes (and shouldn't be all that critical in well-designed equipment, to begin with). There is absolutely no difference in performance between a correctly designed amplifier's (or preamp's or CD player's) first-hour and 1000th-hour performance. As for cables, yecch... We're dealing with audiophile voodoo here rather than science. (See also the Duo-Tech review in Issue No. 19, page 36.)

Loudspeakers, however, may require a break-in period of a few hours, perhaps even a day or two, before reaching optimum performance. That's because they are mechanical devices with moving parts under stress that need to settle in. (The same is true of reciprocating engines and firearms.) That doesn't mean a good loudspeaker won't "sound good" right out of the box, any more than a new car with 10 miles on it won't be good to drive.

7. The Biwiring Lie

Even fairly sophisticated audiophiles fall for this hocus-pocus. What's more, loudspeaker manufacturers participate in the sham when they tell you that those two pairs of terminals on the back of the speaker are for biwiring as well as biamping. Some of the most highly respected names in loudspeakers are guilty of this hypocritical genuflection to the tweako sacraments—they are in effect surrendering to the "realities" of the market.

The truth is that biamping makes sense in certain cases, even with a passive crossover, but biwiring is pure voodoo. If you move one pair of speaker wires to the same terminals where the other pair is connected, absolutely nothing changes electrically. The law of physics that says so is called the superposition principle. In terms of electronics, the superposition theorem states that any number of voltages applied simultaneously to a linear network will result in a current which is the exact sum of the currents that would result if the voltages were applied individually. The audio salesman or 'phile who can prove the contrary will be an instant candidate for some truly major scientific prizes and academic honors. At

the same time it is only fair to point out that biwiring does no harm. It just doesn't do anything. Like magnets in your shoes.

8. The Power Conditioner Lie

Just about all that needs to be said on this subject has been said by Bryston in their owner's manuals:

"All Bryston amplifiers contain high-quality, dedicated circuitry in the power supplies to reject RF, line spikes and other power-line problems. Bryston power amplifiers do not require specialized power line conditioners. Plug the amplifier directly into its own wall socket."

What they don't say is that the same is true, more or less, of all well-designed amplifiers. They may not all be the Brystons' equal in regulation and PSRR, but if they are any good they can be plugged directly into a wall socket. If you can afford a fancy power conditioner you can also afford a well-designed amplifier, in which case you don't need the fancy power conditioner. It will do absolutely nothing for you. (Please note that we aren't talking about surge-protected power strips for computer equipment. They cost a lot less than a Tice Audio magic box, and computers with their peripherals are electrically more vulnerable than decent audio equipment.)

The biggest and stupidest lie of them all on the subject of "clean" power is that you need a specially designed high-priced line cord to obtain the best possible sound. Any line cord rated to handle domestic ac voltages and currents will perform like any other. Ultra-high-end line cords are a fraud. Your audio circuits don't know, and don't care, what's on the ac side of the power transformer. All they're interested in is the dc voltages they need. Think about it. Does your car care about the hose you filled the tank with?

9. The CD Treatment Lie

This goes back to the vinyl days, when treating the LP surface with various magic liquids and sprays sometimes (but far from always) resulted in improved playback, especially when the pressing process left some residue in the grooves. Commercial logic then brought forth, in the 1980s and '90s, similarly magical products for the treatment of CDs. The trouble is that the only thing a CD has in common with an LP is that it has a surface you can put gunk on. The CD surface, however, is very different. Its tiny indentations do not correspond to analog waveforms but merely carry a numerical code made up of 0's and 1's. Those 0's and 1's cannot be made "better" (or "worse," for that matter) the way the undulations of an LP groove can sometimes be made more smoothly trackable. They are read as either 0's or 1's, and that's that. You might as well polish a quarter to a high shine so the cashier won't mistake it for a dime.

Just say no to CD treatments, from green markers to spray-ons and rub-ons. The idiophiles who claim to hear the improvement can never, never identify the treated CD blind. (Needless to say, all of the above also goes for DVDs.)

10. The Golden Ear Lie

This is the catchall lie that should perhaps go to the head of the list as No. 1 but will also do nicely as a wrap-up. The Golden Ears want you to believe that their hearing is so keen, so exquisite, that they can hear tiny nuances of reproduced sound too elusive for the rest of us. Absolutely not true. Anyone without actual hearing impairment can hear what they hear, but only those with training and experience know what to make of it, how to interpret it.

Thus, if a loudspeaker has a huge dip at 3 kHz, it will not sound like one with flat response to any ear, golden or tin, but only the experienced ear will quickly identify the problem. It's like an automobile mechanic listening to engine sounds and knowing almost instantly what's wrong. His hearing is no keener than yours; he just knows what to listen for. You could do it too if you had dealt with as many engines as he has.

Now here comes the really bad part. The self-appointed Golden Ears—tweako subjective reviewers, high-end audio-salon salesmen, audio-club ringleaders, etc.—often use their falsely assumed superior hearing to intimidate you. "Can't you hear that?" they say when comparing two amplifiers. You are supposed to hear huge differences between the two when in reality there are none—the GE's can't hear it either; they just say they do, relying on your acceptance of their GE status. Bad scene.

The best defense against the Golden Ear lie is of course the double-blind ABX test (see No. 4 above). That separates those who claim to hear something from those who really do. It is amazing how few, if any, GE's are left in the room once the ABX results are tallied.

There are of course more Big Lies in audio than these ten, but let's save a few for another time. Besides, it's not really the audio industry that should be blamed but our crazy consumer culture coupled with the widespread acceptance of voodoo science. The audio industry, specifically the high-end sector, is merely responding to the prevailing climate. In the end, every culture gets exactly what it deserves. TAC