

4  
Audio Research  
PH5

6  
Ayre P-5xe

9  
Hardesty on  
Phono Stages

10  
SME 20/2  
Turntable

16  
VPI Super  
Scoutmaster

21  
Linn LP12  
Upgrades

25  
Lyra Cartridges

29  
Hardesty on  
Turntables

30  
Vinyl Revolution

34  
Essential Analog  
Accessories

37  
40 Great Records

44  
Hardesty on  
Records

# Analog Sources

*Audio Perfectionist Journals #14 and 15 will provide more information about source components continuing on from the general introduction to this component category offered in Journal #9. This issue will concentrate on vinyl record playback and the next one will cover digital sources. I'd like to start by commenting on some information that was presented previously.*

**Audio Perfectionist Journal #9** was all about source components. We mentioned most of the possible sources of recorded music and I offered opinions based on my experience with commercial products during my years as a high-end audio retail merchant. The number of sources now available for high fidelity reproduction is shrinking and vinyl records have risen to the top of the list again. My past experiences with certain design choices are still valid but that doesn't mean that products using methods that I've found less than completely satisfactory can't perform reasonably well. Let me elaborate.

## Fewer Choices

In the beginning, analog records were the primary source of recorded music suitable for reproduction by a high-end hi-fi system. Tape and radio were available of course but records reigned supreme until the advent of the compact disc in the

early 80s. The convenience of the compact disc, along with a misleading advertising campaign that promised "perfect sound forever," allowed CDs to supplant vinyl records and dominate the recorded music business for the next 20 years.

Today FM radio has been largely supplanted by satellite and Internet radio with compressed digital streams that are not suitable for high fidelity reproduction. DVD-Audio, which was promoted almost exclusively as a multichannel format, seems to be completely dead. Sony failed to deliver "single inventory" SACD/CD hybrid discs as promised and SACD seems to have been relegated to cult status. That leaves vinyl records and compact discs as our primary sources for music listening.

In the late 90s more people began to recognize that the fidelity of CDs was simply inadequate to provide the complete listening satisfaction that music lovers were seek-



ing. By the time they realized this the high-end audio business and the music industry itself had been in decline for more than a decade. During this time home computers and the Internet became established with a mainstream audience and forever changed the landscape of entertainment. Home theater and the iPod siphoned off a number of casual music listeners and our little corner of the world shrunk. Some high-end manufacturers tried to be all things to all people and most failed miserably. The reasons are simple in my opinion.

Mass-market manufacturers, like Yamaha and Denon, can do a better job with home theater than any small specialty company. They can deliver more for less and they can create new products with new “features” much faster. The sound from compressed digital formats like Dolby Digital and DTS has limited fidelity and sophisticated high-end audio components are just not necessary in order to provide a satisfactory experience. Some manufacturers tried to create a high-end home theater market but these efforts have been largely unsuccessful. The rich can spend their money any way they like, of course, but high-end home theater simply is not needed and few seem to want it. Ask Levinson.

Computer companies, like Microsoft and Apple, can do a better job of providing digital downloads on the Internet and portable players for listening to them. Compressed digital music formats typically use bit rates a little higher than home theater sources but this sound is not high fidelity by any stretch of the imagination. An iPod is fine when jogging or traveling by air but MP3s sound inferior to regular CDs even on my Bose car stereo system and horrible on my home audio system.

All these products are clearly here to stay and they provide satisfactory sources for movie viewing or casual music listening. They are convenient and give people access to a wide range of music and film that might not otherwise be heard or seen. The Internet and the iPod give today’s kids the taste of music that FM radio provided to those from my generation. Movies are a substitute for books for many of today’s time-challenged folk.

But what if you still find that listening to music as a primary activity is among life’s most satisfying activities? Why not assemble a high-end audio system and collect recordings to play on it? That’s what we’re writing about here in the **Audio Perfectionist Journal**. What if you’re also an audio component manufacturer who wants to stay in business? I’d advise you to

abandon the product categories where you can’t compete and concentrate on the areas where you can deliver superior products.

Music lovers can be most satisfied by a high quality two-channel audio system that incorporates vinyl records for the highest resolution playback and CDs for more casual listening. Specialty manufacturers can best compete by delivering high quality products that require the expertise and care in construction that mass-market manufacturers can’t afford—or don’t know how—to provide.

### Vinyl Rising from the Dead

In the early 80s those in the high-end audio industry tried to jump on the CD bandwagon because they thought they could appeal to a mainstream audience. They were wrong. The mainstream was perfectly happy with the CDs they heard on mass-market audio systems and car stereos. They seem to be even happier with sources of even lower quality, like MP3 and Dolby



Digital compressed formats. The mainstream audience has demonstrated that they want low prices and convenience above all else. Repeated attempts to introduce higher resolution formats, like SACD and DVD-Audio, have failed to make an impact with a public who either can’t hear the difference or simply doesn’t care.

Vinyl records, which supposedly became obsolete in 1981, outsold SACD and DVD-Audio discs combined last year but that total number was still comparatively small. Apple sold 40 million iPods and a billion songs to play on them. Draw your own conclusions.

Discerning individuals make up a small minority of the public at large. Most people can eat at McDonald’s and drink wine out of a box. McDonald’s won’t try to go “high-end” because they’re doing just fine. Fewer people will eat at fine restaurants but there is a market, albeit smaller, for better quality food and

service. And there is still a market for better audio systems and components. That market will never be as big as the market for iPods but I believe that realistic goals can be achieved.

### Generalizations Versus Specifics



I was a retail merchant, specializing in turntables, for more than two decades. I sold, set up, installed and repaired all brands of turntables, tonearms and cartridges. I graphed the primary reso-

nances of every tonearm/cartridge combination we recommended and many others. I graphed frequency response variations caused by load impedance changes for every cartridge we recommended. I did turntable A/B comparisons and listened to an enormous number of vinyl playback systems. I came to some general conclusions about the performance characteristics of various design choices and some of these were explained in **Journal #9**.

In my experience, suspended turntables delivered deeper and better-defined bass performance than mass-isolated tables and they were less affected by environmental disturbances.

Turntables with plastic platters sounded thick and dull compared to turntables with metal platters, which were generally more lively and dynamic. AC motors outperformed DC motors. Tonearms with gimbaled bearings and rigid construction generally outperformed unipivot tonearms. Pivoting tonearms generally outperformed straight-line tracking tonearms.

In this **Journal** there is a review of a VPI turntable that I could happily listen to for extended periods of time. It is mass-isolated, has a plastic platter and a unipivot tonearm. Based on the generalizations listed above it's not worth listening to. Based on listening to records using this playback system it's very good! There are some caveats. The table is mass-isolated but sounds much better on a Ginko Cloud suspension base. The platter is plastic but has a remarkable metal periphery clamp

for the record. The tonearm has a unipivot bearing and looks flimsy but, for reasons I can't explain, it works very well and sounds very good.

### New Motors

In earlier days DC motors had brushes and commutators. They turned faster if the voltage increased and slower if the load increased. Servo systems were always used to keep them turning at the right speed. Servo systems continually sample and change, effectively creating flutter distortion at the sample rate of the servo. Times have changed.

I am not an expert on electric motors but I'm going to attempt an explanation. Today there are motors referred to as "commutatorless" or "electronically commutated," or "stepper motors." Sometimes these are referred to as DC motors but they don't work the same way. Short bursts of current are delivered sequentially to specific poles in order to make the motor rotate. Current may change from none, to a fixed and specific level for a fixed and specific time, and back to none. Even if current flows in only one direction these are essentially alternating current motors with the current alternating from one level to another (stepped or pulsed DC).

Turntables with the older DC motors sounded pretty bad but this problem seems to have been solved. All the turntables Shane and I listened to together sounded virtually pitch perfect with no audible wow or flutter.

### RIAA Equalization

Phono preamps must provide RIAA equalization with a curve that is exactly the inverse of the EQ that was applied when the records were recorded. In the old days cheaters loved this and they still do. They could differentiate their product from the others with slight EQ "errors" that would fool unsophisticated listeners for a while.

The defining differences between various phono stages should be significant but shouldn't consist of obvious changes in tonal balance. Beware of products that sound too different. They're probably cheating with RIAA EQ! Very small alterations in playback EQ, even at frequencies well above the range of human hearing, can be very audible. Ultrasonic errors do create audible effects and can potentially damage your other components. [APJ](#)