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The Audio System

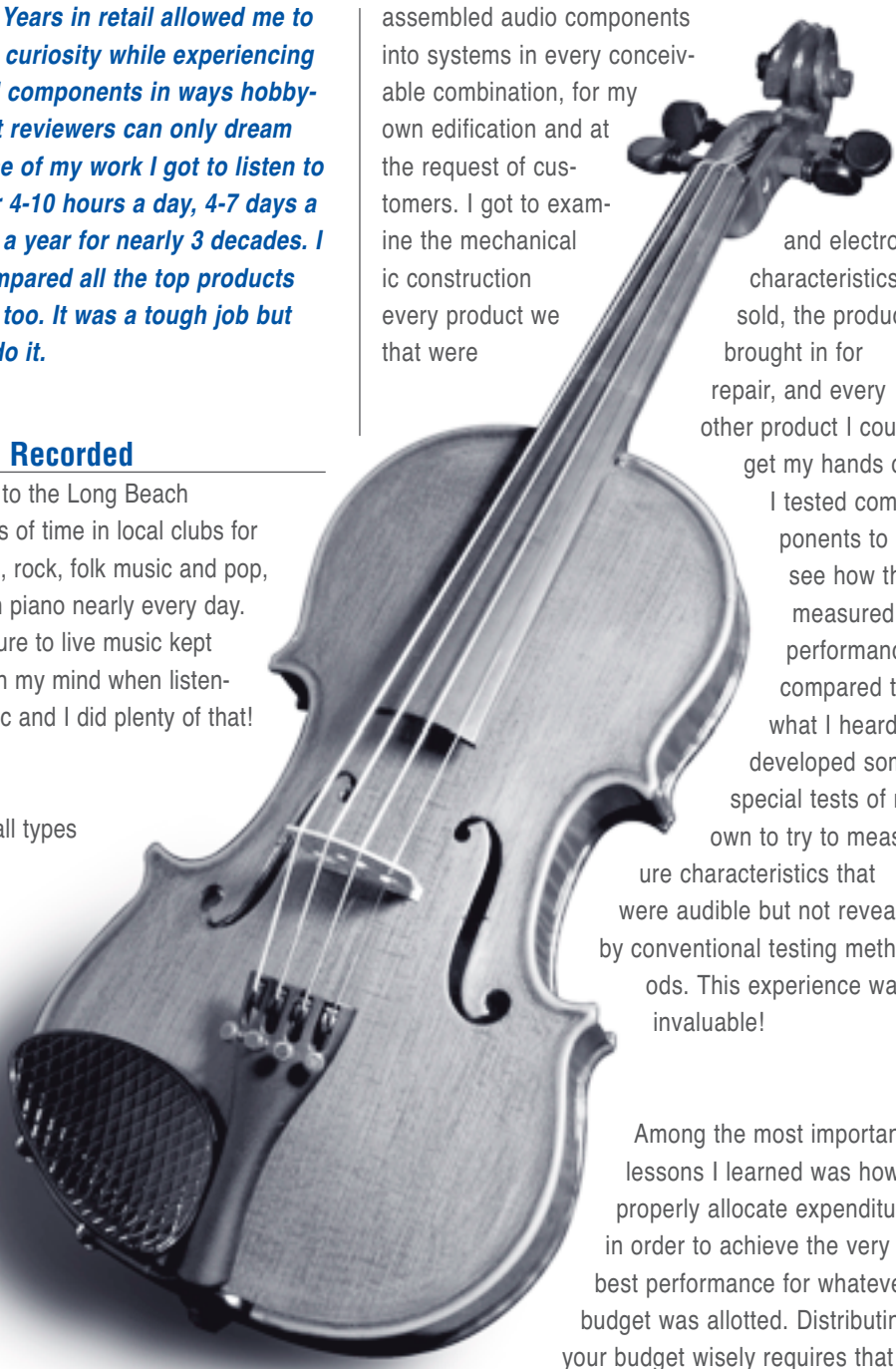
I'm very fortunate! Years in retail allowed me to indulge my natural curiosity while experiencing audio systems and components in ways hobbyists and equipment reviewers can only dream about. In the course of my work I got to listen to recorded music for 4-10 hours a day, 4-7 days a week, 48-52 weeks a year for nearly 3 decades. I listened to and compared all the top products and many failures, too. It was a tough job but somebody had to do it.

Music, Live and Recorded

I had season tickets to the Long Beach Symphony, spent lots of time in local clubs for exposure to live jazz, rock, folk music and pop, and I played my own piano nearly every day. This constant exposure to live music kept the real thing fresh in my mind when listening to recorded music and I did plenty of that!

I directly compared all types of speakers side-by-side in the ideal listening environment of my store, and individually in home environments that were far from ideal. I

assembled audio components into systems in every conceivable combination, for my own edification and at the request of customers. I got to examine the mechanical construction every product we that were



and electronic characteristics of sold, the products brought in for repair, and every other product I could get my hands on. I tested components to see how the measured performance compared to what I heard. I developed some special tests of my own to try to measure characteristics that were audible but not revealed by conventional testing methods. This experience was invaluable!

Among the most important lessons I learned was how to properly allocate expenditures in order to achieve the very best performance for whatever budget was allotted. Distributing your budget wisely requires that

each section of the audio system be considered according to its role. Proper consideration of the roles of each system section requires a complete understanding of the signal flow through that system. This is so important that it's time to reintroduce the necessary information.

The Natural Order of Things

In **Audio Perfectionist Journal #3**, I introduced the concept of *the natural order of things* to illustrate the signal path through the various components in an audio system. This is not a theory and I didn't invent it, it just is.

Grass is green, the sky is blue and the signal flows through an audio system in a prescribed manner. Speakers are always preceded by an amplifier. Amplification components are always preceded by a source component. If you have any doubts about how the signal flows through *your* audio system simply unplug the interconnect cables at the input to your amplifier and see if the speakers continue to produce sound. They won't, but you don't have to take my word for it. You can proceed back a section at a time and break the signal path to prove this concept to yourself.

***“This is not a theory
and I didn't invent it.”***

Ivor Tiefenbrun, founder of Linn Products in Scotland, first brought these facts to the attention of the public more than thirty years ago. (See interview with Ivor in this issue.) In order to draw attention to the importance of a turntable he called it *hi-fi hierarchy* and used an analogy from the computer world: “garbage in, garbage out.” Ivor's use of the word “hierarchy” has stirred much controversy because it seems to imply that some components are more important than others but that's not the actual purpose of this information. After all, which is more important to penmanship, your hand or your arm? You can argue about this question but for the best dexterity you need both. In an audio system, you might get more performance by upgrading your source component before upgrading your speakers but you can't listen to either one alone.

I prefer calling it *the natural order of things* to avoid any debate about what's more important and to make it clear that this is a guide that helps you get the most performance for your money. Understanding the signal path helps in the allocation of resources when assembling an audio system for the first time and especially when upgrading that system.

***“The signal flows through an
audio system in a prescribed
manner.”***

The High Fidelity Approach

Remember, **Audio Perfectionist Journal** follows the high fidelity approach to home music reproduction. This approach assumes that our goal is to accurately reproduce the information that was recorded and that the components we choose are designed with that purpose in mind. Unfortunately, that's not always the case. With the exception of some unusual amplifier designs, most audio components other than speakers are relatively accurate. It's fashionable today for some speaker designs to create their own sounds rather than just recreate what's been recorded. Some people enjoy hearing these extra sounds, even though they are not part of the recorded information.

If you like the sound of the exaggerated reverberence created by speakers with dipolar or bipolar radiation patterns or you enjoy the sharper, more forward sound from speakers with ringing, fourth-order crossover filters, a caveat is in order. These speaker artifacts—and believe me, they are artifacts—will be superimposed on everything you hear. When you put a better signal into a system that includes speakers (or other components) with these or other artifacts, better sound will probably come out but the difference may be somewhat less discernable. Garbage in always means garbage out. Putting a better quality signal in usually means that better sound will come out.



Richard Hardesty circa 1999

If you want to assemble or upgrade a high fidelity audio system, the information in this **Journal** is very important. We'll revisit the natural order of things to put the sections of an audio system into perspective so you can see how each section affects the others. I'll interview Ivor Tiefenbrun, founder of Linn Products in Scotland, who first brought this simple concept to the attention of consumers. Shane will review some new components and I'll finish with articles about how to assemble an audio system for the first time and how to systematically upgrade that system while getting the most performance for your money. [APJ](#)