

**MY AUDIO “EXPERIMENTS”**  
**A NARRATIVE BY QUOC**  
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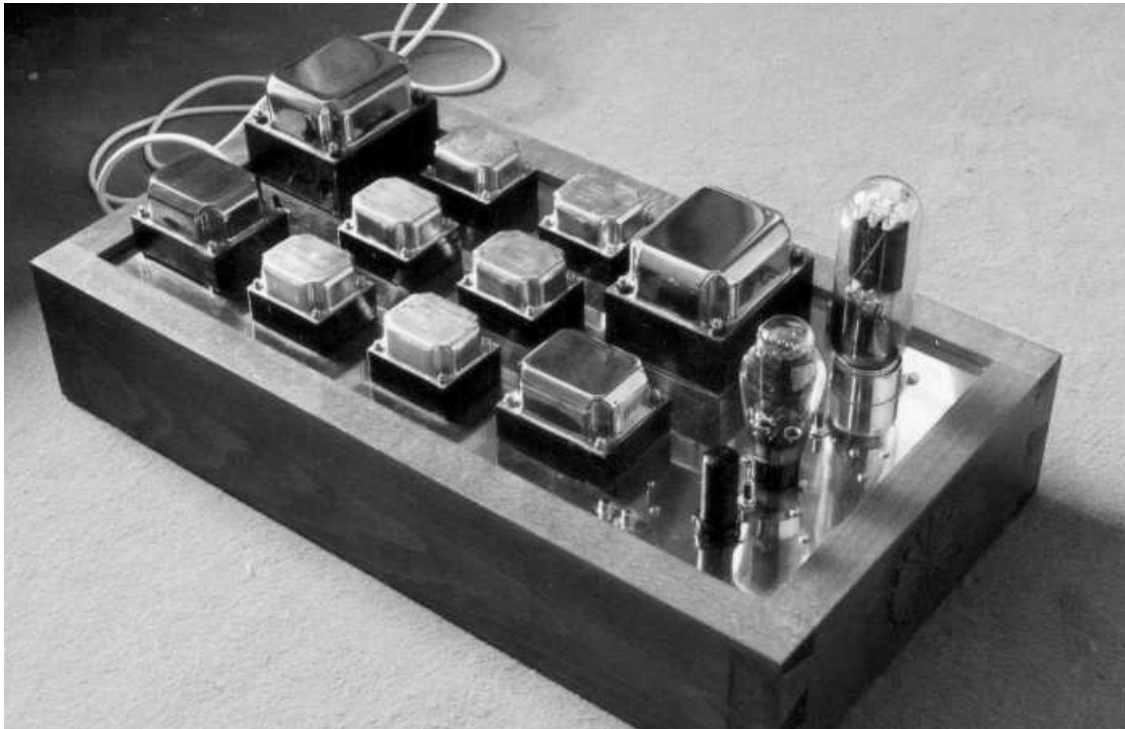
My parents sent me to learn how to play violin when I was 5. At home, we had an old pre-war console with a tube amplifier inside driving a 30 cm (12 inch) field coil, SEM driver running full range. My uncle and I realized that the recorded violin did not sound as good as the real one, so we decided to do something about it. After a while, we realized that the console itself was vibrating, thus polluting the sound. Although our first approach was of the “2x4” variety, I finally had the brilliant idea of damping the vibration by gluing rubber. What a toxic mess we ended up with. Next we started replacing capacitors, wiring, etc and the console sounded so much better! This was my first introduction to the enormous impact that design has on sound! Continue reading to learn more about the things that I discovered and the opinions that I formed as I delved more deeply into the design/sound relationship.

**Figure 1: 8 Watt Push Pull Amplifier**



The majority of tube amplifiers, especially those with higher power output, are push pull designs. I prefer my push pull amplifiers made with low power, directly heated triodes such as the 2A3. Coupling with the driver stage is achieved via inter-stage transformers, which cannot be seen as they are located inside the chassis.

**Figure 2: 13 Watt Single Ended Triode Amplifier**



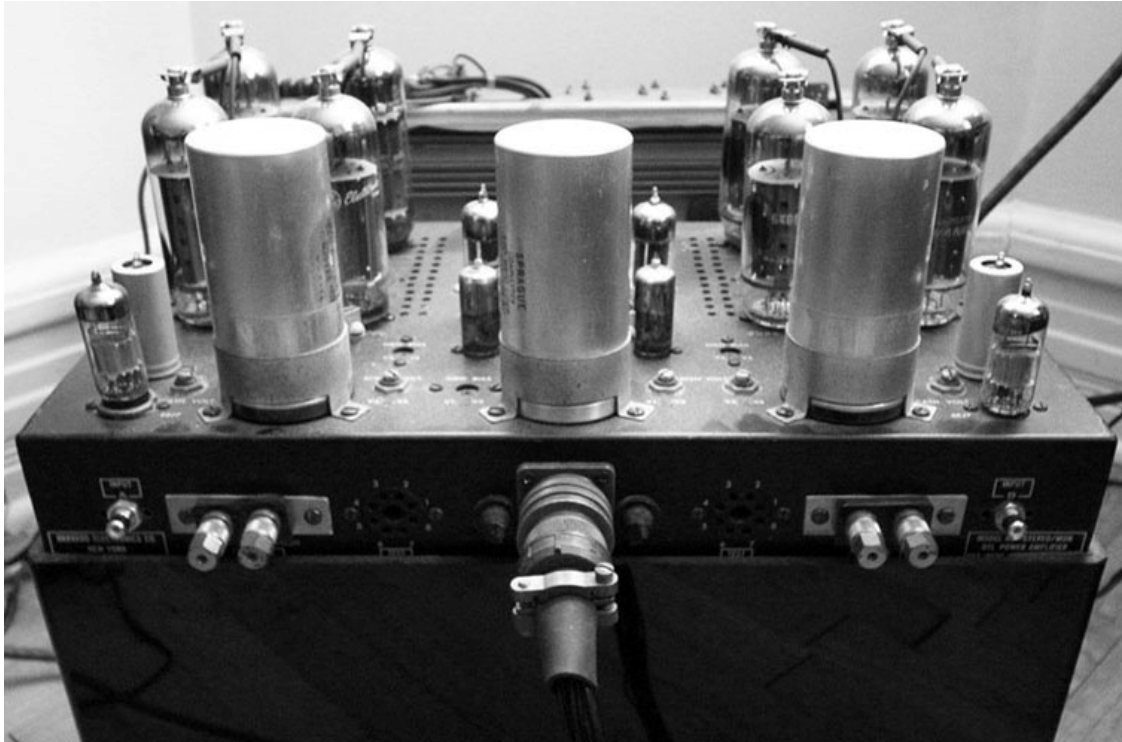
Most commercial amplifiers using the 845 tube are high power designs. In contrast, I always favor operating the 845 at a much lower voltage since the sound acquires greater finesse. I also like to use power tubes to drive the 845. This design uses a 300B in this capacity. In addition, I prefer conservative low noise power supplies; hence the proliferation of dedicated power transformers and multiple-stage chokes which makes my amplifiers back breakingly heavy. The K&Q Sound Genesis Model 2 amplifier implements a similar design philosophy, and ends up weighting 65 kilos (141 pounds).

**Figure 3: 20 Watt Single Ended Triode Amplifier**



The Western Electric 300B is one of my favorite tubes. Figure 3 shows an experimental design that uses a high current 300B tube variant from the Czech Republic, namely the EML 520B. In fact, the K&Q Sound Genesis Model 2 amplifier is designed to operate with another high current tube from the same company, the EML 300B-XLS. I particularly like the sound of oil capacitors, so most of my amplifier designs tend to sport these aluminum beer cans as well.

**Figure 4: 25 Watt Output Transformerless (OTL) Amplifier**



I fell head over heels when I heard a demo of the Infinity Servo Statik in the early '70s at Yale University. After that eye opening experience, I developed a love affair with the British Quad ESL electrostatic speaker, which of course I had to tweak. The Quad ESL driven by an OTL amplifier is a match made in sonic heaven. Figure 4 shows a famous Futterman OTL design which I re-worked and radically modified to use 519 tubes.

**Figure 5: 1 Watt Single Ended Triode Amplifier**



The late John Hogan introduced me to the sound of 1930's vintage transformers. We cooperated on several very low power amplifier projects.

**Figure 6: Satellite and Bass Module Speaker Design**



I have friends and customers who also live in apartments. I tried a few speaker designs that can be placed right up against the wall. This is necessary for apartments or smaller rooms. The satellite module can be stacked on top of a bass module. I have always been obsessed with structural rigidity in loudspeakers. These speakers are carved out of marble.

**Figure 7: Horn Speaker**



The first time I heard a horn that sounded dynamic and totally captivating, it was the Klipsch K-horn. The late legendary Paul Klipsch was running a demo at the Kresge Auditorium at MIT. This led me to several experiments with constant directivity horns.

I particularly like the sounds of wood horns, although making a wood horn today is prohibitively expensive. A multiple horn speaker in which each horn covers only its optimum frequency band requires very precise physical alignment of the drivers to generate a coherent soundstage. The Model 1's constant directivity horn tweeter traces back to this work.