

Luthier Profile

Garrett Lee

Interview by Aaron Ringo

AR: *What was it that interested you to build guitars?*

GL: As a kid, raised by graphic artist parents, I played guitar, drew, and dabbled in woodworking projects to satisfy my constant need to design and make things. In graduate school, I immersed myself in protein biochemistry, a highly analytical field where the eternal quest is to explain how a protein's structure determines its function. Later, I became consumed with a similar question: how does a guitar's design determine its sound? I started building classical guitars as a hobby in 1999 and then, full-time in 2006. In 2008, I became interested in exploring the potential of lighter soundboards to enhance responsiveness and began building double top soundboards. Craft and science may seem at odds, but my luthier career has benefited greatly from a love of both spatial and analytical pursuits.

AR: *Tell me about your adjustable neck system and what prompted you to add this to your guitars?*

GL: My use of an adjustable-action neck in conjunction with an elevated fingerboard is an example of how there is little that's new under the sun. Johann Georg Stauffer did both in Vienna in the early-1800's. Before adapting Stauffer's concepts and Greg Smallman's modifications, I made detachable necks. It was a relatively short leap to build a neck where the player has the ability to change the action in seconds by adjusting a set screw that controls the neck angle. Players, not just luthiers, become empowered to change their action with the system. Those players happily discover that at least 80% of their repertoire can be played at significantly lower action and with greater left hand ease and no loss of tonal quality. In contrast, traditional guitars are typically set with relatively high action to play buzz-free in somewhat rare *fff* passages.

AR: *What were the evolutionary steps your rosette took through the years and how did you end up with the colorful and striking design you have today?*

GL: The term "evolutionary" is an appropriate pun! True to my background as a plant biochemist, my central motif is an impressionistic version of the DNA double helix. Later, I added the wheat design (thanks to the method developed by Greg Byers) because I used to purify proteins from wheat extracts. Now I honor plants on my guitars instead of grinding them in the lab!

AR: *Tell me about a few technical aspects of your building process.*

GL: I shape the tonal qualities of my guitars by manipulating the spatial distribution of stiffness and weight, particularly in the soundboard assembly. This is important because stiffness and weight determine a guitar's resonant properties at different ranges of pitch. Since wood is highly variable with respect to these two variables, I monitor stiffness, weight and the resulting resonances throughout



Above: Garrett Lee, luthier, Lee Guitar Works.

the construction process and adjust them as necessary to reach values similar to those in "good" sounding guitars. For example, I thin the soundboard to reach target flexibility rather than a specific thickness. Measurable parameters are simply tools that allow me to predictably achieve tonal consistency or move the sound around according to a player's preference. Many players have the misconception that a guitar's voice is largely determined by the bracing pattern or choice of materials. In fact, it is the combination of these plus anything else that affects stiffness and weight, such as soundboard thickness, density, arching, area and bridge weight. How the builder decides to treat each of these variables is what creates his or her signature sound.

AR: *You learned how to build guitars and then took lessons to improve your playing skills. You play very well. How has this affected you as a luthier?*

GL: Several years ago, I realized that I could be a better builder if I played better, so I squeezed in formal classical guitar studies. Now with improved technical ability and listening skills I am able to better understand the subtle nuances that professional players demand in terms of right-hand response, left-hand feel and tonal characteristics. Learning how conservatory-trained guitarists are educated allowed me to use a common language when talking with them about their instruments and performing life. The bonus is that I love classical guitar even more through the sheer joy of playing, and I don't feel shy about playing others' guitars, particularly those of my fellow luthiers during the GFA Convention Vendor Expos. Playing your friends' work is a deeply meaningful experience because a guitar is an outpouring of each luthier's thoughts and personality.



Above: Garrett Lee guitar rosette.

AR: *What techniques do you use to pick out woods?*

GL: Picking out wood is like being a kid in a candy store. I'm fortunate that I've been able to personally select spruce and cedar soundboards from thousands of sets at the facilities of tone-wood mills or dealers. In addition to ringing like crazy when you tap it, the soundboards must meet the stiffness to weight ratios that work well in my guitars. Looking at the edge of the ends of the boards, the grain must be perfectly vertical for stiffness and stability reasons. From this point, knowing the density (ratio of mass to volume) is very important to me because density is highly correlated to stiffness and the eventual mass of the soundboard assembly will influence its efficiency and response. Although I sometimes bring a scale and ruler to the dealer so I can calculate densities, in a completely tactile and mysterious luthier way, I've developed the uncanny ability to estimate density with great accuracy just by holding wood even of different size.

AR: *When shaping the neck profile how do you determine the right curvature and thickness for the player?*

GL: Neck profile is at the top of the list for good playability. It's highly personal and there's no formula because fractions of millimeters can be easily felt. Before building a client's guitar, I try to watch and listen to them play. During this time, not only am I watching to see how their left hand (particularly the thumb) moves on the neck of a given profile, I'm also watching their right hand attack and listening to the sound they produce to learn about their set-up and tonal needs. I'll ask them to play on necks of different profile and/or thickness to understand what feels best to them, or ask what guitars they have played in the past that they liked or disliked. If they have a favored neck that I can't see in person, I'll ask them to take an imprint and send it to me.

Garrett Lee has a Ph.D. in Biochemistry. He started building guitars in 1999 and formed Lee Guitar Works in 2007, and now builds primarily double top classical guitars. He often lectures on the subject of luthierie at guitar festivals. For more info visit: leeguitarworks.com