

FROM A GUITAR MAKER'S NOTES: TONEWOODS by Sebastian Stenzel

The best combination of the different species of tonewoods has been debated in the guitar community over and over. The almost zealous conviction that can sometimes be observed in the discussion is usually due to insufficient insight into the complexity of the issue: no aspect of guitar construction can ever be evaluated outside the context of the whole construction. This holds true as well for the choice of wood.

Imagine a guitar made from a completely homogenous material that has equal properties regarding its density, elasticity etc. in all directions. Wood is about the exact opposite of such a material: it is very unhomogenous, has extremely differing elasticity with and across its grain, and it has a dampening profile (that means it transmits certain frequency ranges better than others) unique to each species. Since the acoustical properties of a specific piece of wood depend largely on its dimension (simply put, it's what you make from it that matters) one has to be careful with generalizations of the kind „maple sounds light and bell-like.“ If a maple back is worked very thin and with a strong doming, as was common practice in the Romantic period, it can be rich in dark and warm colours as well.

In addition it is also the player who forms the timbre of a guitar: one instrument may sound hard and piercing played by a certain guitarist, while it sounds soft and warm played by another. This is mainly dependent on the style of playing and the player's fingernails. Evaluating the sound potential of a guitar independent of the player is not easy.

Just as the taste of wine is more dependent on the vintner and his principles of viniculture than on the species of grapes being used, so it is with tonewoods. To make things more complicated, there is no trunk, not even a single piece of wood, the same as another. For example, I have Honduran cedar which varies a hundred percent in density.

Well, in spite of these preliminary remarks, some general characterizations:

The soundboard: Spruce or Cedar?

Since Canadian Red Cedar (*Thuja plicata*) was introduced to guitar construction by José Ramirez in 1964, the burden of choice has fallen upon the guitarist. Until then, the spruce species (*Picea abies*) had remained unchallenged as the wood of choice. It is principally a matter of personal taste, as undoubtably both woods are well suited for guitar soundboards. Spruce has been used for guitars and violins for centuries and I see no acoustical disadvantage of this wood. It is intimately tied to the historic development of the guitar. It is capable of delivering an enormous range of timbres, offers the best capacity of modulation and - from the hand of a master - gives singing, radiating trebles.

Cedar fascinates with a fast response and good overall balance. Some large bodied guitars with cedar soundboards tend, however, in spite of brilliant high harmonics, to sound a little bass-heavy and impersonal, which might be due to sound levels too low in middle frequency ranges. Remarkable is the projection of some (very good) cedar guitars: their volume seems to increase with the size of the room they are played in. Generally, the listener may have the impression of the sound distributing evenly in the room, whereas the sound from a spruce guitar seems more to radiate directly from the instrument itself.

The preference of a guitarist for either wood may have two reasons: one being the simple habit of what one is used to; it takes an effort to adapt one's playing technique when changing from a cedar to a spruce guitar or vice versa. The other reason lies rather in the way the guitarist perceives music: exaggerated for clarity, I would say some guitarists set their priority in the development of each single tone, while others enjoy more the anticipation of deeper musical structures in their mind. The latter may appreciate the balance and equilibrium of a cedar guitar, while the former may find it somehow boring. This guitarist, on the other hand, may take delight in the inexorable richness in timbres of a good spruce

guitar, which the other finds annoyingly difficult to play. Of course no existing guitarist will fit in this rough characterization.

A truly good guitar will always combine typical attributes of both woods, which can be achieved through sophisticated construction. Still, the typical timbre of the soundboard wood will always be audible. It lies within the artistic capability of the guitar maker to make use of its merits and to compensate for its weaknesses.

Rosewoods

Rosewood has been the first choice for guitar backs and sides of the majority of luthiers for almost 200 years now. It is hard to beat, both in its tonal richness and in its beauty. There are many members of the Dalbergia family, the most common being Brazilian rosewood (*Dalbergia nigra*) and Indian rosewood (*D. latifolia*). Especially since Brazilian rosewood is protected by the CITES regulation, which prohibits the trade of this wood if the tree was cut after 1991, many other rosewood become more and more popular: Santos rosewood, Honduran rosewood, Amazonas rosewood, Cocobolo, and Kingwood. I have no specific preference, as all sorts have a beauty of their own.

My customers who have chosen Brazilian rosewood did so either for its aesthetic qualities (the beauty of Brazilian rosewood can be really breathtaking), or for its reputation of being the most noble wood for classical guitars (a notion I do not share unreservedly; again, it's what you make from it that counts), or because they were more after a brilliant, metallic sound quality which might be enhanced through the use of Brazilian rosewood. The difference of sound is very subtle, and - in my experience - it also depends a lot on the players (their style of playing and their fingernails): Forced to generalize, I would say that Brazilian rosewood gives a slightly more brilliant, metallic sound, whereas Indian tends to give more warmth and intimacy.

The quality of the particular piece of wood is really more important than to what species it belongs. It has to be well cut, dried and stored correctly. It is true that Brazilian rosewood tends to develop cracks more often than Indian. In addition, the wood is generally more likely to crack when it is cut tangentially to the central axis of the trunk and less when it is cut radially, i.e. "quartersawn." Quartersawn Brazilian rosewood backs are extremely rare nowadays, because there are not many big enough trunks left, and it is extremely expensive if available at all. Indian rosewood is available in the best quality and many guitar makers, including Friederich, Romanillos and Fleta work (or worked) practically exclusively with Indian rosewood.

Maple

Maple has been the favoured wood for back and sides in whole Europe for centuries, as well for bow instruments as for guitars. There are many types of maple, the best for musical instruments is the mountain maple (*Acer pseudoplatanus*). Most famous is the maple from Bosnia; there the climatic conditions are favourable and the soil is very meagre, causing a slower growth of the trees. The great violin makers of the Renaissance already favoured maple from this area. It is, I have to admit, my personal favourite, as it seems to add a warm glow to the singing and lyrical trebles of my guitars. Unfortunately, really good maple has become very hard to find, and the prices have increased accordingly.

Walnut

Walnut (*Juglans regia* and others) is often used for steel-string guitars, and is the favourite wood for the bowl of ouds (Arabic lutes). It can be a wonderful tonewood for back and sides of classical guitars as well, if it comes from the right tree. This can be said for all woods, but it holds true especially for walnut, as its density and acoustical properties vary widely. The timbre produced by a Walnut guitar could be described as a mixture of rosewood and

maple with a kind of neutral quality. The guitar I made for my Master-of-Crafts-Examination is built with walnut back and sides.

Cypress

Cypress (*cupressus sempervirens*) is traditionally used for back and sides of flamenco guitars. Being of relatively low density, it promotes a fast attack. I consider it just as suitable for classical guitars, and would be happy to make more guitars with this wood. Just recently I have heard that cypress was José Romanillos personal favourite – for classical guitars that is. Cypress has a wonderful smell that lasts for decades.