



FROM THE MAKER'S BENCH

The Quality of Wood

by Laurence Anderson

I learned the importance of wood selection by accident several years ago when I used a 75-year-old piece of European maple for the back and the ribs of a violin. I had done some repair work on an early violin of the Owatonna maker Lothar Miesel, which was to be a part of the permanent collection at the Shrine to Music museum in Vermillion, South Dakota. He paid me in some very lovely pieces of maple that came from a tree that had been cut down in 1927.

The first instrument I made from this wood was better sounding than any instrument I had ever made. The response from the musicians I showed it to was overwhelmingly positive. In fact, after playing just a few notes, they all gave me a look of disbelief. The instrument sold in less than 12 hours to the first client I showed it too. A young musician came into my shop to have his violin repaired. I gave him mine as a loaner. He called me at 7:00 A.M. the following morning to let me know he wasn't going to give the violin back.

I had done nothing I had not done before; I had not suddenly become a better craftsman; I had not had an epiphany about violin construction. I concluded that the difference in this violin and all the others I had made was that the wood was a half-century older than any other piece of wood that I have ever used.

To see if I could repeat the success, I then made two violins simultaneously: one was made from another piece of 75-year-old European maple, the other violin was made from a 10-year-old piece of maple cut from the northern woods of Minnesota. The arching and the graduations were identical. They were varnished together and set up on the same day. The violin made from the older piece of wood was louder, more responsive and more colorful. Every musician to whom I showed the pair of instruments preferred the violin made from

the older wood.

Why should this be so? The answer is much more complex than just the age of the wood. The density, flexibility, and moisture content all come into play. In this article I want to talk about wood selection.

I can almost say that beauty is the most important variable in selecting maple. The characteristics that make a piece of wood beautiful — the pronounced figuring, the well-defined grains — seem to be the same characteristics that enhance tone.

Wood absorbs moisture like a sponge. Moisture changes the density of the wood and alters the speed that sound travels through wood. I want to remind you now of that experiment with sponges we all did in our Junior High science class when we proved, to our surprise, that a damp sponge absorbs more water than a dry sponge. The more seasoned the piece of wood, the less moisture content it has. It is less able to absorb moisture, and therefore, less likely to be altered by the humidity in the air. Seasoned wood has a greater strength to weight ratio. A violin made from a well-seasoned piece of maple, one that is over 25 years old, starts out feeling more responsive. Violins made from younger wood, in general, need a longer break-in period.

Choosing the back is a matter of the beauty, age, and the weight of the wood. An experienced maker can select the back intuitively.

The top, made from spruce, doesn't need to be as old as the back. Spruce, softer and more porous than maple, dries out much faster. But selecting tops is much more complex.

Density is a measure of the weight divided by the volume of the wood. Spruce must be in the range of .4 grams to .415 grams per cubic centimeter. I determine the volume of an irregular piece of wood again using what I learned in my Junior High

science class. I dip the wood in a cylinder of water, measure the volume of the displaced water, and then weigh the wood.

I also consider the grain pattern when selecting the top. I look for wood with tight grains at the center seam that widen gradually at the edges. The tight grains at the center give the wood the strength to support the tremendous pressure of the bridge; the wider grains at the edge give the top flexibility. I cut the bass bar from the center of the stock so that it has the same characteristics (strength, flexibility, density) as the top.

Although not nearly as important, the selection of the wood for the linings and the blocks must take into consideration strength-to-weight ratio. Willow is an ideal choice.

The ebony for the fingerboard is something I have not taken into consideration until recently. Yet the fingerboard can be tuned to optimize the overall sound of the instrument. I start with dark dense ebony cut from the center of the tree at least 5 years old. After I shape the fingerboard, I begin to hollow it out until it resonates at a C when glued to the neck. (I want to point out to musicians, that a worn out fingerboard can have a detrimental effect on the sound. I am often a recipient of skeptical glances when I suggest to musicians that it is time to replace the fingerboard.)

Makers are always on the search for quality wood. Whenever we find a piece of wood we like we buy it until it becomes something of an obsession, like collecting art or books or baseball cards. Most makers own more wood than they can ever use. It is impossible for a maker to walk away from a piece of wood that will make a great violin.

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