



MAKER'S BENCH

Wood Selection

by Angela Thompson

One of the most fun and thought-provoking decisions in the violin making process is actually the first: picking out the pieces of tonewood to use. This fall, I started constructing a new violin and am especially excited about the deeply, wide flamed one-piece maple back that I will be using. While it is a stunning piece of wood, there are a few other reasons why I decided to use it. Every luthier has their own criteria for wood selection and some are more fastidious than others. I fall under that category, as I have learned how different factors can impact the tone of an instrument.

Most modern instruments today are made of a spruce top with maple back, neck, ribs and scroll. There are, of course, several types of spruce and maple trees, although the preferred species are European Spruce and Engelmann Spruce (of western North America) and European Maple, which can have a variety of figure.

Figure refers to the distinctive marking or look of a particular piece of wood. A commonly known type of figure is flame, a striped, tiger-like appearance found in maple. Deep, prominent flame is very desirable and adds character and beauty to many instruments old and new. Other examples of figure found in maple that can be seen in violin family instruments are quilt and birdseye, which are most prominent on the slab cut surface. A popular and often desirable figure in spruce is bearclaw, which resembles a scratch or multiple scratches across the surface.

In November, I had the pleasure of attending the Violin Society of America's 50th Convention and Competition, and I spent a considerable amount of time in the vendor room searching for some good pieces of cello wood for my employer, David Folland. He sent me with specifications and a device called a Lucchi meter to measure through stacks of spruce and maple.

The Lucchi meter measures the speed of sound through any given piece of wood. Through decades of experience, David has concluded that pieces of spruce and maple with high speeds will have a better response. Speeds that are too low could indicate that it might not vibrate as well. For spruce,

anything above 5,750m/s is desirable, with anything over 6,000m/s being exceptional. For maple, speeds between 4,500-5,000m/s are recommended. Quartered pieces generally have higher speeds than slab but doesn't make one better than the other; they will naturally have different sounds. Knowing the speed of sound is just additional information and doesn't signify an instrument will necessarily sound better than one whose speeds are unknown.

I also measured the specific gravity, more commonly referred to as density. Density can be measured a couple of different ways. The "dunking" method involves floating the piece of wood vertically in a bucket of water from both sides to find where it sets before it sinks. While at the VSA conference, I was unable to use this method, so I calculated the density by multiplying the length, width and average thickness to find the volume, and then dividing the weight (in grams) by the volume. This method can be inaccurate though, due to varying widths and thicknesses at either end of the piece. It can be challenging to find those averages. For spruce, I was looking for numbers around .36-.40 grams per cubic centimeter. Maple wood has a higher density, with good

density for maple ranging between .55-.60 grams per cubic centimeter. When a piece is heavy, it may be less responsive and tends to be hard sounding or raw. Lighter pieces may not be as strong, but not always.

Many luthiers either don't have a Lucchi meter to determine the speed of sound and/or they are not as picky about knowing the specific gravity. At the conference, I witnessed many makers sifting through wood to find attractive pieces and picking them up to gauge weight, without being compelled to measure. During my time at the tonewood booth, I asked different people what they were looking for and learned a few things I had not thought about before. A lot of violin makers set out to make a copy of a famous instrument and search for a piece of maple with matching flame width or direction, or a piece of spruce with similar grain lines. For spruce, some people like using pieces with very tight grain widths and some prefer wider grain, darker winter grains or maybe a variety throughout the top. As I mentioned earlier, bearclaw is a popular and eye-catching feature in instrument tops, so some makers search for a particularly interesting piece in that regard.

Aside from aesthetic properties, a few



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other things to consider when selecting a piece of tonewood include age, how well it has been cut or quartered from the tree trunk and if the split is good. Generally speaking, age matters in relation to the dryness of the wood. On average, it is good practice to use a piece of wood that has been drying for one year for every inch of thickness, or approximately two years for a piece of violin wood. If a piece hasn't been properly seasoned, or is "fresh," the moisture can cause the wood to move and be unstable, resulting in warping and cracking.

Split refers to the way the fibers in the tree want to split as it is cut from the trunk. If the split doesn't run straight it won't be as strong, may not have as good of response and makes carving more challenging. Sometimes you can tell if the split is good or bad by looking at the slab side of a quartered piece.

Ultimately, there is no right or wrong selection. Every maker chooses whatever they like, based on personal preferences and

beliefs. I am always grateful to learn new ideas and methods of the violin making process and have gained a much better understanding of wood selection through my teacher and other luthiers from the Violin Society of America. Sifting through tonewood at the convention was like being a kid in a candy shop and I look forward to developing my own predilection and selecting pieces for all my future projects!

Angela Thompson is a violin maker, repairer and player. She is a 2016 graduate of Belmont University in Nashville, Tennessee with a Bachelor's degree in violin performance, and a 2020 graduate from Minnesota State College Southeast in violin repair, where she is now a substitute teacher. Angela is a member of the Violin Society of America and currently works under the instruction of acclaimed luthier David Folland in Northfield where she repairs instruments and continues the study of violin making. ♪