



FROM THE MAKER'S BENCH

The Soundpost

What it does and how it does it.

by Laurence Anderson

The violin, as Robert Sheldon, the curator of instruments at the Smithsonian Institution, once wryly pointed out, is nothing more than a wooden box that vibrates. In the simplest sense, he is right. But it vibrates with such power, intensity, and variety that it can capture the entire range of human emotion.

The soundpost is one of the incredible discoveries, so simple and so obvious, that makes bowed instruments the wonderful creations they are. When I listen to musicians talk about the sound post, they often speak of it in the same way children speak of their guardian angles. They are not sure why they have one, but they are so grateful they do. Ironically, in French the sound post is called the *soul*. But I would be willing to say that, for most makers, the soundpost is the least mysterious and the most uncomplicated of all the features of the violin. It is for that reason that makers turn to it first when adjusting the sound of the violin.

To explain how the soundpost works, I have to explain briefly how the violin works. When the string starts vibrating, it rocks the bridge back causing the top plate to vibrate. The soundpost then communicates the vibrations of the string to the back plate. If the plates are correctly arched and correctly graduated and if the post and the bridge are in the proper position, the plates will then

vibrate with the same frequency sending waves of sound in all directions from all around the instrument creating tone, overtones and all the subtlety of sound that can compete with an entire orchestra and fill a concert hall.

The post is 6.5 millimeters in diameter. It is made from the wood of a conifer that is slightly more dense and with slightly tighter grains than the spruce top. I have for the past ten years used with repeated success the wood from one Douglass fir, cut a quarter century ago from a tree growing in the forest of the Pacific northwest. I hope I have enough of this wood to last the rest of my career.

The soundpost is positioned one half of the thickness of the bridge foot, 2.1 millimeters behind the bridge foot, and one millimeter in from the outer edge of the foot on the treble side. It stands in opposition to the base bar which is underneath the foot on the bass side. The post is cut to match the curvature of the top and back and fitted snugly but not too tight.

The post's exact position and snugness is determined by a series of tap tones on the upper and lower bouts that should resonate with the same pitch. The pitch can be altered by moving the post in one direction or the other. Final adjustment is made with

the musician playing the instrument.

If the post is too close to the bridge the sound will be pinched and nasal; too far away and the sound will be hollow. If the post is too tight, the sound is brassy; too loose and the response is sluggish, the sound muted. If the post is too far in, the E-string suffers; too far out, the G-string suffers.

By manipulating the post, violinmakers can compensate for damaged or poorly made instruments or instruments in the autumn of their lives. The angling the post in one direction can help a weak or thin top and back. Soundpost adjustments for problematic instruments are almost always made in concert with string and bridge adjustments.

Little things can affect the post: a bumpy car ride, a change in weather, even the vibrations from constant play, and the slightest warping of the wood. Even if you always handle your instrument with care, it's good practice to have your sound post checked once a year by a qualified luthier — or any time you notice a change in sound or response.

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