

NOTICE OF ANTHONY STRADIVARI (pub.1856)

..... see, presently, the importance of these data.

Let us now examine in what relation the back and belly should stand [to each other] before they are united. This it was not possible to determine, until after repeated and carefully-conducted experiments. A violin was constructed with a back and belly of deal, perfectly in unison, and the tone proved to be weak and dull; a maple back was then substituted for the deal one, also in unison, but the instrument was utterly bad and the quality of tone very weak. The cause of this phenomenon was easily discovered; for, maple not being endowed with the like degree of rapidity in the propagation of sound-waves as deal, it is evident that the back of the instrument could not be put in unison with the belly, except by making it too thick. Hence, these facts clearly prove that the back and belly ought not to be in unison. Not only should they not be so, but they should be decidedly kept distant from it; in order to avoid the beatings always consequent on two sounds which approximate in their intonation. To determine the relation of the sounds which the back and belly should yield, so as to obtain the best resonance possible, it was necessary to resort to direct experiments, which were made conjointly by Savart and M. Vuillaume on several very valuable instruments of Stradivarius and Guarnerius. The [true] sounds of the back and belly were ascertained in the following manner: these pieces were fastened in a wooden vice, at a point where two nodal lines crossed each other, the one transversal and the other longitudinal, answering to the two kinds of elasticity of deal and maple. When they were put into vibration by the bow, longitudinal and transversal lines were produced,* which proved that the two kinds of elasticity were in action, and the nodal system being the same both on the back and on the belly, it was found there was a tone difference between them. The back was exactly one tone lower than the belly.

* The wooden plates forming the back and belly were previously sprinkled with dry, fine sand. — TR.