SOUNDPOST (Fr. ame; Ger. Stimmstock; It. anima)

A soundpost is fitted in several different bowed instruments viz. the violin family and the viols. It is a separate spruce dowel with the grain running along its length and fitted snugly between the top and the back of the instrument below the treble foot of the bridge, not directly beneath it. It is fitted vertically to the horizontal plane of the instrument with the grain at the ends of the post placed at right angles to that in the plates which runs along the instrument, to prevent the post embedding itself in the surface of the top. Its length is determined with an inside caliper specially made to pass through the treble f-hole. It is placed in the instrument through the same f-hole. It is not glued in place because the sound would be adversely affected. In the viol which has a flat back, the post rests on a bar that strengthens the back and its main purpose appears to be as a support for the bridge in the otherwise lightly constructed instrument.

In some early instruments, e.g. the crwth and chrotta, the bass leg of the bridge was longer and passed through a soundhole to rest on the back. This would serve to separate the action of the bass foot of the bridge which would act on the back, from the action of the treble foot which in turn would act on the top. The rocking action of the bridge would allow a simple source to operate but no adjustment would be possible.

The soundpost plays a more important role in the violin than other bowed instruments e.g. the viols, in which the top is the

main radiator of sound. In the violin family the top and back combine to contribute to the sound output. The soundpost enhances the monopole component enabling the body to be an effective "simple source" (This is equivalent to a pulsating sphere). This is necessary as the length of the body is much smaller than the wavelength of the sound at low fundamental frequencies and cancellation would occur if it did not act in this way.

Early attempts to reposition the soundpost along with the bridge when the latter was moved below the soundholes to increase the string length, worsened the sound output and the soundpost had to be restored to its original "midplane" position though the bridge was not.

Traditional advice based on subjective assessment of the sound quality and loudness, has the soundpost moved towards the bass side to strengthen the G string and towards the treble side to strengthen the E string; positioned closer to the bridge makes the sound harsh, further away softens the sound.

More recent work is at variance with this advice. The new understanding is best followed by considering the violin without a soundpost when the three lower strings have a reduced output compared with the E string (due to an inefficient simple source). Notes on the E string are not so dependent on the breathing action of the body but more on direct radiation from the plate. Installing a soundpost immediately stiffens the body and adjusting its position maximises the breathing action of the

simple source. Moving the soundpost towards the bass side i.e. the centre of the violin, approaches the no soundpost condition. Moving it more to the treble side raises the stiffness of the body and lifts the output of the lower strings. Moving the soundpost further away from the bridge foot while in line with it increases the difference between the upper and lower strings.

Reducing the stiffness of the soundpost by reducing its diameter or using less stiff spruce, has a similar effect in approaching a no soundpost condition if reduced far enough.

For these effects to be realised the soundpost must fit against the plates perfectly and introduce no distortion when the strings are brought to pitch. This usually requires separately cut posts due to the varying gap between the plates and their varying slope. Any distortion can be detected by a displacement at the upper wing of the treble f-hole relative to the adjacent plate surface.

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