19281204.DOC

The Top, Bassbar and Soundpost

By Louis Kramer

Innumerable experiments have been made to improve the tone of instruments by changing positions of bassbar and soundpost; but every attempted change in that direction has brought about negative and detrimental results, with the exception of change—and this is indeed an outstanding feature—the lengthening of the bassbar. This improvemcnt has since its innovation been recognized and adapted as a success; it may be mentioned here that thc adaption of a longer bassbar becomes even a necessity, with the gradually rising of the "Diapason," the accelerated string pressure caused by a higher pitch; the resistance of the old and short bassbar proved insufficient, hence had to be lengthened in order to establish the much needed support and This bassbar is of vital importance; not alone does it scrve as a reinforcement of the instrument when the string pressure proves to be the strongest, but also—and this mainly—for the gradual slackening of vibrations of that particular part of the upper plate where the lower strings require slower vibrations.

lf the bassbar is too thin or too light, the "G" string will invariably sound dull; if too stiff and thick, it will not be responcive.

The bassbar may be safely called the "Nerve System" and the soundpost the "Heart" of a violin. The most insignificant change in the position of either post or bar will change the tone of an instrument; and the best violin will not respond if bassbar and soundpost are not in their right place. Worth mentioning here is the fact that, contrary to the assumed practice of gluing the bar into the violin, letting the grain run parallel with the grain of the plate, it has proved to be far more advantageous to place it at the- start between the "G" and "D" strings, (beginning above), letting it come down bencath the left foot of the bridge ending on the spot where the chin is usually placed; on this end the bar should be a little more rounded off, as the plate .This brings about a greater resistance on that side of thc plate where the other side has its support and resistance in the soundpost. If this is not followed up, it will have as consequence, a sort of torsion (dislocation) of thc original and natural "arching-relationship," which in turn will cause a diminishing of free vibrations; especially among instruments which are thin in wood.
It was the theory of one of the foremost of artists and connoisseurs of violins—"OLE BULL."

By Reinhardt Meyer

AFTER graduating a top from a good piece of European Pine (Swiss pine so-called) down to 1/8" in centre area tapering to 6/64" in the outside area all round, the top with the ff holes all ready cut but without any bar should emit a clear tone of D concert pitch (440 A) no lower, when held between the thumb and first finger approximately where the post is to stand. This tone assures the approximate volume of tone in the finished violin. Length of the bassbar should be about 10 1/2" thickness resting on top 3/16" or a little over centre height about 1/2" or less. The inner side of upper end of bar placed just 4/8" from exaet centre line of top, the lower end ". This slants the bar approximately with the G string, each end an equal distance from the edges of the top. This completed top should give forth the tone E concert pitch (440 A) no lower. Of course wood varies in density so when conforming to the above proportionate graduations when the top emits the sound D as before stated without bar it is time to halt. An already made top which sounds below D without bar and below E with bar can be slightly helped with a heavier bar and vice versa.

Sound post about 1/4" thick or a little less and round of course, should be fitted to stand approximately 1/4" behind the right foot of bridge and must just barely stand without strings on bridge. It must not be in tight, and the ends of post must naturally be bevelled to fit top and back.

By Victor C. Squier

IT is very difficult for anyone to describe, without making diagrams, the correct position of the sound post, bass bar and bridge. A violin of standard parrern and correct measurements should have the sound pass directly behind the right foot of the bridge about 3/16 inch distant. Position can be varied somewhat, depending upon the thicknesses of the plates, viz: a thin violin requires the post to set nearer the bridge and sound post to be farther apart.

The sound post has often been called the soul of the violin. In order to have it function properly it is important to have it fit the top and back exactly and fit snugly in place. The standard measurement is 1/4 inch in diameter and our preference is for a sound post of rather hard textured spruce.
We frequently have violins brought to our work shop that the owners sadly declare have "lost" their tone. It is a fact that many professional violinists as well as even violin makers, do not realize that the arches change in a new violin after it has been made, or in an old violin after it has been taken apart and repaired. When it is strung up and played the constant tension of the strings endwise has a tendency to "bulge out" the archings in the center of the instrument.
It is sometimes necessary to put in several new sound posts, each slightly longer than the preceding one, before the arches get "set." This interval of time is generally from one to three or four years. No further trouble is then experienced unless the instrument is taken apart for repairs, when the same procedure must be gone through again

To restore the "lost" tone of a violin it is necessary to fit a new post, quite snugly as described; a first class bridge, not more than 1% inches high, and a little lower is preferable on an old violin. The strings, E and G, should be separated on the bridge 1 3/8 inches and the A and D, evenly spaced between these outside strings.

We frequently find when a violin is brought to have the "!ost" tone restored, that the- original bridge fitted to the violin has been discarded and a five cent article substituted with little or no attention to the fitting. The strings are of the poorest quality; the G wound on a steel center, sometimes a gut A very badly frayed or a steel A put on;- the tailpiece gut is allowed to pull out a quarter or half inch too long; a bow is used in which the hair is badly worn and it is covered with dirt and grease. The tailpiece gut having pulled out weakens the tone and makes it flabby because the length of the strings from the hole in the tailpiece to the hole in the pegs is 1/4 of an inch shorter than standard. The tailpiece gut should always be as short as possible and when it pulls out it should be shortened and kept that way. When the violin is properly strung, the post and bridge of fine quality, properly placed and the bow well haired and supplied with first class rosin, the "lost" tone is restored. "Lost" tone is simply a matter of proper adjustment.

When strings become old and worn after a few months use, throw them away and put on a new set. Don't wait until they are actually sawed through with the abrasion of the bow hair.
The bass bar is placed directly under the left foot of the bridge running lengthwise of the instrument. Its standard measurements are: 10 1/2 inches in length, 1/2 inch deep in the center, 1/4 inch thick at lower end and 3/16texture inch at the upper. It should be made of spruce wood of firm texture and even medium sized grain and should be slightly sprung to position when fitted to the top.

It should angle from its center position about 3/16 inch, corresponding to the position of the G string on the instrument. The bass bar should always be quarter sawed, that is, the grain of the wood should show on the top of the bar as you look downwards. When the bar is finished it should be made on almost a straight line from the deepest part of the center to the extreme edges.

Many foreign violins have the bass bars put in that are worked out with a hump in the middle, then the contour diminishing very rapidly to the extreme edges, which is incorrect as the tone of the instrument is weakened by a bar that is so shaped. Such a bar does not properly support the bridge and the tension of the strings.

The above measurements and theories of adjustment have been arrived at after the experience of 46 years at the craft.

BASS BARS

By Anton Guerene

In the fifteen and sixteenth centuries many violins were made deep in the center and narrow at the sides. These muchly curved tops and backs, while very beautiful, failed to give satisfactory results as to tone.

Andreas Amati and many others made this shaped instrument. The bars, I understand, were set in the violin so that the ends had to be sprung somewhat; (bent upwards towards the top in order to be glued) thus strengthening the top and probably increasing the tone. The tonal quality of such high instruments is inclined to be nasal and clarinet-like.
The bassbar in the earlier instruments was much smaller in all ways owing to the use of the violin only as an accompanying instrument, and while sweet, lacked much in strength; hence all violins made prior to 1750 have had newer and larger bars placed in them.
The bar is placed directly under the foot of the bridge, extending to within about an inch of each end of the violin top. Its widest portion should be directly under the bridge—(that is, it should extend downwards at this point the greatest distance). Much variation in tone is caused by the quality of the wood used—whether a soft or hard fibre. This depends upon the knowledge of the maker who must possess an unerring instinct as to the size of the bar in thickness and the sort of wood which will produce the best tone in reference to the top.

Bars have been placed in instruments at different angles, but the most satisfactory is the one placed in a straight line with the fibres of the top.
Any loosening of the bar causes an annoying rattle in the violin. I have seen violins improved many hundred per cent through the placing of a new bar by an expert. Ysaye, while here in Chicago years ago, had a bassbar placed by a noted Chicago maker. His Guanerius violin was improved greatly thereby.

The old masters knew considerably more about the violin than do we moderns. Many not only studied the vibrations of the top, effects of different thicknesses in tops and backs, the best way of cutting the bridge for strength to stand 56 pound pressure and to carry the vibration to the top, but they made an exhaustive study of the air motion within the violin.

An old cello was shown me which had three holes cut in the blocks inside. These holes were about an inch long and an inch deep, probably one-half inch wide. The maker to whose hands it came filled these holes and replaced the top; when the instrument was played on there were some bad wolf tones. When these holes were reopened and the top replaced, the wolf tones had disappeared. These ancients made a deep study into the production of tone.
The bassbar and the soundpost also offer some resistance to the air movement within the hollow chamber of the instrument. Personally I believe there will be no improvement over the usual style of bassbar.

The post, which affects the A and E strings more intimately than the others, is called the "Soul of the Violin" by the French. Its placement is hardly the same in any two instruments, to obtain the best tone. A hard toned instrument may be softened considerably by using a shorter or a loose post, placing it further away from the bridge; while a weak-toned. instrument may gain in volume by

using a longer post and placing it nearer the bridge foot.
First the post should be fitted properly, and then the tonal quality judged; if too weak. a new post should be set, one somewhat longer than the first. — But one should use care, for a too tight post is apt apt to split the top.

These two main points of the violin, the bar and the post, were originally used to strengthen the top. The bar prevents a too rapid vibration of the top and adds to the sonority of the G string tone.

The post was to prevent the 56 pounds weight which rests on the bridge from caving the top in.
The study of the construction of the instrument is an interesting and educating task; with about 52 pieces of wood glued together, and with no metal whatever used on the instrument, for two hundred years these masters of the past fixed a model and a standard which in the future stands little challenged.