

The B-Toe

How it started

One of my most favorite melodies of Bach, that I play on my flute, is his Alto Aria from Cantate BWV 170, "Vergnügte Ruh, beliebte Seelenlust".

Transcribed for his Oboe Concerto, it is written in D major, with this passage, going down to B.



How would I ever be able to play this on my flute, i.e. one with just a C-foot?

Spending € 1.500 and buying a B-foot?

I was rather thinking of lengthening the air-column of my flute by about 45mm, in such way that, when played the C as the lowest tone, it would give a B in stead of a C.

Fortunately, there's no low C in that melody, so I could interchange harmlessly the C for a B. (However in the Prelude there is one, so this only holds for the Air).

But we're talking just about the principle here. And, by the way, there exists a bunch of pieces having that B without the C showing up. So, it would pay off.

The process

How to find a little piece of tube that would fit exactly in the lower joint of my flute?

NB! It should fit seamlessly, i.e. light and, at any rate, air tight! Otherwise there would be annoying side noises.

As said before, I can't afford a B-foot for € 1.500.

An alternative could be of letting it forged by a silver or goldsmith: € 425!

Then, I found in our kitchen drawer some utensils that had a hilt of about the intended diameter - stainless steel, that is. Measuring with my micro caliper I learned that those hilts vary between 18.75 and 19.25 mm, depending on the make.

So, I walked for days in kitchen shops with my caliper to find something useful, and finally found a cream whipper in a recycling shop for 50 cents.

Cutting the hilt into two pieces I finally saved this one:



It's 50mm long and it has an exact diameter of 18.95mm.

When placed in the tube of my flute, the most surprising thing was that it worked! I could now play the B!

The Material

While working flawlessly, for that matter, I didn't like the material that much: stainless steel on a 925-silver flute ...hmm - found it sort of blasfemic and I wanted it in silver. So I decided to make a prototype myself.

First used a 0.2mm plate of bronze, 50 x 59.5mm. Ample, because I could file it onto an exact fit after the rounding and if succeeded from a 0.3mm plate. I had in mind, if everything went ok, to finally make it out of a 925-silver plate of 0.3mm.

While proceeding one will encounter needs that you don't have at hand.

For the rounding, one will need a series of jigs, with \varnothing say 10mm thru e.g. 25mm, in order to be able to, starting with the biggest one, consecutively getting smaller and smaller until you have the desired 18.95mm.

For easy handling the rounded plates one can use pieces of bamboo, the holes of which are pretty well-centered, so you can also use them on your electric drill, for e.g. polishing.

Then comes the soldering: a skill I don't have. No problem: just like playing the flute - learning & practicing!

Then, an other surprise is emerging: one can solder bronze with a soldering-iron, the so called soft soldering, but with silver you can't. Silver needs a flame. "No, thanks!"

Finishing Touch

Finally having the exact fit of the tube I went to a goldsmith for the soldering and polishing, and if everything would be satisfying, a little decorative ring at the edge. Done!

The final Product and its Name

In analogy of the name for the entire foot-joint, B-foot, I baptized the little tube: **B-Toe**. ... and a picture

As you may see on the picture, you can easily put on and take off this wonderful device, even during a few measures of rest.

