Fomrhi Comm. 2023 Jim Lynham

R. Wyne Descant – Rescaled

My grand-daughter needed a descant recorder for school, but in *modern* pitch, to fit in with her classmates' instruments. Having a copy of Fred Morgan's drawings of the Wyne descant, I was tempted to replace her plastic recorder with a nice boxwood version. Trouble was, the drawings were of an instrument pitched at approximately a406 - and I wanted a440.

I've described the pitch as 'approximately' a406 because of Morgan's tuning data (given against a tuning meter set at a415). Most of the notes are flat at this setting, and an average value is about 40 cents flat. Converting 40 cents to a frequency, I used the logarithmic relationship where:

$$\text{Log}(f) = -40 \times 0.0002508583 + \log(415)$$

['f ' is the relative value of 'a' for this instrument and 0.0002508583 is the log of the twelfth root of 2 divided by 100, based on the fact that there are twelve semitones and 1200 cents in an octave - and a semitone is 100 cents]]

Armed with a reasonable estimate of the instrument's true pitch, I then applied the rescaling factor of 406/440 (0.923) to the data in the Morgan drawings and set to work.

The hard part was making a silver-steel reamer for the lower joint. I decided on a one-piece reamer, but a glance at the bore profile suggests that a straight taper would do for most of the bore with a short reamer for the north end. I also followed Wyne's slight taper for the head joint, again by making a single reamer for this purpose.

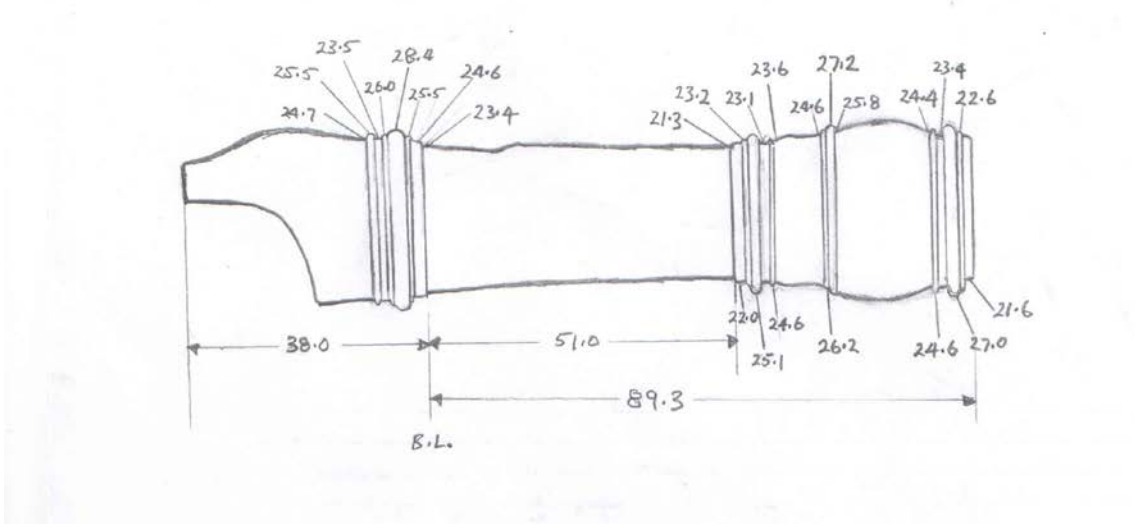
Cutting the windway without a dedicated tool is a tricky business, but I'm fortunate in having a friend, Sid Jones, who used his professional engineering skills to create a clever jig which clamps to the bed of my metal lathe, allowing me to cut a windway by holding the cutter in the jaws of a vertical slide. Drawing back the saddle of the lathe produces a carefully controlled fine cut on the pull, and the vertical slide provides a means of incrementally raising the cutter. With Sid's permission Id like to do another communication on the details of this extremely effective jig, especially because it allows me to produce a tapered windway.

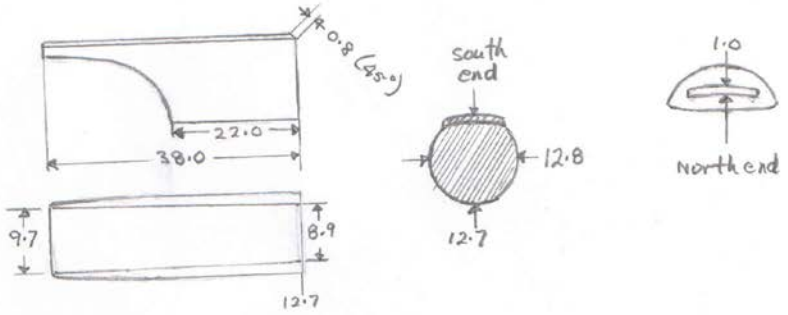
I've been very lucky, as an amateur maker, to end up with a recorder that plays in tune at a440 with very little adjustment to the bore and tone holes.

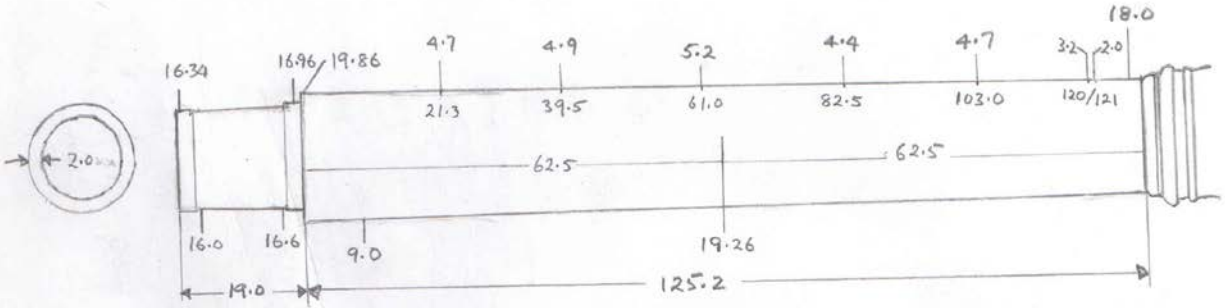
With limited measuring equipment I've tried to construct a bore diagram for the lower joint. I've used Fred Morgan's method of presenting data, all of which is in millimetres, in the hope of providing enough information to produce a similar instrument. Any feedback regarding data omitted would be gratefully received.

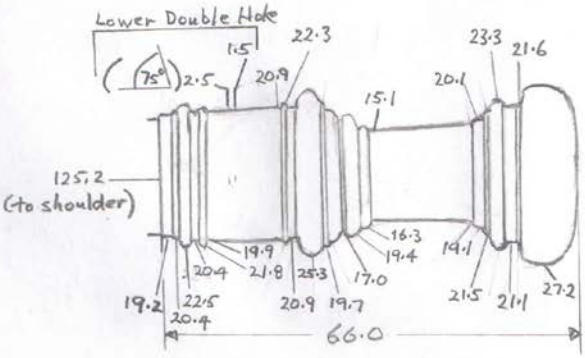
Jim Lynham

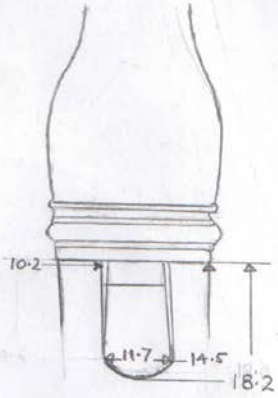
Lower Joint Length	Lower Joint Diameter	Head Joint Diameter	Head Joint Length
0.0000	12.4400		
10.0000	12.2100	12.0000	12.9400
20.0000	12.1100	37.0000	12.8900
30.0000	11.9400	48.0000	12.7800
40.0000	11.7200	59.0000	12.6800
50.0000	11.5600	75.0000	12.6200
60.0000	11.5000	92.0000	12.4400
70.0000	11.4200	107.0000	12.3200
80.0000	11.3600		
90.0000	11.2500		
100.0000	11.0700		
105.0000	10.9300		
110.0000	10.7200		
115.0000	10.6000		
120.0000	10.5000		
125.0000	10.3000		
130.0000	10.1000		
135.0000	9.9000		
140.0000	9.7400		
145.0000	9.5000		
150.0000	9.3000		
155.0000	9.0600		
160.0000	8.9000		
165.0000	8.7000		
170.0000	8.5500		
175.0000	8.3200		
180.0000	8.0000		
185.0000	7.8500		
190.0000	7.7800		
195.0000	7.6900		
200.0000	7.5800		
205.0000	7.6400		
210.0000	7.8400		











window 3.6 x 8.9

wall height 4.5

Socket
Depth - 20.8
Outside - 17.40
Inside - 16.64

Sounding Length: 281

WyneDescant440_MJ [Graph #2]