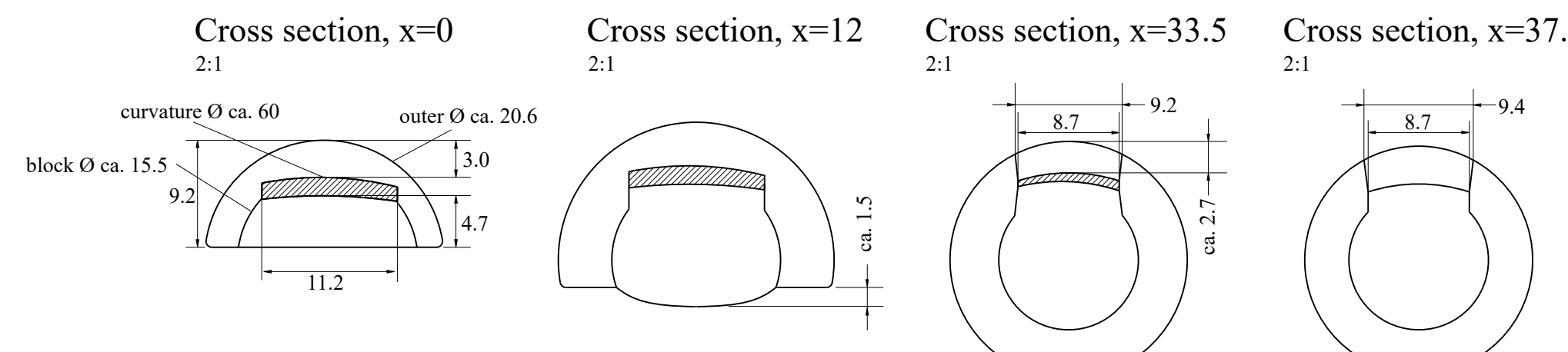
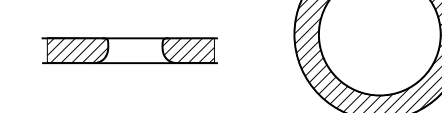


### Finger holes

Finger hole No.	Distance from top of instrument to center of hole	Ø side/side	Ø up/down	Remarks
0	119	4.6	5.4	= thumb hole
1	130	5.0	5.4	
2	152	5.2	5.3	
3	172	5.3	5.3	
4	190.5	5.3	5.6	
5	209	5.3	5.7	
6	230	5.4	5.8	
7	249	4.5	4.7	aligned with other holes

Holes not very regularly made:  
Rather edged shape  
Many small edges at the outer surface broken off during the manufacture

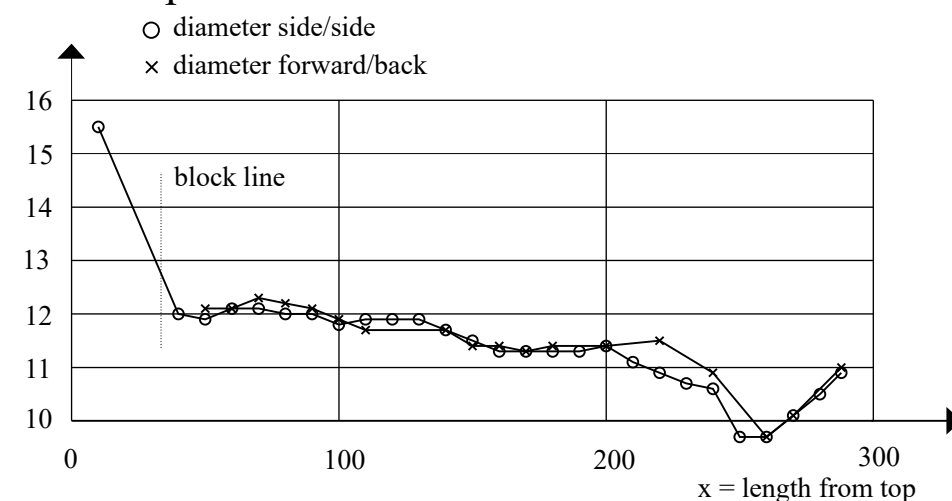
Undercut in all directions:



### Bore dimensions

x = distance from top of recorder	Ø side/side, direction of y-axis	Ø front/back, direction of z-axis
40	12.0	
50	11.9	12.1
60	12.1	12.1
70	12.1	12.3
80	12.0	12.2
90	12.0	12.1
100	11.8	11.9
110	11.9	11.7
120	11.9	-
130	11.9	-
140	11.7	11.7
150	11.5	11.4
160	11.3	11.4
170	11.3	11.3
180	11.3	11.4
190	11.3	-
200	11.4	11.4
210	11.1	-
220	10.9	11.5
230	10.7	-
240	10.6	10.9
250	9.7	-
260	9.7	9.7
270	10.1	10.1
280	10.5	10.6
288	10.9	11.0

### Bore profile



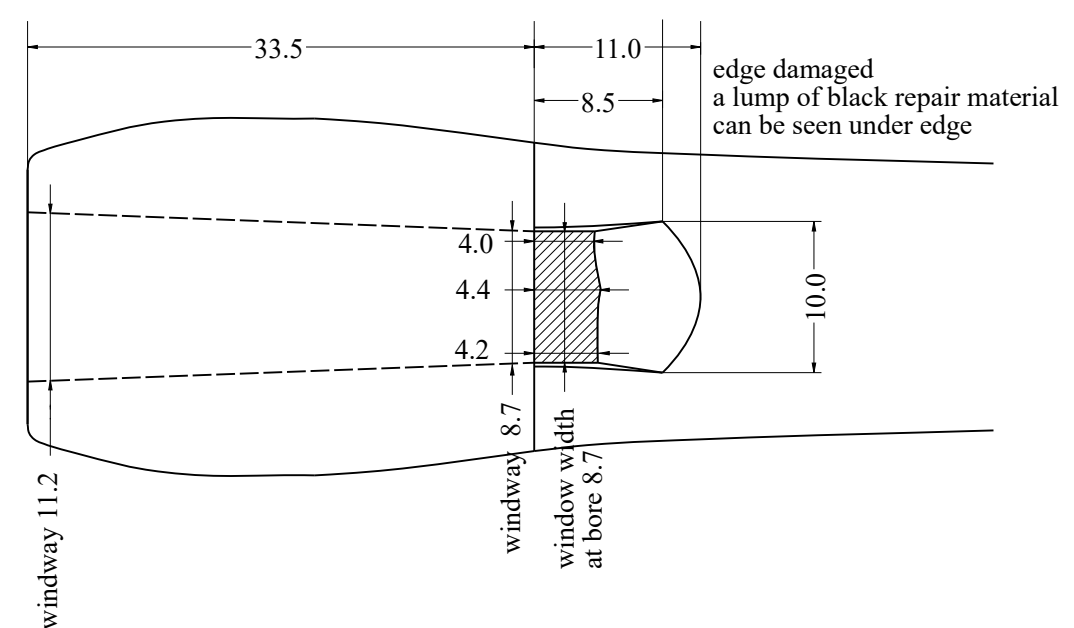
### Tuning

The recorder is regarded as an instrument in c". The pitch is somewhat higher than a major second above a'=440 Hz.

Tone	Wind pressure mm	Fingering	Cents deviation from a'=440 Hz + a major second (add 200 cents to the figures in the table)	Remarks
c"	12		+45	bubbles at pressure over 12 mm
d"	20		+60	
e"	20		+15	bubbles at pressure over 20 mm
f"	25	01234 6	+50	
f#"	25	0123 56	+75	
f#"	25	0123 567	+55	
g"	30		+15	
g#"	30	012 456	+15	
a"	32		-25	
bb"	32	01 34	+15	
bb"	32	01 3	+40	
b"	34		-40	
c#"	36	0 2	+70	
c#"	36	0	+20	
c#"	36	12	+40	
d#"	38	2	+50	
eb#"	38	23456	+5	
e#"	42		-10	
f#"	42	01234 6	+10	
f#"	42	01234 7	+35	
g#"	52		+20	
g#"	52	012 4	+25	
a#"	68		0	
bb#"	88	012 456	-30	
bb#"	80	012 56	-30	
b#"	100	012 45	+10	
c#"	100	01 45	-30	
d#"				

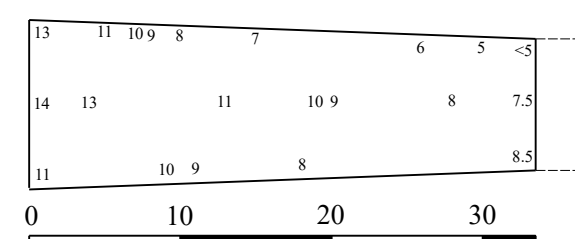
a", b" and partially e" are very much too flat - can only be played in tune with excessive pressure, using alternative fingerings for the neighbouring notes c": 0 23 56 and d": 23 56  
The average deviation of the main notes in the above measurements is ca. 20 cents, which makes the average pitch of the instrument 220 cents higher than 440 Hz, i.e. 499.6 Hz.  
If the recorder is regarded as an instrument in d", the average pitch is 445.1 Hz.

### Front view of windway and ramp 2:1

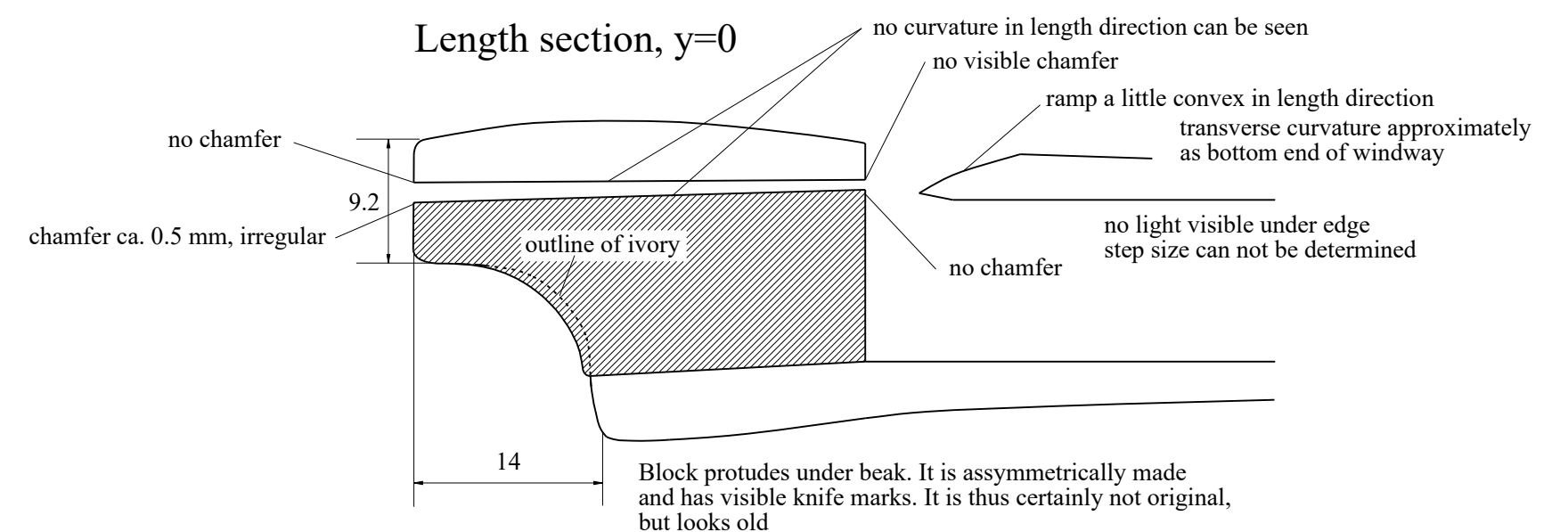


### Windway height

measuring point approximately in center of number in 1/10 millimetres (1.2 mm gauge was defect and could not be used)

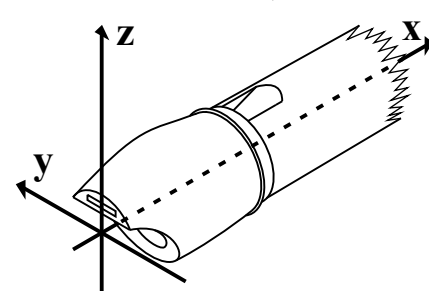


### Length section, y=0



### Abbreviations

x: distance from top of recorder  
s/s: direction side/side, dir. of y-axis  
f/b: direction front/back, dir. of z-axis



### Soprano recorder

Dean Castle, Kilmarnock, Ayrshire, Scotland, Inv. No. 75

Material: Ivory

Pitch: a' = ca. 500 Hz if the recorder is regarded as an instrument in c"  
a' = ca. 445 Hz if the recorder is regarded as an instrument in d"

The recorder is generally in good condition apart from two small cracks from the window 3-5 mm upwards and from the damaged edge. The block is more roughly made, making the windway irregular, and it is probably not original. The recorder is most likely made 1650-1675. It has no maker's mark.

All measurements in mm

Measured by Ture Bergström, June 1998, with help from Marianne Mezger and Gundula Bergström

Drawn December 1998 by Ture Bergström

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