

Case study
The restoration
of the
1755 John Snetzler Organ
at
Clare College Cambridge

Metal Flue Pipework

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General Description of the Metal Pipework.

Pipe metal

An analysis of the metal has not been carried out but by the way the metal behaves and to judge by the weight of the pipes, one could conclude that the pipe metal is of a low tin percentage cast on cloth and planed or scraped.

Languids

The languids are of a normal thickness in the larger pipes and become very thin in the trebles.

The main bevels vary from 57 degrees to the bottom of the languid at $5\frac{1}{3}$ ' GG, to 55 degrees at 1' c.

Most languids have a counter-bevel at a right angle to the bottom surface.

Condition of metal pipes

The majority of the pipes was found in a still cone-tuned condition. The Dulciana had been given tuning slides

The middle and upper ranges had suffered some collapse due to tuning.



Slight collapse at the mouth



Collapse at the foot

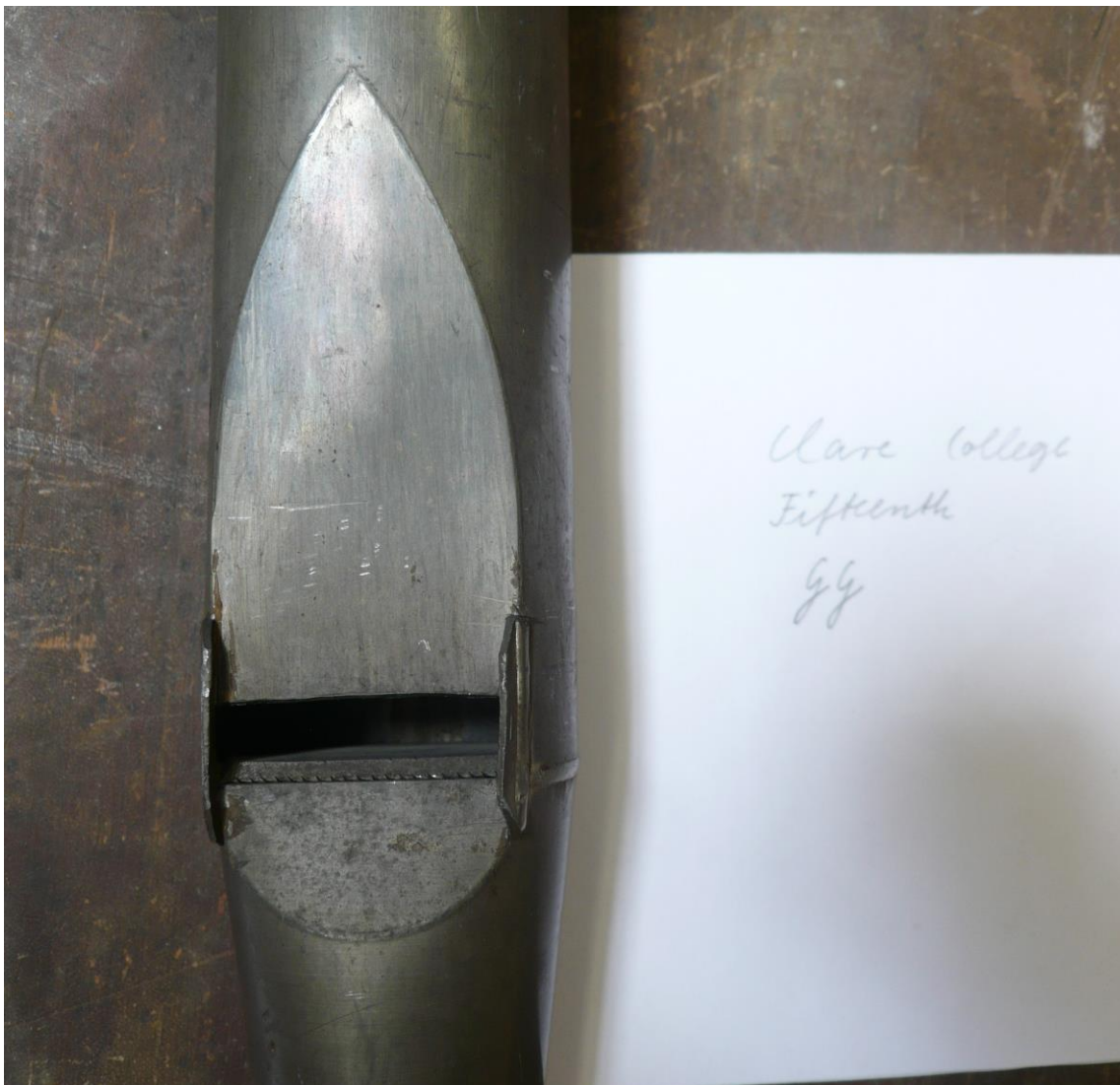


Several pipes in the top of the 17th rank of the Cornet were in bad condition

Cleaning method

The pipes were cleaned using a dry method for the inside. The inside of pipe feet was tackled with tiny brushes and bottle cleaners, in order to get right under the languid to clean the nicking from below. During the brushing a vacuum cleaner was also used. The pipe bodies were cleaned with bottle cleaners and flue brushes of varying sizes. After all this the outside of the pipes was wet-wiped.

Mouth shape of the metal pipes



The largest pipes have bay leaf mouths



Detail of the scoring of the smaller pipes. (Note the thin languid)



The top pipes of the Principal. (e''' is a foreign pipe and replaced with a new pipe.)



Box beards for the Dulciana (notice the cloth pattern on the inside of the far ear)

Style of inscriptions

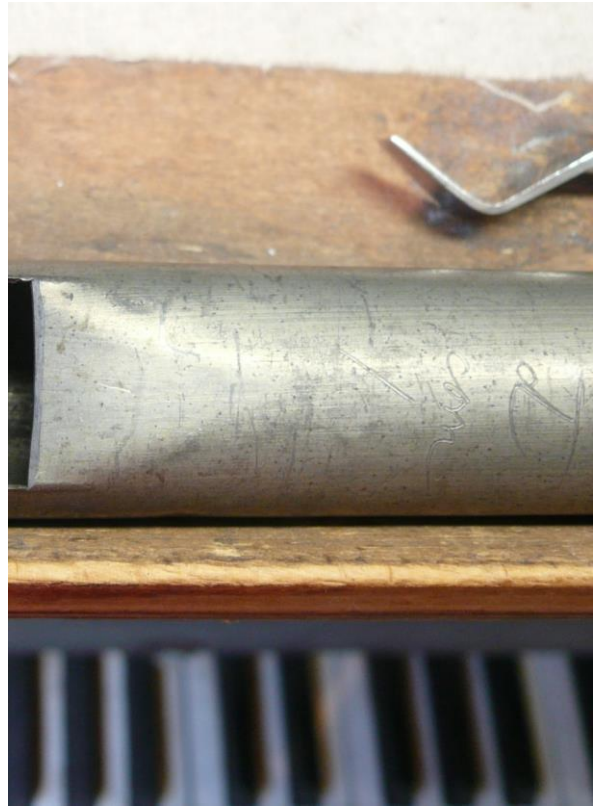
All pipes, other than the Dulciana, have been inscribed with the name of the note they speak, on the left side of the body next to and slightly above the mouth and below on the foot.

The pipes have also an inscription above the mouth on the front of the body with the stop, and rank indication in case of Sesquialtra or Cornett. These marks seem to be each by a different hand.

From middle C upwards the octaves are marked with one, two or three horizontal lines above the note name.



g# of the 4¹ rank of the Cornett, side and front view



d' of the 4' rank of the Cornett side and front view



c' of the 4' rank of the Cornett side and front view



d# of the 4' rank of the Cornett



e' of the 4' rank of the Cornett



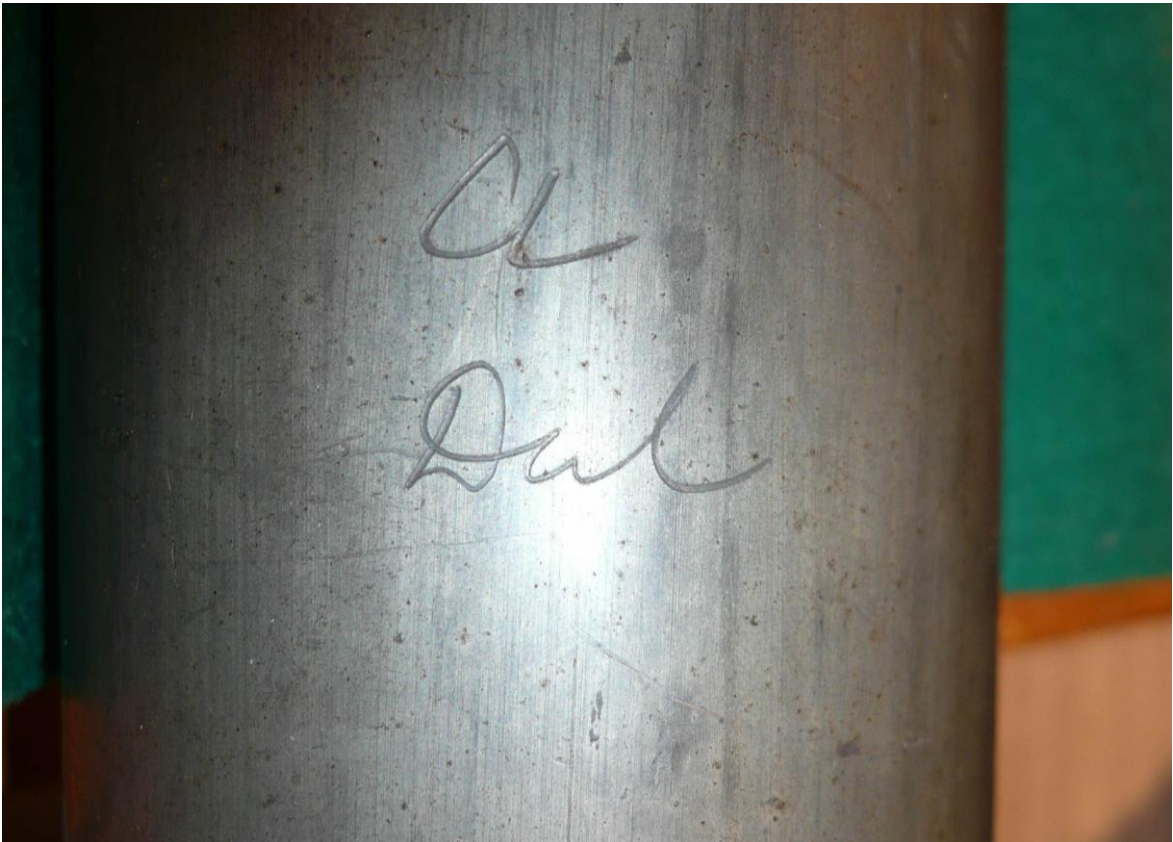
f' of the 4' rank of the Cornett



b' of the 4' rank of the Cornett



h' (b-natural) of the 4' rank of the Cornett (side and front) The use of h would suggest the Swiss heritage.



a^o of the Dulciana

Pipe c" of the Principal has been marked as pitch pipe at some stage in its life.



(c") pitch (M Fuller Maitland?) 2" wind

Voicing style and details

Flues are in general quite generous. Languids have been nicked with frequent fine nicks in the middle, to upper range and with slightly coarser nicks in the larger pipes. These nicks are original and have largely not been deepened.

The smallest pipes (from 4' #'' upwards), are nicked very finely, more sparsely or not at all.

Nicking

The nicks are applied with a tool at an oblique angle to the front of the languid, somewhat bending out and downwards the sharp exposed corners.



GG of the Fifteenth



finer nicks in the smaller pipes.

Cut-ups

The cut ups on the whole are slightly arched and finished off with a small to medium size bevel. A small number of pipes without a bevel have also a slightly higher cut-up. One suspects that the bevel may have disappeared with the raising of these cut-ups.

The cut ups are low in the largest pipes and become of a more generous proportion in the middle and treble range. Any raised cut-ups have not been lowered, as they have proved not to be detrimental to the authentic character of the organ sound.

The pipework is voiced on 2" wind pressure with moderate foot control.

The speech of the pipes is comfortably regulated with the occasional attack. Pipes in the middle range ($1\frac{1}{3}'$ to $\frac{1}{2}'$), overblow readily into the octave with little extra pressure blown by mouth. Larger pipes and the smaller trebles, take increasingly more effort.

Lengthening and repair of pipe tops

The approach used to this instrument has been one of conservation rather than reconstruction. Old repairs were maintained where serviceable. Pipe tops were repaired quite often to the requirement of pitch and tuning. Crumbling tops did unfortunately have to be replaced with new metal.

Temperament and Pitch

Although there is evidence of a change in temperament, we cannot be certain what the original temperament was. The conservative approach to this restoration has meant, that a combined temperament and pitch was chosen, in which the majority of the pipes were happy, or certainly not unhappy, at their present length. The temperament Young II was found to be a very suitable compromise.

The pitch of the organ is because of the change in temperament likely to be somewhat sharper than it originally would have been. It is nevertheless still low at 422.5 Hz at 17.5° Celsius (measured during workshop assembly).

Front pipes

The condition of the front pipes was found to be near excellent. Only minor repairs to tuning areas were necessary to allow the front to be regulated and tuned to the common pitch and temperament present in the inside pipework. Two pipes in the front had their tuning flaps soldered closed so that they are now effectively cut to length. A handful of pipes were given new tuning flaps where the old ones had broken off and been lost. Bottom D[#] was without a tuning devise rather sharp and not far from its original pitch, suggesting that the original temperament could have been a mean-tone type temperament. A tuning devise was fitted to this pipe, making sure not to remove original evidence (gilded cut-out edges). One rather badly repaired foot was taken apart and re-soldered.

Voicing details, treatment of languid and upperlip



4' C and D



Mouth and ear proportions



Bottom D# with a tuning flap soldered in. (note the gold leaf on the cut edge)



D# inscription



B-flat has its tuning flap soldered closed and is thereby one of the many "pitch" pipes



B-flat inscription



Repaired cracks in a tuning flap



g# inscription



A new tuning flap replacing a missing one



g inscription



Pipe measuring details

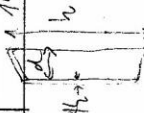
These were taken before the regulation and repair of the pipework. There may therefore now be subtle discrepancies between the actual measurements regarding foot holes and flue widths.

Principal

l dot Clare College Principal

orig. inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	cut UP	languid thickness	foot thickness	body thickness	mouth width	foot tip diameter	outside diameter	foot length	body length	orig. inscript.
G	1588 M	225	97.3	8.7	73	1.64	13	3.67	1.75 PR	1.14	1.5	8.7	97.3	225	1588 M	G
A	1447	206	90	9.5	72	1.5	12	5	1.85 PR	1.5	1.5	9.5	90	206	1447	A
B	1349	210 PR	86	8.7	66	1.4	14	4	1.7 PR	1.4	1.4	8.7	86	210 PR	1349	B
h	1285	200	81.5	8	62	1.1	11	4	1.4 PR	1.1	1.1	8	81.5	200	1285	h
C	1203	245	79	8	61	1.1	13.5	4	1.7	1.1	1.1	8	79	245	1203	C
(H) 29 G	1200	245	77	8.2	57	1.1	13	3.8	1.5	1.1	1.1	8.2	77	245	1200	(H) 29 G
D	1175	245	72	6.8	54	1.1	11.5	4	1.5	1.1	1.1	6.8	72	245	1175	D
D#	1130	245	69	7.1	52	1.1	11.8	3.5	1.4	1.1	1.1	7.1	69	245	1130	D#
E	1055	248	55.5	6.8	50	1	11.5	3	1.4	1	1	6.8	55.5	248	1055	E
F	1060	243	63	7.3	47	0.9	11.4	3	1.55	0.9	0.9	7.3	63	243	1060	F
F#	960	245	59.5	6	44	0.9	10.8	3.5	1.4	0.9	0.9	6	59.5	245	960	F#
G	945	246	56	6.2	43	0.8	10	3	1.25	0.8	0.8	6.2	56	246	945	G
G#	825	248	54	5.7	40	0.8	10	3	1.2	0.8	0.8	5.7	54	248	825	G#
A	860	245	53	5.9	39	0.7	9.5	3	1.3	0.7	0.7	5.9	53	245	860	A
B	785	248	49	5.3	36	0.8	9	3	1.3	0.8	0.8	5.3	49	248	785	B
h	790	250	47.5	5.3	36	0.7	8.5	2.5	1.3	0.7	0.7	5.3	47.5	250	790	h
20	738	247	45	5	33	0.8	8.5	2.5	1	0.8	0.8	5	45	247	738	20
2#	562	245	44	5.2	32	0.8	8.2	2.5	1.2	0.8	0.8	5.2	44	245	562	2#
20	632	245	41.2	4.5	31	0.7	7.8	2.2	1.2	0.7	0.7	4.5	41.2	245	632	20
2#	595	245	40	4.5	30.5	0.7	7.8	2.2	1.2	0.7	0.7	4.5	40	245	595	2#
2#	547	245	37.5	4.3	29	0.6	7	2.2	1.2	0.6	0.6	4.3	37.5	245	547	2#
2#	524	245	36	4	28	0.7	7	2	1.2	0.7	0.7	4	36	245	524	2#
1#	510	247	34	3.5	26	0.7	6	2	1.1	0.7	0.7	3.5	34	247	510	1#
2#	475	248	33	3.6	25	0.6	6	2	1.1	0.6	0.6	3.6	33	248	475	2#
2#	470	250	31	3.6	23	0.6	5.5	2	1	0.6	0.6	3.6	31	250	470	2#
2#	430	247	30	3.1	23	0.55	5.5	1.5	1	0.55	0.55	3.1	30	247	430	2#
2#	425	248	28	3.0	21	0.7	5.5	1.5	1.25	0.7	0.7	3.0	28	248	425	2#
2#	410	250	27	3.2	20	0.6	5.5	1.5	1	0.6	0.6	3.2	27	250	410	2#
2#	401	242	26	3	19	0.5	4.5	1.5	0.8	0.5	0.5	3	26	242	401	2#
2#	380	250	25	3	18	0.7	4.5	1.5	0.85	0.5	0.5	3	25	250	380	2#
2#	372	248	24	2.8	18	0.5	4.5	1.5	0.85	0.5	0.5	2.8	24	248	372	2#
2#	368	248	23	2.8	18	0.7	4.5	1.5	0.9	0.7	0.7	2.8	23	248	368	2#
2#	337	230	22	3	17	0.6	4.5	1.2	1.0	0.6	0.6	3	22	230	337	2#

n.o. not original
 M Mitre
 PR = part repair
 - not measured
 = non



inside organ pipes gilded front

Principal (continued)

Clare College Principal cont.

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	languid thickness	cut up	number nicks
2	222	159	21.2	2.8	17	0.6	0.6	0.77	4	11
3	208	158	20.2	3	16	0.8	0.8	0.9	4	12
4	198	160	19.9	3	15	0.5	0.7	0.8	3.5	10
5	185	158	19	2.7	15	0.6	0.8	0.9	3.5	—
6	171	158	18	2.4	14	0.6	0.7	1	4	11
7	164	160	17.5	2.5	13	0.6	0.7	1	3.5	12
8	156	158	16.5	2.4	13	0.5	0.6	0.8	3	10
9	147	160	16	2.4	12	0.5	0.6	0.8	3	10
10	138	158	15.1	2.5	11	0.6	0.6	0.7	2.8	9
11	130	158	15	2.3	11	0.6	0.6	0.7	2.8	8
12	121	160	14.5	2.3	11	0.4	0.6	0.7	2.8	10
13	115	159	13.8	2.3	10	0.5	0.5	0.8	2.9	8
14	108	160	13.5	2.4	10	0.5	0.5	0.6	2.5	9
15	102	160	13	2.3	9.5	0.5	0.5	0.6	2.5	9
16	95	154	12.5	2.1	10	0.6	0.5	0.6	2	9
17	92	160	12	2.1	9	0.5	0.5	0.5	2	9
18	86	159	11.8	2.1	8	0.5	0.5	0.6	2.4	9
19	81	158	11	2.3	8	0.4	0.5	0.5	2	9
20	74	160	11	2.2	8	0.4	0.5	0.6	2	9
21	70	158	11	2.2	7.5	0.4	0.5	0.6	1.5	7
22	65	159	10	1.8	8	0.4	0.6	0.7	2	—
23	62	160	9.5	2.2	7	0.4	0.6	0.7	2	—
24	58	159	9.5	1.5	6	0.4	0.6	0.6	2	—
25	58	—	—	—	—	—	—	—	—	—
26	53	160	8.5	1.7	6	0.4	0.45	0.5	1.5	—

Handwritten initials

* in pipe.
 h
 m
 in foot.

Not to scale

* 2 sets 970 Rubber Matt and 2 wood

Fifteenth

Clare Fifteenth

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	linguid thickness	cut up thickness	number nicks
GG	494	181	55.4	6.1	42.2	1.2	1.36	3	105	21
AA	714	176	51.2	5.5	39.5	0.73	1.25	2	95	18
BB	672	169	48.5	5.4	37.9	0.76	0.95	2	95	18
4	627	156	47	5.2	36.0	0.85	1.1	2	8	20
C	595	156	46.5	5.4	35	0.81		2.5	8	19
CA	551	155	45.3	4.5	34	0.8		2.3	4.5	19
D	522	158	42.6	4.8	33	0.7		2	9	18
DA	495	159	41	4.38	32	0.7		2	4.5	18
E	466	159	39	4.3	31	0.65		2	7.0	17
F	444	159	37	4.3	29	0.65		2	4.0	16
FA	414	157	36	4.0	27	0.7		2	6.1	15
G	389	157	34	3.9	26	0.7		2	6.0	15
GA	370	159	32.5	3.8	25	0.4		1.5	5.8	14
A	346	160	30.7	3.4	24.8			1.5	6.5	15
B	332	160	29.3	3.4	23.5			1.5	5.3	14
4	313	160	28	3.26	21.3			1.2	5.2	12
C	284	159	26.6	3.2	20.2	0.55	0.65	1.2	5.1	13
CA	277	159	25.5	3.0	20.2			1.2	4.5	13
d	262	158	24.6	3.0	19			1.2	4.5	12
da	245	158	23.2	3.0	17.5			1.1	4	12
e	232	158	22.1	2.8	17			0.8	3.9	11
f	220	158	21.2	2.7	16.5	0.8	0.85	0.8	3.5	11
f	206	158	20.4	2.5	16	0.9	0.85	0.8	3.2	11
g	195	159	19.8	2.4	15.5	0.6	0.65	0.8	3.2	12 (1021)
ga	184	159	19.0	2.5	14	0.6	0.65	0.9	3	11
a	174	158	18.2	2.4	14	0.5	0.7	0.9	3	10
b	163	158	17.5	2.2	13.2			0.9	2.9	9
4	154	154	17.2	2.1	12.5	0.5	0.6	0.9	2.5	9

Base label scored 66 → 5
 ca. 1.2.06

Fifteenth (continued)

Case 22-1000-1

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	languid thickness	cut up	number nicks
C	144	160	16	2.3	11	0.5	0.6	1.0	3	10
C	137	158	15.2	2.1	10.2	0.45	0.6	0.7	2.5	11
d	129	152	15	2.1	10.5	0.6	0.6	0.8	2.5	7 faint
d	121	159	14	2.0	11	0.6	0.5	0.9	2.45	3 faint
C	114	157	13.9	1.9	10.5	0.5	0.5	0.9	2.4	10
F	108	160	13.2	2	10.2	0.47	0.5	0.7	2.2	10
F	104	158	13	2	10.2	0.5	0.6	0.56	2.2	9
g	95	157	11.5	1.9	9.5	0.6	0.7	0.60	2.2	1200 description
g	89	159	12	2	9	0.5	0.6	0.6	2	10
a	84	159	12	1.8	8.5	0.5	0.5	0.5	1.8	10
C	70	160	11.2	1.8	8	0.5	0.6	0.5	2.0	8
F	72 78	160	11	2.2	8	0.4	0.4	0.7	2.0	8
C	70	159	10.9	2.2	8	0.4	0.6	0.7	2.0	faint
C	64	159	9.8	1.9	7.5	0.4	0.5	0.7	1.9	8
d	62	160	9.9	1.8	7.2	0.45	0.5	0.73	2	8
d	56 75c	160	9.4	2	7	0.5	0.48	0.72	2	4 7
C	54	160	9.2	1.9	7	0.5	0.5	0.69	2	8 7
F	51 70c	160	8.4	1.9	6.2	0.4	0.5	0.8	1.5	2 7
h	49	159	8.2	1.7	5.8	0.4	0.5	0.55	1.48	—
g	45	160	7.8	1.7	5.2	0.4	0.46	0.3	1.6	—
g	44	160	8	1.9	5.5	0.4	0.4	0.4	1.5	6
a	40	158	7.5	1.9	5.5	0.4	0.4	0.4	1.5	6
g	35 75c	160	7	1.9	5.6	0.4	0.4	0.4	1.5	2
h	36	160	7.4	1.9	5	0.4	0.4	0.4	1.2	—
C	31	160	7.5	1.8	5	0.4	0.5	0.6	1.5	—
C	29	160	7.92	1.7	4.5	0.4	0.5	0.6	1.2	—
d	28	160	6.9	1.7	4.5	0.4	0.4	0.5	1	—
d	24	160	6.2	1.7	5	0.4	0.4	0.5	1	—
e	24	160	6.8	1.7	4.8	0.4	0.4	0.5	1	—
e	22	160	6.8	1.6	4.5	0.4	0.4	0.5	1	—

C 15

C 15

Sesquialtra I

Clare College Sesquialtra I

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	languid thickness	cut up	number nicks
GG	636	160	46.9	6	3.7	0.9	1.3	2	9	20
AA	555	157	45.5	5	3.5	1.1	1.3	2.2	9	18
BB	525	150	43	5	3.4	0.8	1.2	2	7.5	18
4	500	150	41	4.2	3.1	0.9	1.2	1.95	7.2	16
C	476	160	39	4.5	30.5	0.9	1.2	2	7	17
CH	439	159	37	4.4	28.5	0.9	1.1	2	6.5	15
D	420	159	35.5	4.1	27.5	0.7	0.8	1.9	6	16
D#	396	160	34	4	26	0.7	1.0	1.6	6	18
E	373	160	33	3.8	25	0.7	0.8	1.8	5.5	16
F	349	160	31	3.8	24.5	0.9	0.6	1.8	5.5	15
F#	331	159	30.8	3.4	23	0.62	0.8	1.3	5.5	15
G	315	160	28	3.7	21.5	0.65	0.9	1.3	5	13
G#	297	159	26.5	3.3	20	0.73	0.9	1.3	5	13
A	283	160	25.5	3.4	19	0.6	0.8	1.2	4.8	15
B	267	159	24.5	3.4	18.5	0.6	0.7	1.2	4.9	13
4	247	160	23.4	3.2	18	0.6	0.7	1.2	4.5	13
C	236	158	22	3	16.5	0.73	0.84	0.9	4	13
G#	219	159	21.2	2.9	16	0.6	0.8	1.23	4	12
d	206	158	20.5	2.7	16	0.6	0.8	1	4	11
e	197	158	19.8	3	15.5	0.5	0.7	1.2	4.5	11
e	185	159	19	2.6	14.2	0.56	0.6	0.9	3.5	11
f	174.5	158.5	18	2.6	14	0.6	0.6	1.0	3.5	11
f#	167	159	17.5	2.4	13.2	0.5	0.8	0.8	3.2	11
g	156	156	16.5	2.3	12.2	0.5	0.8	0.9	3	11
g#	145	150	16	2.5	12	0.5	0.8	0.8	3	12
a	137	157	15.1	2.1	11.5	0.5	0.7	0.85	2.5	9
6	130	158	14.9	2.3	11.5	0.5	0.7	0.85	3	8
7	122	160	14.1	2.2	11	0.53	0.76	0.8	2.5	8

Bayley

soldered tan

1/2 1/2

1/2 1/2

Sesquialtra II

Clare College Sesquialtra 2

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	languid thickness	cut up	number nicks
GG	524	150	47.8	4.6	33	0.7	1.1	1.7	8	17
AA	460	146	39.2	4.2	31	0.9	0.9	1.9	7	17
BB	438	160	39.0	4.5	30	0.6	1.1	2	7	18
7	412	160	36.0	4.3	27	0.7	0.8	1.9	6.5	17
C	321	154	34.0	4.2	26	0.7	0.8	1.6	6.5	15
GG	369	160	32.5	4	25	0.7	0.8	1.4	5.8	16
D	350	160	30.5	3.9	24	0.6	0.7	1.5	5.5	6
AA	322	160	29.5	3.8	22	0.6	0.8	1.6	5.5	13
E	310	158	27.4	3.4	21.5	0.5	0.6	1.3	5	5.5
F	295	160	26.2	3.7	20	0.7	0.8	1.4	5	12
FF	279	160	25.5	2.8	19	0.7	0.8	1.3	4.5	14
G	262	160	24.5	3	19	0.6	0.8	1.3	4.5	13
GA	245	160	23.5	3.2	18	0.9	0.8	1.3	4.5	12
A	235	160	22	2.7	17	0.6	0.8	1	4	4.2
B	220	160	21	3	16	0.6	0.7	0.9	4	4.5
H	207	159	20.5	2.7	15.5	0.5	0.7	1	4	4
C	193	158	19.6	2.7	14.5	0.6	0.8	1	4	4
8	185	158	19	2.7	14.5	0.5	0.8	1.2	3.8	12
d	175	160	18	2.8	13	0.5	0.8	1.24	3.5	11
d#	166	160	17.2	2.7	13	0.6	0.7	0.94	3.2	10
e	154	160	16.5	2.2	12.5	0.4	0.9	0.9	3.2	10
f	145	162	16	2.3	12	0.6	0.7	0.9	3	9
f#	138	162	15	2.1	12	0.6	0.7	0.84	3	9
g	129	158	14.8	2.2	11	0.6	0.8	0.8	2.5	10
g#	120	157	14.2	2.1	11	0.5	0.8	0.8	2.5	8
a	114	159	13.5	1.6	10	0.5	0.7	0.7	2.2	8
b	106	160	13	2	9.5	0.5	0.7	0.7	2	8
7	100	160	12.9	2	9.5	0.5	0.6	0.7	2.5	8

Working
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2

n = repeat

Sesquialtra III

Clark College Sesquialtra 3

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	languid thickness	cut up	number nicks
GG	352	157	34	4.5	2.6	0.8	0.9	1.8	6.5	16
MA	346	160	31	3.8	2.3	0.75	0.7	1.8	5	15
BB	334	160	29	3.8	2.2	0.75	0.8	1.8	5	14
AA	342	159	28	3.3	2.1	0.7	0.7	1.6	5	12
C	295	158	26.3	3.5	2.0	1.0	0.7	1.3	5	12
CH	299	160	25.6	3.0	1.9	0.9	0.7	1.3	4.5	11
D	262	160	24.5	3.4	1.9	0.7	0.7	1.46	4.5	12
DA	248	158	23.2	3.1	1.8	0.7	0.7	1.3	4	11
E	234	160	22	3.1	1.7	0.7	0.7	1.2	4	11
F	221	157	21.2	2.7	1.6	0.8	0.8	1.1	3.6	11
FA	209	160	20.1	3.0	1.6	0.8	0.65	0.9	4	10
G	192	158	19.5	2.9	1.5	0.5	0.7	0.9	4	9
GA	186	158	19	3	14.5	0.5	0.65	0.8	3.5	10 (part)
A	176	160	18	2.3	13.5	0.7	0.8	0.8	3.8	10
B	165	159	17.5	2.8	13	0.6	0.7	0.9	3.2	9
H	154	157	16.5	2.3	12	0.6	0.7	0.8	3	9
C	145	158	16	2.5	11.9	0.7	0.8	0.7	3	9
CH	138	160	15.2	2.3	11.5	0.6	0.7	0.7	3	8
d	130	159	14.9	2.2	11	0.6	0.6	0.7	2.5	9
dH	121	160	14	2.4	10.1	0.5	0.7	0.7	2	7
e	115	150	13.5	2.1	10	0.5	0.7	0.7	2.3	—
f	106	150	13.5	2.3	10	0.5	0.7	0.7	2.3	8
fH	102	150	13	2.0	9.9	0.5	0.6	0.8	2.2	8
g	95	152	12.5	2.2	9	0.5	0.6	0.5	2	—
gH	86	156	12	1.8	8	0.5	0.6	0.5	1.9	7
a	84	160	11.5	2.1	8	0.4	0.6	0.6	2.5	6
g	79	160	11.2	2.3	8	0.4	0.7	0.6	2	8
h	72	160	11	1.9	8	0.4	0.6	0.6	1.5	8

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Clare College Cornett I

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	languid thickness	cut up	number nicks
C	295	160	16.2	3.7	20.1	0.7	0.9	1.4	5	12
C#	287	160	26	3.3	20	0.7	0.7	1.5	5.5	18
d	265	160	24.5	3.4	19	0.8	0.8	1.3	5	11
d#	250	160	23.5	3.4	18.5	0.9	0.8	1.44	4.8	5
e	235	157	22.2	3.5	17.5	0.9	0.9	1.21	4	11
f	222	163	24.5	3.4	16	0.8	0.7	2.2	4.5	10
f#	208	163	20.5	3.4	15.5	0.9	0.7	1	4	4.5
g	197	160	19.5	3	15	0.7	0.7	1	4	10
g#	184	160	18.8	2.5	14	0.6	0.8	0.9	3.5	3.8
h	174	159	18	2.5	14	0.7	0.7	0.8	3.5	10
h#	164	159	17.5	2.8	13.5	0.6	0.7	1	3.5	10
i	156	158	16.8	2.8	12.5	0.7	0.7	0.8	3.2	3.5
i#	147	160	16	2.6	12	0.5	0.5	1	3.2	3
j	137	159	15	2.5	11.5	0.5	0.6	1	3	5
j#	130	160	15	2.4	10.5	0.6	0.6	0.9	3	9
k	123	160	14	2.3	10.5	0.5	0.7	0.7	3	10
k#	114	159	14	2.3	9.5	0.5	0.7	0.7	2.5	8
l	108	159	13	2.4	9	0.6	0.6	0.7	2.5	8
l#	101	158	12.5	2.1	10	0.6	0.7	0.8	2.5	2 (in hand)
m	95	156	12	2.3	8.2	0.53	0.5	0.85	2.5	7
m#	89	156	11	1.9	8	—	0.6	0.4	2	8
n	84	160	11.8	2.3	8.7	0.4	0.64	—	2.74	—
n#	81	159	11.2	2.18	8.54	0.48	0.6	0.6	2.5	10
o	74	157	11	2	8	0.48	0.6	0.6	2.21	7
o#	70	150	10.5	2.1	7	0.5	0.6	0.6	1.71	7
p	67	167	10	1.7	12.2	0.4	0.5	0.6	1.94	6
p#	64	160	10	2	11.8	0.52	0.54	0.6	2.18	7
q	59	160	12	1.96	11	0.49	0.5	0.5	2	10
q#	54	160	12	1.8	7	0.47	0.5	0.5	2	8
r	52	150	11.5	1.5	6	0.4	0.5	0.8	1.59	—

Corn I

Corn I

Corn I

Ullrich et al

Cornett II

Clare College Cornett I

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	languid thickness	cut up	number nicks
C	295	160	26.2	3.7	20.1	0.7	0.9	1.4	5	12
C#	287	160	26	3.3	20	0.7	0.7	1.5	5.5	18
d	265	160	24.5	3.4	19	0.8	0.8	1.3	5	19
d#	250	160	23.5	3.4	18.5	0.9	0.8	1.44	4.8	5
e	235	157	22.2	3.5	17.5	0.9	0.9	1.21	4	11
f	222	163	21.5	3.2	16	0.8	0.7	1.1	4.5	10
f#	208	163	20.5	3.1	15.5	0.9	0.7	1	4	4.5
g	197	160	19.5	3	15	0.7	0.7	1	4	10
g#	184	160	18.8	2.5	14	0.6	0.8	0.9	3.5	3.8
h	174	159	18	2.5	14	0.7	0.7	0.8	3.5	10
h#	164	159	17.5	2.8	13.5	0.6	0.7	1	3.5	10
i	156	158	16.8	2.8	12.5	0.7	0.7	0.8	3.2	3.5
i#	147	160	16	2.6	12	0.5	0.7	1	3.2	9
j	137	159	15	2.5	11.5	0.5	0.6	1	3	5
j#	130	160	15	2.4	10.5	0.6	0.6	0.9	3	9
k	123	160	14	2.3	10.5	0.5	0.7	0.7	3	10
k#	114	159	14	2.3	9.5	0.5	0.7	0.7	2.5	8
l	108	159	13	2.4	9	0.6	0.6	0.7	2.5	8
l#	101	158	12.5	2.1	10	0.6	0.7	0.8	2.5	9 (extra)
m	95	156	12	2.3	9.2	0.53	0.5	0.85	2.5	7
m#	89	156	11	1.9	8	—	0.6	0.4	2	8
n	84	160	11.8	2.3	8.7	0.4	0.64	—	2.74	—
n#	81	159	11.2	2.18	8.54	0.48	0.6	0.6	2.5	10
o	74	159	11	2	8	0.42	0.6	0.6	2.21	7
o#	70	150	10.5	2.2	7	0.3	0.6	0.6	1.78	7
p	67	167	10	1.7	11.2	0.4	0.5	0.6	1.94	6
p#	64	160	10	2	10.8	0.52	0.54	0.6	2.18	7
q	59	160	10	1.96	11	0.49	0.5	0.5	2	10
q#	54	159	9.9	1.8	7	0.4	0.5	0.5	2	8
r	52	150	9.8	1.5	6	0.4	0.5	0.8	1.92	—

Corn I

Corn I

Corn I

Ulna evident

Clare College Cornett 2

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness TOP	foot thickness	languid thickness	cut up	number nicks
C	191	167	21	2.54	16	0.6	0.7	1.14	4	9
C#	180	168	20.5	2.9	15	0.8	0.6	1.05	3-5	10
d	170	169	20	2.52	14.5	0.6	0.6	0.9	3-5	10
d#	164	168	18.8	2.8	14	0.6	0.7	0.9	3-5	9
e	151	163	18	2.6	13.8	0.8	0.6	0.9	3	11
f	147	165	17	2.9	12.5	0.9	0.6	1	3-5	10
f#	136	170	16.5	2	12	0.7	0.9	1	3	11
g	126	167	16.8	2.6	12	0.5	0.7	0.9	3	9
g#	119	168	15.2	2.1	12	0.5	0.7	0.9	2.5	9
h	112	168	15	2.4	11	0.4	0.7	0.9	2.3	9
h#	106	170	14.5	2.5	10.5	0.6	0.7	0.9	2.5	9
i	99	170	14	2.5	10	0.7	0.7	0.8	2.5	8
i#	93	181	13.2	2.26	10	0.5	0.65	0.7	2-2	found
CA	89	164	13	2.16	9.6	0.5	0.5	0.7	2	found
d	79	156	12	2.2	8.5	0.5	0.6	0.6	2	9
d#	78	158	11	2.1	8	0.5	0.6	0.6	2	8
e	73	160	12	2.2	8	0.5	0.7	0.6	2	9
f	70	180	11.2	2.1	8	0.7	0.6	0.7	2	found
f#	65	160	11	2.3	8	0.5	0.5	0.6	1.9	17
g	60	160	10.8	2.2	7.8	0.5	0.6	0.8	2	8
g#	55	158	10.4	1.7	7	0.6	0.7	0.7	1.5	—
h	52	160	10	2.1	7	0.4	0.5	0.6	2	—
h#	50	160	9.3	2.5	6	0.6	0.5	0.8	1.6	—
i	47	160	9	2.1	6.5	0.4	0.7	0.7	1.8	—
i#	44	155	9	1.8	6.5	0.5	0.6	0.7	1.5	—
CA	41	167	8.5	1.74	6	0.6	0.6	0.6	1.9	—
d	38	165	8.75	1.88	6	0.5	0.6	0.7	2	—
d#	36	166	8.5	1.85	6	0.5	0.5	0.6	1.5	—
e	34	168	8.5	2.96	6	0.7	0.5	0.8	1.5	—
f	32	166	8	1.94	6	0.4	0.5	0.5	1	—

C
COM
2

C
COM
2

n = repair

Clare College Cornett 3

orig inscript.	body length	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	liquid thickness	cut up	number nicks
C	115	167	13.5	7.1	9	0.6	0.6	0.8	2.5	9
CA	107	158	13.5	2.1	10	0.6	0.6	0.8	2.5	7
D	100	160	13.5	2.4	10	0.5	0.5	0.8	2.5	1
D#	95	160	13	2.2	10	0.45	0.5	0.8	2-1	8
E	89	159	13	2.2	9	0.45	0.5	0.8	2	8
F	84	160	13.5	2.1	9	0.45	0.6	0.7	2	8
F#	78	160	12	2.2	8.5	0.4	0.6	0.7	2	8
G	74	160	13.5	2.1	8	0.4	0.6	0.6	2	8
G#	70	160	11.2	2.2	8	0.4	0.6	0.6	2	7
A	64	158	11	2	8	0.5	0.6	0.7	2	7
B	60	160	10.8	2	7.5	0.5	0.6	0.6	2	6
g	56	160	10.2	2	7	0.5	0.6	0.6	1.8	6
C	54	161	9.2	2	6	0.5	0.6	0.6	2	7
C#	47	160	9.5	2.1	6.5	0.5	0.6	0.9	1.5	6
D	47	160	9.4	1.9	6.5	0.55	0.6	0.9	1.8	6
D#	45	162	8.8	1.9	7	0.4	0.5	0.7	1.5	6
E	43	161	8.4	1.7	5	0.4	0.5	0.7	1.5	6
F	39	160	8	1.5	5.5	0.35	0.5	0.5	1.5	6
F#	38	160	8	2	6.5	0.35	0.4	0.5	1.5	6
G	34	160	7.7	1	5.5	0.35	0.4	0.5	1	6
G#	31	162	7.7	1	5.5	0.4	0.4	0.5	1	6
H	30	162	7.7	1	5	0.4	0.4	0.5	1.5	6
H#	29	160	7.5	1.9	5	0.4	0.5	0.5	1.7	6
I	26	160	7.2	1	5	0.4	0.4	0.5	1.7	6
J	25	160	7.2	1	5	0.4	0.4	0.5	1.7	6
K	24	160	6.9	1	5	0.4	0.6	0.6	1.5	6
L	20	160	6.5	1	4.5	0.4	0.5	0.8	1.5	6
M	20	160	6.5	1	4	0.4	0.4	0.5	1.2	6
N	19	162	6.5	1	4.5	0.4	0.4	0.5	1	6
O	16	162	6.5	1.7	4	0.4	0.4	0.5	1	6

corn 3

not measured / measured

Dulciana

Dulciana
 Dulciana College

orig inscript.	body length	foot length	top outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	liquid thickness	cup	comp. 22/100/11	number nicks	Th. h. Ewrs
G	1647	232	86	75	55	1.0	1.1	4	13.5	12.5	?	1.5 52
GH	1555	219	84	72.8	55	0.8	1.1	3.5	13.5	12.5	23	1.2 57
A	1464	230	77	62	53	0.8	1.1	3	55.13	4.8	20	1.2 51
B	1374	195	73	65.2	57	0.8	1.3	3	12	12.2	22	1.4 46
4	1308	205	71	63	48	1.1	1.3	2.6	10	10.5	23	1.2 45
C	1299	185	69	60	47	0.8	1.2	3	14	9.5	19	1.2 43
C#	1141	200	64	57	45	0.9	1.1	3	10	9.9	20	1 40
D	1097	208	62.2	53	43	0.9	1.2	3	10	9.4	18	1 39
D#	1028	213	58	51	39	0.7	1.2	2	11	8.7	20	1.3 37
E	964	213	55	49.8	36.5	0.8	1.4	2.1	9.5	8.1	20	1.5 34
F	843	198	52	46	34	0.7	1.1	2	9	7.0	16	1 30
F#	847	198	49.5	44	33	0.5	1.2	3	9	6.5	17	1 20
G	805	212	47	41	31	0.4	2	2.3	8	6.0	18	1 29
GH	771	209	46	39	29	0.5	1.1	2	7.6	6.0	17	0.8 28
A	728	213	42	37	28.5	0.8	1.1	1.6	6.5	4.5	14	0.9 24
B	687	214	40	35	26.5	0.5	1	1.5	6	5.0	14	1.1 22
4	642	208	38.5	33	25	0.8	1	1.5	7	5.0	16	0.9 20
C	606	212	36.5	32	23.5	0.6	1	1.5	6.5	5.0	14	0.5 18
C#	570	212	35	31	22	0.7	1.2	1.3	6	4.5	15	0.8 20
d	549	213	32	28.5	23	0.4	1	1.6	5	4.5	14	0.7 15
d#	514	217	31	27	21	0.6	1	1.4	5	4.1	12	0.9 20
e	480	212	30	26.2	21	0.5	1	1.2	6	4.0	13	0.5 18
f	452	205	28	25.1	20	0.75	1.2	1.2	3.5	3.5	14	0.8 20
f#	432	212	24.5	24	18	0.6	0.8	1.2	3.5	3.5	15	0.7 15

* J measured above my hand

Dulciana (continued)

Dulciana cont. Clare College

77 measured, 100% error (m)

orig inscript.	body incl length T.S.C.	foot length	outside diameter	foot tip diameter	mouth width	body thickness	foot thickness	liquid thickness	cut up	Th _u Exp	Ex _u H	number nicks
g	410	211	25.2	4.9	2.2	0.7	0.6	0.9	5	1.3	1.9	13
gH	391	214	25	2.5	1.7	0.7	1	1	3.5	0.7	1.6	25
a	345	214	23	1.9	15.5	0.5	0.8	1	3.5	1.4	1.5	12
b	340	214	22.2	2.1	15	0.5	0.8	1	4	0.7	1.4	13
h	325	216	20.9	2.1	14.5	0.6	0.8	1.1	4	0.8	1.4	11
e	302	210	20	1.75	13.5	0.6	0.6	0.9	3	0.6	1.2	10
eH	290	215	20	2.2	13	0.6	0.6	0.8	3	0.5	1.2	10
d	274	212	19	1.9	12.5	0.5	0.7	0.8	3	0.5	1.2	11
dH	255	215	18	1.8	11	0.5	0.8	0.8	3	0.5	1.2	11
e	241	212	17	1.9	11	0.5	0.6	0.8	2.5	0.5	1.0	9
f	230	211	16.5	1.8	10.5	0.5	0.7	0.8	3	0.5	1.0	9
fH	216	207	16	1.8	10	0.4	0.7	0.8	3	0.7	1.1	10
g	204	211	15	2.1	10	0.5	0.7	0.8	2	0.6	1.1	10
gH	188	207	15	1.8	9	0.5	0.6	0.7	3	0.7	1.1	10
h	182	211	14	1.7	9	0.4	0.5	0.6	2.5	0.5	1.0	9
b	170	211	13.5	1.9	8.5	0.4	0.6	0.5	3	0.5	1.0	9
h	163	211	12.8	1.6	9	0.4	0.5	0.6	2	0.5	1.0	9
c	152	198	12	1.6	8.5	0.4	0.6	0.6	2	0.5	1.0	9
eH	144	204	11	1.6	8	0.4	0.6	0.7	2	0.4	1.0	8
d	133	200	10.5	1.6	7.8	0.4	0.6	0.5	2	0.5	1.0	8
dH	126	184	10.5	1.6	7.5	0.4	0.5	0.5	2	0.5	1.0	8
e	119	204	10.5	1.6	7.5	0.4	0.5	0.5	2	0.5	1.0	8
fH	109	165	10.2	1.6	7	0.4	0.5	0.5	2	0.5	1.0	7

in body
6
in foot
B

11.5 =
d = damage
u = unmeasured
r = repair



Wooden Pipework



The wooden pipes are made from fine grained deal. The construction is in the English tradition. The ogee moulding along the top of the cap is unusual but characteristically Snetzler.



Voicing details

The blocks of the pipes project substantially above the top of the cap. Flues are moderate but not narrow.

The nicking is applied only above the top of the cap, and doesn't extend into the flue. The cut ups are low to moderate in the treble.

The resulting tone is gentle and blending with a defined speech and a somewhat pronounced twelfth overtone. It could be said to be characteristically English, which is perhaps a bit surprising for an originally Swiss builder.



Bores in Diapason and Flute stoppers

Sometimes holes are drilled in the handle but the stopper part has been blocked off. It looks like this was an original voicing decision and it has therefore been respected.

Sizes Diapason:

	Diameter bore	Length stopper
f ⁰	5.1	89.5
c'	4.2	82.3
f [#]	3.1	75.8
c''	3	71.5
f [#] ''	2.9	66.4
c'''	3	58.4
(none above c''')		

Sizes Flute:

F	5.1	89.9
c ⁰	4.2	83
f ^{#0}	3.1	76.7
c'	3.2	71.4
f [#]	3	65.5
c''	3	58.5
(none above c'')		

Diapason

Glenn College Appraisal Diapason

Diap

orig inscript.	inside depth	outside depth	inside width	outside width	total length	block height	mouth height	cut up from block	cut up from cap	cap thickness	number nicks	size file	foot bore	outside foot dimensions	date
GG	124	147	102	128	1696	75	122	22	24.5	18	14	1.2	2.0	37/22	12.5
AA	114	139	92	122	1534	74	118	20	22.5	18	11	1.3	1.9	36/25.5	10/13
BB	109	128.5	88	112.3	1445	75	110	19.8	22.5	18	11	1.0	1.9	36/25.5	10/12
B	104	122	86	109.5	1375	75	106	19.5	24.5	17.5	9	1.2	1.9	36/25.5	10/12.5
C	97	116	80	103	1285	75	101	18	20	15	10	1.0	1.6	30/21.5	10/11
C#	95	115	74	101	1244	75	94	17	19	17	9	1.2	1.75	35/22	10/11.5
D	92.5	108	74	94	1161	75	94	17	18.3	14	10	1.2	1.6	30/21.5	10/12
D#	86	105	70	92	1102	75	94	16	17.5	14	8	0.8	1.6	24/20	8/10
E	82	98	67	86	1058	76	85	15	17	15	8	1.2	1.5	29/21	9/10.5
F	80	98	62	83	990	75	85	14.8	16	14	8	0.8	1.25	25/19.8	8/9.5
F#	75	91	60	79	943	75	80	13	15	14	9	0.8	1.25	23.5/18	8/9.5
G	72	89	57	76	888	75	75	12.5	14	13.5	7	0.7	1.3	23/18	7.5/9
G#	70	85	56	72	852	75	70	12	13.5	13.5	7	0.7	1.3	23/18	9/10
A	66	80	52	70	802	75	68	10	12	11	7	0.5	1.15	23/18	7.5/9
B	63	79	49	67	760	75	70	10	12	10	7	0.4	1.1	21/18	9/10
4	62	75.5	46	63	723	75	64	10	12	11	6	0.5	1.1	21/18	7.5/9
C	59	72	45	61.6	685	75	67	9	11	11	6	0.8	1.0	22/18	7/8.6
C#	57.5	71.3	42.5	59.6	660	75	58	9	11	10	6	0.6	0.96	20/17	7/8.3
d	55.5	78.0	41.3	57.2	617	75	57	9	11	10	6	0.5	0.96	21/18	6.9/8.2
d#	51.6	63.7	39.3	55.6	590	75	54	8	10	9	6	0.6	0.9	21/18	6/9.8
e	51.3	63.3	37.2	51.6	561	75	52	6	8	10	6	0.5	0.5	20/15	5.7/7.2
f	48.3	60.3	35.4	50.4	532	75	50	7	9	9	6	0.6	1.0	20/15	5.0/7.5
f#	46.2	58	35.6	49.2	508	75	48	7	9.5	9	5	0.4	0.8-3	20/15	5/7.2
g	42.7	53.3	32	46	478	76	45	6	8	9	6	0.4	0.8	20/14	5/7
g#	42.8	53.4	31	44.2	462	75	44	6.8	8.8	9	5	0.4	0.9	21/14	5/7.9
h	39.7	50.6	29.4	43.2	440	75	41	5.8	8.5	9	5	0.4	0.8	21/14	5/7
h#	39.3	48.7	27.2	39.8	417	75	39	6	8	8.3	6	0.3	0.75	20/14	5.5/6.5
i	37	41.5	27	39	398	75	39	5	7.5	9	5	0.5	0.7	20/14	5/6
i#	36.3	46.8	25.3	37.3	379	75	38	6	7.8	9	5	0.4	0.6	18.8/18	4.4/6
l	35.4	44.3	25	36.3	368	75	36	5.5	7.7	9	6	0.3	0.7	15/10	4.2/5.6
l#	34.2	42.4	23.3	34.5	347	75	34	5.4	7.3	9	5	0.4	0.7	15/10	4/5.8
m	31.1	40.7	23.2	33.8	332	75	34	5	7.1	9	5	0.4	0.7	14.3/10	4/5.4

5mm/m
 * bore through flapper
 l = long foot = 29.2mm

Diapason continued

Clare College Stopped Diapason cont.

sides
Horn
Bar

orig inscript.	inside depth	outside depth	inside width	outside width	total length	block height	mouth height	cut up from block	cut up from cap	cap thickness	number nicks	size flue	foot bore	outside foot dimensions
e'	31.6	40	33.7	34.2	318	75	34	5	7	8	5 *	0.45	5.5	15 6.126
f'	30.6	40	21.2	32.1	306	75	33	5.8	7	8	5 *	0.4	5.5	9 14 0
g'	28.4	36.6	21	32	294	75	31	4.2	6	8	5 *	0.5	5	11 13.6
h'	26.4	34.2	19.4	30.2	279	75	30	4.0	6.4	9	5 *	0.5	5	10.2 14.3
i'	26	34.3	19.4	29.8	270	75	30	4	6	7	5 *	0.3	5	10 13
a	25.5	33	19.4	29.8	258	75	28	4	6	7	4 * 2.3	0.3	5	10 13
b	24.2	31.9	17.2	27.3	248	75	26	3.5	5.2	7	4 *	0.3	5	10 13
c	23.3	31.1	16.5	26	236	75	26	2.5	5	8	none *	0.3	5	9.4 13
d	21	28.4	15	24	230	75	25	3	5	7	none *	0.3	5	9 12.6
e	20.8	28	15.7	24.6	221	75	25	3	5.5	7	4 *	0.3	5	9 12.8
f	20	27.6	15.3	24	212	75	24	3	5	6.5	none *	0.3	4	9 12.5
g	20	27.5	15.4	24	205	75	24	4	6	6.5	none *	0.3	4.2	8 17.7
h	18.5	26	14.5	23	198	75	24	3	5	6.8	none *	0.3	4.5	9 12.3
i	18.1	25.3	13.4	21.8	191	75	22	2.5	5	6.5	none *	0.2	4.5	12.3
a	17.1	24.1	12.9	21.6	186	77	22	2.5	4.5	6	none *	0.2	4	12
b	17.3	24	13.5	21.8	184	"	21	3	5	5.5	4 *	"	4	11.6
c	16.7	24	12.8	21	181	"	22	2.2	4.5	6.5	1 *	"	4	12
d	16	22.7	12.5	20.3	173	"	21	2.3	4	6.5	"	"	4	12
e	15.6	22.2	12	19.5	167	"	20	2.3	4.2	6.5	"	"	4	11
f	14.2	21.2	12	19.5	164	"	20	2.2	4	6.5	"	"	4	10.5
g	14.4	20.8	10.7	18.8	159	"	19	2.3	4	6.5	"	"	4	10.5
h	13.6	20.2	11	19	156	"	19	2.5	3.5	6.5	"	"	4	"
i	13.8	20.2	10.7	18.4	150	"	17	2.2	4	6.5	"	"	4	10.6
a	13	20	10.5	17.3	146	"	17	2	3.5	6.5	"	"	4	"
b	13.2	19.6	10.2	17.8	143	"	16	2	4	7.16	"	"	4	10
c	12.5	18.3	10	17.5	139	"	17	1.6	3.2	7.16	"	"	4	9.8

* bore/measurements in stopper

Flute

7 Bands of Sides
7 Bands of Back
7 Bands of Feet

Measurements of P. 122 foot

at Stopper

Clare College Flute

Flute

orig. inscript.	inside depth	outside depth	inside width	outside width	total length	block height	mouth height	cut up from block	cut up from cap	cap thickness	number nicks	size flue	foot bore	outside foot dimensions
66	72	89.4	56.4	76.5	89.2	75	75	11.5	24.5	15	7	1.0	12	20.25 1293
AA	66.3	81.3	52	71.3	80.3	75	68	11	13.3	13	8	0.8	10	19.5 24
BB	64.2	79	51.6	70.3	76.0	75	66	11.5	13.2	14.5	7	0.6	10	17.21
7	63	76.5	46.2	64.6	72.2	75	61	10.3	12.2	14	7	0.5	10	17.21
C	59	72.7	45	63	68.6	75	58	10.2	12.2	10	7	0.65	9	17.21
C#	56.8	70.2	41.6	58	66.2	75	54	9.2	11.7	10.8	6	0.65	9	17.20.9
D	55.1	67.4	41.2	58.5	67.8	75	57	8.7	11	10.2	7	0.8	10	15.20
D#	51.7	54.2	40	55	58.7	75	54	8.5	10.5	10	6	0.6	9	12.20
E	51.3	63.6	37.5	53.2	56.2	75	51	7.7	10.2	9.5	6	0.5	9	16.20
F	48.5	60.3	35.6	50.5	53.0	75	49	7.0	9.3	9.0	6	0.5	10	16.20
F#	46.6	57.3	35	48.6	50.7	75	48	6.7	9.5	9.0	6	0.6	8	16.21
G	43.8	53.7	32.2	45.5	48.0	75	47	6.3	8.9	9.0	6	0.6	9	15.20
G#	42.6	53	31	45	46.4	75	45	6.6	9	9.0	6	0.6	9	14.21
A	39.4	50	30	43.4	44.0	75	42	5.5	8.3	9.0	6	0.6	9	14.21
B	38.3	48.7	28.3	41.3	41.8	75	41	5.5	8	9.0	5	0.4	7	14.20
5	37.1	46	26.6	39.6	39.5	75	39	5.3	7.5	9.0	5	0.5	7	14.17
C	36.2	45.3	25.4	37.3	37.8	75	36.5	5.0	7.5	8	5	0.45	6.5	16.22
C#	34.7	43.6	25	36.2	36.8	75	36	5.2	7	9	5	0.5	5	15.21
d	34	43	23.5	35.2	34.7	75	35	5	7	8	5	0.45	7	10.15
d#	32	40.8	22.5	34	32.2	75	34	5	7	8.5	5	0.42	6	10.15
e	32	40.4	22.7	33.5	31.8	75	33	5	7	8	5	0.4	5	10.14.6
f	30.5	38.6	21.5	32.6	30.4	75	33	5	7	8	5	0.4	5	10.13.6
f#	28.8	36.9	21	32	29.4	75	32	4.2	6	8	5	0.5	5	10.14
g	2.6	34.2	19.7	30.7	28.0	75	30	4.0	6	8	5	0.5	5	9.14
g#	2.6	33.6	19.2	29.6	26.9	75	30	4.0	6	14.5	5	0.45	5.8	9.13
a	25.8	33.2	19.5	29.6	25.7	75	28	3.5	5.7	8	5	0.4	5	9.12.6
b	23.6	32	17.8	27.3	24.7	75	26	4.2	5.5	7	4	0.3	5	9.12.6
b#	23.2	30.5	16.2	26	23.8	75	26	3.5	6	7	4	0.4	4.5	9.12.6
c	21.1	28.2	15	24.7	22.9	75	24	4	6	7	4	0.4	4	8.12.6
c#	21.1	28.2	15.5	24.4	22.2	75	25	3	5	7	4	0.3	4.5	8.12.6
d'	20	28.3	15.3	23.8	21.2	75	23	2.5	5	7	4	0.4	4.2	8.12.3
d#	20	27.7	15.6	23.8	20.4	75	23	3	5	7	4	0.4	4.2	8.12.5

Stopper

— bore, but not open

* bore

Flute continued

Clare College Flute cont.

orig inscript.	inside depth	outside depth	inside width	outside width	total length	block height	mouth height	cut up from block	cut up from cap	cap thickness	number nicks	size flute	foot bore	outside foot dimensions
e	19	26	14.5	22.7	108	75	24	3	5	6.5	—	0.4	4.5	12.6-118
f	18.3	24.5	13.4	22	102	75	23	3	5	6.5	5	0.3	5	8.113
g	17.4	24	13.2	21.8	187	75	22	3	5	6.55	—	0.3	4	11
h	17	23.6	13.8	21.7	184	75	22	2.5	4.2	6.55	—	0.3	3	12.2
i	16.4	23.3	12.2	20.5	179	75	21	3	5	6.55	—	0.3	4.2	11.9
j	16.2	23.3	12	20.3	174	75	21	2.5	4.8	6.55	—	0.3	4	11.2
k	15.3	22	12.2	19.5	168	75	20	2.2	4.1	6.5	—	0.3	4	11.3
l	14	20.5	11.7	19.6	164	75	20	2.5	4	5.5	—	0.3	4	11.7
m	14.4	20.8	11	18.6	157	75	18	2	4	5.5	—	0.3	4	11
n	13.6	20.3	11	19	154	75	18	2	4	6.55	—	0.3	3.8	10.8
o	13.2	20.2	11	18.4	151	75	18	2.2	4.2	6.55	—	0.3	4	10.5
p	13.2	20	10.3	18	147	75	17	2	3.6	5.5	—	0.3	4	10
q	13.2	19.4	11	18.3	143	75	17	2	3	6	—	0.3	2.5	10.5
r	12.5	18.6	10	17.3	139	75	16	2	3	5.5	—	0.3	3	10
s	12.1	18.4	9.6	17	138	75	15.5	1.8	3	6.5	—	0.3	4	10.5
t	11.7	17.8	10	17.4	134	75	15	2	3.5	6.5	—	0.3	3	10
u	12	18.2	9.3	16.5	130	75	15	2	3	6.5	—	0.3	2.5	10.5
v	12	18	9.2	16.2	127	75	14	1.5	3	6.5	—	0.3	3.5	10.8
w	11.7	17.1	9.5	15.8	124	75	12	1.8	3	5.5	—	0.3	3	10.4
x	11.4	17	8.5	15.3	123	76	15	1.8	3.1	5.5	—	0.3	4	10.4
y	10.5	16.3	8.3	15.3	121	76	13.5	1.5	2.9	6.5	—	0.3	3.5	10.4
z	10.5	16.4	8	14.7	120	76	15	1.5	3	6.55	—	0.3	3	10.2
aa	10.7	16.5	7.9	14.3	117	76	13	1.3	2	5	—	0.3	3.5	10.2
ab	10.2	16.4	7.4	14.3	114	77	12	2	3	5	—	0.3	3.5	10.2
ac	10	16.5	7.5	14.5	114	77	12	1.5	1.6	5.5	—	0.2	2.5	10
ad	10	16.1	7.0	14.0	112	77	12	1.1	2	5	—	0.2	3.5	10

Hand
3.5
3.2
3.2
3.2
3.4
3.4
3.3
3
3
3.3
3.2
3.2
3
3
4
4
4
4
4

8.5
8.5
8.5

Hautboy

The Hautboy is of traditional construction as was usual for its period. It has uncapped resonators with beaked shallots. This example is a unique survivor. The stop is very clean indeed and the degree of patina would not suggest an age of 1755. The reason for this might be that this pipework has been protected from dirt and the effects of pollution by an always closed swell box.

The angle of the ends of the shallots is approximately 49° to the face of the shallot. The tuning springs are of brass and very likely to be original. The returns on the tuning springs are graded so that the trebles are not overly springy and therefore more precise in tuning.

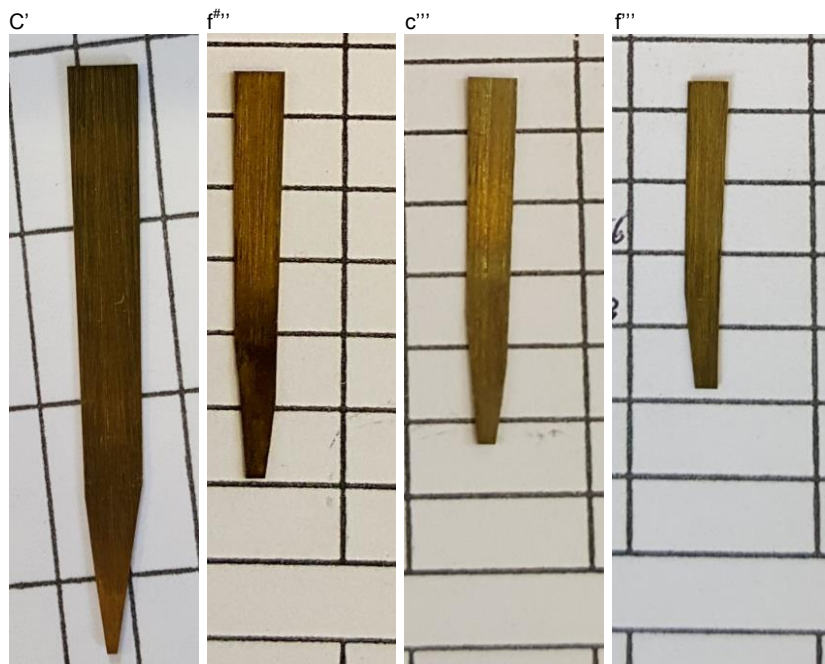
Middle f $^\sharp$



Top f $''$



The tongues look old, their surface being quite roughly lined (seen under magnification), as if having been filed with a draw file. The thickness is nevertheless amazingly consistent from end to end.



Middle c'



f#



c''



Top f''



The shallots have their note name written in ink on the end. All pipes have apart from the usual inscription on the Bell and shank also a paper label glued on the front of the shank (or bell in case of the small pipes), most likely for ease of identification during tuning.





Most of the bell tops look to be cut in a reasonably tidy way. One of the bells has retained its pipe maker's length and some others have been altered in perhaps a less than tidy way.

The bell of f[#] has not been cut (note solder joint)

f^{##} has been cut rather messily

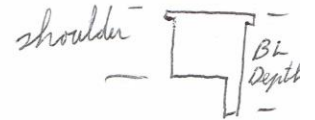


A 4mm bleed hole is visible about halfway down the length of the boot



All boots have received a 4mm bleed hole. This hole looks like a later addition, perhaps undertaken in an attempt to improve initial speech or the end of speech. It is not known when this alteration was carried out. The position of the hole is marked in pencil.

Oboe - Hautboy Scale Sheet



Church *Clare College*

Stop	Pressure						Pitch				
General	C	F#	c ⁰	f# ¹	c ¹	f# ¹	c ²	f# ²	c ³	f ³	c ⁴
Resonator											
Bell top sc. int.					47.8	44.2	40.8	38.15	35.75	32.84	
Bell bot. sc. ext.					28.8	25.1	23.1	21.85	21	20.24	
Tip sc. ext.					10.5	10.05	9.1	8.32	8.5	7.8	
Metal thickness					0.55	0.53	0.56	0.38	0.49	0.5	
Bell length					118	87.5	71	56.8	47	35.72	
Tube length					410.5	282.5	181	117.7	69.1	45.42	
Total tube length					528	370.5	252	175	117	81.4	
Capped/open											
<i>Shoulder</i>					19.15	16.5	16.42	16.41	14.33	14.57	
Block diameter					26.3	23.85	23.9	23.85	22.09	22.14	
Block depth					27.9	24.2	24.18	24.34	20.67	20.9	
Tongue											
Height of curve											
Tongue length											
Complete length					43.3	36.1	31.1	29.5	27	22.45	
Width at tip					5.2	5	3.82	3.79	3.69	3.04	
Width at back					4.38-0.9	4-1.9	3.01-2	3.14-1.6	3.15-1.56	2.61-1.7	
Thickness: metric					0.27/0.23	0.17	0.17/0.15	0.14	0.13/0.13	0.1	
Imperial											
Loading											
Desc. of loading											
Shallot											
Proj. length fr. block					34.4	28.0	24.55	21.23	16.1	13.31	
Complete length					47.99	34.2	34.32	28.68	26.6	22.6	
Metal thickness					0.46	0.48	0.52	0.47	0.42	0.42	
Outside dia. tip					8.47	7.85	7.36	6.64	6.22	6.06	
Inside dia. tip											
Outside dia. tip top					7.58	7.10	6.63	6.23	5.73	5.55	
Inside dia. tip top											
Face width tip					4.29	4.21	3.77	3.8	3.6	3	
Face width top					3.6	3.37	3.0	2.95	2.9	2.83	
Opening length					44.1	38.2	33.48	27.75	25.8	21.56	
Op. width tip					2.94	2.75	2.53	2.25	2.15	2.21	
Op. width top					2.35	2.3	2.1	1.95	1.85	1.83	
O/A length res.											
top to shall. tip											
Tip hole					8.2	7.57	7.5	7.41	6.45?	6.4	
Socket length					151	151	151	151.08	151.9	151.99	
Bleed hole	NOT ORIGINAL				4	4	4	4	4	4	

7 49°