ST MILIAU, GUIMILIAU
BRITANNY

THOMAS DALLAM
1676

Dominic Gwynn

THE HARLEY FOUNDATION

TECHNICAL REPORT No. 9

1991

Contents

THOMAS DALLAM ORGAN AT GUIMILIAU IN BRITANNY

The organ seems to have been built around 1677, when the gallery was built and a window was inserted in the roof above the organ to light the music desk. There was a gap in Thomas Dallam's activities around that time. He seems to have used Daoulas as a base for his activities since children were baptised there from 1673 to 1683, when he moved to Sizun to make the organ there. He may have made parts in Daoulas, or moved to and fro between Daoulas and Guimiliau.

For further details of the Dallams in Britanny, see especially Michel Cocheril's article in BIOS Journal 6 (1982), based on his ground-breaking doctoral research (*Les Facteurs d'Orgues en Bretagne de 1600 á 1900* - Université de Rennes). For glimpses of how organs were built in Britanny at this time, see the list of materials purchased by the church at Roscoff for Thomas Harrison's organ in Norbert Dufourcq's *Le Livre de l'Orgue Francais*, tome 1, les sources, 1971.

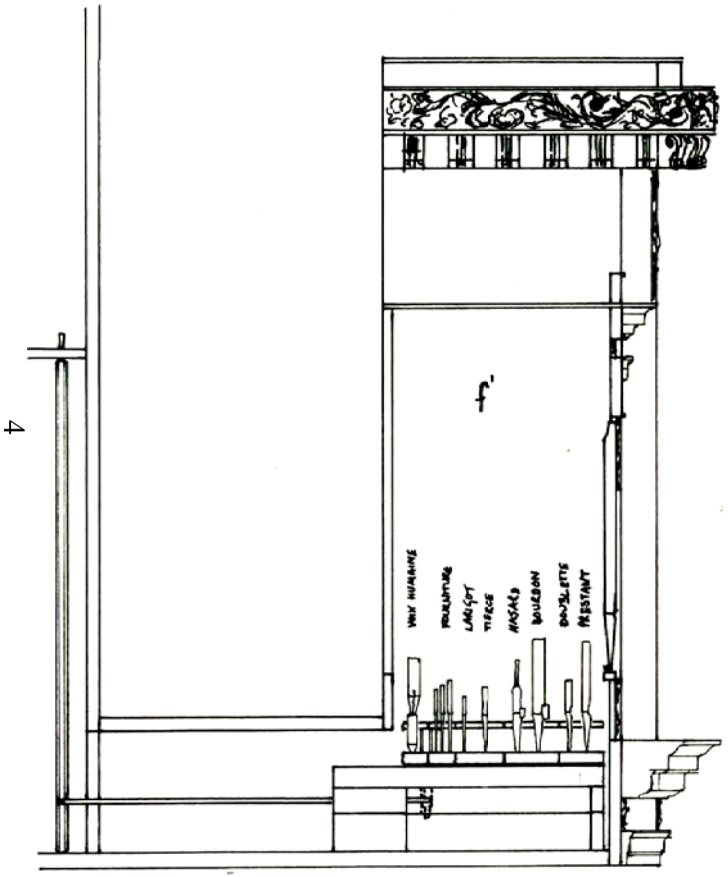
There has been some later work. At the time of my research no documentary evidence had been unearthed, but that may have changed with the stimulation of the current restoration. There are early 19th century pipes, perhaps by Heyer who did a great deal of work in the region, or interpolated later. The reeds certainly seem to be of this period. The last time the organ suffered the attentions of an organ builder was greatly to its detriment; the builder being one Koenig of Paris, a master in the arts of Coarse Organbuilding. As a result of his extraordinarily haphazard work, sorting out the pipework for measuring was a very time-consuming business. In the 1960's the organ was apparently made to function for a wedding. The organ has been heard in living memory, but perhaps only for that special occasion.

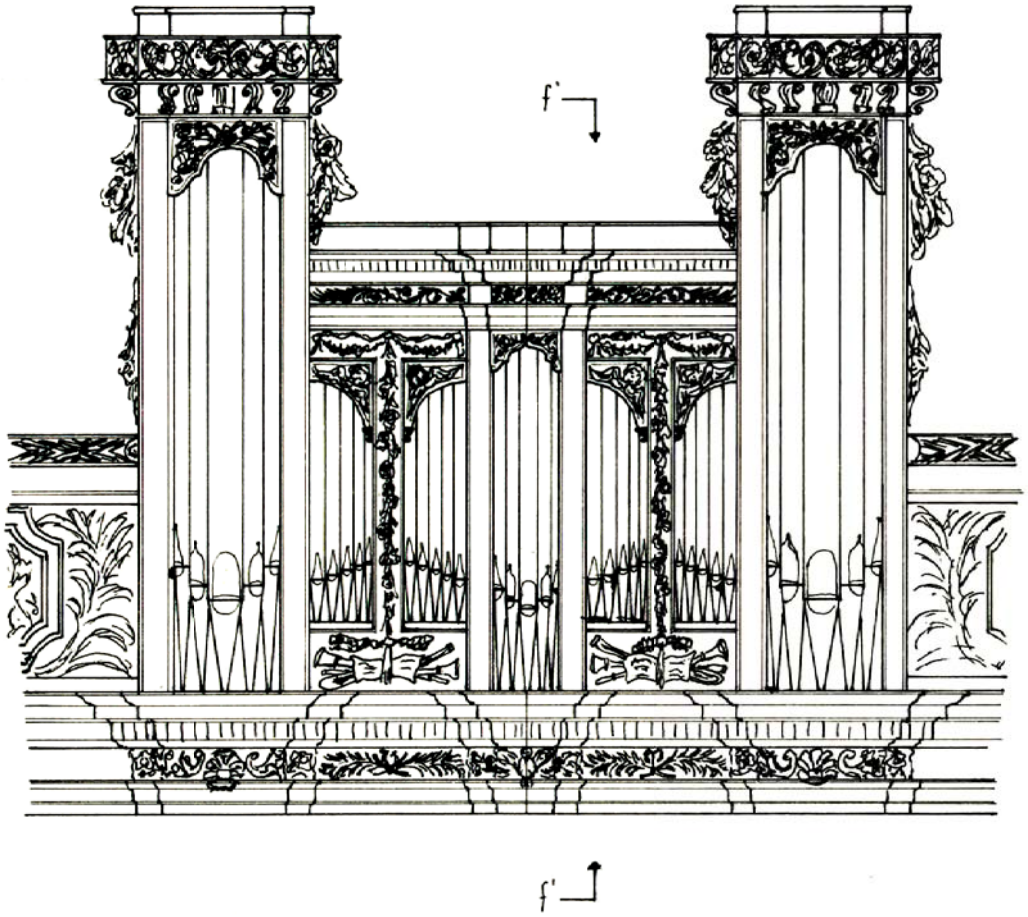
The pipes had at some stage been scattered about the chests, all horizontal and severely battered. They were moved to the attic of the Mairie, on the other side of the village square, in the summer of 1983, by Pierre Villard and Michel Cocheril. I visited the organ in the final week of November 1983, and left the pipes in the order in which I measured them on panels and tables round the attic. The organ should by now (March 1991) be restored.

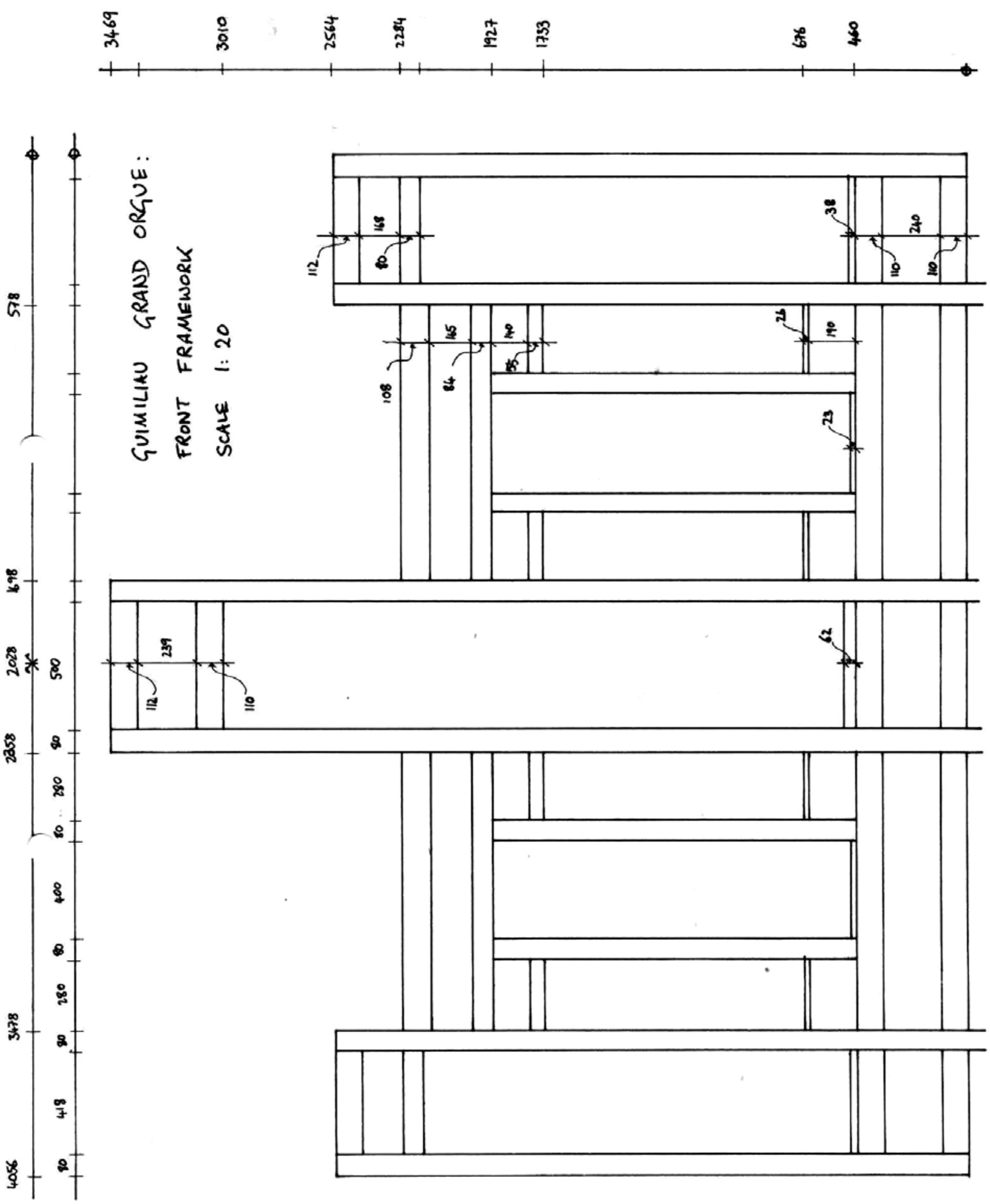
GUIMILIAU POSITIF

ELEVATION + SECTION

SCALE 1:20

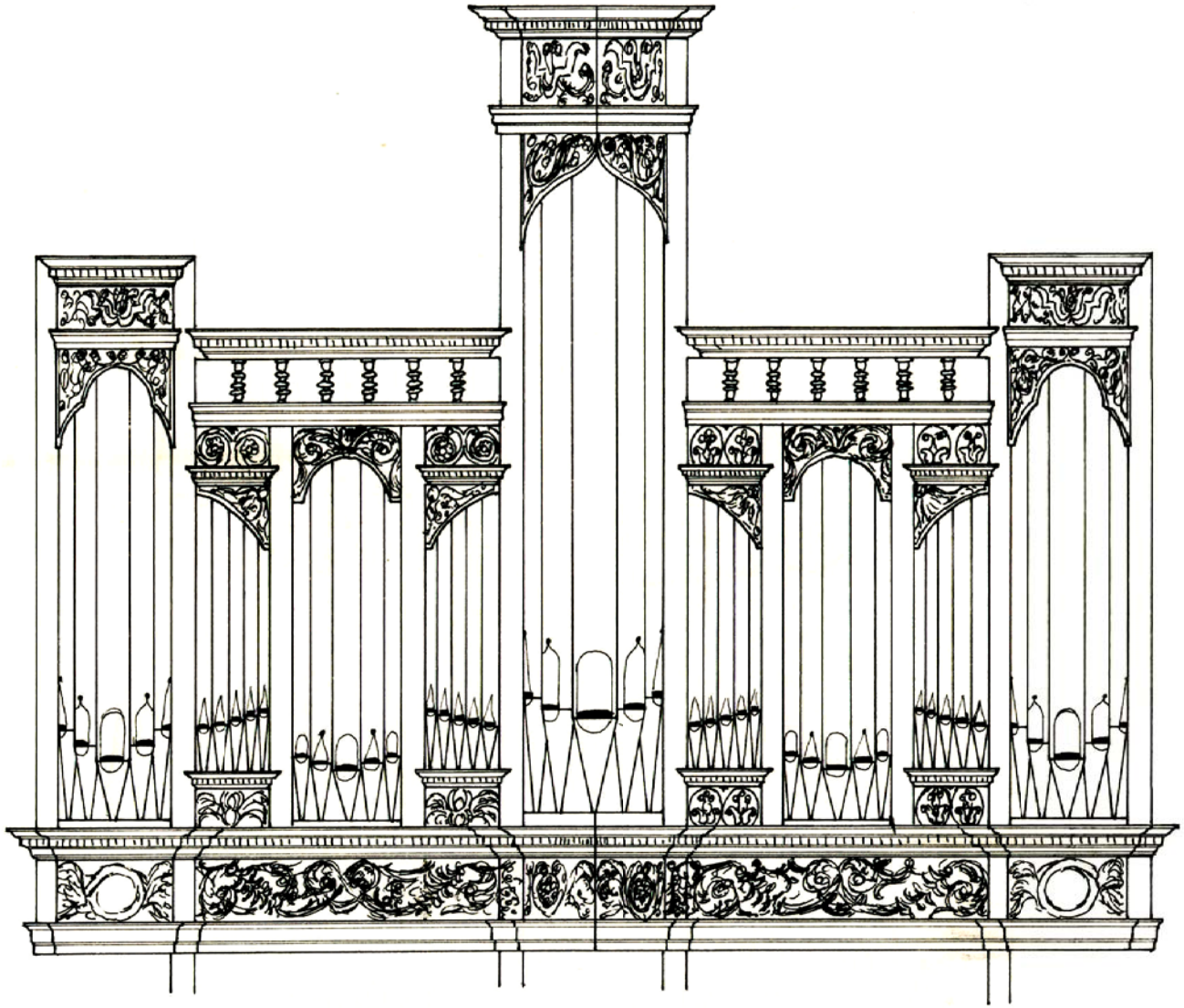





GUIMILIAU GRAND ORGUE:
FRONT FRAMEWORK
SCALE 1: 20
3469
3010
2564
2284
1927
1733
696
460
578
1698
2028
590
2353
90
280
80
400
80
280
3478
90
418
4056
90
112
168
80
38
240
110
110
108
165
84
140
35
26
190
23
239
112
110
62

GUIMILIAU GRAND ORGUE

SCALE : 1:20



SPECIFICATION

The compass is C D to c3 (48 notes). The pedal compass was probably C to fo (18 notes), but I did not have the time to sort out the remaining pedal pipes. The pitch is up to a semitone lower than A440.

The stoplist may have been:

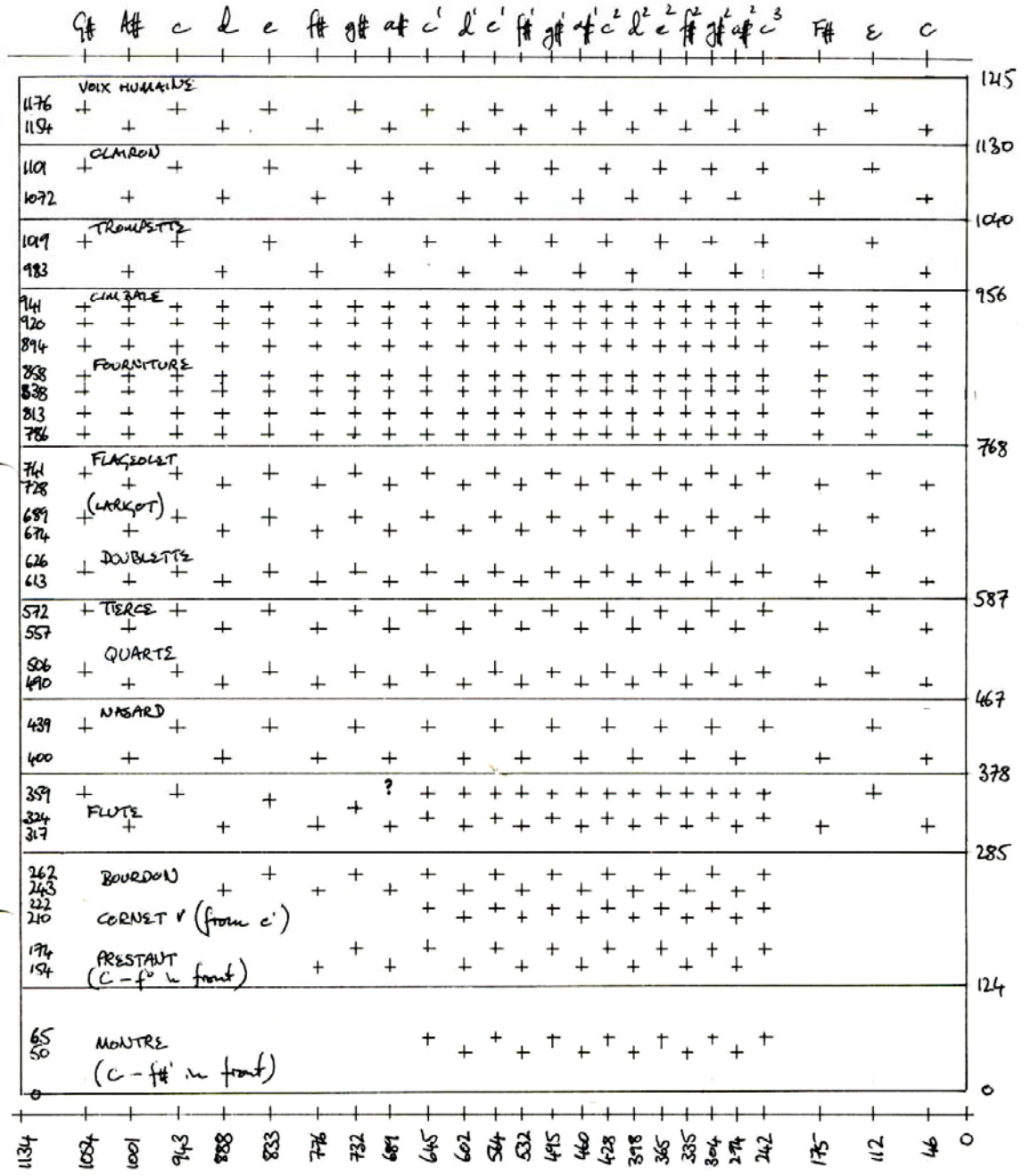
GRAND ORGUE			POSITIF	
1	Montre	8'	Prestant	4'
2	Bourdon	8'	Bourdon	8'
3	Prestant	4'	Nasard	22/3'
4	Flute	4'	Doublette	2'
5	Nasard	22/3'	Tierce	13/5'
6	Doublette	2'	Larigot	11/3'
7	Quarte	2'	Fourniture	III
8	Tierce	13/5'	Cromorne	8'
9	Larigot	11/3'		
10	Cornet (treble)	V	PEDALE	
11	Fourniture	IV		
12	Cymbale	III	Bourdon	16'
13	Trompette	8'		
14	Clairon	4'	Tremblant doux	
15	Voix Humaine	8'	Tremblant fort	

There are obvious caveats. The first is that it was not possible to examine the upperboards without damaging them and the rackboards. The restorers and their advisors may well have come to different conclusions.

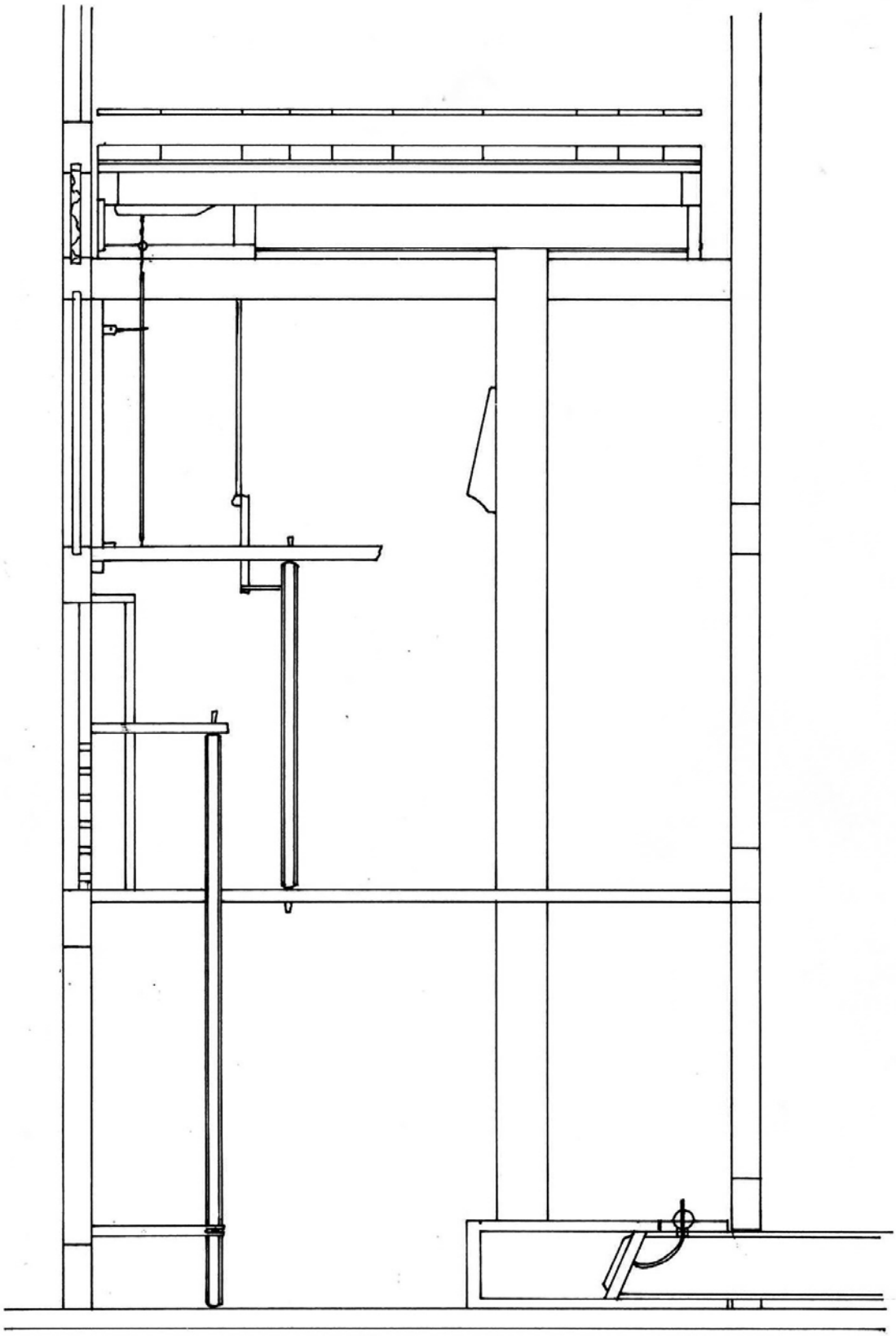
The second is that although the sources, such as they are, give 15 stops for the Grand Orgue, there are 161/2 rows of holes on the upperboards, including two half ranks starting at c^1. The discrepancy may be the result of a later alteration. There are Nasard pipes (marked <n>) above c^3 of a 22/3'; some may come from a 11/3'. There is also a rank of open pipes of flute scale, without a rank mark, which I did not measure, perhaps a Quarte.

The heaps that I found in the Mairie were sorted out into those found in the Grand Orgue and the Positif. In the scale sheets I have marked where they came from though there is remarkably little overlapping. Apart from the Fourniture, the reed and the front pipes, there is no pipe that definitely belongs to the Positif rather than the Grand Orgue. However, a Bourdon, Nasard and Tierce can be assumed, so that only the Larigot is real guesswork.

GUIMILIAU GRAND ORGUE BASS CHEST LAYOUT (3:20 scale)



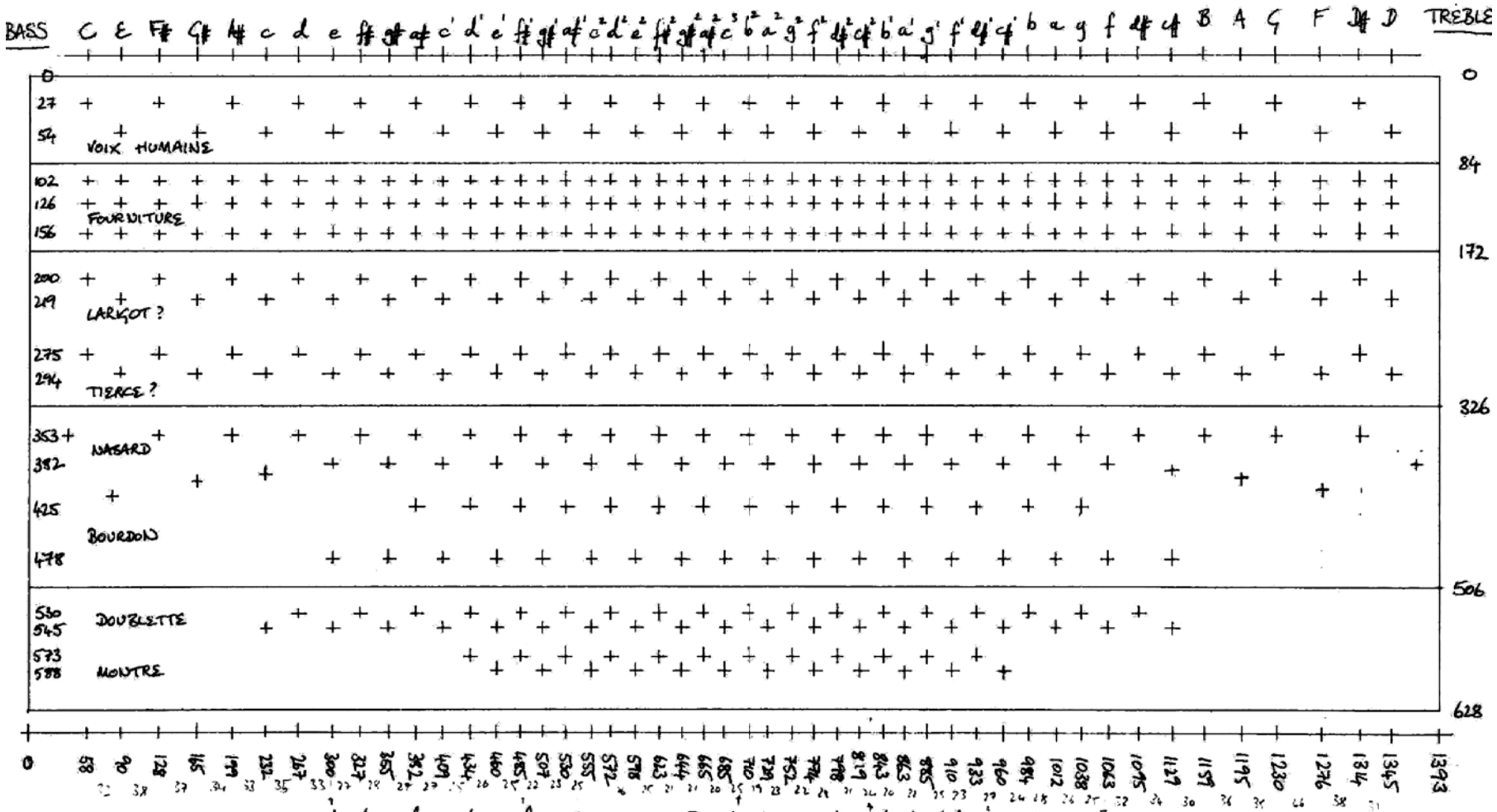
There is some guesswork involved in this layout – particularly in the stops assigned to each upperboard, of which there appear to be 16½, though there were apparently only 15 stops. Without removing rackboards, many of which had been altered, it would be difficult to come to conclusions. There appears to be an extra half-rank. I may well have got the note order wrong – it was taken off the rollboard, perhaps incorrectly.



GUIMILIAU GRAND ORGUE

SECTION TREBLE → BASS SCALE 1:20

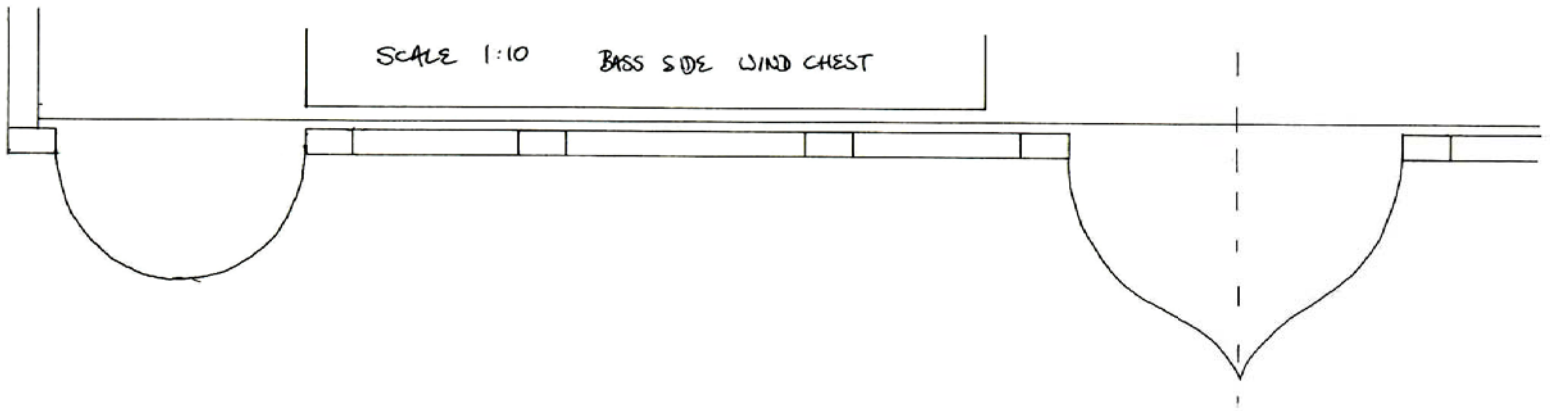
GUMILIAU POSITIF CHEST LAYOUT 1:5 scale. (UPPERBOARDS ONLY)
(Notes deduced from Grand Orgue)



BOURDON : Pipes on toeboards at side of case, 8 at bass, 7 at treble end.

DOUBLETTE + MONTRE : Pipes conveyed ', front, 24 Montre, 11 Double'.

∞

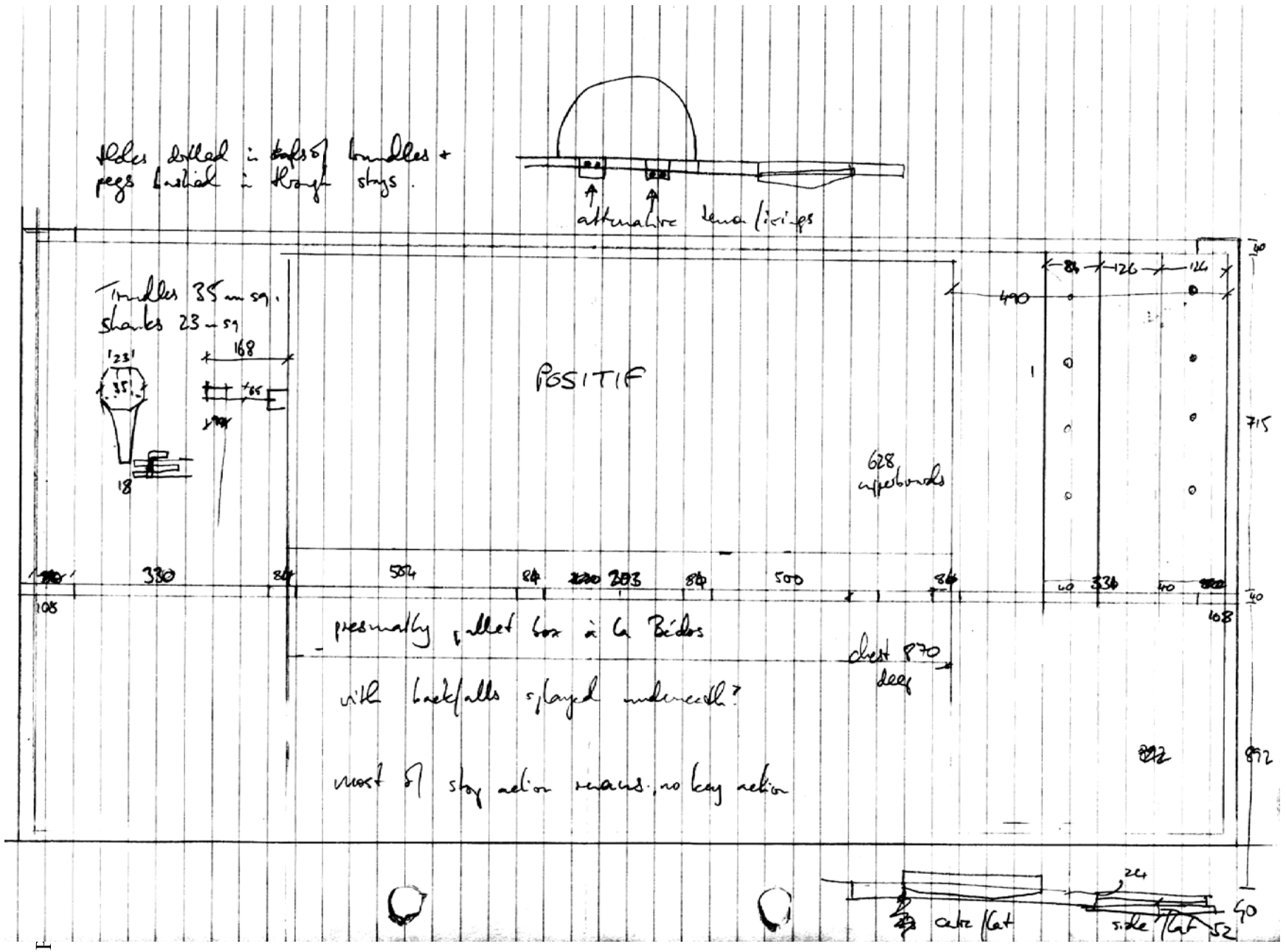


No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
A	d	A#	C#	c	e	a#	c'	d'	e'	f#'	g#'	a#	D	E	F#	e	d	c	A#	C#	E	D	C	D#	F	A	B	c#	d#	f	G	F	D#	f	g	f'	d#'	c#'	b	a	d#	B	G	A	c#
B	C	G♭		B♭	D	a	#	C♭	D♭		G	a♭	D	f		#	D♭	C♭	#	a	f			D	e	g♭	b♭	C	D♭		f♭	f♭	D♭	e	g	e	D	C	b♭	g♭	e	#	a	G	C♭
C											P	P					P	P	P	P						P	P						P	P	M	P		P	P	P					
D																																		(34)	(34)										

A = ORIGINAL POSITION
B = PRESENT POSITION
C = RANK MARK
D = LABELLING

'P' marks appear to be original, 'p' later.
'm' on 35 (labelled 34) original
On 13 alongside back seam :—
'le Roux François Yves facteur d'Orgues
de Quimper né en 1788

GRAND ORGUE 9
FRONT PIPE LAYOUT.

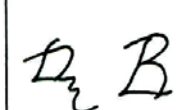
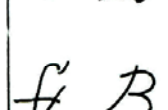
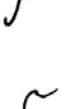
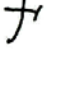
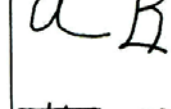
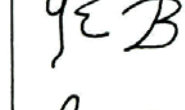
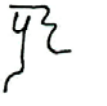

Holes drilled in backs of handles +
pegs inserted in through stays.
alternative lever fixings
Handles 35 mm sq.
shanks 23 – sq
'23'
35
168
18
POSITIF
628
cupboards
490
126
126
715
330
84
504
84
203
84
500
84
108
40
336
40
108
40
pneumatic pallet box à la Bédos
with backfalls splayed underneath?
chest 870
deep
892
892
must be stay action remains, no key action
24
40
side flat
52
actr flat

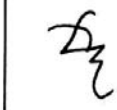
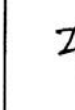
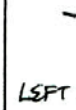
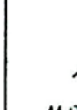
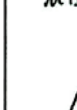
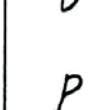
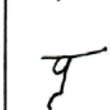
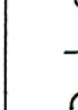
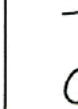
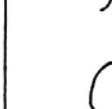
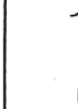
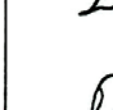
POSITIF FRONT PIPE LAYOUT.

ORIGINAL POSITION IS DERIVED PARTLY FROM THE PIPES, PARTLY FROM THE CONVEYANCING OF THE CHEST.

BOURDON 4' OCTAVE

SAMPLE PIPE MARKS 12

PIPE	BODY	FOOT	CANISTER
c°			
c#°			
d°			
d#°			
e°			
f°			
f#°			
g°			
g#°			
a°			
a#°			
b°			

PIPE	BODY	FOOT
FLUTE d#' (ZIBERON)		 TOP OF CHIMNEY, FRONT
NASARD g'		 LEFT SIDE 90°
TIERCE e°		 MIDDLE
DOUBLETTE A#		
GO FRONT PIPES 11		
34		
44		
2		
4		
POSITIF 17		

GRAND ORGUE FOURNITURE III — SAMPLE MARKS — 13

	BODY	FOOT		CONICAL SECTION OF RESONATOR	
	C 2	2	?	46	
	A 2	2	VOIX HUMAINE	22	
			CROMORNE	28	
	A# 3	3		27 f#	
	C 4	4			
	F 5				
	F# 6	6			
	G 7	7			
	G# 8				
	a 9	9			
	b 20	20			
	~~#~~ 22	22			

PIPE MARKS

It showed great foresight on the part of Thomas Dallam that the initials of the ranks are inscribed on each pipe (except for the single rank mentioned above). Koenig appears to have cut pipes down and re-positioned them, so that it was essential to take all the scales to determine the pitch. The Montre pipes in the front do not have an initial, but the inside ones do, and the GO Prestant and the Positif Doublette in the front do. The Fournitures are marked with key number, rank number and pitch, the Cymbale with key and rank numbers only.

This information, with the scales and differences in composition of the mixtures made it possible to sort out the position of the mixture pipes. The front pipes could also be positioned reliably because the 'pairing' of the pipes (ie. in mirror positions on either side of the centre line) was staggered, either because one c# is missing in the 4ft octave, or because F in the 8ft was inside, etc. There were also a few pipes marked <4> and <5>, not measured, perhaps from the Cornet.

The pipes are all marked at more or less the same height, just below the scribe line to the lower lip and between 1/3 and 1/2 way up the front of the body, the pitch in line with the left scribe line of the upper lip, or towards the middle, the rank in line with the right scribe line, or just outside it. On the foot, the note mark is in line with the left scribe line or in the middle, and there is no rank mark. The front pipes were inscribed at the level of the top of the top lip, or the bottom of the bottom lip, halfway, or just behind halfway round the left hand side of the pipe. Some were covered by Koenig's generously applied silver paint.

KEY TO SCALE TABLES

The measurements are those available or, in my opinion, reliable. Where they are affected by a subsequent alteration they are in brackets; where the measurement was difficult or approximate they are accompanied by a question mark.

'Position in front' gives the present numbering. The pipe mark is taken from the Dallam marks, or the scale if the marks are missing.

Body length gives the maximum length of original metal. The stopped flutes give the length of the pipe and the length of the canister in brackets. The chimney flutes ('á biberon') were measured to the middle of the solder line and from the middle of the solder to the top of the chimney.

Circumference was taken with tracing paper strips round the outside of the pipe near the upper lip and measured on the spot. Where two measurements are given for the mouth height, the upper lip is arched. The measurement in brackets is taken from the nicks at the side of the mouth where it might have indicated an original or pipe maker's cut up.

Toehole gives inside diameter of hole and outside diameter of the lowest straight point of the foot (e.g. Ø 20.2).

If there are two measurements for wall thickness the larger was taken at the mouth and the other at the top.

Languid thicknesses were only taken where they could be measured accurately (e.g. where mouths were damaged). The bevels were taken with strips of bone held with the end on the bevel, sighted against a protractor; this is fairly accurate, but not all bevels were flat and it is always difficult to be certain about the line of the languid.

For the fronts the general form of the upper lips is given, and top and bottom measurements, from the line of the lower lip to the top or bottom scribe line or to the punched dot in the tower pipes. For the pointed lips in the flats the lines fade out and a top point was assessed.

<G.O.> or <Pos> in the left hand column indicates that the pipe came from that box, even on the few occasions that the pipe was obviously in the wrong box.

The mixtures were all of the same scale, so a representative sample was taken for the full scale sheet, and for the rest only lengths and circumferences were taken on separate sheets.

ORGAN GUIMILIAU | STOP # G.O. MONTRE | 16

Measured by D. GWYNN | Date 23 · 11 · 83 | FRONT PIPES

Position in front	Pitch Pipe mark	Body length	Circ	Mouth width	Mouth height	Flue	Toehole	Languid thickness	Languid thickness	Languid bevel	Lips	Foot length	
23	C	2512	489·0	120·0	22·2 (20·5)			1·0 – 1·4		45°	222/60·5	(348)	
24	D	2286	439·2	107·6	22·2 – 23 (17·5)	1·6 – ?					225/69	(376)	
22	D#	2153	439·2	106·5	23 – 27·1 (16)				c 3·6	45°	217/72	380	
25	E	2079	394·8	95·4	21·2 (17·3)						207/66	(427)	
21	F	1912	392·2	97·3	20·4 – 22·5 (15·5)	0·9	ϕ 24 c 12·5	1·0 – 1·2			210/60	435	
3	F#	1796	360·2	86·3	18·6 – 19·2						200/68	213	
44	G	1706	342·6	84·0	16·6 – 19·0	0·68 – 0·88	ϕ 20·2 12·2				158/46	222	
2	G#	1671	342·8	85·1	16·3 – 16·8	0·9 – 1·15	ϕ 21·3	0·9 – 1·0	2·2	40°	157/45	219	
43	A	1577	311·2	76·7	16·2 – 18·4	0·9 – 1·0	ϕ 18·2 12·0				155/51	274	
4	A#	1468	311·0	77·1	14·8 – 17·4	0·75	ϕ 15·7 12·5				154/52	274	
42	B	1565	295·4	71·2	14·0 – 16·5	0·75 – 0·85	11·0				151/48	274	
1	c	1506	295·1	72·8	14·3 – 16·0	0·9	ϕ 20·2	0·8 – 1·0		40°	149/49	273	
45	c#	1312	252·3	61·8	12·7 – ?		ϕ 18·0				134/43	334	
5	d	1339	257·2	62·2	13·4 – 14·8	0·9 – 1·15	ϕ 15·4 8·5				145/46	334	
	d#												
41	e	1290	237·9	58·1	12·4 – 14·2	0·7	ϕ 19·2 9·0				135/42	333	
14	f	1119	226·2	55·7	11·0 – 13·9						119	218	
33?	f#	1125	228·0	c 48·5			ϕ 20·5 9·2				119	227	
35	g	1041	196·6	47·1	11·9 – 16·8	0·78 – 0·95	8·0				88	248	
15	g#	1025	195·5	47·4	11·3 – 13·0 (8·6)	0·7 – 0·8					c 90	245	
6	a	871	179·6	43·8	9·7 – 11·4	0·85 – 0·9	ϕ 15·2 8·5				c 95	167	
26?	a#	872·5	179·9	42·8	10·6 – 13·0	0·98	ϕ 16·6				96	165	
7	b	789·5	168·1	40·9	9·1 – 10·8	0·85					?	179	
39?	c'	819	167·0	41·1	8·6 – 11·4 (7·5)	0·6 – 1·0	ϕ 16·0				90?	180	
8	c#'	751·5	147·6	36·2	7·8 – 10·3 (6·3)						c 83	192	
38?	d'	768	149·7	36·0	7·9 – 9·7 (7·4)	0·45 – 0·9	ϕ 15·6	0·5	1·6?	45°	81?	192	
9	d#'	701	134·5	33·4	6·8 – 8·0 (6·2)	0·7					c 73	207	
29?	e'	712	134·2									206	
16	f'	629	122·0	29·6	6·5 – 7·4 (5·4)		ϕ 11·0 6·7	0·5 – 0·65			c 66	215	
30	f#'	614	122·8	28·5	7·2 – 8·2	0·82	ϕ 10·6				73	223	

ORGAN GUIMILIAU								STOP G.O. PRESTANT					17
Measured by D. GWYNN					Date 23·11·83			FRONT PIPES					
Position in front	Pitch Pipe mark	Body length	Circ	Mouth width	Mouth height	Flue	Toehole	Wall thickness	Languid thickness	Languid bevel	Lips	Foot length	
	C												
13	D	1204	262·1	64·2	13·6 - 16·8 (13·0)		11·0				119	191	∩
33	D#	1134+45	262·0	62·8		0·85	ϕ19 12·0				116	192	∩
34	E	1145	227·2	54·8	12·8 - 14·2 (10·5)	0·6 - 0·85	ϕ17·2 8·2				121	222	∧
12	F	1084	228·2	55·3	11·6 - 14·4 (8·6)	1·1 - 1·25	7·6	0·4 - 0·7	1·8	45°	c114	220	∧
31	F#	1009	195·7	46·7	9·5 - 13·2	0·9	6·8				89	247	∩
11	G	990	195·5	47·9	11·3 - 13·1 (8·6)						86	248	∩
40	G#	853	178·8	43·6	8·8 - 10·0	0·6 - 0·65					96	?	∧
20	A	874	178·8	43·6	9·0 - 10·4 (8·4)	1·15	ϕ 16·4		1·6		92	166	∧
27	A#	825·5	168·2	41·8	8·1 - 9·4	0·88 - 1·05					89	174	∧
19	B	813	168·1	41·8	7·8 - 10·5	0·75 - 1·2				c35°	90	183	∧
28	c	751	148·9	35·6	7·8 - 9·3 (6·4)	0·6	ϕ 15·5 5·8	0·8	1·7	42°	83?	194	∧
18	c#	754·5	148·4	34·8	8·0 - 9·3						?	188	∧
37	d	682	133·5	33·4	7·3 - 9·0	0·75 - 0·85	ϕ15·4				76?	203	∧
17	d#	706·5	134·2	33·3	7·8 - 9·9 (6·4)	0·78			1·2	40°	76	209	∧
36	e	612	121·7	29·7	6·8 - 7·9	0·58 - 0·78	ϕ12·7				66	222	∧
10	f	633	120·9	28·7	6·7 - 7·8	0·85 - 0·9	ϕ13·6	0·55	1·4	40°	c69	219	∧
	f#												
	g												
	g#												
	a												
	a#												
	b												
	c'												
	c#'												
	d'												
	d#'												
	e'												
	f'												

ORGAN Guildford								STOP G.O. Bourdon					78
Measured by D. Gwynn					Date 27 · 11 · 83								
	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOEHOLE	WALL THICKNESS	LANYOID THICKNESS	LANYOID BEVEL	EARS	LIPS	FOOT LENGTH
	C												
	D												
	D#												
	E												
	F												
	F#												
	G												
	G#												
	A												
	A#												
	B												
	c	630 (46)	240·6	56·6	17·2 – 19·6 (13·5)			0·9/1·0	2·2	40°	45×35 (37/8)	80/22	
	c#	588	233·1	56·0	15·9 – 20·0 (12·4)	0·8?							
	d	566	223·6	54·4	17·4 – 20·4 (13·7)	0·8?							
	d#		208·9	50·0	19·2 – 20·6 (13·2)		Ø19·5 10·5						137
	e	491	202·1	48·3	16·6 – 19·1 (12·2)	0·7				40°		75/17	
	f	(46)	(194·1)										
	f#	401	185·1	46·2	17·6 – 19·2 (12·0)			0·55/0·9	1·6				
	g												
	g#	323	173·9	41·2	15·4 – 18·1 (9·5)								
	a	325	166·0	38·3	15·6 – ? (9·4)					40°		63/19	123
	a#		156·1	36·6	13·6 – 16·0 (9·8)	0·8							
	b	319 (40)	151·9	36·4	12·8 – 13·8 (8·3)								
	c'												
	c#'	288 (39)	139·0	32·3	10·7 – 13·5 (7·2)		7·5	0·55/0·65		45°	29 × ? (23/6)	45/18	124
	d'	274	133·0	30·4	10·8 – 13·0 (6·4)	0·42 – 0·46							
POS	d#'	249·5	128·1	29·5	(6·4)	0·5 – 0·6	7·0	0·55		40°	26/18 (19·5/6·5)	52/12	126
	e'	242 (36)	121·6	28·7	9·4 – 10·2								
	f'												

ORGAN GUIMILIAU							STOP G.O. BOURDON					19
Measured by D.GWYNN				Date 27·11·83								
Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOEHOLE	WALL THICKNESS	LANGU ID THICKNESS	LANGU ID BEVEL	EARS	LIPS	
f#'	215	112·5	26·5	8·1-10·1 (6·6)						28×19 (23/5)		
g'	199	108·8	25·6	9·1-10·2 (6·7)				1·6	48°			
g#'	181	104·3	23·9	8·0-9·4 (5·5)								
a'	173	101·3	22·0	8·3-9·3 (6·0)							36/7	
a#'	172	95·7	22·1	8·3-9·7 (6·0)			0·6	1·3	40°			
b'	157	91·8	21·3	7·5-8·3 (6·0)								
c²												
c#²	153 (31)	84·0	19·1	6·4-7·4 (4·5)								
d²												
d#²	119 (29)	78·1	18·6	7·2-7·6 (4·8)	0·58-0·68	∅10·5 4·8					29/13	
e²												
f²	103	72·5	15·8	4·2-5·5 (4·0)								
f#²												
g²												
g#²	92	65·9	15·8	4·8-5·4 (3·9)	0·5	4·0	0·5	1·0	40°			
a²												
a#²												
b²	73 (23)	61·8	14·6	4·4-5·6 (3·4)						19×8 (14/5)		119
c³												

ORGAN Guimiliau — STOP G.O. Flute — 20

Measured by D. Gwynn — Date 23·11·83

Foot Length	Pitch Pipe mark	Body length	Circ	Mouth width	Mouth height	Fluе	Toehole	Wall thickness	Lanquid thickness	Lanquid bevel	Chimney length/circ	Ears	Lips
134	C	585·5 (42)	234·8	55·2?	19·2?	0·58–0·65	ø16 9·5	0·8	c 2·0	45°		42 × 30? (30/12)	?/23
	D												
	D#	495 (38)	205·9	49·6?	178 (12·6)			0·7	1·8				77/21
	E												
	F	439·5 (38)	194·6	45·6	18·5 (11·7)			0·6–0·8	1·4	40°		40 × 27 (30/10)	70/19
	F#												
	G												
	G#												
	A												
	A#	344 (36)	156·2	36·5?	14·4–16·4				1·4+	40°	44/48·3	30 × ? (26/4)	61/16
	B												
	c												
	c#												
	d												
	d#												
	e												
	f	207 (29)	116·0	27·6	9·0–10·6 (6·3)	0·6–0·7	6·0	0·5	1·4	42°	52/39·9		46/15
	f#												
	g												
	g#	206 +39	103·5	23·8	5·8?	0·35					39/38·5	26·5 × 12·5 (20/6·5)	39/16
	a												
	a#												
	b	175 +49	91·6	22·0?	5·0?						49/36·1		
	c'												
	c#'												
	d'												
126 b	d#'	135 +39·5	77·9	18·6	6·8 (4·4)	0·4	5·5	0·6	0·8?	42°	39·5/33·5	22·5 × 11 (16·5/6)	31/3
	e'												
	f'												

ORGAN GUIMILIAU — STOP G.O. FLUTE — 21

Measured by D. GWYNN — Date 23.11.83

	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOENOSE	WALL THICKNESS	LANDID THICKNESS	LANDID BEVEL	CHIMNEY LENGTH/CIRC	EARS	LIPS
	f#'												
	g'												
	g#'												
	a'												
	a#'												
POS	b'	88 + 34	61.7	13.6	3.7 - 4.5 (2.9)	0.5	4.3	0.5	1.0	40°	34/28.2	23 × ? (15/8)	21/10
	c²												
	c#²	72 + 40	57.7	13.0	3.5 - 4.4	0.4 - 0.45	ϕ 6.2 4.0	0.5	0.8	42°	40/27.5	17 × ? (14/3)	23/8
	d²												
	d#²	62 + 14	52.5	12.8	3.1 - 4.0							17 × 8.5 (14/3)	
	e²	58 + 25	51.2	12.2	3.0 - 3.8	0.3 - 0.4	5.5				25/25.8	16 × 8 (13/3)	
	f²												
	f#²												
	g²												
	g#²												
	a²												
	a#²												
	b²												
	c³												

ORGAN GUIMILIAU — STOP G.O. NASARD — 22

Measured by D.GWYNN — Date 23·11·83

Foot length	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOESHOLE	WALL THICKNESS	LANGUID THICKNESS	LANGUID BEVEL	CHIMNEY LENGTH/CIRC	EARS	LIPS
	C												
	D												
150	D#	441·5	225·8	54·8	9·8–12·1	0·82	ϕ 18·5	0·5–0·7		48°			75/28
	E	330·5	217·0	50·6	9·6–10·6								
	F	414·5	211·2	48·3	9·6–11·4 (7·8)	0·72		0·7		38°+50°			70/22
	F#	378	204·8										
	G		196·1	46·2	8·0–10·0								
	G#												
	A		180·1	42·7?	8·1–9·8		8·5						
	A#												
	B												
	c												
	c#												
127	d	351·	164·9	39·1	19·0 (10·2)		ϕ 16·5	0·6	1·6	38°+50°		35·5×25 (29·5/6)	61/16
	d#												
	e												
	f												
	f#												
	g												
	g#	279 (34)	126·2	31·0	(7·3?)			0·45	1·2		56/43	31×18 (25/6)	
	a	(32)	121·4	28·2	(7·8)	0·4–0·7	6·5		1·8?	48°	?/41		46/17
	a#												
	b												
	c'												
	c#'												
	d'												
	d#'												
	e'												
	f'	185+?	93·6	21·5	7·3 (5·3)						?/37·9		

ORGAN GUIMILIAU								STOP G.O. NASARD						23
Measured by D.GWYNN					Date 28·11·83									
Foot length	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOESHOLE	WALL THICKNESS	LANGUID THICKNESS	LANGUID BEVEL	CHIMNEY LENGTH/CIRC	EARS	LIPS
	f#'												
128	g'	167	86·2	20·2	7·5 (5·6)	0·5	ø11·4			45°	?/36·2	24 × ? (18·5/5·5)	32/13
	g#'	160	84·2	20·2	6·4 - 7·2 (5·3)						?/34·4		
POS	a'	149+24	79·0	18·9	5·0 - 6·5 (4·0)	0·48 - 0·62	5·0					21 × 14 (17/4)	30/10
	a#'	141	76·8	18·2	5·3 - 6·8 (4·8)	0·45 - 0·62	5·3		1·0+	45°	?/33·3	20 × 13 (16/4)	32/10
	b'	132	72·7	17·7	6·9 (5·3)						?/32·9		
	c²												
	c#²	116	69·6	17·3	4·7 - 5·7 (3·9)						?/32·6		
	d²	110	66·9	15·4	4·3 - 5·5 (3·8)	0·48 - 0·68	4·5	0·5	1·2	45°	?/33·3	17·5 × 10 (14/3·5)	27/11
	d#²	104	64·4								?/32·9		
	e²	99	63·9	14·3	4·8 - 5·8 (3·4)						?/33·3		
	f²	94	61·4	14·9	4·6 - 5·2 (2·8)								
	f#²	89	60·9	14·1	4·3 - 5·3 (4·0)								
	g²	86	59·0	14·3	4·0 - 5·0 (3·8)	0·42 - 0·52	4·2?					14 × 9 (12/2)	
	g#²	81·5	57·5	13·2	3·8 - 5·7 (3·4)								
	a²	75	55·5	12·6	3·7 - 4·3								
	a#²												
	b²												
	c³	61	52·8	12·2	3·3 - 3·7								
	c#												
	d	55	50·5	11·8	3·2 - 3·7	0·4 - 0·44	4·5		1·2+	48°		16·5 × 9·5	21/10
	d#	52	49·2	12·0	3·2 - 3·6		4·3						
	e	50·5	48·9	11·4	3·0 - 3·4								
	f	45·5	47·6	11·2	3·0								
	f#	41	47·4	10·6									
	g	38	46·1	9·8									
	g#	35	45·0	10·2	2·2 - 2·8		4·0	0·4	0·8+	45°		13 × 8 (10·5/2·5)	13/9
	a	33	42·2	9·8	2·4 - 2·8		4·3						
	a#	31	41·1	9·1	1·8 - 2·6								
	b	29	40·1	8·9	2·0 - 2·3								
	c	26	39·0	8·6	1·8 - 2·2	0·3 - 0·35							

ORGAN GUMILIAU | STOP G.O. TIERCE | 24

Measured by D. GWYNN | Date 26·11·83

	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TONGUE	WALL THICKNESS	LANDID THICKNESS	LANDID BEVEL	UPPER + LOWER LIP	FOOT LENGTH	
	C	354	169·8	40·4	8·0-9·6			0·5-0·6	2·5	50°	71/17	119	
	D	385·5	156·2	37·2	7·6-8·2	0·78	⌀ 16·8		c1·7	45°	64/19		
	D#	~~34~~											
	E	349	143·2	34·0	7·5	0·58 - 0·64	⌀ 15·5						
	F												
	F#	312	131·8	31·6	7·7		6·0						
	G												
	G#	265	123·8	28·3									
POS	A	208	119·2	26·4	5·6-6·5	0·48	6·5	0·5	2·0	48°	41/18	118	
	A#	244·5	112·6	26·4	6·2-7·5				1·7		48/17	123	
	B	234	107·4	25·4	5·4 - ?				1·2		45/17		
	c	219	102·9	23·8	5·1			0·45	1·2	48°	45/15	124	
	c#	211	98·2	22·3	5·0 - 6·2 (4·1)	0·52	⌀ 13·0				42/14		
	d												
	d#	184	91·2	20·4	4·3 - 5·6 (4·3)								
	e	178	86·2	20·3	5·1 - 6·7 (4·1)	0·48 - 0·68	5·7	0·45		45°	35/13		
	f	165	83·5	19·8	3·9 - 5·4 (3·6)								
	f#	154	81·2	18·6	4·4 - 5·6							123	
	g	148	76·3	18·0	4·1 - 4·8	0·33	5·5?	0·5	1·3	48°	30/12		
	g#	138	73·9	17·4	3·8 - 4·8								
	a	132	71·6	17·4	4·0 - 5·0 (3·4)		6·0						
	a#	122	69·4	16·1	3·4 - 4·2		⌀ 12·5						
	b	113	66·5	15·2	3·0 - 4·0 (2·9)								
	c'	108	64·8	15·2	3·7 - 4·6 (3·0)	0·5 - 0·62	⌀ 10·5	0·4	1·1	45°	25/10	126	
	c#'	102	62·9	14·8	3·2 - 4·2								
	d'	93	59·9	13·7	2·5 - 3·9								
	d#'	89	59·1	13·8	2·9 - 3·7 (2·6)								
	e'	84	56·9	13·7	2·5 - 3·4 (2·3)								
	f'		55·5	11·2	2·8 - 3·3 (2·4)								

ORGAN	GUIMILIAU							STOP	G.O. TIERCE					25
Measured by	D. GWYNN				Date	26 · 11 · 83								
Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TONGUE	WALL THICKNESS	LANGUID THICKNESS	LANGUID BEVEL	LIPS	FOOT LENGTH			
f#'	75	54.2	12.1	2.5 - 3.2	0.42 - 0.52	4.0	0.5 - 0.55	1.0	45°	21/9	126			
g'	68	53.3	12.5	2.5 - 3.3										
g#'	65	50.6	11.4	2.6 - 3.2 (1.7)										
a'	61	49.3	11.4	2.3 - 2.8										
a#'	59	48.1	11.4	1.9 - 2.6	0.42	⌀ 7.5 3.8?	0.4	0.8	42°	21/12	126			
b'	53	47.1	11.0	2.2 - 2.7										
c²	50	45.6	11.0	1.9 - 2.5	0.4 - 0.48	⌀ 9.3 4.3	0.5	1.0		18/8	127			
c#²	43	45.1												
d²														
d#²														
e²														
f²														
f#²														
g²														
g#²														
a²														
a#²														
b²														
c³														

ORGAN GUIMILIAU								STOP MIXTURES					26
Measured by D. GWYNN					Date 26·11·83			G.O. IV + III, Pos III					
G.O IV	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOEHOLE	WALL THICKNESS	LANGUID THICKNESS	LANGUID BEVEL	LIPS	FOOT LENGTH	
1/1	C	280·5	87·8	19·6	5·8 – 6·7 (3·8)	0·7	ϕ10·0 4·0	0·5 – 0·6	1·5	40°	26/?	123 ↓	
	D												
1/3	D#	242·5	72·6	17·4	4·4 – 5·3 (3·8)								
1/4	E	235	71·1										
1/17	F	232·5	66·1	14·8	3·2 – 3·9						26/14		
1/6	F#	212	62·8										
1/7	G	200	60·4				ϕ8·6	0·55	1·2				
1/8	G#	184	57·3	15·2	5·2 – 5·6 (3·4)	0·78 – 0·82	4·2			40°	25/14		
1/21	A	178	56·1	12·8	3·7 – 4·3						23/11		
2/3	A#	170·2	53·6	12·2?	4·7?		ϕ8·6	0·6	1·6	40°	20/12		
1/11	B	159	50·2	11·2	3·7		ϕ9·0	0·5	1·4	42°	25/11		
1/24	c	149	48·4	11·4	3·1	0·52 – 0·58	3·3?	0·48	1·0	40°			
1/13	c#	135	47·3	11·3									
2/19	d	132·5	45·6	11·3	3·4 (2·4)	0·65					16/9		
1/15	d#	128·5	45·3	10·4	3·9 (2·2)								
1/28	e	120·5	42·1	9·6?									
1/41	f	111·2	41·1	10·0	3·6 (2·7)	0·45 – 0·6	ϕ8·1	0·45	1·0	40°	14/8		
2/11	f#	107·2	39·8	9·8	3·8 (2·2)								
2/12	g	97·0	38·3										
2/13	g#	94·0	36·7		(1·9)								
1/45	a	88·2	36·1	9·6	2·4 – 3·2 (2·4)								
1/46	a#	73	34·6	9·2?									
3/11	b	80·5	33·3	8·3	2·6 (1·7)	0·7					14/13		
2/41	c'	73·8	32·4	7·8	3·0 (1·4)	0·7	ϕ7·7	0·5	0·8	50°	12/8		
2/42	c#'	67·5	31·8										
2/43	d'	65	30·5	7·8?	3·0 (1·6)	0·4							
2/44	d#'	(41)	30·3										
3/28	e'	58·2	28·8	5·9	3·3 (1·6)								
2/46	f'	55·5	29·0										

ORGAN GUIMILIAU								STOP MIXTURES					27
Measured by D.GWYNN				Date 26 · 11 · 83				G.O IV + III ; POS III					
	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOEHOLE	WALL THICKNESS	LANGUID THICKNESS	LANGUID BEVEL	LIPS		
	f#'												
3/43	g'	46	26·7										
3/44	g#'	45	26·6										
3/45	a'	44	26·5										
	a#'												
3/47	b'	36·2	25·5										
3/48	c²	33	25·4										

G.O. FOURNITURE IV

		I			II			III			IV			
No	KEY	PITCH	L	C	PITCH	L	C	PITCH	L	C	PITCH	L	C	
1	C	C	280·5	87·8				c	150	48·3				
2	D				A	177	56·2	d	134	45·4	a	90	36·6	
3	D#	D#	242·5	72·6	A#	170·2	53·6				a#	84	34·6	
4	E	E	235	71·1	B	155	50·9	e	113·5	42·6	b	78	33·6	
5	F				c	149	49·2							
6	F#	F#	212	62·8	c#	142	47·1							
7	G	G	200	60·4	d		45·8							
8	G#	G#	184	57·3	d#	123	44·0							
9	A	A	178	55·1	e	116	42·6							
10	A#	A#	FOOT	ONLY	f	112·5	41·8							
11	B	B	159	50·2	f#	107·2	39·8	b	80·5	33·8				
12	c	c	151	48·6	g	97	38·3	c	73	32·9				
13	c#	c#	135	47·3	g#	94	36·7							
14	d	d	133	45·6	a	85·5	36·2	d	65·8	30·7				
15	d#	d#	128·2	45·3										
16	e	e	119·5	43·0										
17	f	f	232·5	66·1	c	146·2	49·0				c	71	33·6	
18	f#	f#	211	62·9	c#	144·2	47·4							
19	g	g	196	60·7	d	132·5	45·6				d	63	31·2	
20	g#				d#	125	44·3							
21	a	a	177·5	56·1	e	120·5	42·8	a	86·2	36·3				
22	a#	a#	171	53·0	f	110	41·6	a#	80	34·5				
23	b	b	156·8	50·5	f#	102·2	40·1	b	78	33·7	f#	49·5	28·3	
24	c'	c	149	48·4										
25	c#'	c#	142·5	47·4							g#			
26	d'				a	87·8	36·0	d	64	31·3				
27	d#'													
28	e'	e	120·5	42·1				e	58·2	28·8				
29	f'				c		48·6				c	70	33·5	
30	f#'													
31	g'	g	202	61·2										
32	g#'	g#		57·7	d#		44·3				d#	59	29·8	
33	a'				e	121	42·8							
34	a#'													
35	b'	b	158·5	50·7	f#	106·2	39·9	b	73·2	32·9	f#	49	28·2	

		I			II			III			IV			
No	Key	Pitch	l	c	Pitch	l	c	Pitch	l	c	Pitch	l	c	
36	c^2	c		48·2	g		38·8				g	49	27·2	
37	$c\#^2$							c#	68	29·5				
38	d^2	d	Foot	only	a		36·0	d	59·2	31·0				
39	$d\#^2$	d#	127·5	44·2	a#	85	34·2							
40	e^2				b	76	33·9	e	55·5	29·1	b	38	25·8	
41	f^2	f	111·2	41·1	c	73·8	32·6	f	54	28·0	c	35	25·8	
42	$f\#^2$				c#	67·5	31·8							
43	g^2				d	65	30·5	g	46	26·7				
44	$g\#^2$				d#	60	30·9	g#	45	26·6				
45	a^2	a	88·2	36·1				a	44	26·5				
46	$a\#^2$	a#	73	34·6	f	55·5	29·0							
47	b^2	b	Foot	only	f#	50·5	27·8	b	36·2	25·5				
48	c^3				g	48·5	27·6	c	33	25·4				

BREAKS

	1	2	3	4
C	1'	2/3'	1/2'	1/3'
f^0	2'	1 1/3'	1'	2/3'
f'	4'	2 2/3'	2'	1 1/3'

G.O. CIMBALE III

			I				II				III			
No	KEY		PITCH	L	C		PITCH	L	C		PITCH	L	C	
1	C		c	120	49.9		G	FOOT	ONLY					
2	D		d	133.5	45.5									
3	D#													
4	E													
5	F		f	111.5	41.6		c	74	33.1					
6	F#		f#	109	40.7		c#	75	31.4					
7	G		g	97.5	38.7		d	60.5	31.1					
8	G#						d#	63	30.4					
9	A						e	48	29.6					
10	A#		a#	86	34.8		f	54	28.2					
11	B		b	77.5	33.9						b	34	25.0	
12	c		g	99.5	38.9									
13	c#										g#	50	26.0	
14	d		a	87	35.8						a	(FOOT)	25.6	
15	d#		a#	84.5	35.3		d#	60	30.6					
16	e		(b)	80.5	33.2		e	59	29.2		b	41	25.4	
17	f		f	111.5	42.0									
18	f#		f#	107.5	40.6		c#	69	31.4					
19	g		g	96.5	39.1									
20	g#		g#	92.5	37.6		d#	62	30.4					
21	a						e	55.5	29.8					
22	a#													
23	b													
24	c'		g	105	38.8		c	72.5	33.1		g	49	26.2	
25	c#'										g#	49	25.8	
26	d'		(a)	85	36.9						a	42	26.2	
27	d#'						d#	60	30.8					
28	e'		(b)	76	34.2						b	37	25.2	
29	f'		f	113	41.8		c	64.5	33.1					
30	f#'		f#	105	40.5		c#	72	31.2					
31	g'		g	98	38.5									
32	g#'		g#	84	37.2									
33	a'		a	89	36.0									
34	a#'		a#	86	35.0									
35	b'		b	79	34.5									

		I				II				III		
No	KEY		PITCH	L	C		PITCH	L	C		PITCH	L	C
36	c^2						c	71	33.2				
37	$c\#^2$		g#	92.8	37.5		c#	69.5	31.5		g#	49	25.8
38	d^2		a	85.8	36.4		(d)	64	30.9				
39	$d\#^2$		a#	68	35.5								
40	e^2		b	80	33.4		e	59	29.3				
41	f^2												
42	$f\#^2$		f#	106	41.0								
43	g^2						d	49	31.0				
44	$g\#^2$						(d#)	41	30.3				
45	a^2		a	76	35.9						a	40	25.1
46	$a\#^2$		a#	85.5	36.1								
47	b^2												
48	c^3						g	46	27.2		(c)	32.5	24.9

BREAKS

	I	II	III
c	1/2'	1/3'	1/4
c	2/3'	1/2'	1/3'
f	1'	2/3'	1/2'
c'	1 1/3'	1'	2/3'
f'	2'	1 1/3'	1'
c^2	2 2/3'	2'	1 1/3'
f^2	4'	2 2/3'	2'

ORGAN QUIMICIAU — STOP Pos PRESTANT — 32

Measured by D. GWYNN — Date 24 · 11 · 83 — or called MONTRE?

Position in Front	Pitch Pipe mark	Body length	Circ	Mouth width	Mouth height	Flue	Toehole	Wall thickness	Languid thickness	Languid bevel	Lips	Foot length	
2	C	1368	267·8	61·3	15·4–18·6	0·7–1·1	ϕ18·0 8·5?	0·8–1·0	3·2+	45°	123/33	274	∩
33	D	1285	263·6	c63·5	13·9–17·9 (12·4)	0·9	ϕ16·0 9·5				119	278	∩
34	D#	1258	226·7	55·6	13·7–15·2	1·0	ϕ7·5?				121/40	332	∩
3	E	1269	229·8	54·4	12·6–14·3 (11·9)	0·75–0·8					122/40	331	∩
32	F	1224	216·6	52·8	12·8–14·8 (10·5)	0·95–1·2	10·0	0·7–0·8			113/37	335	∩
4	F#	1224	215·4	50·2	12·6–14·0 (9·4)	0·78	ϕ13·0 10·2				111/38	336	∩
35	G	1103	188·1	45·3?	11·3–13·6 (10·4)						120/35	385	∧
1	G#	1105	187·1	44·8	11·1	0·7	ϕ13·0 8·0+				121/34	383	∧
31	A	(1084)	180·9	44·3	11·4–12·5 (9·4)	1·1–1·2	ϕ15·0				114/30	381	∧
5	A#	1116	181·3	44·4	10·4–13·2 (8·8)						117/37	383	∧
18	B	814	152·1	36·3		0·7	9·0				69?	249	∩
17	c		145·6	33·6	8·2–9·8	0·5–0·7				42°	97/30	(280)	∧
	c#	[missing]											
20	d	714	132·6	31·2	9·8 (7·6)	0·75–0·85			2·2	45°	c62	304	∩
6	d#	605	127·6	30·2	8·1						84	140	∧
15	e	612	126·6	30·3	8·3–9·0						76	140	∧
7	f	600	113·6									152	∧
14	f#	593	112·8	26·4	7·6–8·3 (7·0)	0·6			1·4	48°	77	(150)	∧
13	g	576	103·0	25·1	6·4–7·5						64	168	∧
8	g#	578	102·6	24·3	6·0 (5·2)	0·6?	ϕ11·0	0·6	1·2	45+50°	c73	167	∧
9	a	492	92·4	22·7	6·0–6·7 (5·2)						62	179	∧
11	a#	496	93·2	22·8	5·6–6·2	0·7–0·9	ϕ11·4	0·5	1·2	45°	60	177	∧
10	b	467	84·7	20·4	5·8–6·4 (4·4)	0·55	ϕ10·4				54	195	
	c'												
	c#'	262	78·4	17·6	4·2–5·2				1·6	45°			
	d'	244	75·0	18·0?									
	d#'												
	e'	220	67·4	16·4	4·0–5·0								
	f'	226	65·0	15·1	4·0–5·2				1·45	42–45°			

ORGAN GUIMILLIAU								STOP POS MONTRE					33
Measured by D. GWYNN					Date 24·11·83								
	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOESHOLE	WALL THICKNESS	LANGUID THICKNESS	LANGUID BEVEL	LIPS	FOOT LENGTH	
	f#'	218	62·6	15·7	4·0-5·0 (3·4)								
	g'	198	59·8	14·0	3·9-4·8								
	g#'	190	57·1	13·6	4·8 (3·8)								
	a'	170	55·0	13·4	4·0-5·0								
	a#'												
	b'	(155)	51·2										
	c²	146	49·3	11·4	2·8-3·4	0·48-0·58	ø8·0			45°			
	c#²	121	47·5	11·4									
	d²	131	44·8	10·9	2·8-3·4								
(5·0 box)	d#²	125	44·0	10·3	3·4-4·1 (1·9)	0·5	3·3?						
	e²	117	42·2	8·6									
	f²	103	40·5	8·4									
	f#²	108	39·1	8·8	2·6-2·9	0·5	ø6·8						
	g²												
	g#²	84	37·2	7·9	2·6-2·9 (1·4)								
	a²												
(4·0 box)	a#²	76	34·6	7·9	2·3-2·9 (2·3)	0·38-0·48							
	b²												
	c³												

ORGAN GUIMILIAU — STOP DOUBLETTE — 34

Measured by D. GWYON — Date 25·11·83 — (G.O +) POSITIF

Position in front	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOEHOLE	WALL THICKNESS	LANGUID THICKNESS	LANGUID BEVEL	LIPS	FOOT LENGTH	
19	C	789	142·4	34·3	8·2 - 10·2	0·6 - 0·75	ϕ 13·2	0·6		45°	95/27	280	
30	D	615	125·5	29·7	8·7	0·7 - 0·85	4·2+					139	
	D#												
22	E	602	113·0	26·9	6·9 - 8·8	0·9 - 1·0	ϕ 10·8		1·7	48°	78?	151	
21	F		113·3	26·0?	6·7 - 7·6						73	147	
23	F#	574	102·3	25·0	6·3 - 7·4 (5·4)	0·6 - 0·8					68?	168	
28	G	571	103·6	24·4	6·4 - 8·1 (6·0)						64	160	
27 27	G#	561	94·0	21·8	6·0 - 7·3 (5·4)	0·45 - 0·58	ϕ 11·0		1·3	42+60°	59	179	
12	A	557·5	95·2	22·2	6·1 - 6·6 (5·4)						64?	173	
25	A#	451	84·5	19·8	5·2 - 5·8						48	192	
26	B	417	84·5	20·0								191	
	c	279	83·0	19·6	4·7 - 5·7 (3·9)	0·4 - 0·5	ϕ 9·2	0·5	1·6	45°	32/14	126	
	c#	285·5	78·6	19·3	5·6 - 6·2 (3·9)								
	d	229	74·6	16·6	4·5 - 5·4 (4·2)								
G.O	d#	231	69·4	16·5	4·4 - 5·4 (3·3)	0·52 - 0·58							
	e	194·5	67·2	15·8	4·6 - 5·6 (4·2)								
	f	211·5	64·3	14·8	3·9 - 5·3 (2·8)			0·5	1·6		32/13		
G.O	f#	183	60·6	14·5	3·9 - 4·8	0·5 - 0·6							
G.O.	g	187	58·4	13·5	3·9 - 4·8 (2·6)								
	g#	174·5	56·6	13·5	3·8 - 4·7	0·5	ϕ 8·2						
	a	157·5	55·7	11·9	3·7 - 4·4 (2·8)								
	a#	169	53·4	12·3	4·4 - 5·1 (2·4)								
	b	136·5	50·9	12·0	3·5 - 4·3 (2·6)								
	c'												
	c#'	123·5	47·3	11·7	3·6 - 4·0 (2·4)	0·5 - 0·55	ϕ 6·8	0·4	1·2	45°	22/9		
	d'	94	46·1	10·8	2·4 - 3·7								
	d#'	110	43·7	10·8	2·9 - 3·5								
G.O.	e'	108	43·6	10·0	2·5 - 3·3	0·43 - 0·48	3·3						
	f'	109	41·8	9·9	2·2 - 3·2		ϕ 6·8	0·5			20/9		

ORGAN GUIMILIAU | STOP DOUBLETTE | 35

Measured by D. GWYNN | Date 23 · 11 · 83 | (G.O +) POSITIF

	Pitch Pipe mark	Body length	CIRC	MOUTH WIDTH	MOUTH HEIGHT	FLUE	TOESHAPE	WALL THICKNESS	LABIUM THICKNESS	LABIUM BEVEL	LIPS	FOOT LENGTH	
	f#'												
G.O.	g'	92	38·8	8·7	2·8 – 3·4	0·4 – 0·46							
	g#'	85	37·6	9·0	2·4 – 3·0	0·7							
	a'	80	36·2	7·9	2·2 – 3·0		3·0		0·8				
G.O	a#'	77	34·6	7·1 ?									
G.O	b'	71	33·6	7·4	2·2 – 2·4								
	c²	68	32·8	7·0	2·5 – 2·7 (1·6)	0·68	Ø 7·0	0·42			15/9		
	c#²		32·6	7·2	2·7 – 3·0 (2·0)								
	d²												
	d#²												
	e²												
	f²												
	f#²												
	g²												
	g#²												
	a²	40	26·3	5·7	2·1 (1·6)								
G.O.	a#²	33·5	25·3	6·6	1·9 – 2·1	0·48 – 0·52							
	b²												
	c³												

POS. FOURNITURE III 36

			I				II				III			
No	KEY		PITCH	L	c		PITCH	L	c		PITCH	L	c	
1	C		C	274	85·1									
2	D										d	122	45·1	
3	D#		D#	255	72·8									
4	E										e	115	42·6	
5	F		f	229	65·6		c	152	48·6		f	111	41·9	
6	F#		f#	214	62·1		c#	143	47·2		f#	103	40·4	
7	G		g	197	59·9		d	130	45·1		g	99	38·6	
8	G#		g#	189	57·2						g#	94	37·5	
9	A						e	116	43·0		a	87	36·0	
10	A#		a#	169	53·1	G.O box	f	111	41·6		a#	82	34·9	
11	B						f#	101	39·8		b	78	34·1	
12	c		c	151	48·3						c	71	33·3	
13	c#		c#	142	47·1		g#	88	37·6		c#	64	31·6	
14	d		d	131	45·9						d	56	30·7	
15	d#		d#	125	43·7		a#	83	36·6		d#	62	30·0	
16	e		e	119	42·8		b	73	34·0		e	60	29·8	
17	f		f	224	64·7		c	148	48·4		f	72	41·2	
18	f#		f#	214	62·8		c#	136	46·8		f#	102	40·4	
19	g		g	199	59·1		d	96	45·2		g	95	38·3	
20	g#		g#	190	56·9		d#	125	44·0		g#	59	37·1	
21	a		a	179	55·3						a	86	36·0	
22	a#		a#	168	52·3		f	110	41·1		a#	82	35·0	
23	b		b	158	51·3		f#	107	40·4		b	79	34·1	
24	c'						g	99	38·6		c	73	33·0	
25	c#'		c#	143	47·0		g#	96	37·2		c#	67	31·9	
26	d'		d	135	45·7		a	85	35·1		d	62	31·0	
27	d#'		d#	127	43·8		a#	83	35·5		d#	61	30·2	
28	e'		e	119	41·8		b	75	34·0		e	56	29·3	
29	f'						c	138	48·6		f	109	41·3	
30	f#'		f#	208	62·2		c#	142	47·4		f#	106	40·5	
31	g'		g	162	60·3		d	132	45·5		g	99	38·6	
32	g#'		g#	191	57·5		d#	126	43·8		g#	93	37·5	
33	a'						e	117	42·2		a	85	36·3	
34	a#'		a#	164	52·4		f	110	41·1		a#	83	35·4	
35	b'		b	160	50·3		f#	104	40·1		b	79	34·2	

POS. FOURNITURE III

		I			II			III		
No	KEY	PITCH	L	c	PITCH	L	c	PITCH	L	c
36	c^2				g	91	38·6	c	73	32·8
37	$c\#^2$				g#	87	37·0	c#	71	32·1
38	d^2	d	132	44·8				d	64	30·9
39	$d\#^2$	d#	126	43·4	a#	84	35·1	d#	61	30·5
40	e^2									
41	f^2				c	70	33·1	f	50	29·0
42	$f\#^2$	f#		40·2				f#		27·8
43	g^2				d	68	31·2			
44	$g\#^2$	g#	89	37·2				g#	42	26·0
45	a^2	a	82	36·0	e	55	29·6	a	40	25·9
46	$a\#^2$				f	56	28·8	a#	37	25·5
47	b^2	b	85	34·3	f#	50	28·0	b		25·4
48	c^3							c		24·9

BREAKS

	I	II	III
c	1'	2/3'	1/2'
f^0	2'	1⅓'	1'
f'	4'	2⅔'	2'

PIPE METAL AND MANUFACTURE

METAL

The front pipes have light-coloured, grey metal, quite soft, with small, slightly brown spots of corrosion covering the metal haphazardly. There is also a more regular covering of large white spots of lead oxide. Body, foot and languid appear to be made of the same metal.

On the inside pipes there is a great deal of slight variation of surface and colour, between ranks within ranks and even between body and foot. There are three basic types of metal.

1. The principal pipes appear to be of more or less the same type of metal as the front pipes. Some (like the inside Montre pipes) have a greenish tinge, and a surface which looks like paint applied in layers with a palette knife. Others, among the flutes, are the same colour, but with thicker metal.

2. Most of the flute pipes, open and stopped, have medium-dark, grey metal with a blue tinge, with blotches, which may be corrosion in the spots, or may be the effect of water evaporating. A lot of pipes look as if they have been wet at some stage. On some pipes, with slighter, darker metal, the blotches are mildew-like, ie. lead oxide (see Tierce go and c2).

3. Odd pipes, mostly open flutes (particularly in the rank without rank marks) have very smooth blue-ish metal with a pronounced small spot effect.

All three pipes are represented in the three Tierce B pipes. The differences suggest, firstly, that a deliberately different alloy was used for the front and principal pipes, and for the flute pipes, and secondly, that the alloy may not have been consistent between castings, with a variety of impurities and casting conditions. There is the possibility that some earlier pipework was used (perhaps the tenor octave of the Bourdon, which has dark, heavy metal and added lids, and the principal with heavier metal), and that existing pipe metal was melted down. Analysis of the pipe metal would be interesting.

MANUFACTURE

The metal was cast on a cloth with fairly coarse tick. The variation of thickness from bass to treble is less than usual, and as the inside of the pipes vary from almost unplaned tick in the larger pipes to smooth in the smaller, there cannot have been much variation in casting thickness. For the larger pipes, the metal appears to be somewhat thinner at the top than at the mouth, though this is not consistent for the front pipes, where a wide variety of thickness could be taken. It was more noticeable for the few large inside pipes that I looked at; perhaps the thinning is just at the top, for tuning.

All the pipes were planed, or more likely scraped, smooth on the outside, with care. The front pipes must have been burnished or polished, but it is impossible to tell what was behind the silver paint.

The metal thicknesses are not completely consistent, but the pattern is as follows:

8'C	4'c	2'c	1'c	1/2'c
1.4	0.9	0.7	0.6	0.5

The flutes and smaller principals are all washed inside and out, though in places whiting and tallow have mixed and stayed behind. The larger principals were washed on the outside only, leaving a white strip of whiting down the inside of the seams.

The solder seams are straight, fairly smooth and flush with the metal, but not filled as evenly as with 19th and 20th century pipes. In the larger pipes the two edges are not in perfect alignment, and in places the edges have sprung apart during soldering, so that there is a dip on the outside and a pronounced seam on the inside. This may mean that the scales taken are larger than the original ones. Back seams are frequently not in line on body and foot, but the mouths are. Horizontal seams are strong, but thick and take in short dabs. The languid seams are the neatest, but appear to flowed inside the pipe, which must have made voicing difficult.

The toes appear to be in original, if battered, condition. Some have settled into the upperboard holes quite seriously. The toes are lightly coned (not even as much as Dom Bédos indicates), and the upperboard holes are not countersunk. The scale at the bottom of the foot is therefore quite critical, and related to the toehole size. The diameters in the scale tables were measured at the lowest straight point of the foot, just above the coning, and are therefore, as with the toehole sizes, not reliable. It is difficult to establish a system for either. One possibility is that 8ft C had a toehole plate width which was 1/6 of the body plate width, and that 1½ ins c, which happens to be the smallest pipe in the organ, had a straight foot. These points could then be joined up on a scale graph, though toehole plate widths and toehole sizes probably ran in groups of up to an octave. The toeholes are all larger than the flue areas, from 1½ x in the bass to almost the square of the mouth width in the treble.

The lips are scribed and flattened, possibly without any kind of flatting or similar tool inside the pipe. The lines of the lower lip appear to be radial and not parallel, that is, the point inwards. As the plane marks on the feet are horizontal, the feet must have been made separately from the bodies. The lengths of the scribe lines determine the height of the flatting, so are quite important, though they seem not to have been measured precisely. They are about 1½ x mouth width for the upper lip and ½ for the lower, to about 2x and 1x in the treble. The lips of the front pipes are described separately.

The mouth heights were cut into the scribe lines, with a neatness that suggests that this was done in the flat. Indeed, for the principals and open flutes, on the whole, there is no sign of later cutting up at the voicing stage. For the stopped pipes, which have high cut ups, there was extensive later cutting up, some of it rather desperate in the Bourdon, but more systematic in the Flute, with lower cut ups in the bass and higher in the middle of the rank, arched in the Dallam/Harris manner. One imagines that the cutting up done at the voicing stage was mainly in the form of arching the upper lip rather than raising the whole lip. A few pipes have a very steep, light chamfer on the upper lip, possibly to make the pipe louder and brighter without opening the flue too far. They look original.

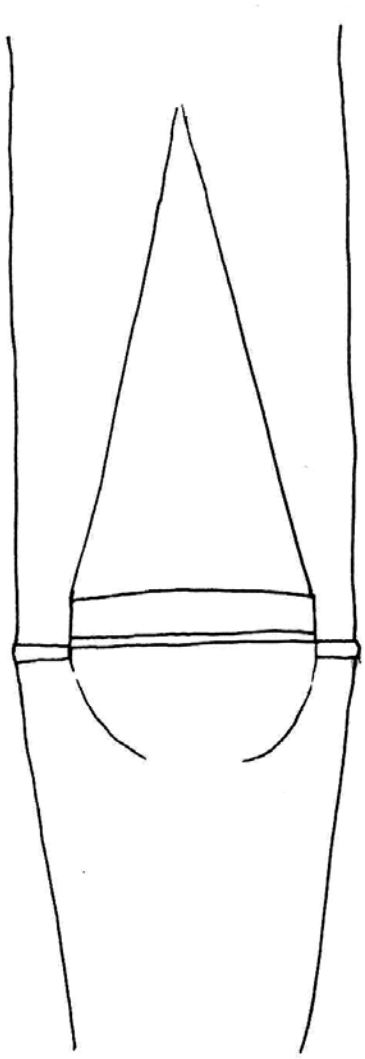
Only the stopped flutes had ears. The original ears are soldered to body and foot. They are set just outside the line of the scribes, which usually means they were used for tuning. For the chimney flutes they must have been, but for the Bourdon there are also movable canisters, even though the ears are of the same size and type as the Flute's. The metal is of the same thickness as the pipe walls. The sizes are not completely consistent, and like the scribe lines may have been done by eye, about as tall as the mouth width, the section above the languid about square, the whole starting about 3:4 in the bass and ending about 1:2 in the treble.

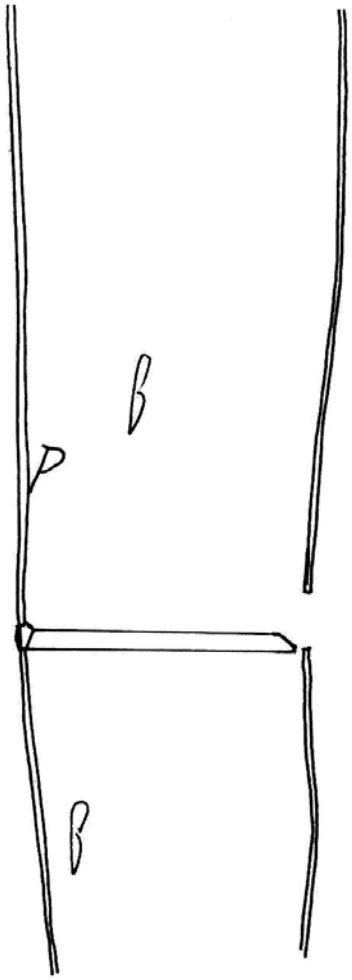
The languids appear to be flat; indeed they are so thin at the front they must be. The bevels, at 40º to 45º for the principals and 45º to 50º for the flutes, are very shallow, and may be typical of English practice before 1660. There is evidence that all pipes had a counterface, though it is often difficult to tell, especially in the treble. In the bass it is up to a third of the thickness, though the cut is often uneven, suggesting that it is either an afterthought (which is very difficult to believe), or at any rate done after the languids had been cut from their strip. There is no nicking. The angle round the seam is steep, and the solder has flowed into the gap, which must make it virtually impossible to move the languid in voicing. The languids may be twice the metal thickness, and could well have been cut out

of a cast sheet and not cast in a mould, except for the 8ft octave. Some bevels have two angles, though there is generally very little sign of alteration.

The larger pipes of the Nasard and Flute, and the Dallam pips of the Bourdon, all have canisters, which must have been used for tuning, since they are marked, on the whole, with the mark of the pipe on which they are now. Traces of leather, or whatever held them wind tight, have disappeared. Lids appear to be slightly rounded, or flat.

The biberon flutes of the Nasard and Flute start at 1⅓ft g or thereabouts, and continue up to the top of the Nasard, at 1ft g, the shortest pipe, though the chimneys have been knocked or wrenched off the shorter pipes. The top of the body is coned in, and rounded, perhaps by rocking the pipe in the cone and using different sizes of cone. The bottom of the chimney is coned out slightly to meet the body, also with rounded sides, and presumably cut to length after soldering. The height of the solder line is surprisingly uniform; it would have been interesting to measure the total length. There are signs that the chimneys would have been made in lengths and cut off in batches for the smaller pipes, though such is the state of the chimneys it is difficult to tell. The scale appears to be a third of the body at 4'c and up to a half in the top octave of the Flute. At f^o the length is 1/4 the body, at b^o and $d\#^1$ 2/7, at b^1 and $c\#^2$ 1/2 and over (down to the solder seam.

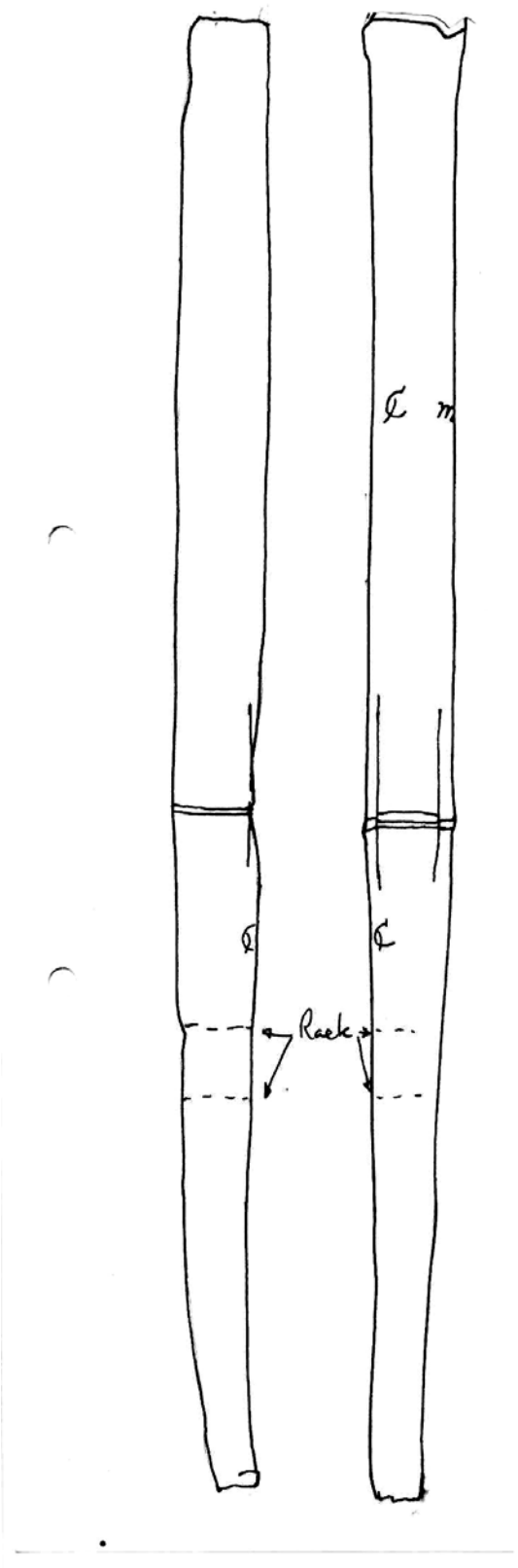




Note that scribed upper lip appears to come down to the upper lip, and not to the lower lip, i.e. it allows for the cut up.
Flatting must have been done straightforwardly without a flatting tool behind the lip, as top and bottom merge into the round surface.

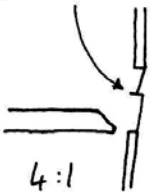
The languids and upper lips are almost all in the same position. The languid has steep sides which have filled in with solder, which must make it very difficult to move them up and down

POSITIF MONTRE c^2



Metal smooth inside; surface is mottled, as if the metal has been applied in layers like paint with a palette knife.

There is a deep knife cut into the right hand side of the mouth

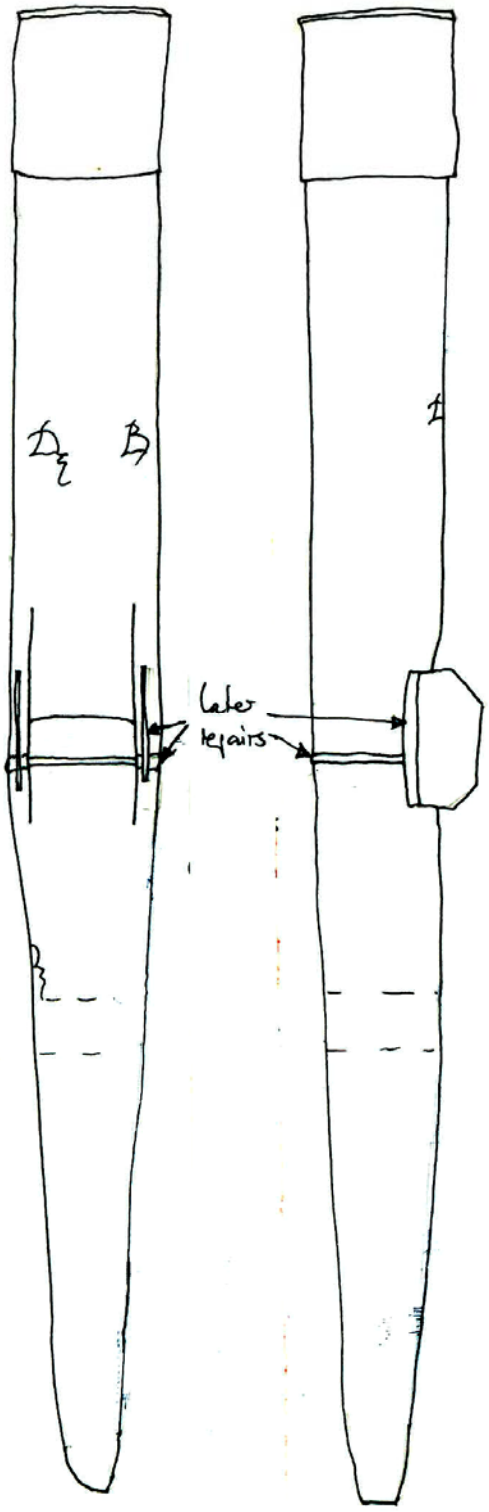


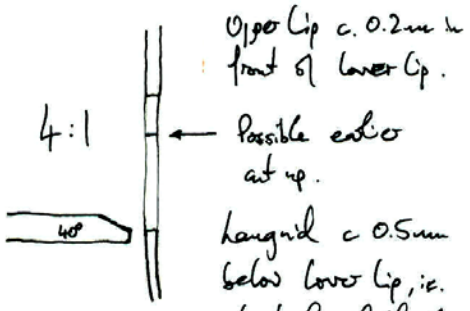
There is a very steep chamfer on some of the upper lips, not recent.

The upper lip is very slightly forward of the lower lip. The counterface is c 0.2mm wide, and is not completely even, suggesting that it may have been done with a knife at the voicing stage. It looks as if solder has entered the flue from the languid seam, and been removed. Languids are just below lower lip (c. about 0.15mm) Toes have been damaged throughout, but suggest a light coming to fit into straight-sided holes (no countersink). This means that the circumference at the toe is an important measurement.

G.O. 'BOURDON' d#²

44



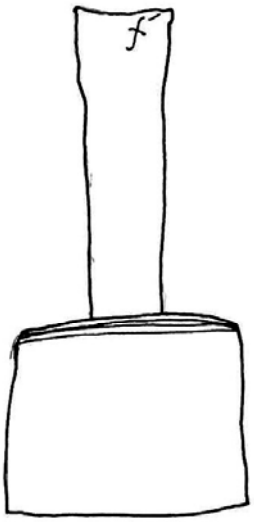


Upper lip c. 0.2mm in front of lower lip.

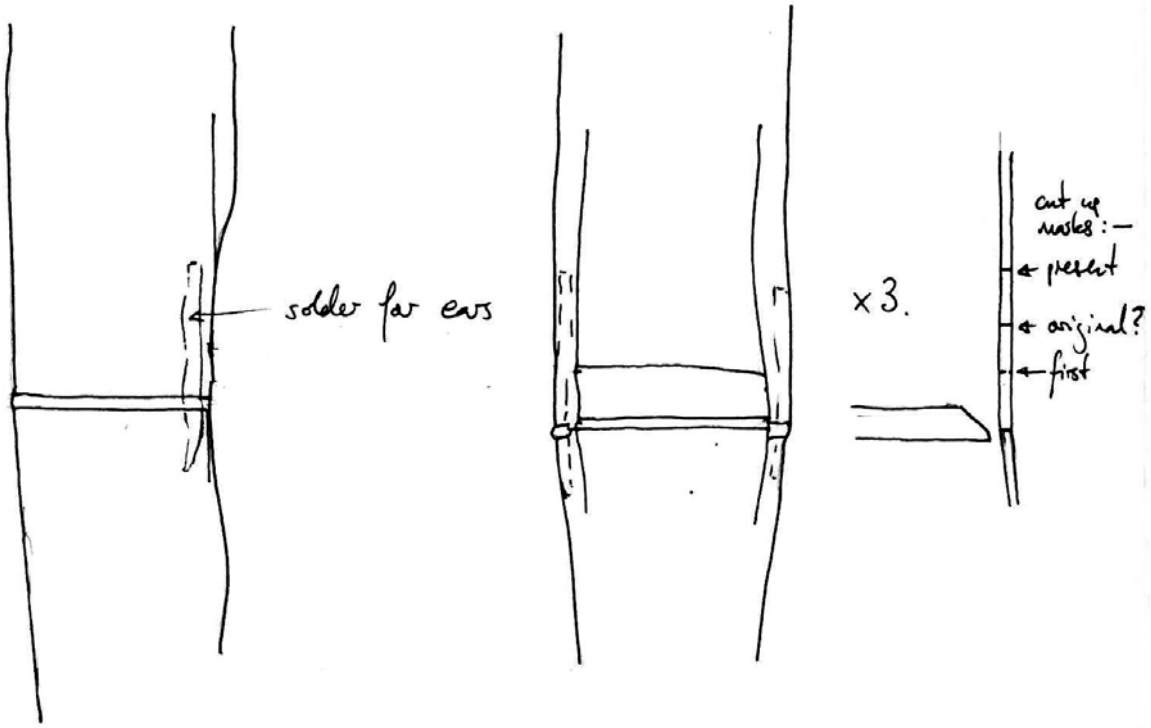
← Possible exit cut up.

Longrid c 0.5mm below lower lip, i.e. about the depth of the counterface.

GO. FLUTE f°

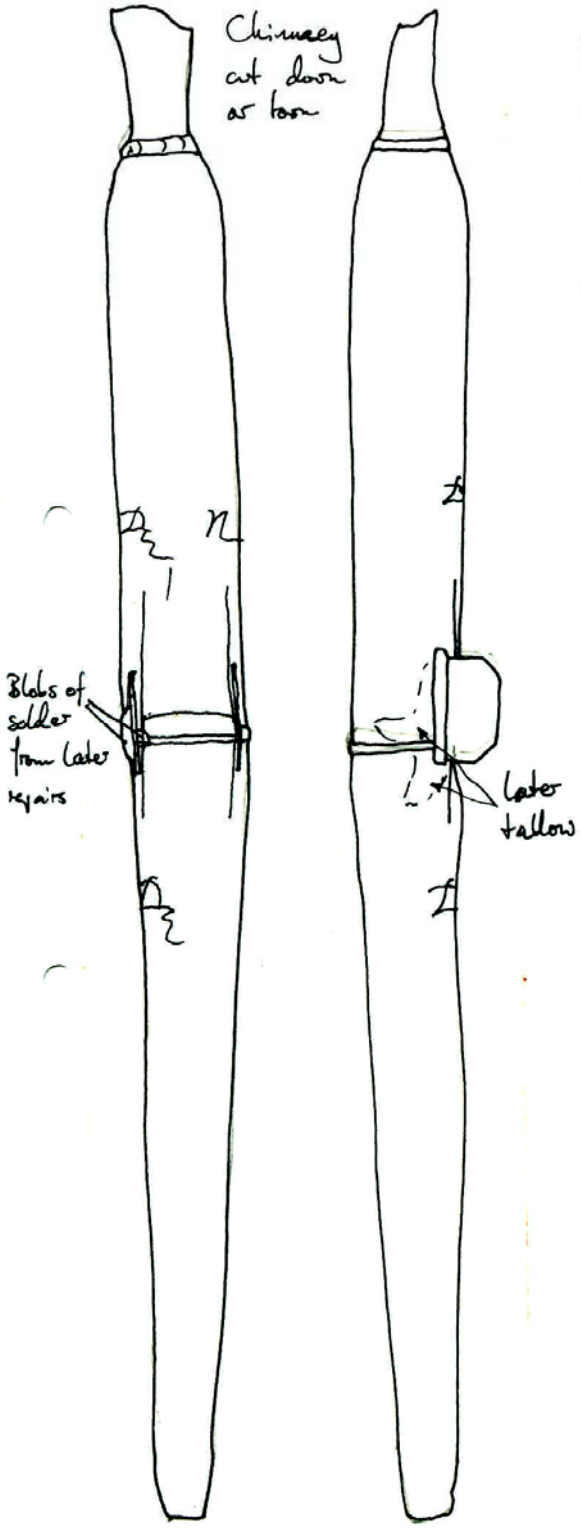


← Top slightly rounded out (must have fallen in). Almost as large as the jar. Chimney central and soldered inside with a wide band of solder. Wicking and tallow left behind. No signs of leather packing.

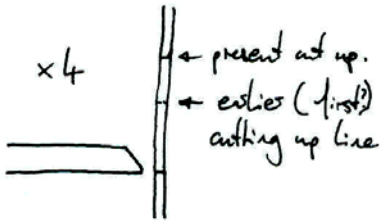


Canister, body and foot all have slightly different metal surfaces. Inside of canister and body unplaned.

NASARD d♯ (?)

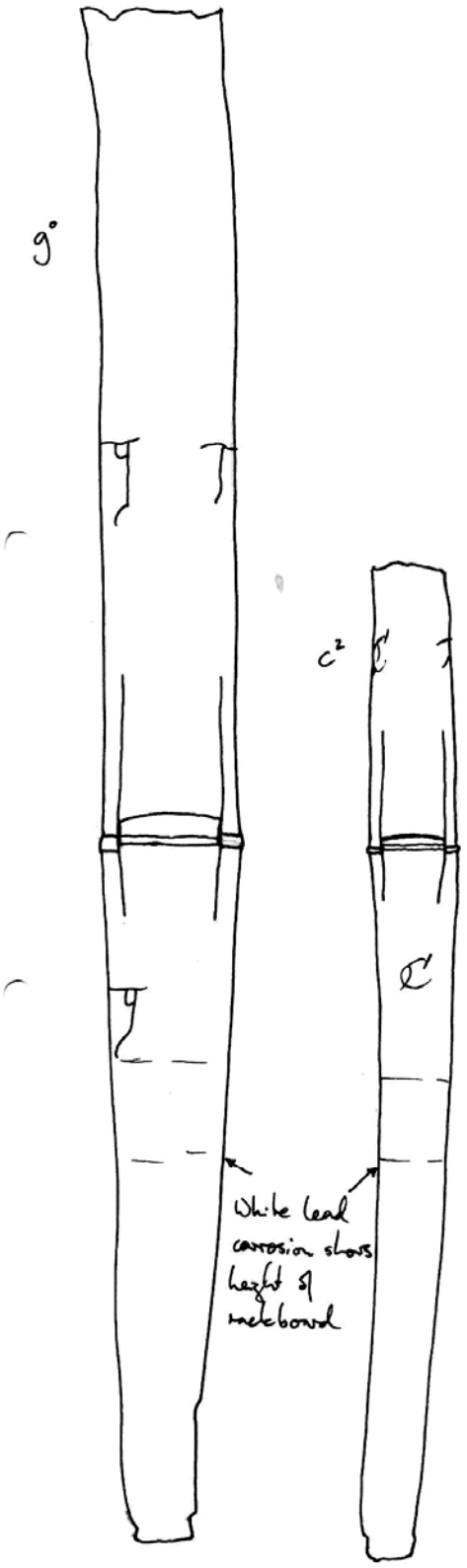


Body and foot appear to be made out of slightly different metals, the body blotchy, the foot veined, both blue-ish. Perhaps oxidisation bringing out the structure of the metal



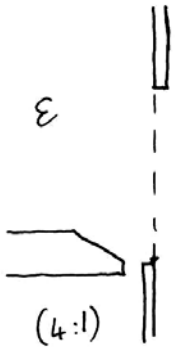
The pipe is breathy but speaks clearly; it is fluty and rather dull, perhaps the result of raising the cut up, though that may be original, or at least early, as the mouth is arched in typical fashion.
Upper lip pulled out very slightly, languid very slightly lower than lower lip.

TIERCE E, g°, c².

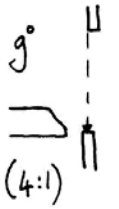


All pipes are smooth inside. A lot of the pipes look as if they have been wet in fairly recent history.

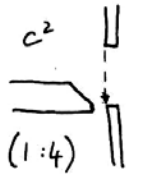
The cut ups almost all look reliable, as do most other elements of the voicing. The upper lips are all arched, no chamfer; there is no sign of earlier cutting up. Note the long scribe lines.



Upper lip about 0.5mm in front of lower lip. Lower lip about 0.5mm above bottom of languid.



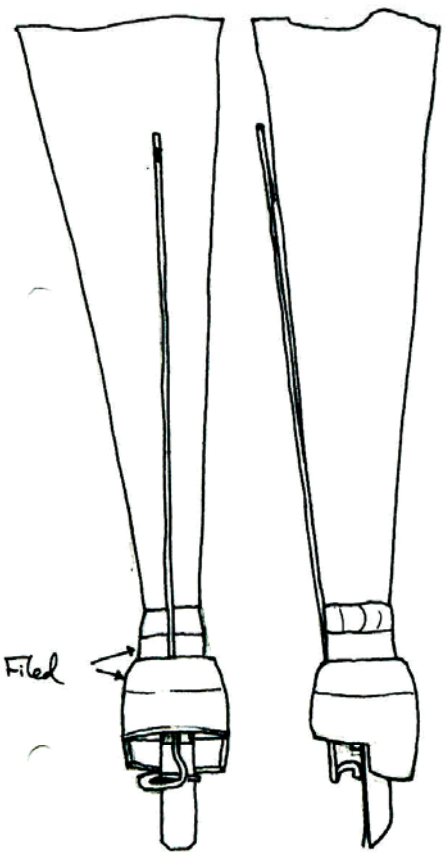
Upper lip about 0.2mm in front of lower lip. Lower lip about 0.2mm above bottom of languid. Flue narrower than others



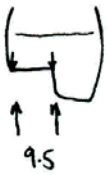
Upper lip in line with lower lip. Lower lip slightly above bottom of languid. Flues hardly reduce in size in top two octaves.

CLERON? No visible mark.

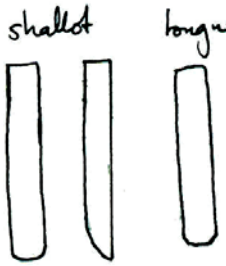
The top of the resonator has too wide a circumference to have a cylindrical section on top, so it must be a trumpet resonator, but the block is probably too small in scale to belong to the trumpet, even if only slightly too small.



Brighter metal than flue pipes, more like front pipes. Fine plane marks, not planed inside.



Wire 1.4 mm Ø.



GUIMILIAU

CROMORNE

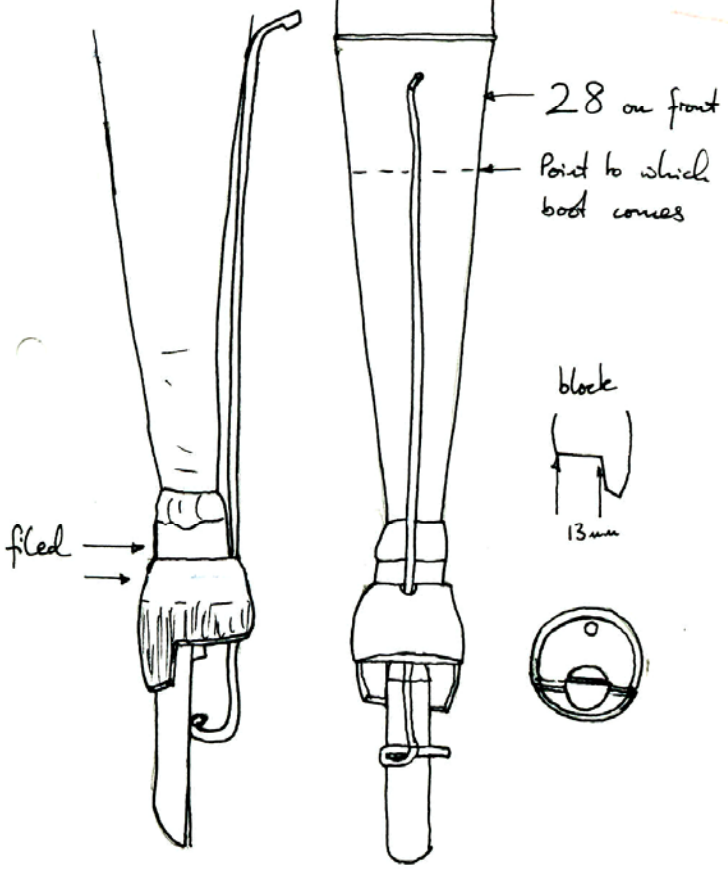
28 (e')

These are also resonators for 25 d♯" and 27 f♯ is complete. Some of the other bits may be Cromorne or Voix Humaine.

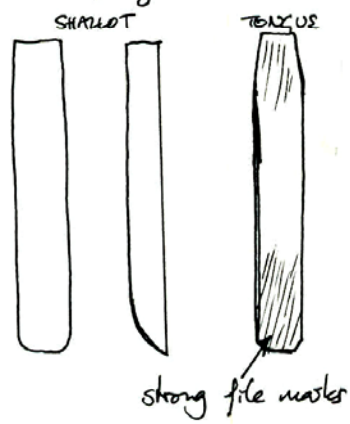
Material thickness 0·55 to 0·6 mm

reconstructed drawing. Original somewhat flattened (see

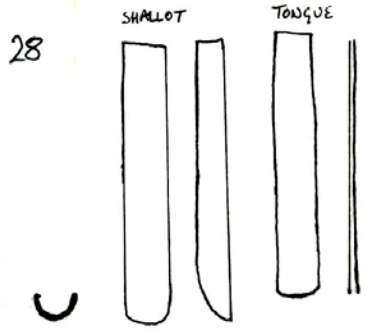
Otherwise both 27 and 28 are in good condition. Oak wedges. Shallots are filed across the back, perhaps quite recently, and also cleaned up on the front. Round punch marks are quite visible on the bottom of the shallots. The shallots are jammed into the block holes, which has pinched them inwards; the tongue is filed down to suit.

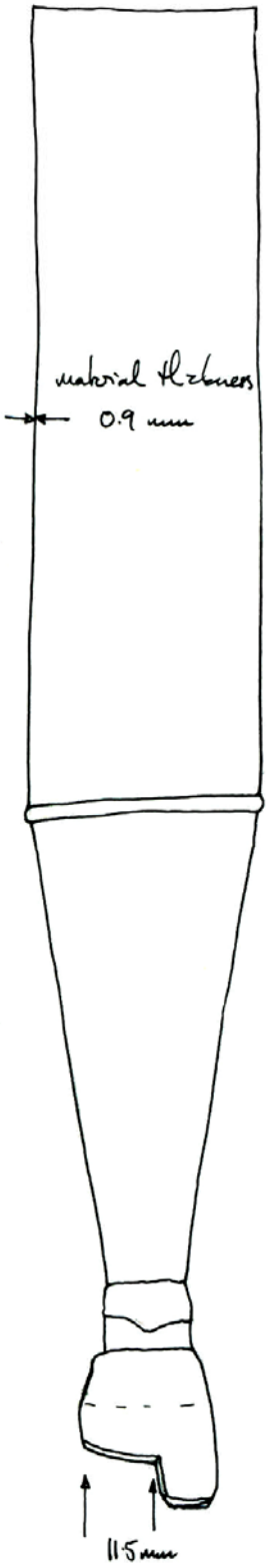


27 f♯



28





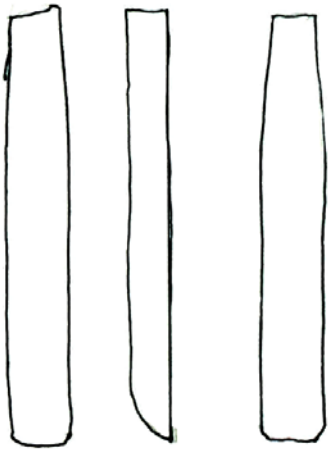
VOIX HUMAINE C°

Blotchy bluish metal like most of the principal flue pipes. Smooth inside + out. No sign of how the resonator was stopped, so the pipe could conceivably be a cornome, though that is unlikely.

The block is filed smooth, and is rather irregular. The surfaces are all rounded, presumably to facilitate insertion in boot.

Shallot beaten into mould and forced into block, but not cut to length.

It looks as if the hole in the block has been enlarged to take the shallot which has been squashed in wards.

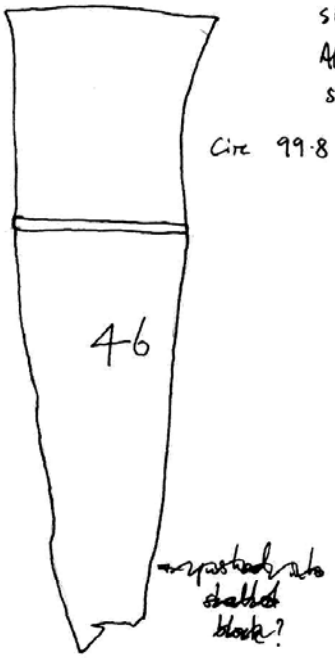


The tongue has been narrowed at the upper end, and thinned out, though there are still file marks visible.

Wire 2·2 m ø.

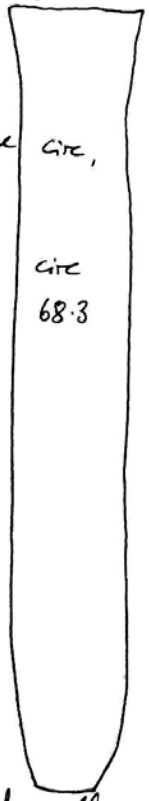
Other Dallam bits

!ε resonator

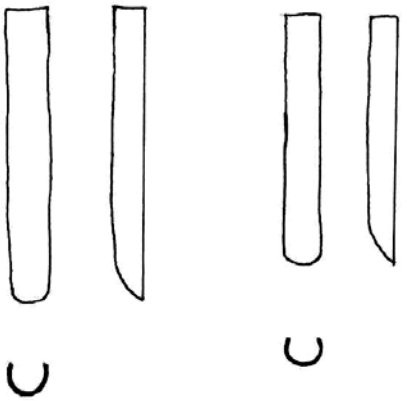


Also a small piece of resonator the same size as e' 28. Trimmed tick + sliding inside. All metal pieces included have some tick inside.

5 ~~6~~ 1 or 17 boots, all the same circ, one 161 mm long



LATER SHALLOTS



These shallots differ from other 'old' shallots in having pinch marks on the bottom as e' 28.

Shallot width	inside :	7·3 - 7·3 - 7·6	6·5 - 6·4 - 6·6
	outside :	5·6 - 5·4	4·8 - 5·0 - 4·9
Lgth	outside :	5·5 - 5·5 - 5·2	4·7
Thickness	:	0·6	0·4

ORGAN GUIMILIAU | STOP REED STOPS. | 52

Measured by D. GWYNN | Date 1 : 12 : 83

Measurement	CLERON		CROMORNE				VOIX HUMAINE				
Pipe markings		?		25	17	28		22		46	?
Pitch		?		d#°	f	e'		c°		a#?	?
Total length		145.5			402.6	359		296			
Resonator length top / bottom		107		450*/83	235/89	204.5 84.5		129/85			
Scale top / bottom		(100.4)/31.0		100.2/38.3	99.8/37.6	850/31.8		1154		99.8/?	?/32.2
Block length front / back †		18/27			20.5/30	23/33		21/29			19/27
Circ		59.2			68.8	62.8		70.6			63.0
Shallot length / exposed length		34/19			54/46	48.3/35		71/61.5			45/31.5
Outside width		5.5			8.2 8.6 8.7	7.3 7.5 7.1		9.0 10.3 10.0			6.8
Outside depth / metal thickness		4.0 0.35			5.7 5.9 6.1 0.5	4.6 4.9 5.2 ?		6.9 6.8 6.7 0.6			4.0 4.3 4.6 0.4
Inside width		3.7 3.9 4.1			6.5 6.5 6.7	5.8 5.7 5.3		8.0			5.4
Tongue length											
Width		5.2 5.4			7.7	6.7		10.0 10.4			6.8
Thickness		0.17			0.23 0.26 0.245	0.16 0.17		0.225 0.225 0.23			0.17 0.17 0.18
Tuning point		6.5			19.5	16.5		15.5			18.5
Boot length					146	138					
Circ					68.3	69.2					
Toehole					8.9	11.0					

* original metal : 57mm added tube

† includes solder line

otherwise look at explanation sheet for Plonjean reed.

SCALING: RATIOS AND ADDITION CONSTANTS

A 1:2 ratio is used throughout all the ranks in the organ.

PRINCIPALS

(GO + Pos; Montre, Prestant, Doublette, Mixtures)

The scale is only clear from 1ft c upwards, where the pipes are inside the case, but all the principal ranks are the same scale, so it must be as true of the Montre as it is of the others.

The scale appears to be calculated to plate widths rather than diameters. There are obvious areas of error to do with the pipe manufacture, including the fact that the edges have sprung apart, though the effect of these may be less than one might expect. Also, the bass octaves do not help as they usually do, because of the way they are laid out as symmetrical pairs in the front. The way they form part of the line is inconsistent, though one can assume that solitary pipes (eg. central pipes, and pipes inside the case) are on the scale line.

The closest I have come to a simple solution is to have an 18 ins plate width for the 8ft C, with an addition constant of 1½ ins to 2ft c and ½ ins (or more plausibly 5/8 ins) from there upwards. The French Pied du Roi (32.48mm) is used throughout.

The mouth widths must be 1/4 plate width. The variations are not consistent enough to indicate any other possibility.

OPEN FLUTES

(Tierce)

I only have figures for the Tierce, though there may be a Quarte at Guimiliau, and the pipes marked 4 and 5 may be part of a Cornet. Presumably the Larigot (and Flageolet?) are open flutes, and the Cornet apart from the 8ft which at Lanvellec (and everywhere else) is stopped. The six open pipes marked <N> do not fit in, though they are open flutes from their scale and cut up; perhaps they are a fifth-sounding rank like the other <N> pipes, though these are stopped.

The addition constant is 1 in, perhaps getting larger from about 2ft g# (the 1ft pipe), to 1½ ins. The 2ft c, which would be the largest open flute pipe in the organ, might have a plate width of 8 ins, or alternatively the scale may be related to the principals somewhere (generally speaking they are about a fifth larger). The mouth width is a 1/4 in plate width throughout.

STOPPED FLUTES

(Bourdon, Flute, Nasard)

The bottom octave of the Bourdon and most of the Flute is missing, so the results are not as close as the others.

The addition constant is about 1¼ ins. If there are variations on that, they are not obvious, though the Nasard has treble pipes below the scale line. The sizes are very similar to the principal pipes of the same pitch, but without the reduction in the size of the addition constant.

The mouth width reduces in size from 1/4 to around 2/9 for the Bourdon, but the Nasard is 1/4 right through.

MOUTH HEIGHTS

The mouth heights are fairly consistent, suggesting that they were transferred from a graph and altered only slightly.

The GO Montre starts at 1/5 MW and ends at 1/4. The other extant principals are 1/4 throughout, getting slightly higher in the treble, but not much.

The Tierce is 1/5 throughout.

The stopped pipes have been altered considerably more than the others, perhaps by Dallam himself. The Nasard is 1/4, with a few variations. The Bourdon and Flute are nearer 1/3, with greater variations, as if the cut up was used to control the speech, perhaps originally.

VOICING

Much of the pipework has been altered in some way, either intentionally or from the effects of settlement, etc., but much of it is haphazard, and it is possible to see patterns. Most of the pipes were too damaged to speak well, but some could be tried by mouth to give a general impression of the sound and voicing style.

With low cut ups, volume control is crucial. The flues are obviously critical, since control at the toe can be no more than marginal. The flues are of average width. They are similar to other organs of the same date, perhaps at the narrow end, but wider than Orgelbewegung flues and narrower than 18th and 19th century flues when more control was carried out at the foot, and methods of directing the wind at the flue were different.

The toeholes are throughout larger than the flue area. They do not appear to have been widened at any stage, and may have been close to the size of the stopped flute toeholes, which are up to twice as large as the flue area. The open pipe toes have sunk into the upperboard holes a little, helped by what little tuning the organ has had over the years. This is to be expected with lightly coned tips and straight sided upperboard holes. However, the upperboard holes are not as large as those in Dutch and German organs, and the toeholes are by no means as large; this may have some effect on the wind flow.

The mouths appear to have been cut out in the flat, judging by the clean sides to the mouths. These may have been cleaned up afterwards, but the mouths are consistently 1/4 plate width. The upper lips are arched, not entirely consistently, as if arching was the accepted method of cutting up more than originally intended. The front pipes have straight mouths, but they have been slightly cut up further in places. The stopped flutes on the other hand, have been cut up quite a lot further during voicing, apparent by the marks at the side of the mouth. (Later cutting up seems to me to be obvious.)

Languids are thin, with a shallow bevel, and with a counterface throughout. They vary in height above the lower lips, and in the larger pipes have obviously sunk (not surprisingly). The impression from the pipes that speak well is that they are low in the bass, with up to a half of the languid below the lower lip, and with the upper lip pulled out. Languids rise and upper lips move in to 2ft c, and stay at a position where the languid is no more than a third below the lower lip and the upper lip is more or less level with the lower. The languids of the stopped are generally lower of course. The counterface is about a third of the thickness of the languid, and is usually hidden (the best measurements are from damaged pipes).

Of all the voicing characteristics the upper lip position was the most erratic, which indicates that this was the most manipulated part of the pipe. The fact that the edge of the upper lips of the larger Montre pipes are curved outwards tends to confirm this.

There is no nicking, but some of the upper lips have a steep light chamfer, original to judge by the colour of the metal. With such thin metal it might be felt that a chamfer is unnecessary, though it is increasingly pronounced in English voicing of this type through the 18th century. The fairly long flatting of the lower lip and the counterface counteract the thin languid, shallow bevel and low languid position.

There are three families of pipe:

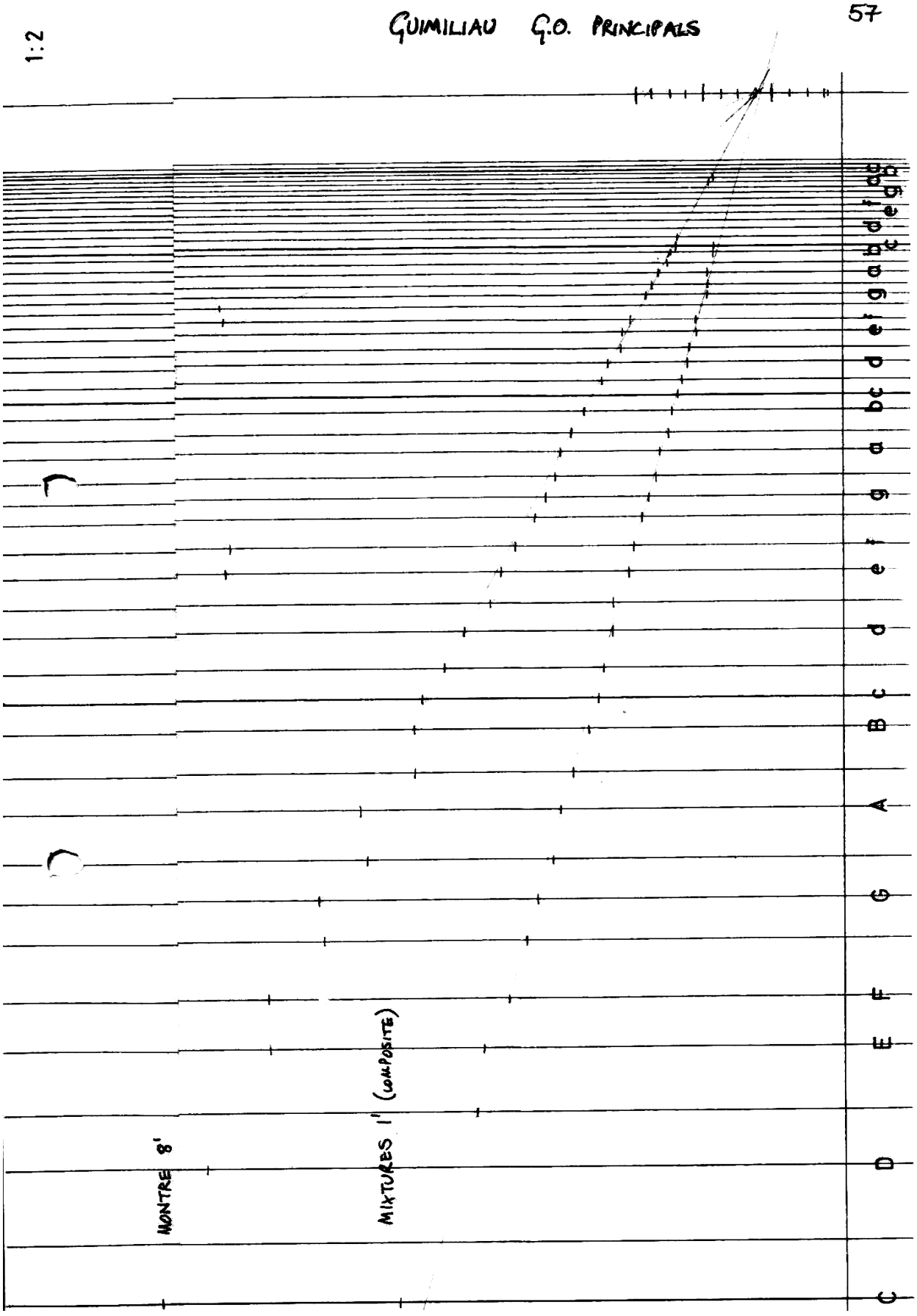
principals (Montre, Prestant, Doublette, Fourniture, Cymbale)
open flutes (Tierce, ?Quarte, ?Larigot, ?Cornet, Flageolet)
stopped flutes (Bourdon, Flute, Nasard)

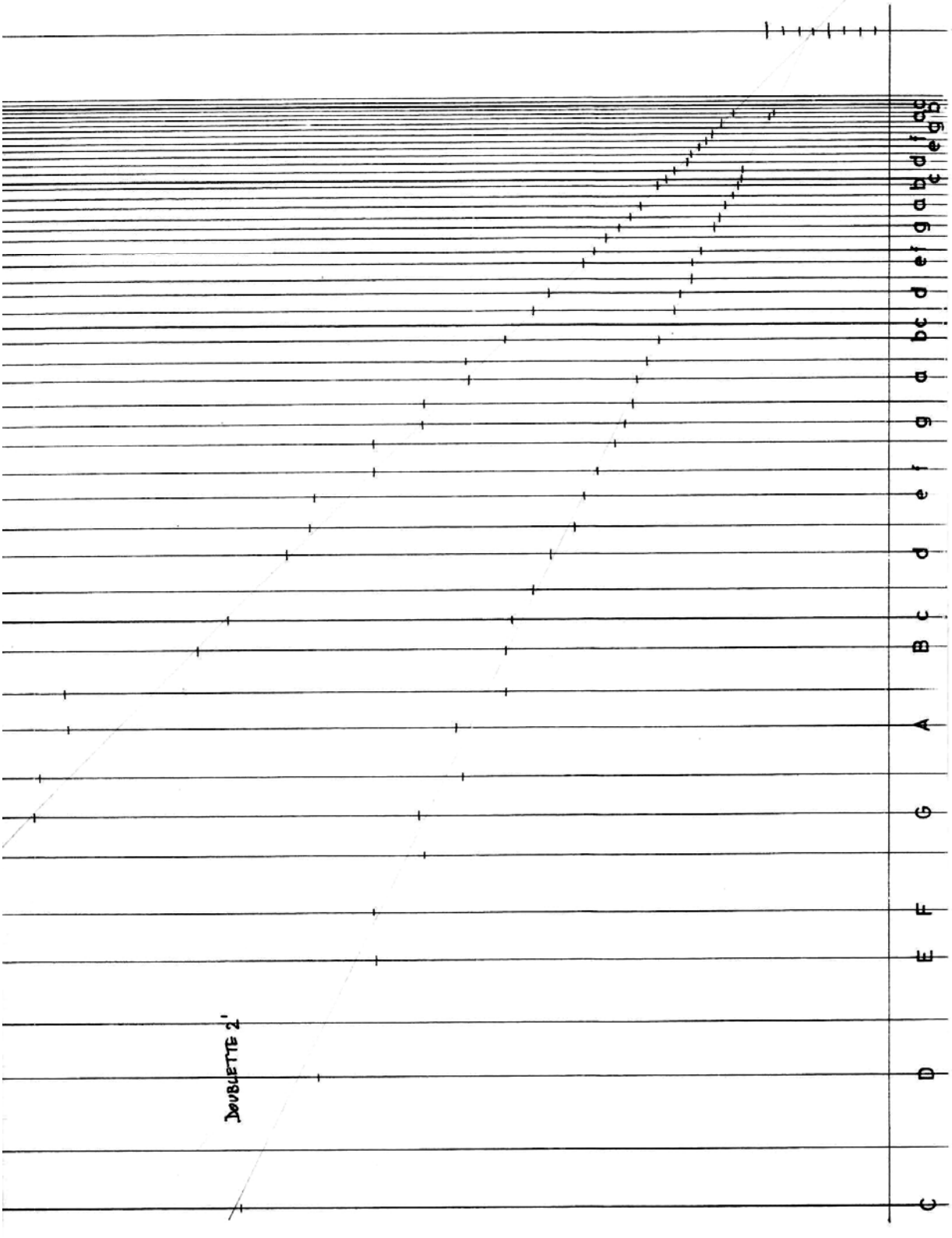
The main difference between the first two is the scale, which is about a fifth larger in the second than the first. This means that the open flutes must be a lot louder than the principals. Since the trebles are also relatively wider than the bass, there must be an increase in volume as one ascends the scale. Between the stopped and the open the main difference, apart from stopping, is that the cut ups are higher, so that whereas the stopped wooden pipes in English organs have a strong harmonic build up with a pronounced fifth, these pipes have a strong fundamental. They must also be softer in tone.

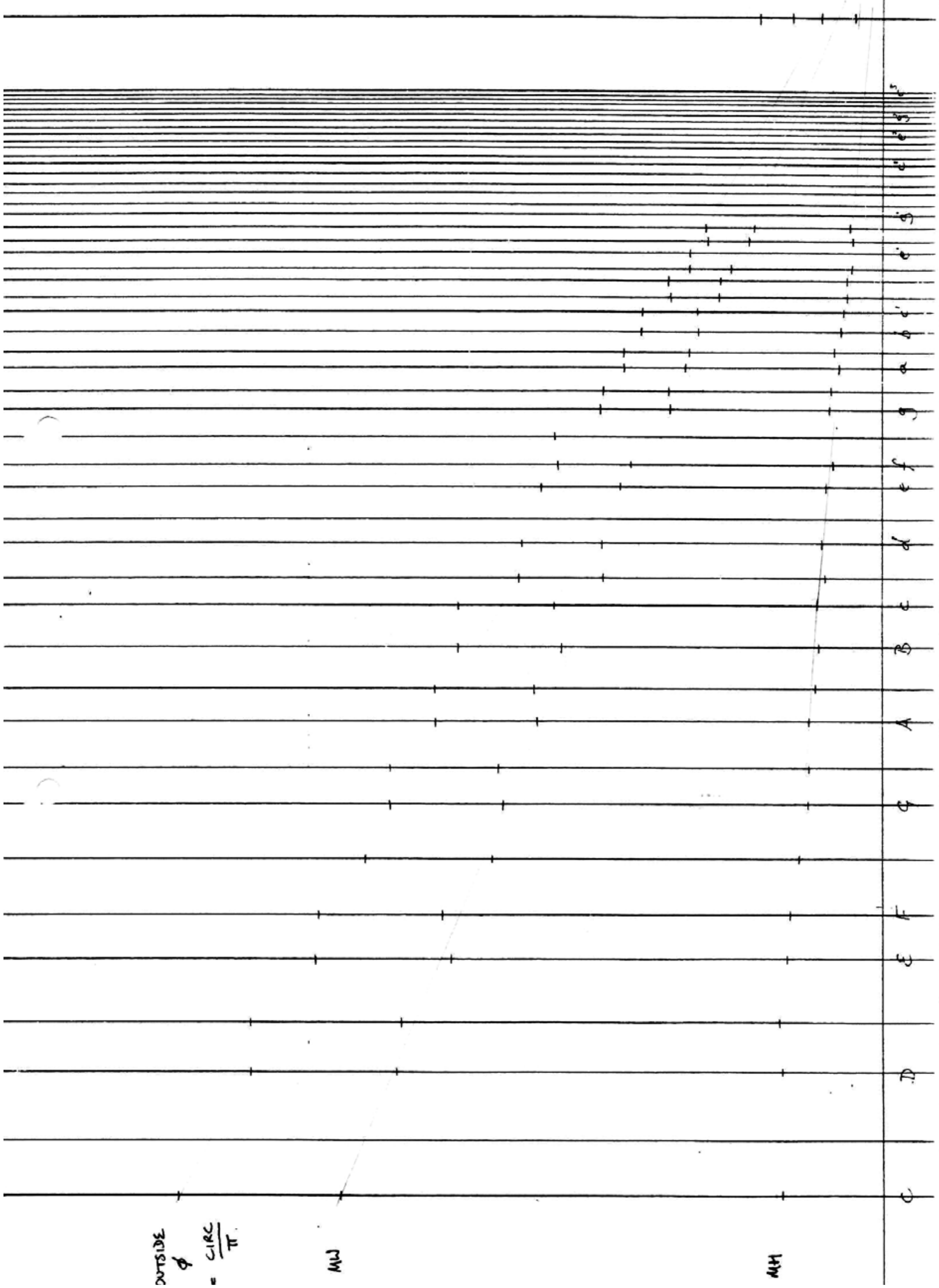
The speech is quite slow, without any very noticeable initial speech characteristic (eg. ‘chiff’), and it takes quite an effort to make the pipes overblow. On the other hand, the shallow languid bevels, thin and low languids, and pulled out upper lips all suggest that the pipes speak as quickly as they can. This may be because the point at which a speech characteristic does occur produces an overblowing whistle, which is unpleasant, and reduces the richness of the overtones.

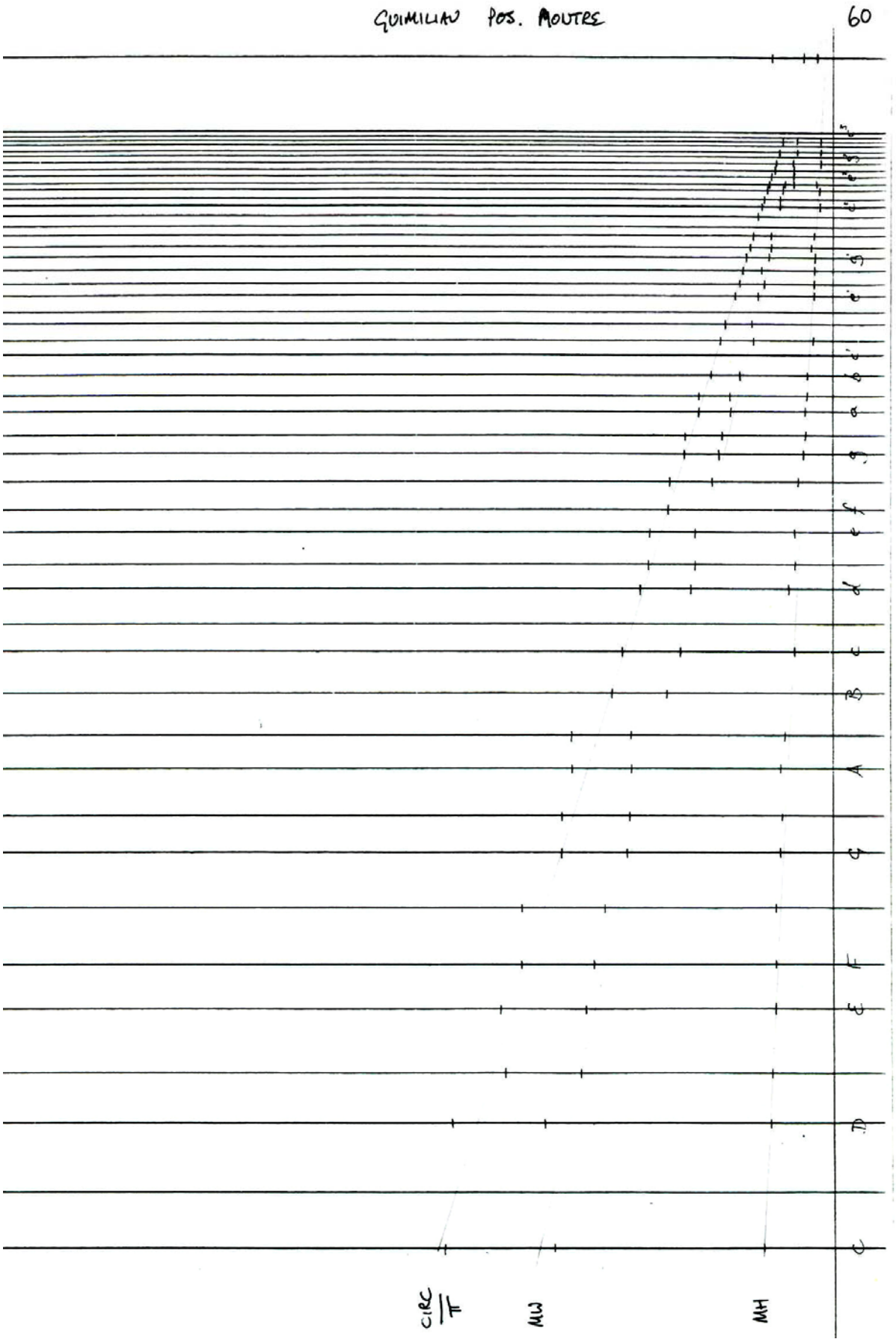
The low cut ups in the treble would suggest an attempt at reducing the impact of these pipes if there was an accompanying drop in volume. This is difficult to detect, though the flues are never wide, and one can assume a low wind pressure, of the order of 2½ ins or 63mm. If the pressure is higher, the pipes have to be voiced slower and some of the richness is lost, as well the danger of acquiring the fizzes and spits that accompany slow voicing.

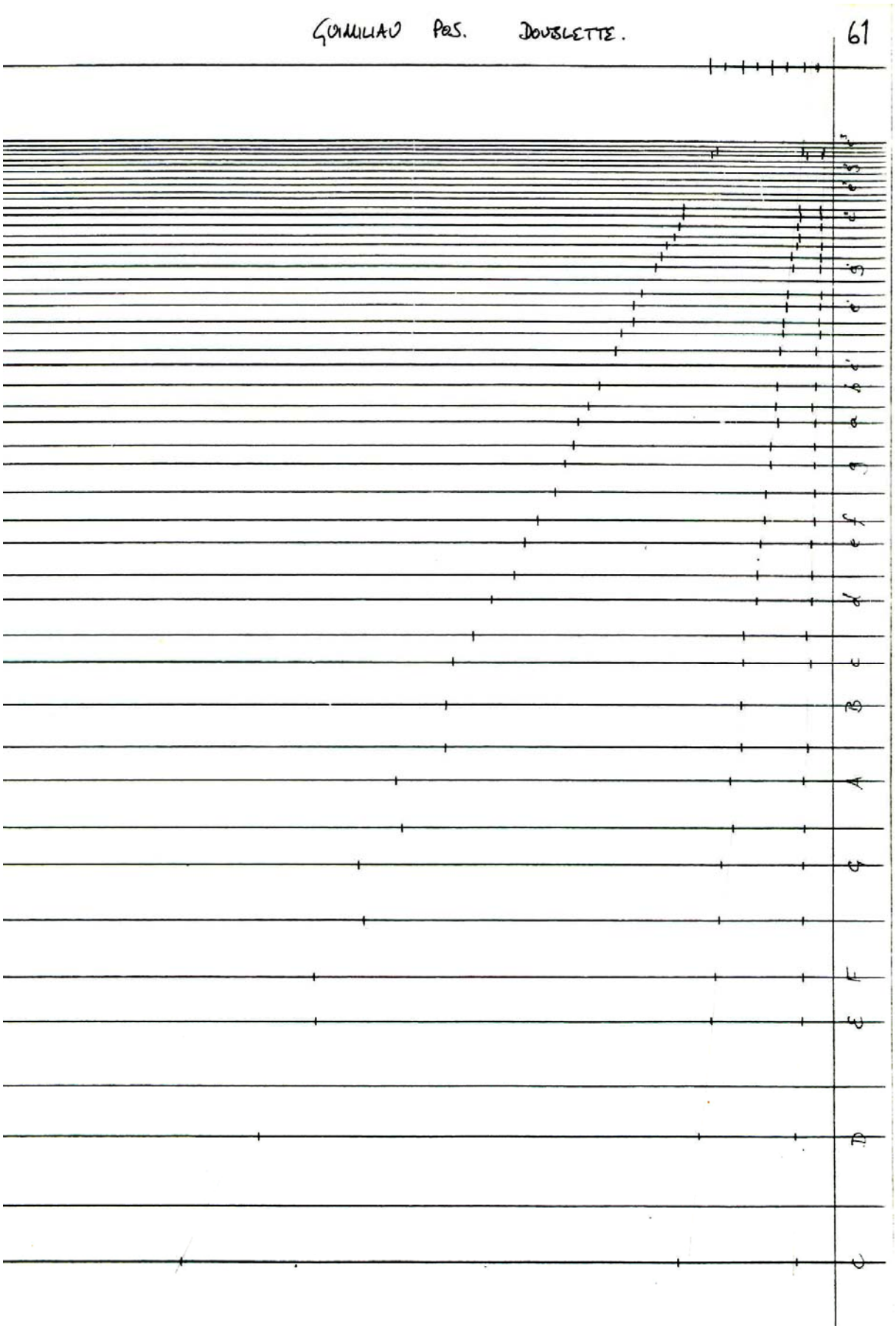
Much of the charm of the organ derives from the low cut up voicing, which means that the bass is soft and rich (an effect reinforced by the pipe walls) and the treble bright and reedy, unlike the hollow, intense and penetrating sound of Dutch and German organs. The stopped pipes are also somewhat more interesting than their Protestant counterparts owing to their smaller scales, slightly lower cut ups and lower wind pressure.


GUIMILIAU G.O. PRINCIPALS
57
1:2
MONTRE 8'
MIXTURES 1' (COMPOSITE)
C
D
E
F
G
A
B
c
d
e
f
g
a
b
c'
d'
e'
f'
g'
a'
b'
c''
d''
e''
f''
g''
a''
b''
c'''
d'''
e'''
f'''
g'''

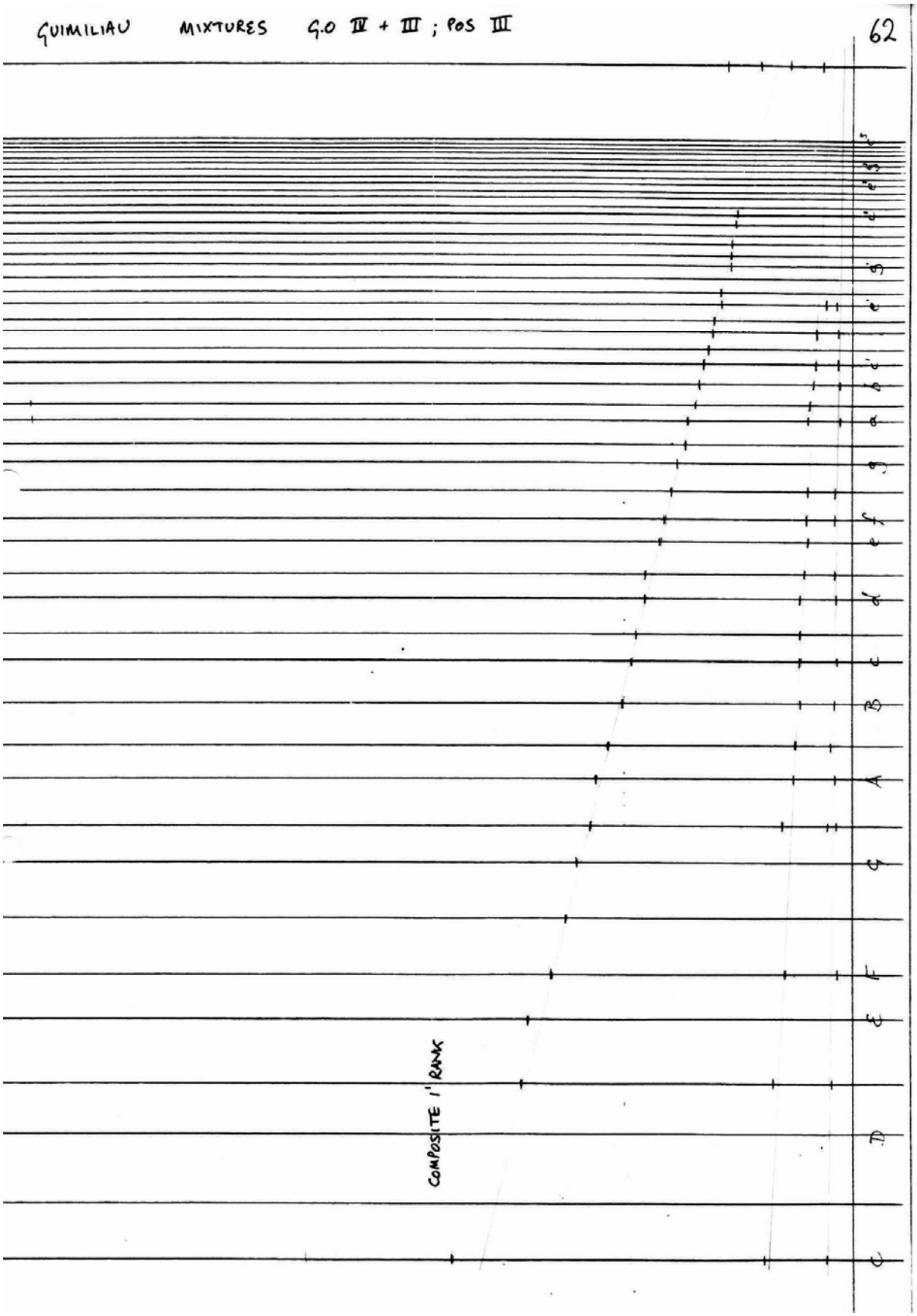

C D E F G A B c d e f g a b c' d' e' f' g' a' b' c''
DOUBLETTE 2'

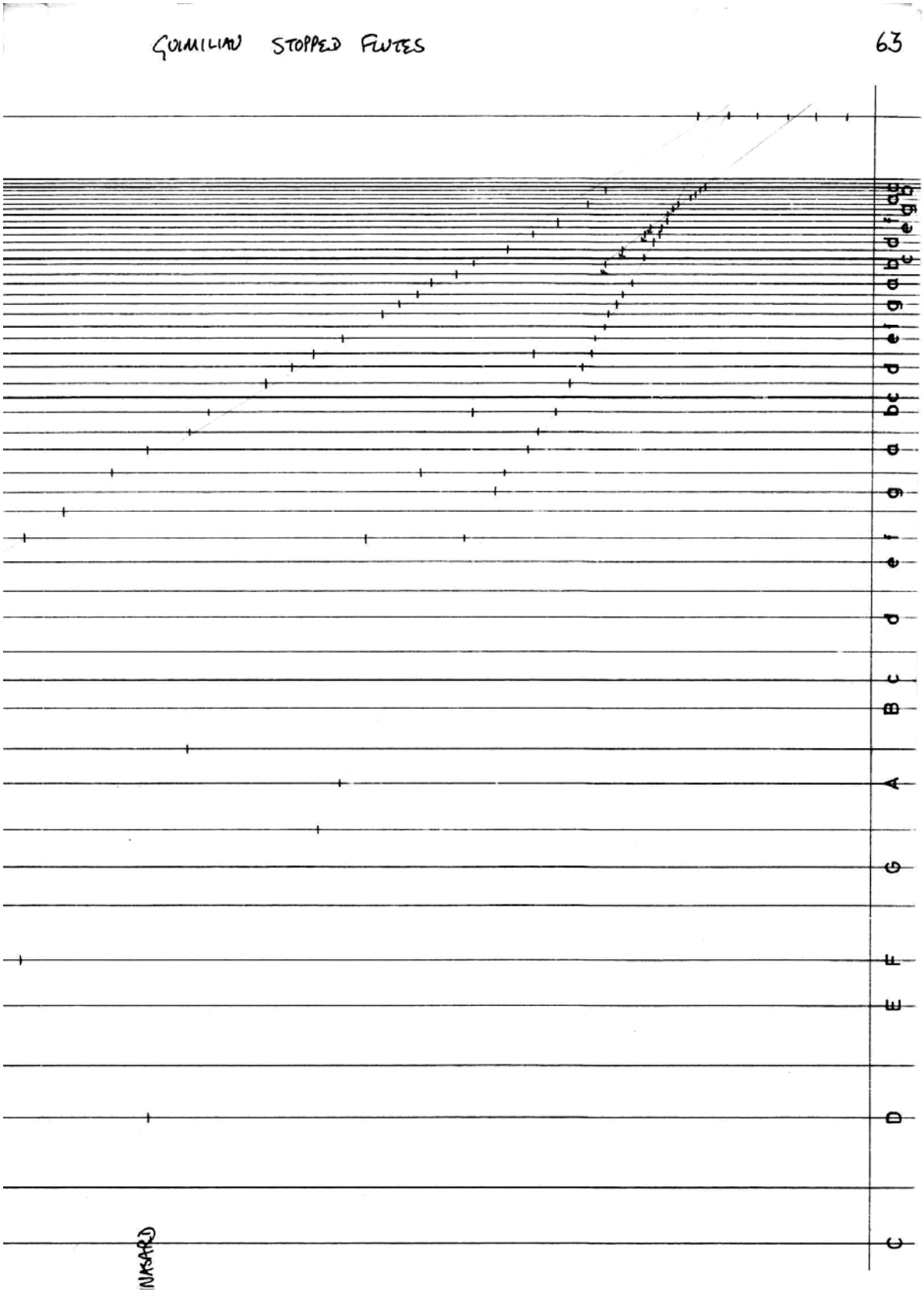

C
D
E
F
G
A
B
c
d
e
f
g
OUTSIDE Ø = CIRC / π
MW
MH

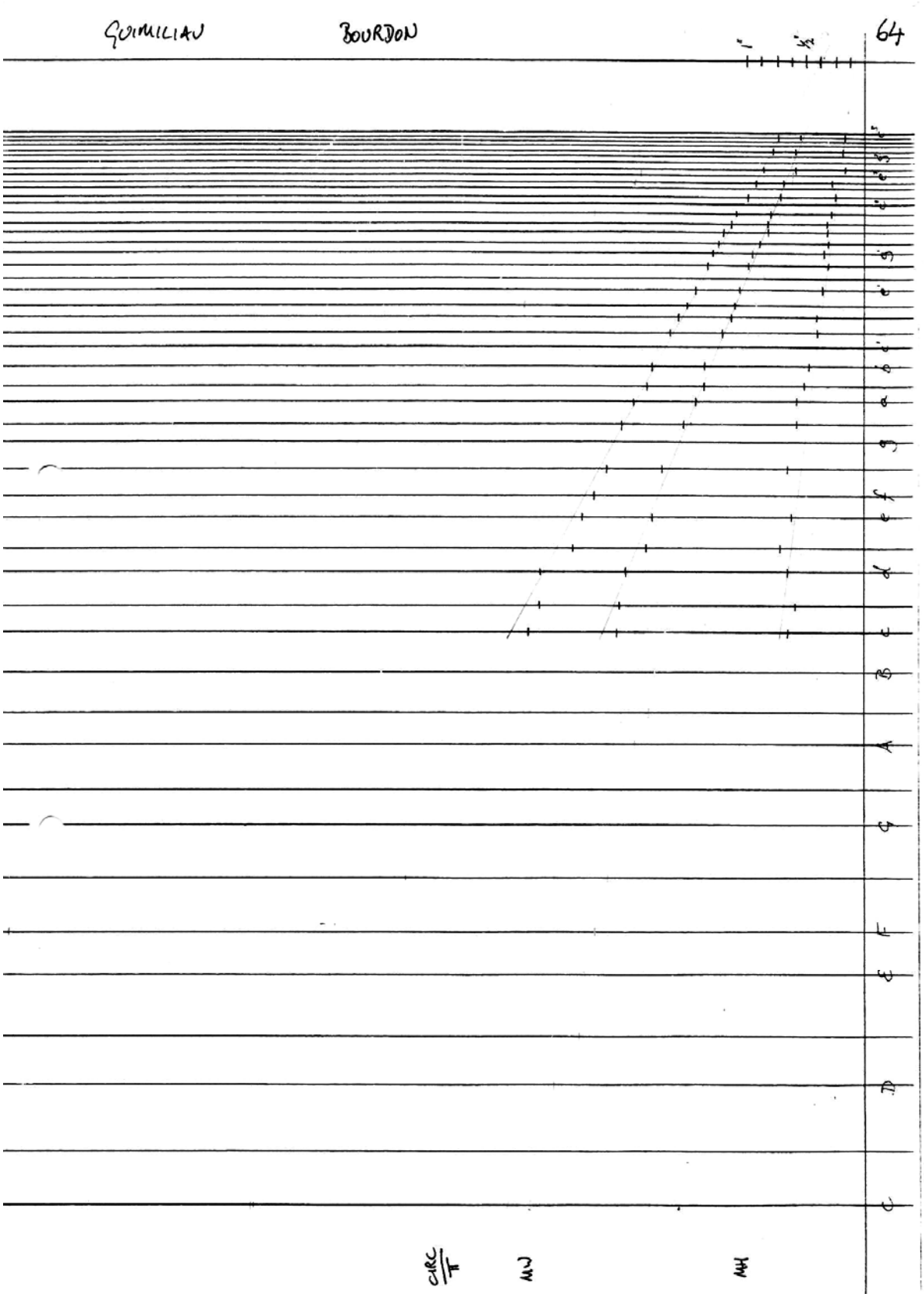

GUIMILIAU POS. MOUTRE
60
CIRC
MW
MH

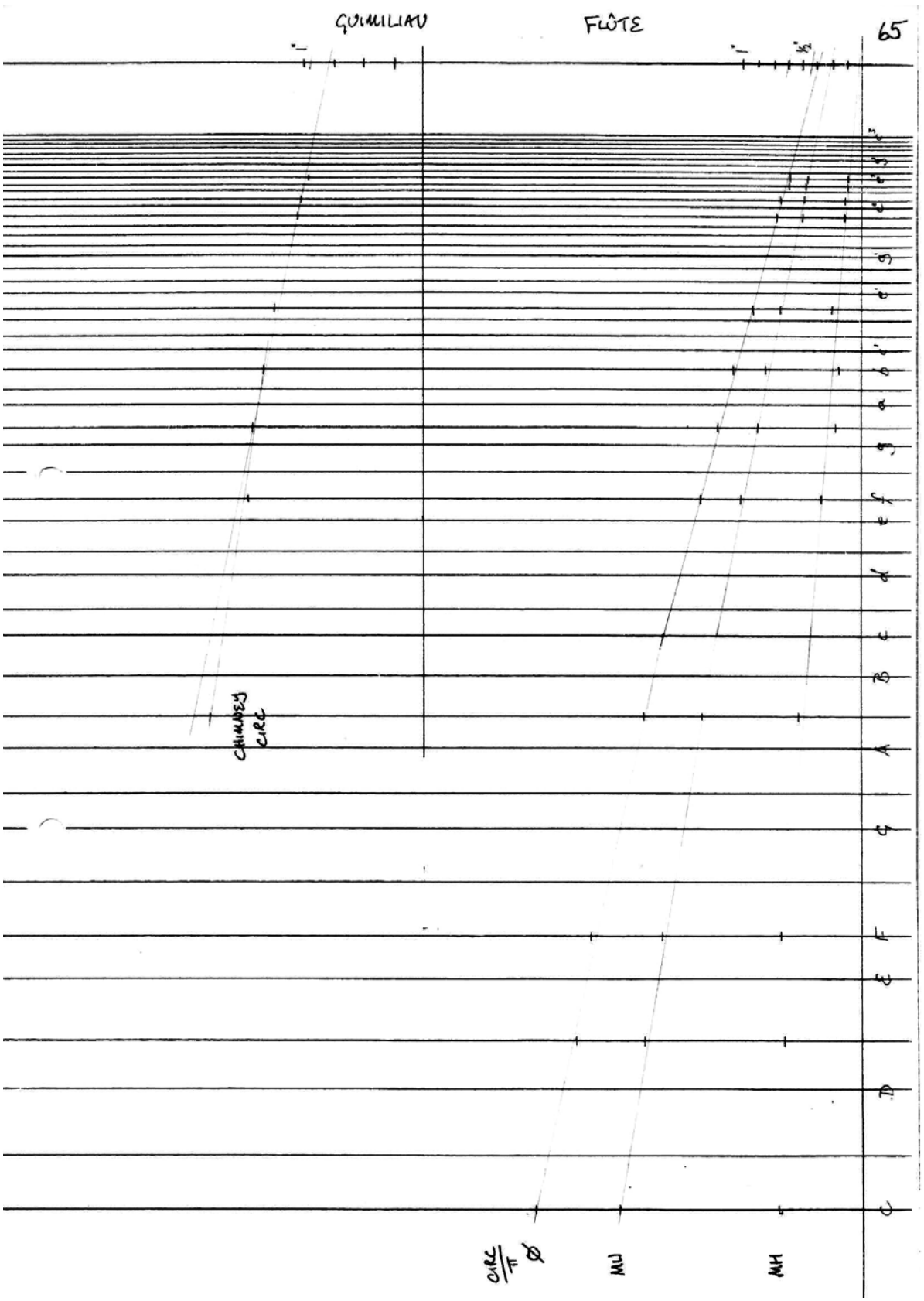

GUILLIAU POS. DOUBLETTE.
61

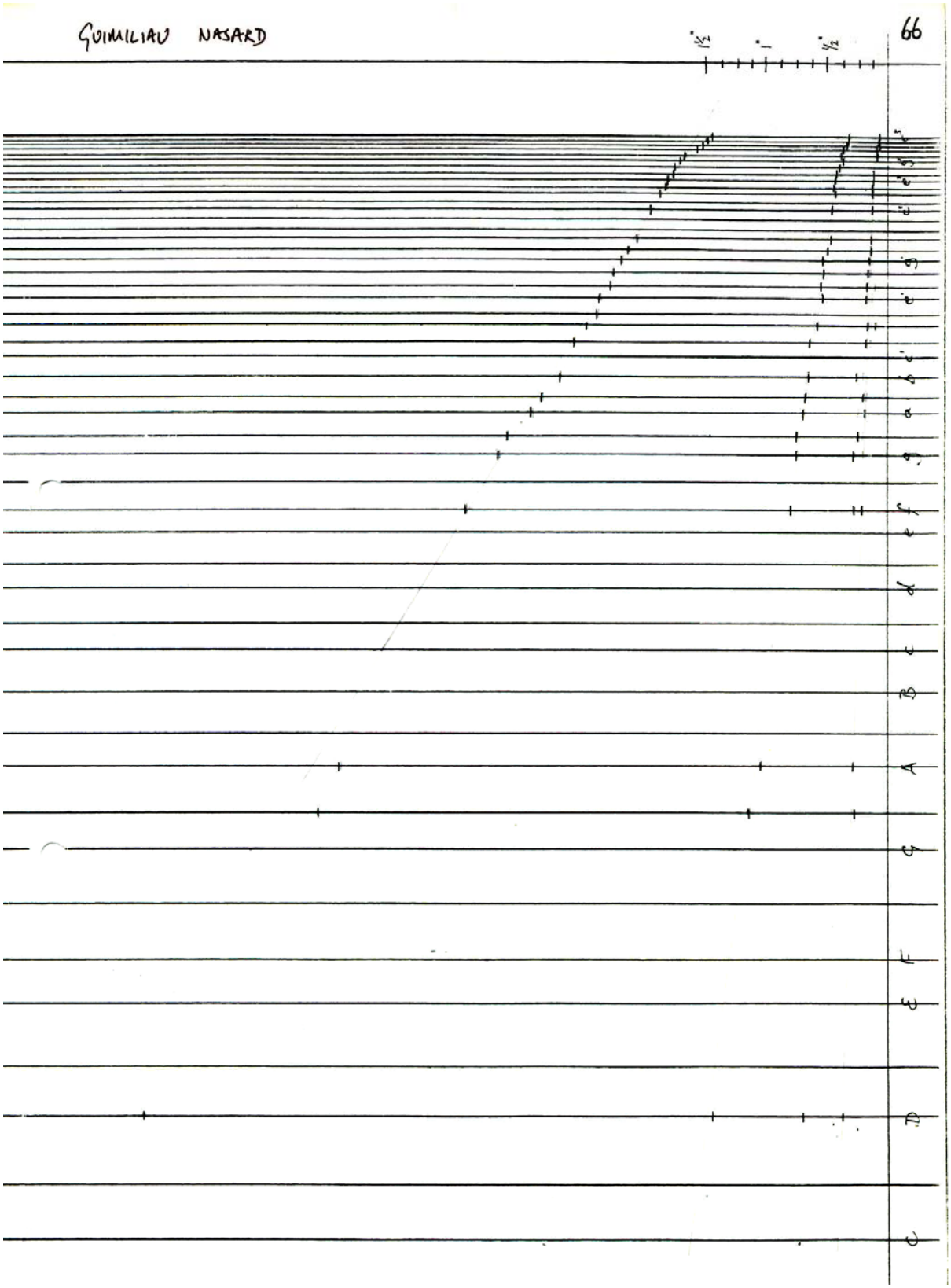
GUIMILIAU MIXTURES G.O III + III ; POS III

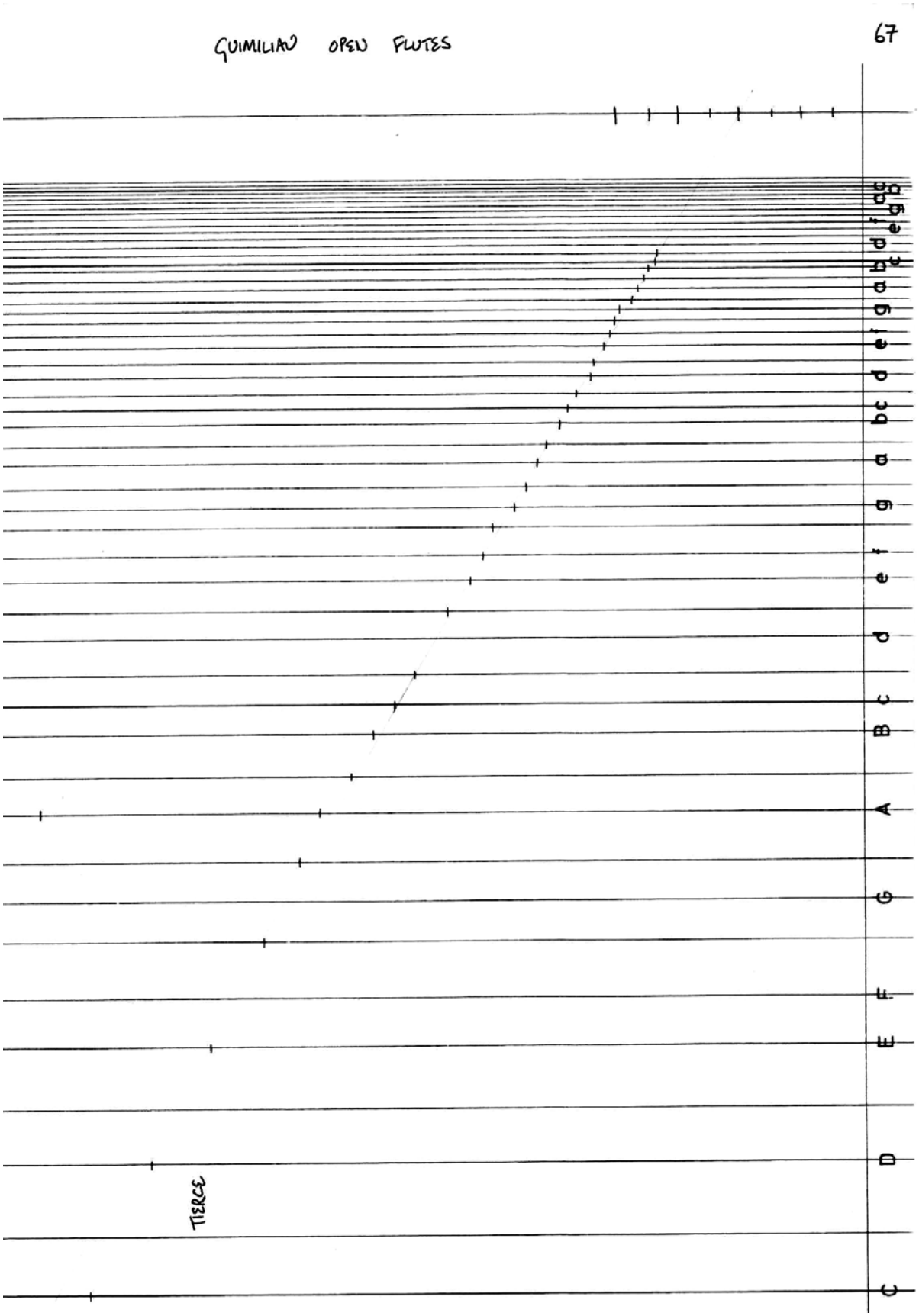



GUIMILIAU STOPPED FLUTES
63
C D E F G A B c d e f g a b c d e f g a b c d e f g
NASARD

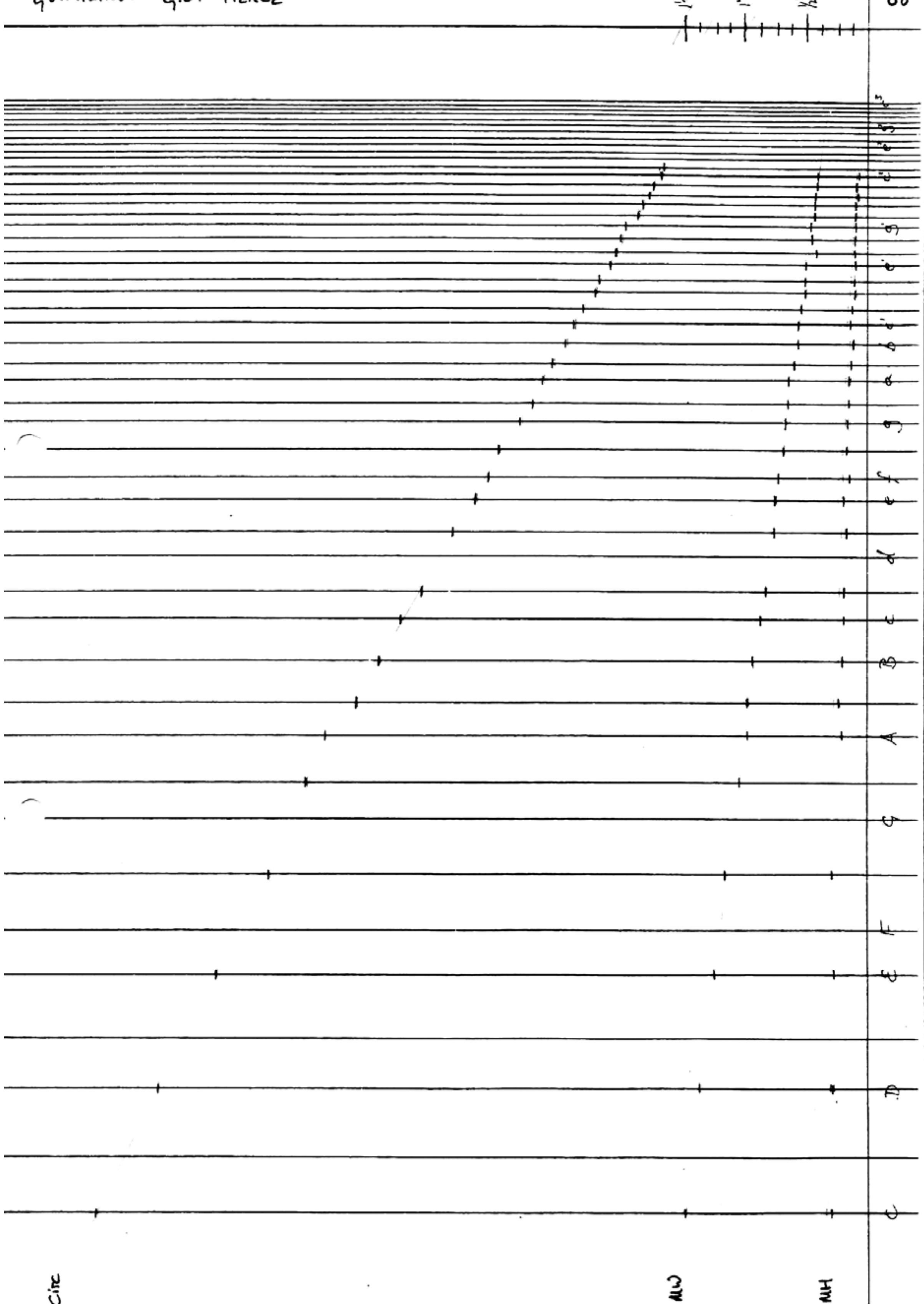

GUIMILIAN
BOURDON
64
1"
½"
CIRC
MW
MW


GUIMILIAU
FLÛTE
65
CHIMNEY
CIRC
CIRC
MU
MH


GUIMILIAU NASARD
66
1½
1
½


QUIMILIAN OPEN FLUTES
67
TIERCE

GUIMILIAU. G.O. TIERCE 68



1. Colour photo of case

2. Positif

3. Cases without front pipes

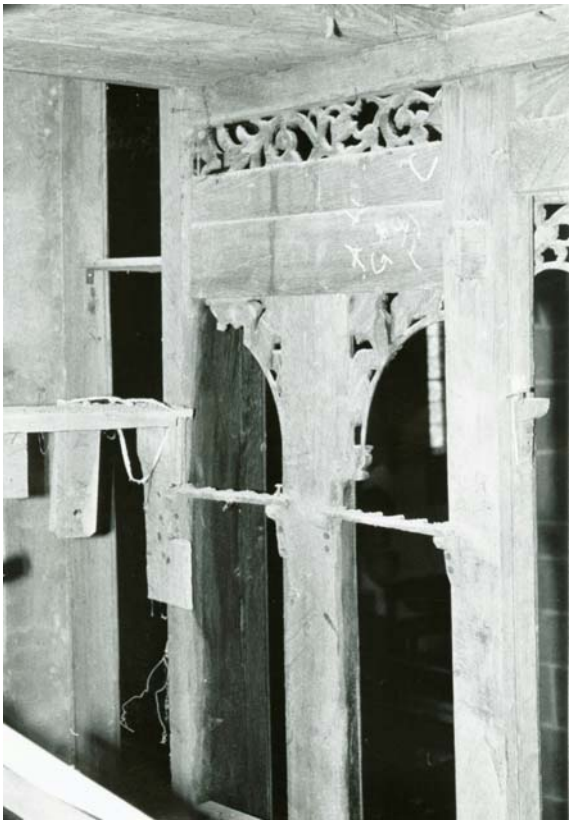
4. Positif: treble flat

5. Positif: impost bass side

6. Gallery impost: bass side

7. Positif impost: centre tower

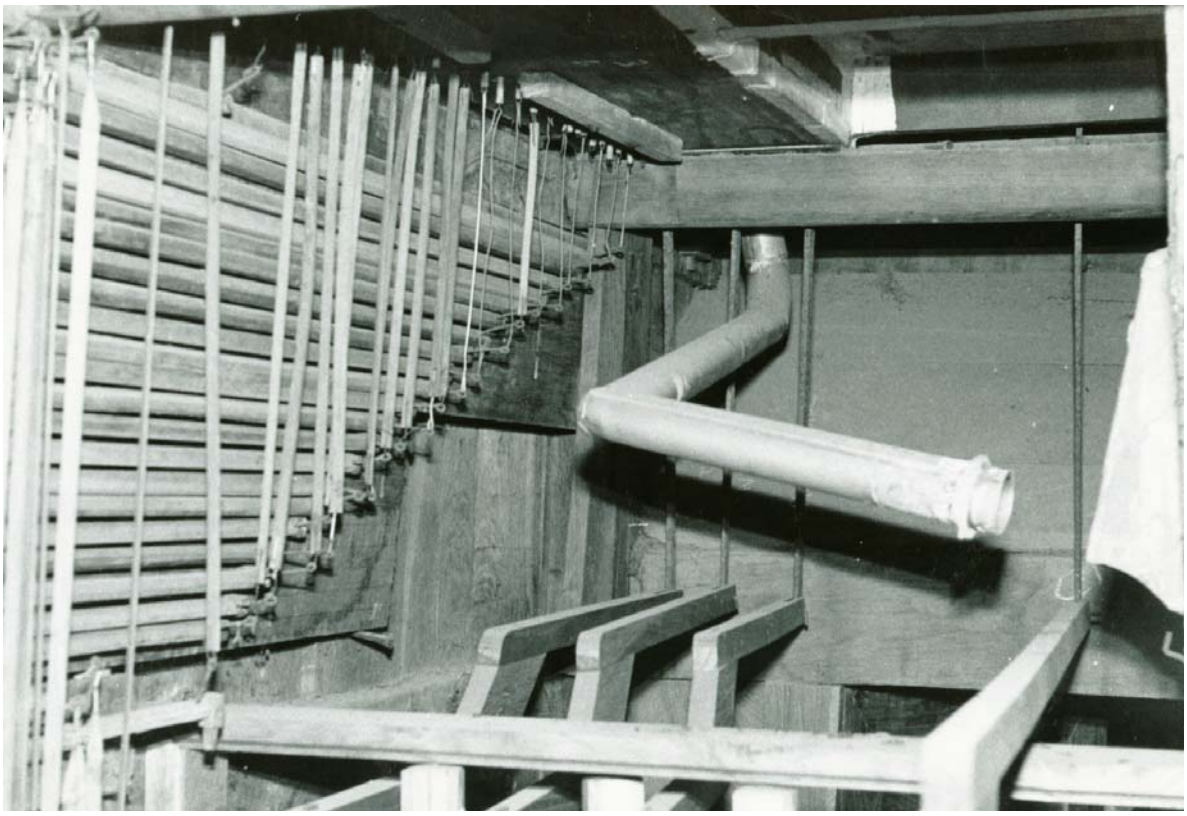
8. Positif impost: bass side



9. Inside Positif: treble side

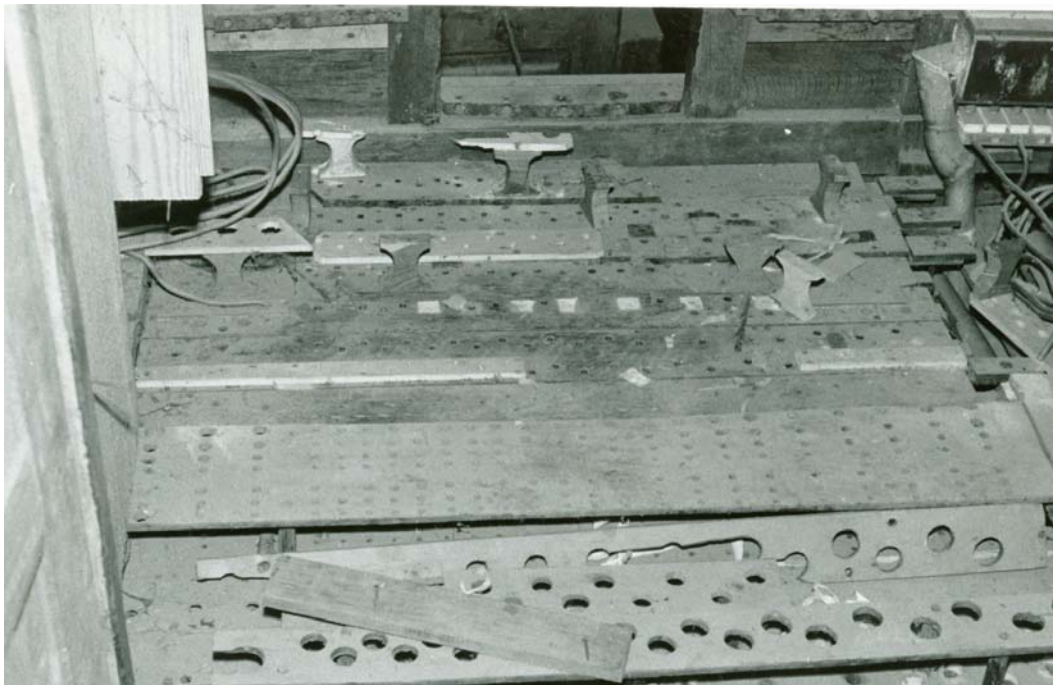
10. Inside Grand Orgue: bass flat

11. Lower case: from bass side

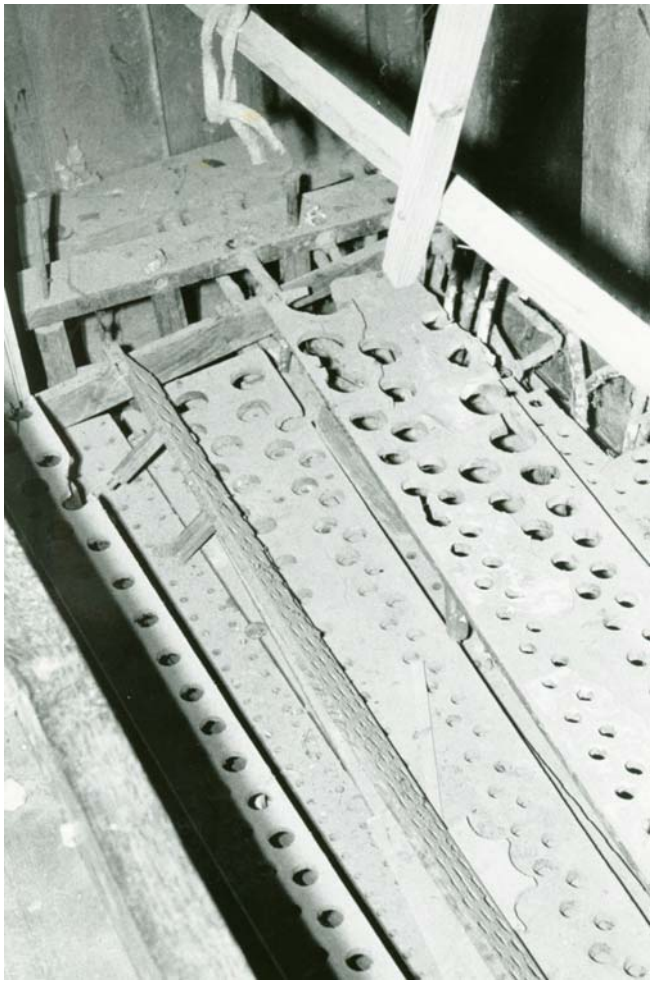


12. Roller board: bass end (NB tremblant fort)

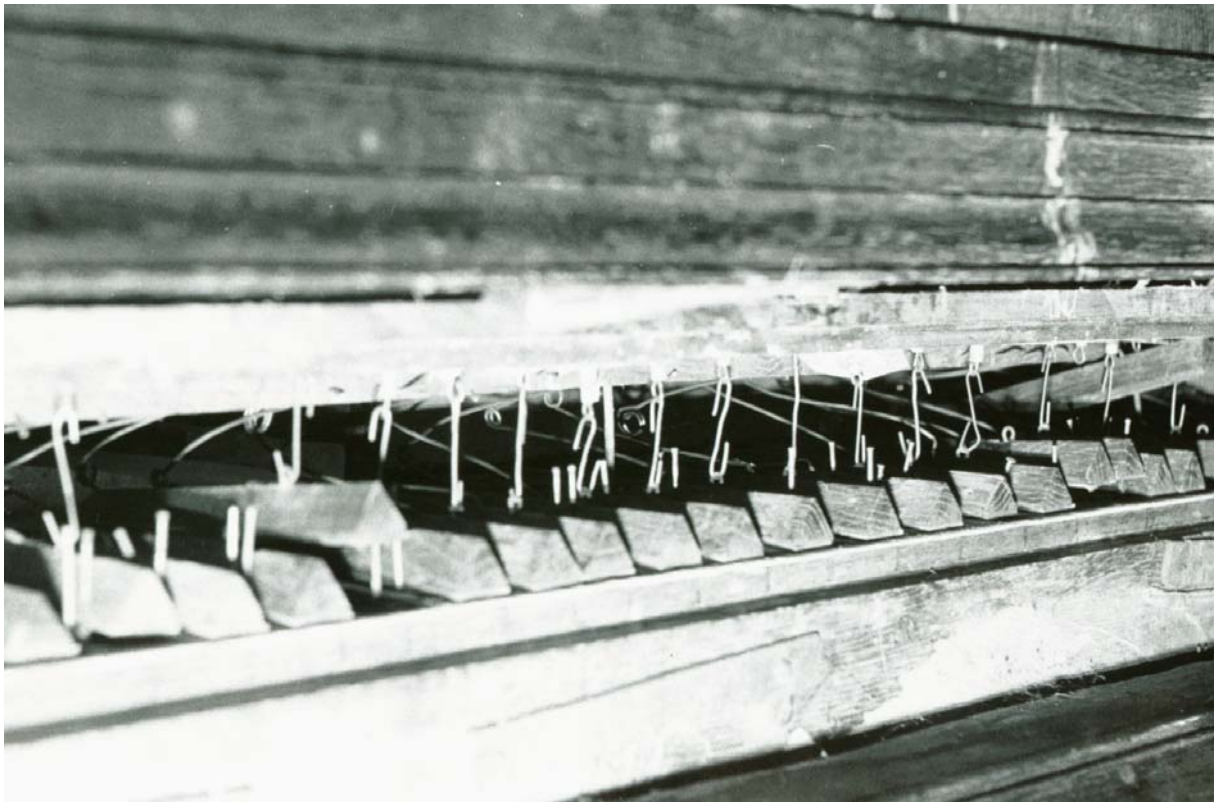
13. Grand Orgue treble side chest



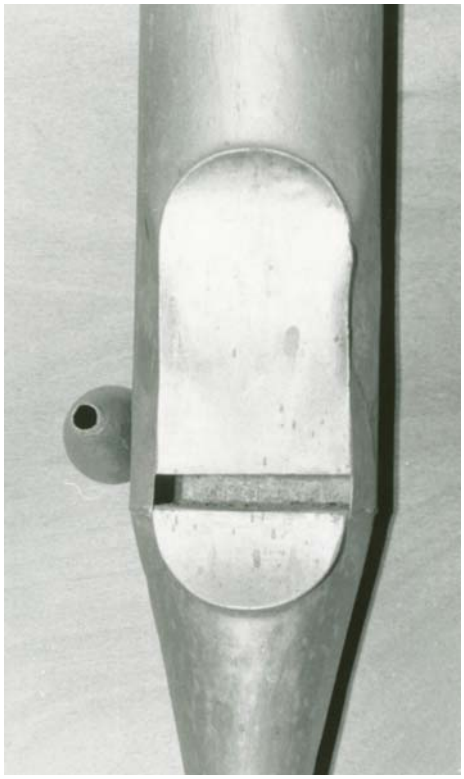
14. Grand Orgue bass side chest



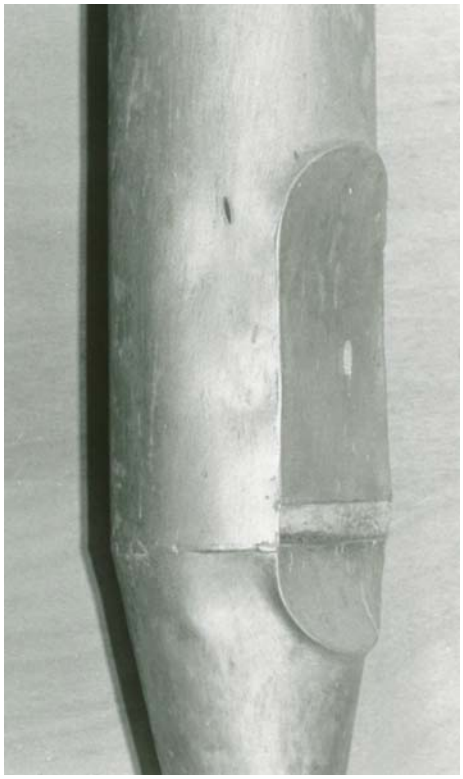
15. Positif chest: treble end



16. Grand Orgue chest pallets: bass side

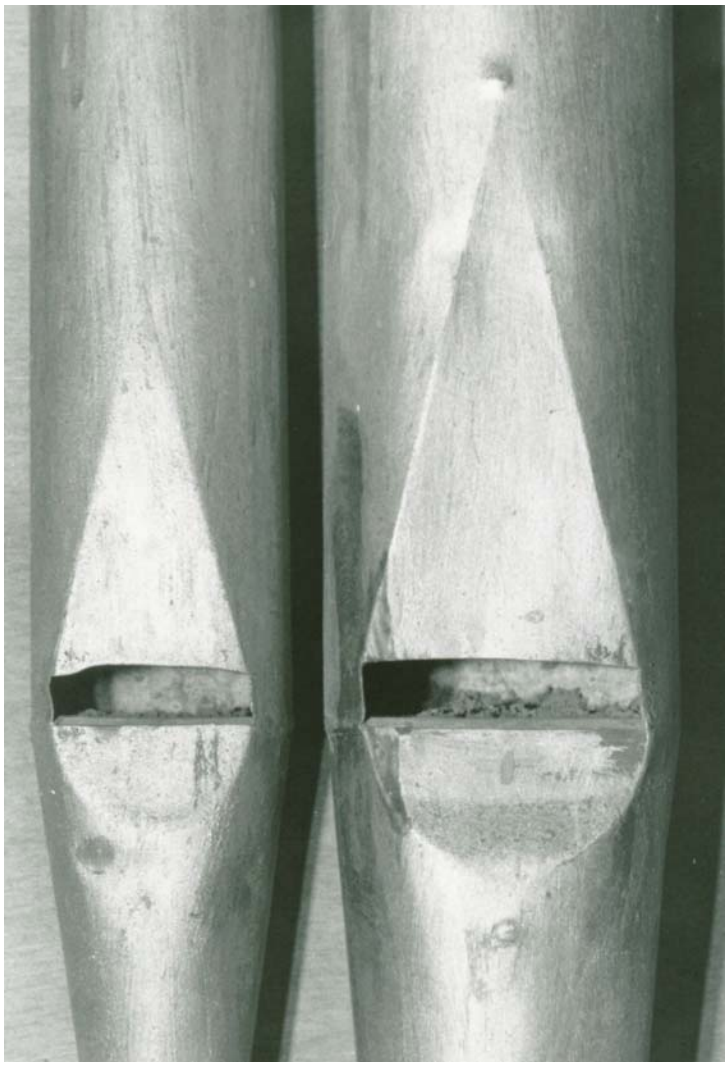


17. Grand Orgue Montre C

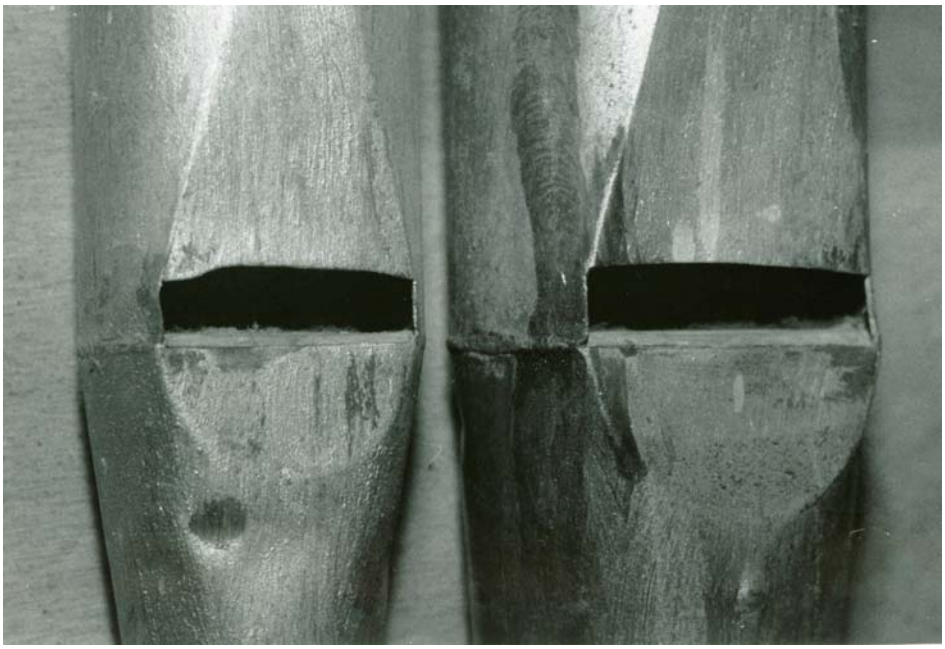


18. Grand Orgue Montre C

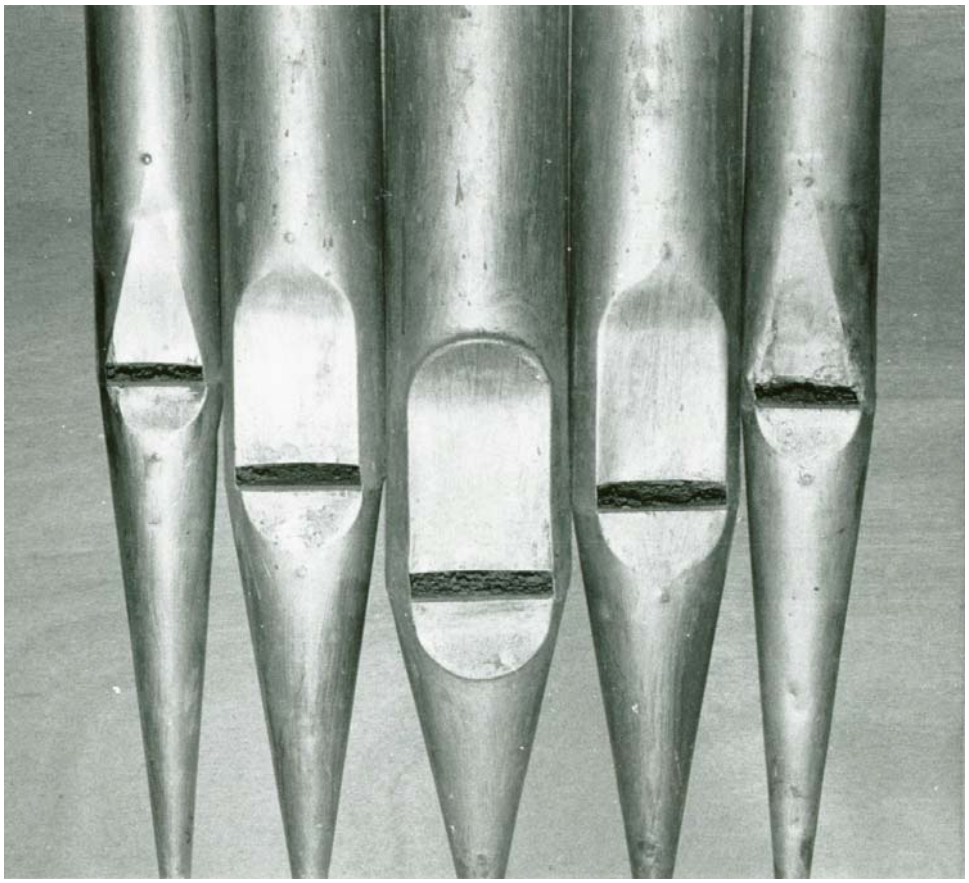
19. Grand Orgue Montre C



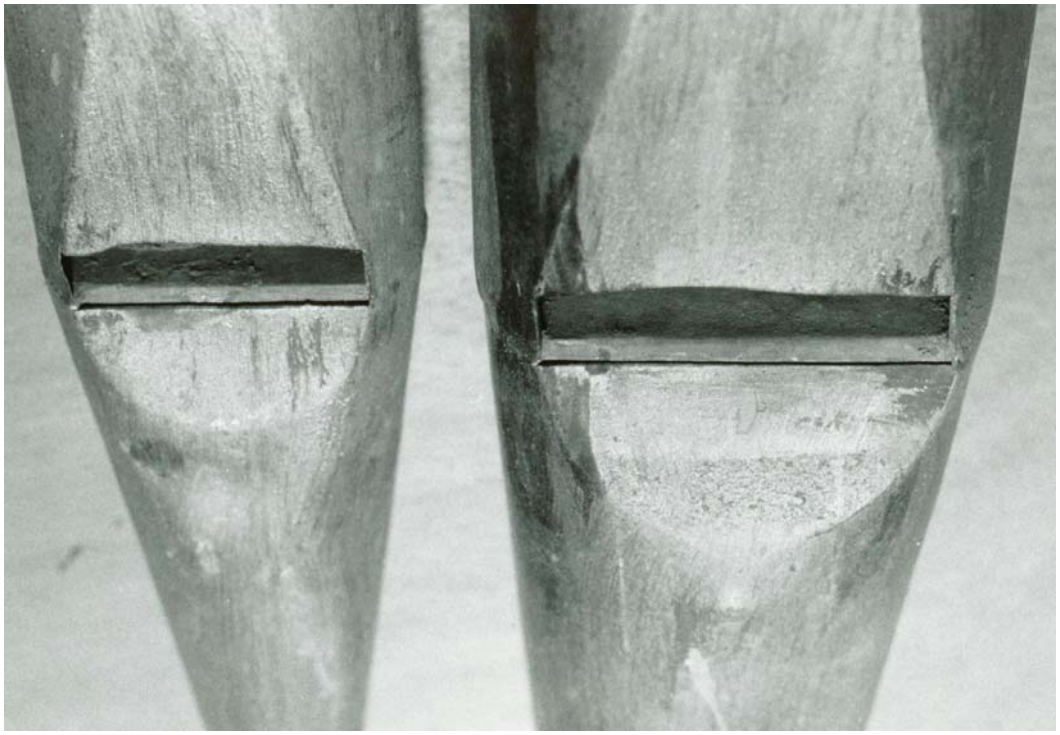
20. Grand Orgue Montre e^{o} and Prestant G#



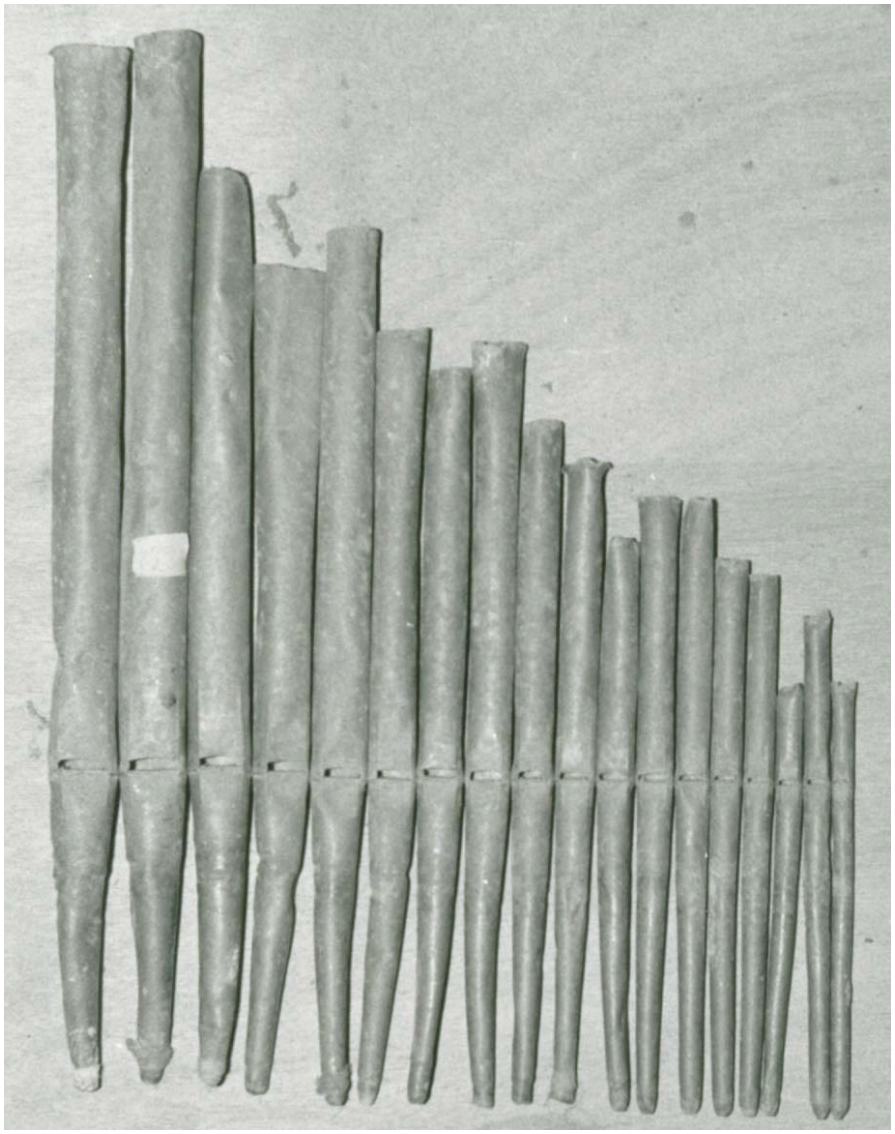
21. Grand Orgue Montre e^{o} and Prestant G#



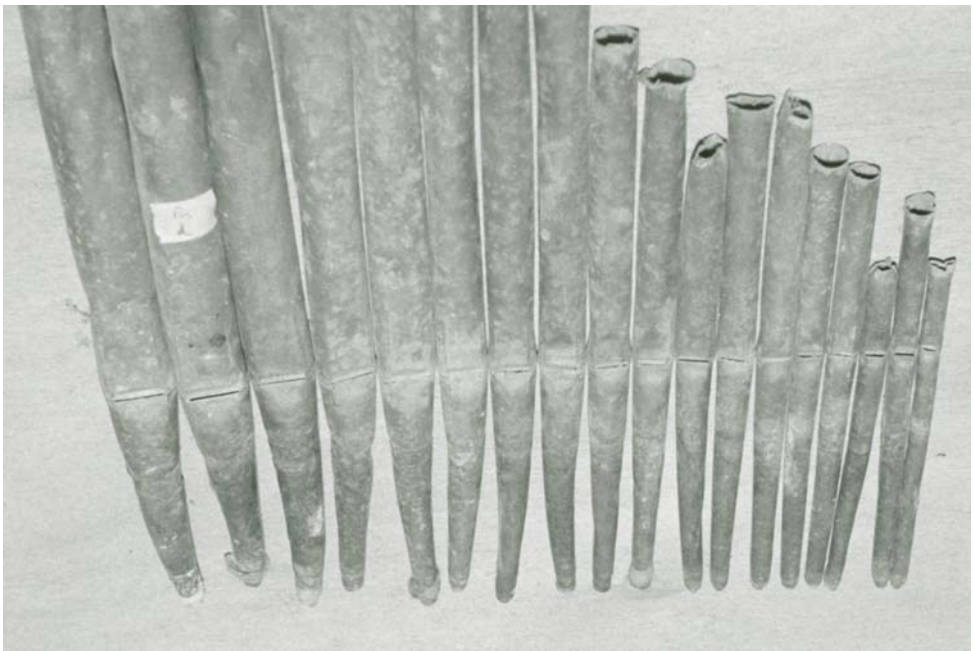
22. Grand Orgue Montre e^{o} B G A c#^{o}



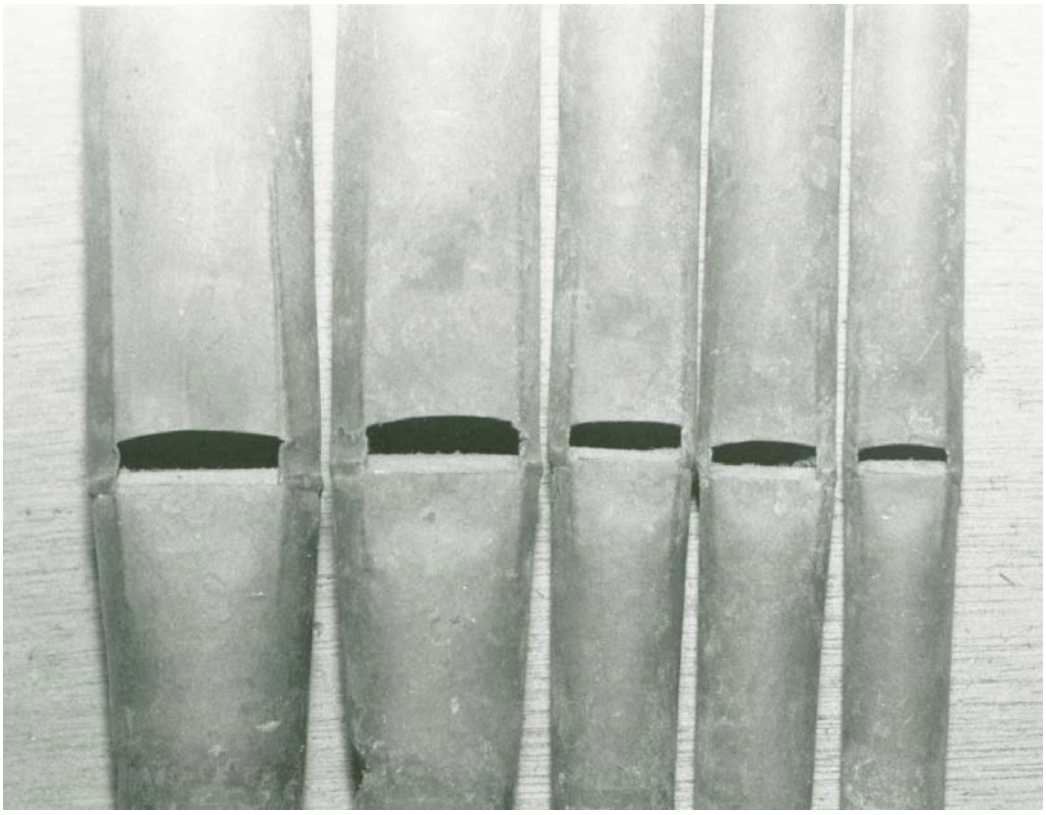
23. Grand Orgue Montre e^{o} and Prestant G#



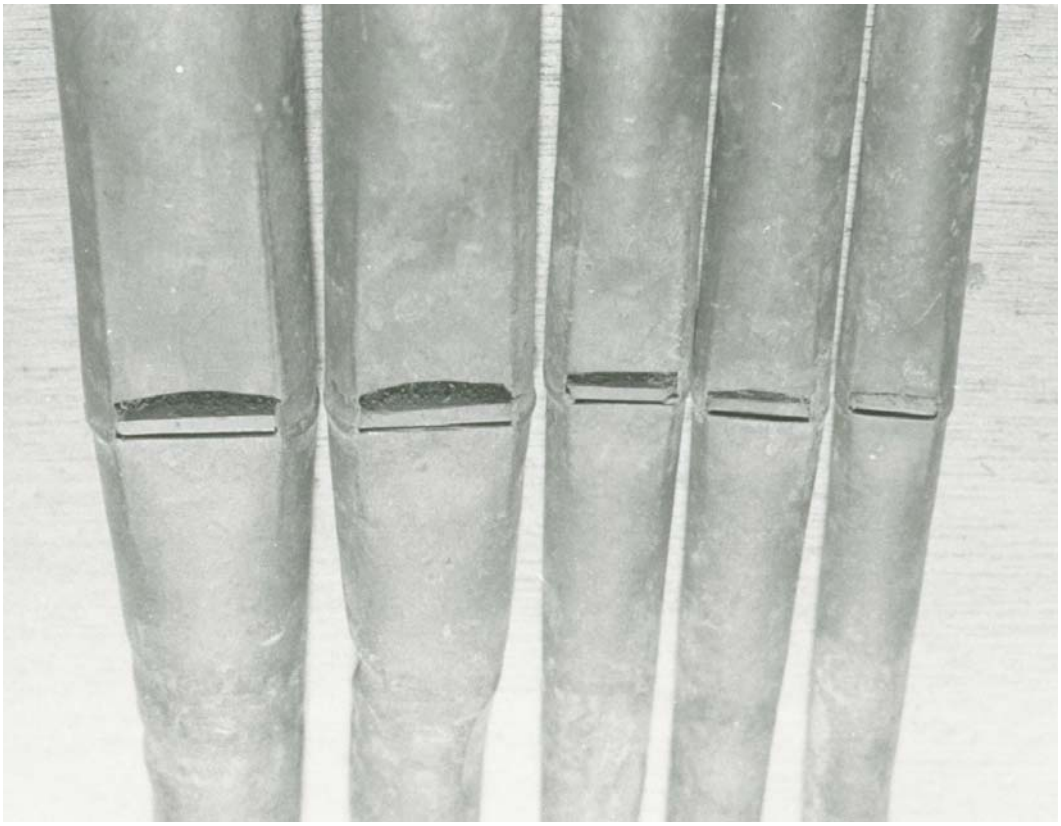
24. Positif Doublette c^{o}- a^{2}



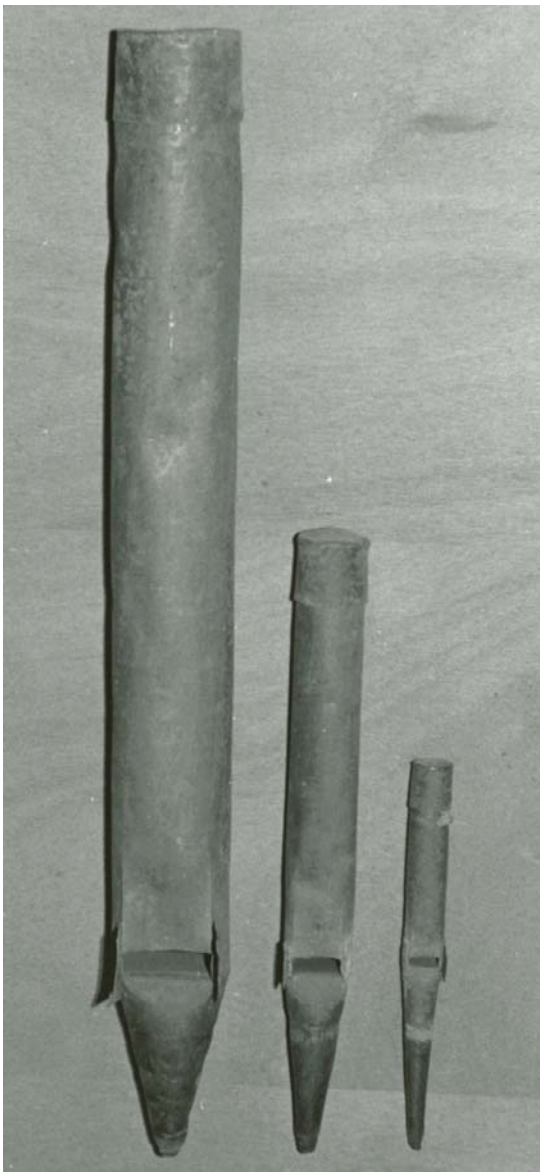
25. Positif Doublette c^{o}- a^{2}



26. Positif Doublette d^{o} e^{o} $c\#^{1}$ $d\#^{1}$ $g\#^{1}$

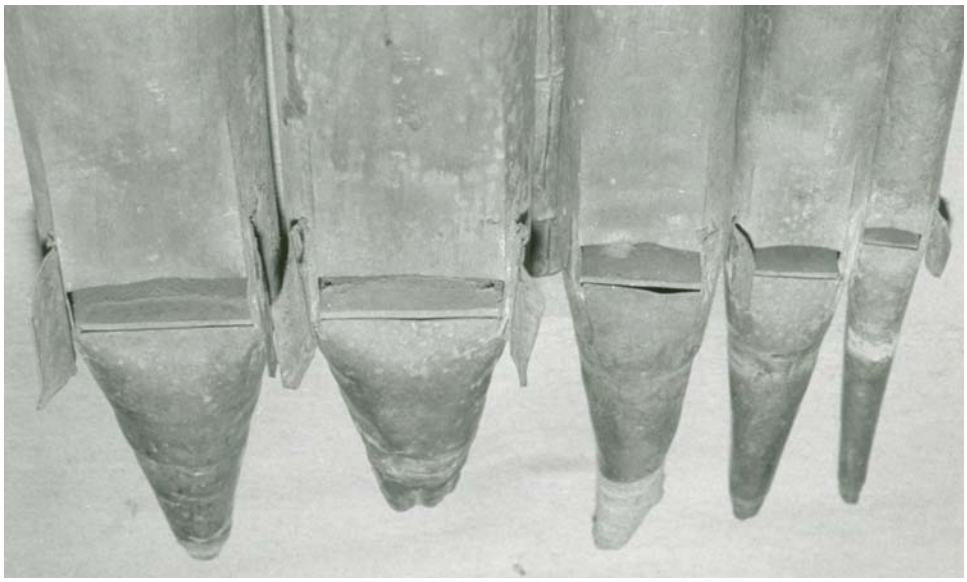


27. Positif Doublette d^{o} e^{o} $c\#^{1}$ $d\#^{1}$ $g\#^{1}$



28. Bourdon d# d^1 $c\#^2$

29. Bourdon d# d^1 $c\#^2$

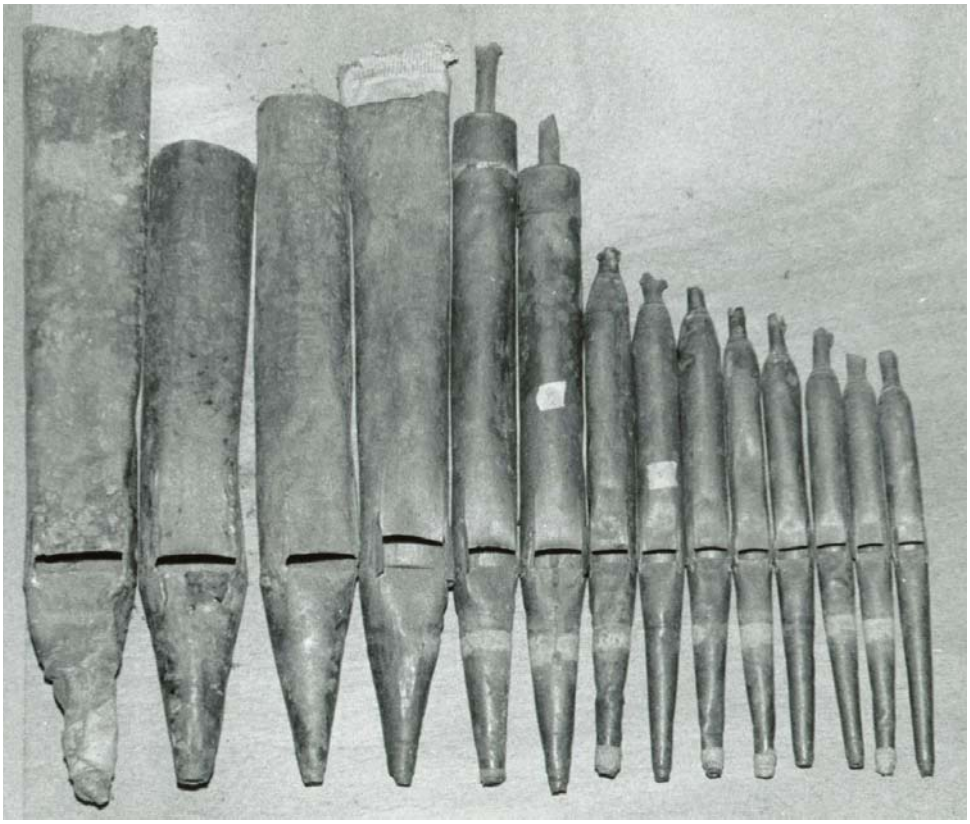


30. Bourdon d^o $d\#^o$ a^o d^1 $c\#^2$

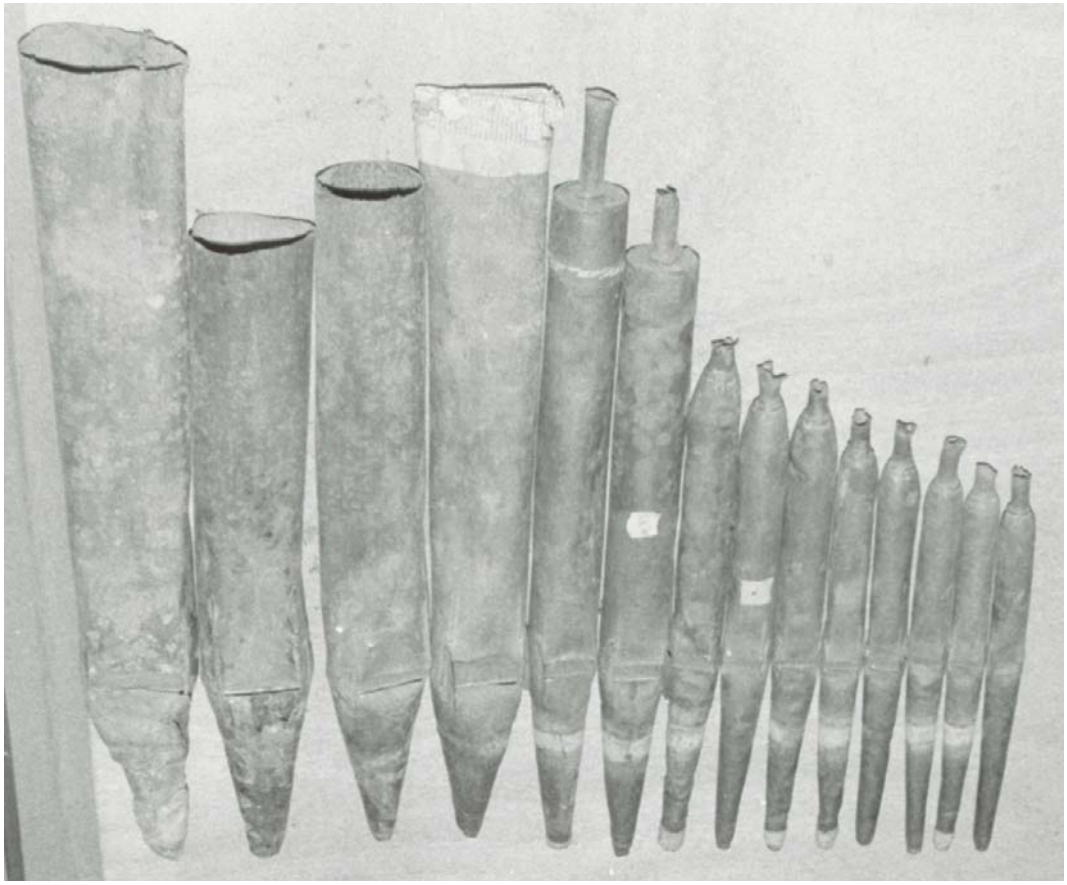
31. Tierce C D E F F# G G# A A# B B B

32. Tierce C D E F F# G G# A A# B B B

33. Tierce A# B B B

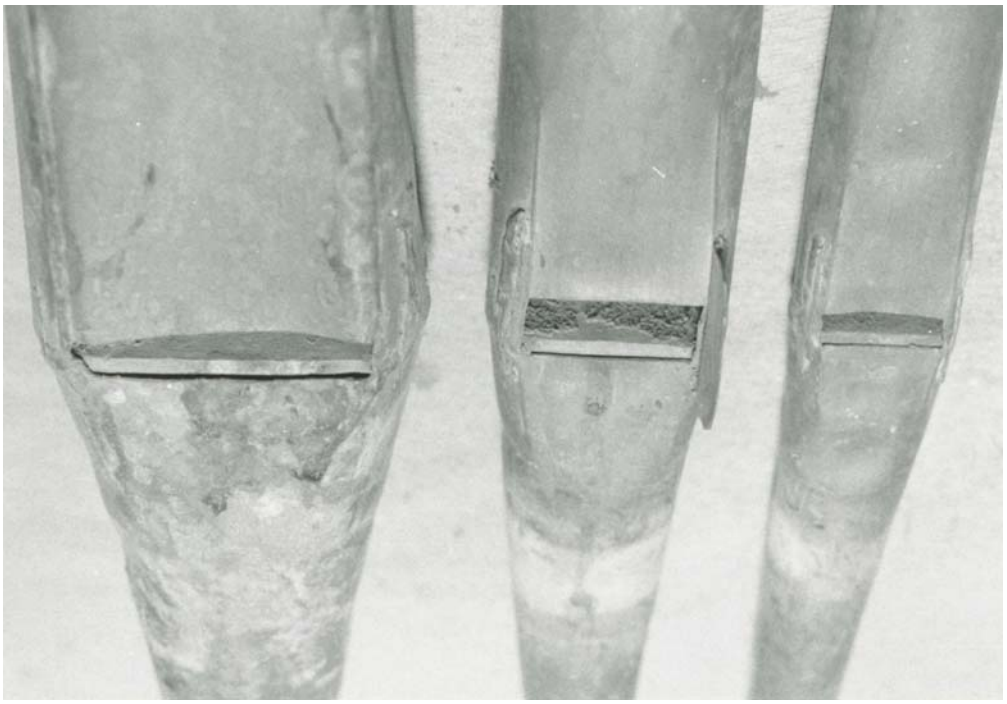


34. Nasard [F#] - d^1

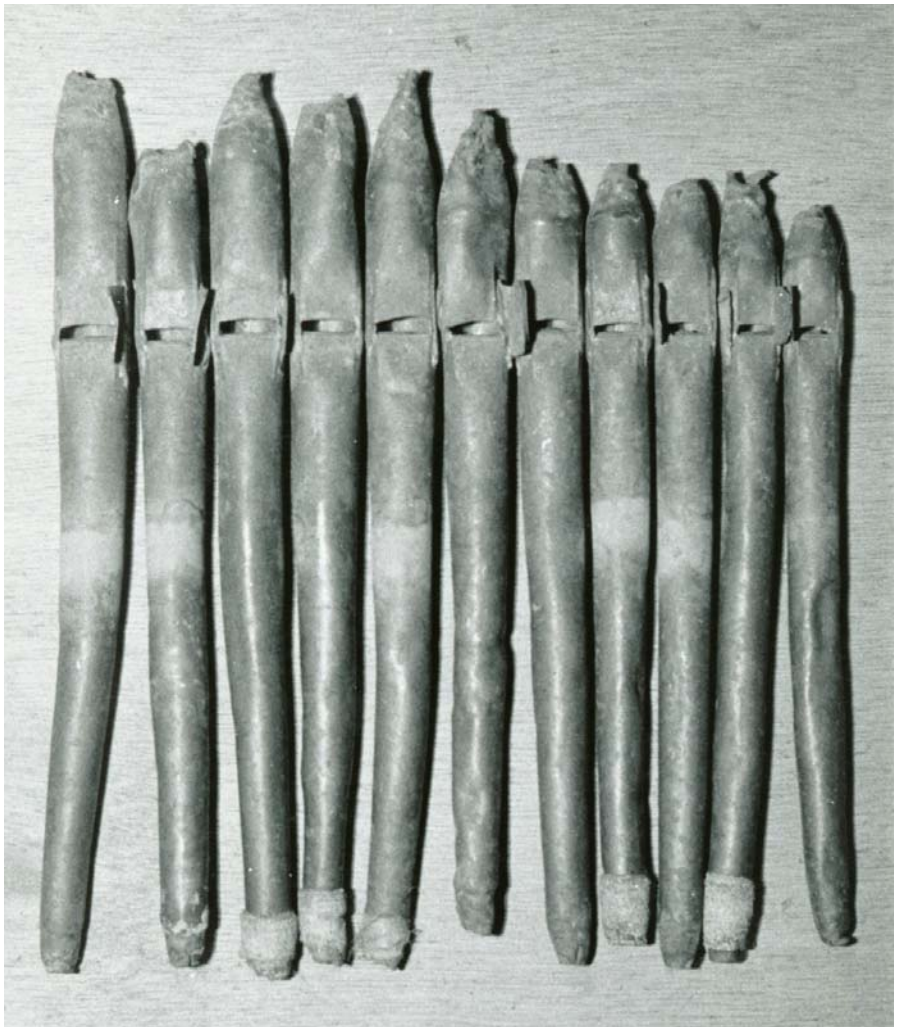


35. Nasard [F#] - d^1

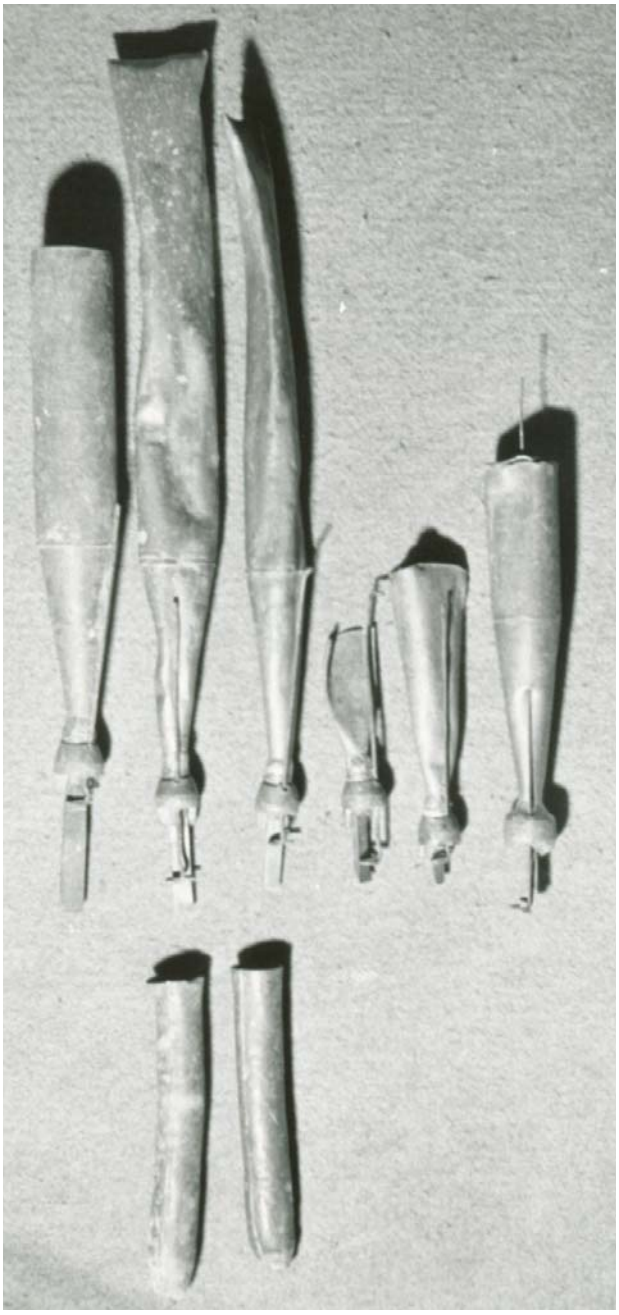
36. Nasard [G] A g#



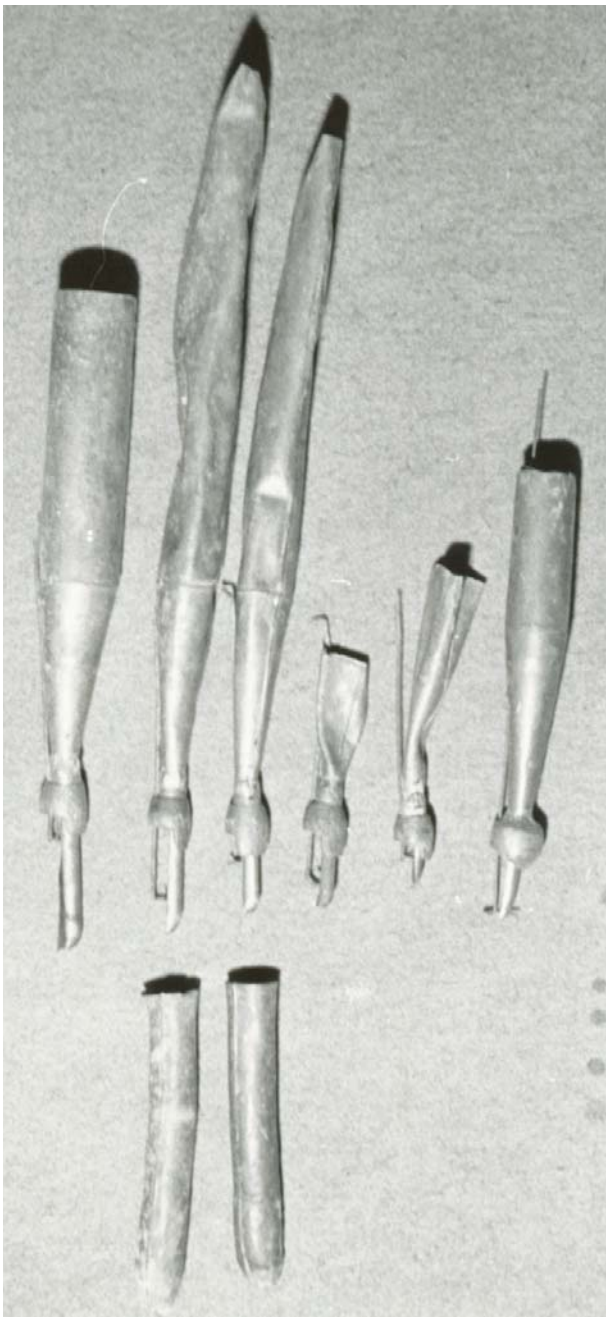
37. Nasard [G] A g#



38. Nasard d^2 - c^3



39. Remaining reed bits



40. Remaining reed bits