

Louis Lot

Serial #325

Silver Flute with C Foot, Gold Lipplate

Restoration Report, Fall, 2008

Restoration by Paul Rabinov

Text and Photographs by David Shorey



Louis Lot#325

Made Dec. 10, 1858 for the flutist de Windt
Student of Louis Dorus

David and Nina Shorey
Antique Flutes

4135 Center St., Culver City, CA 90232
tel. (310) 425-8701 dnshorey@antiqueflutes.com
www.antiqueflutes.com

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Louis Lot #325

Maker: Louis Lot

Serial Number: 325

Country of origin: Paris, France

Maker's Mark: Engraved on headjoint: L.L./LOUIS-LOT/PARIS/325/BREVETÉ; No stamp on body or foot.

Marks under keys: No marks visible under keys.

Date of Manufacture: Made Dec. 11, 1858 per Lot's record books.

Method of Dating: Entry in Louis Lot record books.

Hallmarks: No hallmarks, as Louis Lot never used them.

Materials: Made of silver with gold lipplate. Springs blue steel. Corkscrew a wooden threaded devise. Pad washers replaced with screws.

System: This flute is Louis Lot model 5, silver flute with C foot, with the addition of a specially ordered gold lipplate. Originally open holed, it has been converted to a plateau model.

Godfroy and Lot, between the years 1847 and 1851, brought together all of the useful ideas and crafted a new mechanism. The cylindrical metal tubes of Boehm introduced many new challenges to flutemakers. One major challenge was keeping the right hand keys separate and independent, yet completely interconnected, including the difficult connection around a standing pillar to travel up the flute to the Bb key.

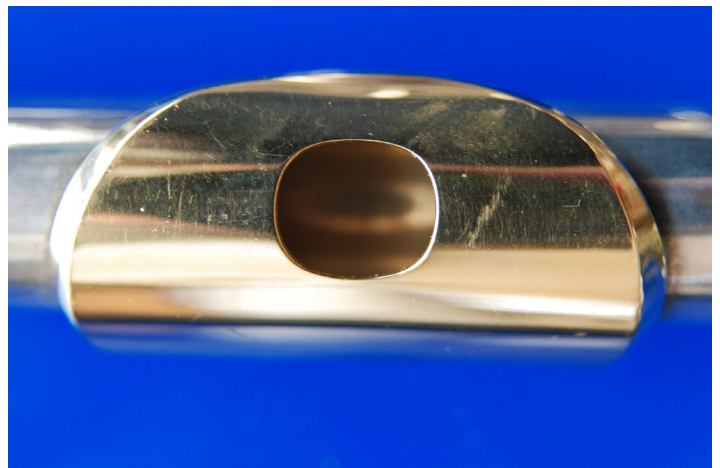
Godfroy and Lot introduced independent shoulder clutches, and a unique three-way back (or loop) clutch around the kingpost and up to the Bb.

Boehm and Mendler made use of the Lot-Godfroy mechanism, with the modifications of adding set screws on the shoulder clutches, and reducing the back clutch to two pieces via an extra shoulder clutch behind the G key.



Louis Lot, #325

The headjoint is engraved with Louis Lot's original stamp, and the serial number 325. The silver ring appears to have been moved closer to the stamp, and the tenon was probably trimmed a bit, to bring the flute higher than A=440.



Louis Lot, #325

The gold embouchure was a special order, preferred by most of the French professionals. This was the one addition that added panache, and even richer tone. This embouchure is perfect, except for a sliver of silver removed at the tube on the leading edge, which may well be original.

The Right Hand



Th. Boehm, #67, Made 1852

Boehm struggled with a clutch mechanism for separating the right hand keys. On this flute he used “split barrel” clutches, the round knobs between each key.



Clair Godfroy, ainé, #113. Made c. 1851

While Boehm struggled, Lot and Godfroy designed the elegant shoulder clutch mechanism, which allowed all of the main keys to remain on one rod, and established the mechanism still in use today.



Louis Lot, #325

The early Louis Lot right hand mechanism continued the use of the two shoulder clutches. This instrument has been altered to have covered holes.



Louis Lot, #2364

One of Villette's enduring contributions to flute design is the “hanging T” clutch, seen here on one of the first flutes built this way. The hanging T (seen in close-up below) replaced the two shoulder clutches, and gave a sturdier mechanism.

Louis Lot never veered from his original mechanical design throughout the 21 years he ran his own shop.

History: The current owner, Constance Madelina, purchased this instrument from an antiques dealer in the 1970's. Previous history is unknown after the original owner, the flutist de Windt, student of Louis Dorus. At this point, we are not able to identify de Windt, although a tantalizing possibility arises as to the identity of this flutist. A prominent American family, one of whose daughters was the wife of President John Adams, included Elizabeth de Windt, who married Christopher Pierce Cranch in 1843. They befriended Emerson, the Brownings, and other American literary luminaries. In 1853 Elizabeth and Christopher sailed to Europe for a decade long residence, partly to avoid the memories of a disastrous accident crossing the Hudson, in which Elizabeth's mother died. They were part of the artistic community of Paris, and Christopher exhibited paintings, wrote poems, and a children's book. Elizabeth had her fourth baby, a boy, in 1855. It would have been unusual for a woman to study flute in Paris at this time, yet the Cranch's were clearly avant garde. It is highly possible that Elizabeth might have used her maiden name as a flute student of Dorus. Furthermore, this might explain the covered holes. Although history records other de Windts that might have been in Paris in 1858, nonetheless in my mind's eye I see the beautiful and intelligent Elizabeth de Windt Cranch being as entertaining to Dorus with Louis Lot's 48th silver flute, as Dorus taught in return. Although she paid for the flute in April of 1859, she never again returned or resurfaced after that spring. Perhaps the flute has resided with the Cranch family in New York ever since their return home in 1863.

A portrait of Elizabeth De Windt Cranch, painted by her daughter Caroline Amelia Cranch (born 1853, the year they moved to Paris), was exhibited at the 1893 Exhibition, but I have been unable to find a copy.

Condition: The condition of this instrument appears to be excellent.

This magnificent instrument has hardly ever been dismantled. The pins and screws are all as new. The mechanism shows only a tiny bit of wear from use. The headjoint appears to have been cut by a few millimeters,



Louis Lot, #325

The Dorus G# had been designed back in the 1830's, when Dorus, Louis Lot, and Henri Villette began working together designing new flutes based on Boehm's work.



Louis Lot, #325

The early Louis Lot crown already veered from Godfroy/Lot to include the three ring ball-and-chase design. The silver tipped extension out the middle is the top of a wooden screw devise for adjusting the cork position.



Louis Lot, #325

The backclutch is the heart and soul of the Lot/Godfroy mechanism. Here is where the intractable problem of transporting one-way energy to the top of the flute was solved.



Louis Lot, #325

The wooden cork screw is in perfect, as-new condition. This is because it has hardly ever come out from within the headjoint.

and a sleeve of about 4 mm. is in the socket. At one time long ago the body appears to have been bumped, and a repaired dent is visible at the top of the barrel. The tone holes and solder look excellent, except for two tone holes, which will need resoldering. The instrument appears to have been very successfully resoldered, possibly by Jack Goosman in the 1970's. The lipplate is clearly original, and is of 18 ct plumb gold. Inside the embouchure, the silver tube angles slightly more than the chimney wall, and is not perfectly symmetrical, suggesting a possible later sliver of undercutting on the leading edge. Gary Lewis, a Louis Lot scholar in San Francisco, has suggested that the embouchure and tone holes were all made originally with a very slight undercutting.

Comments: This lovely instrument is the highest professional-standard flute available in France. The beautiful gold lipplate on the elegant silver body, with the foot to C, was the instrument of choice for French professionals.

This instrument is an exquisite example of Louis Lot's artistry.

The instrument appears to be in nearly perfect original condition, while considering the need for an overhaul, and the change to closed hole.

Pitched at very near A=440, this flute was made during the time of French high pitch, yet quite possibly for a foreigner. The scale is a bit short for A=440, yet it seems unlikely that the instrument was intended to be played more than a few cents higher. With the headjoint out a few millimeters, thus close to the original length, the flute plays at A=440. Sounding length 593 mm. Scale 220 mm. Embouchure 10.11 x 11.75 mm. Gram weight 350g. The original case was with the flute, but had been retained and replaced by a flute repairman in the 1970's!.

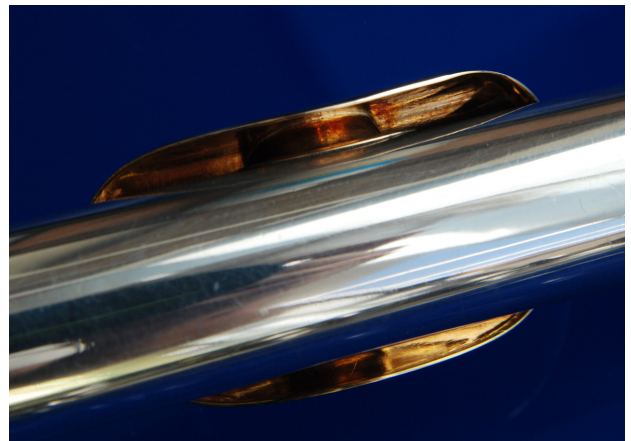
Case: The original case, as mentioned in the record book, is referred to as, "Boite á loctot." This phrase is new to us, and we are not familiar with it. The current case is an Artley.

Restoration: Restoration by Paul Rabinov



Louis Lot, #325

Lot, Godfroy and Villette worked together to design the new flute, and came up with the elegant pointed arm. This changed the aesthetic of the professional flute from the German themes of Boehm to the French ideal of purity.



Louis Lot, #325

The gold lipplate includes a gold chimney and flange. These are all in perfect original condition, and very clean. Inside the chimney, at the very bottom of the leading edge, the silver tube has been slightly beveled.



Louis Lot, #325

Louis Lot never split the strap between the trill keys and the main rack. This trait, along with the mechanism and design, allows us to positively identify the body as original Louis Lot, in spite of the lack of a maker's mark on this joint.

The restoration of Louis Lot #325 has been a fairly straightforward process, with few surprises.

The instrument is first dismantled and unpinned, so that all parts are able to be cleaned and adjusted as necessary to account for wear from use.

Several tubes needed swedging, including the footjoint C#, the thumb key, and the Dorus G#.

The thumb key mount upper ball has been badly cut, and is out of straight.

The thumb key springs have worn asymmetrically, and need to be adjusted.

The tone holes for B and F# have come unsoldered, and need to be resoldered to the tube.

Restorationist Rabinov noted that two solder joints undone suggest that the others may follow, yet a careful study shown no other rings currently loose. The choice of performing a complete resoldering of the flute at this time, or just restoring the two currently loose rings, was presented to Constance Madelina. It was determined that it would be easier on the flute just to fix the two holes at this time, and take a chance on the others.

Accordingly, Rabinov removed the two tone hole rings and resoldered them to the tube. This process is illustrated here.

The thumb springs were straightened and retipped. The keys were all cleaned and prepared for a shellacking.

The process of melting shellac into the pad cup and setting the pads is illustrated here.

The pads are all floated in.

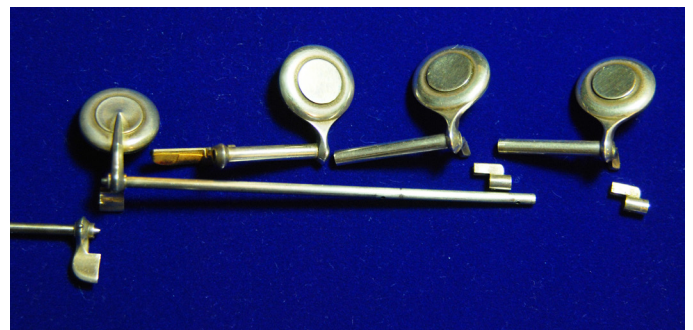
Before reassembling the flute measurements are taken of all the tone holes, the tube, embouchure, and scale. These measurements are appended here.

The lipplate was assayed, at 18 carat plumb gold. The flute is reassembled. Final adjustments to the pads are made. The mechanism is adjusted via corks at the clutches for accuracy up and down the keys.



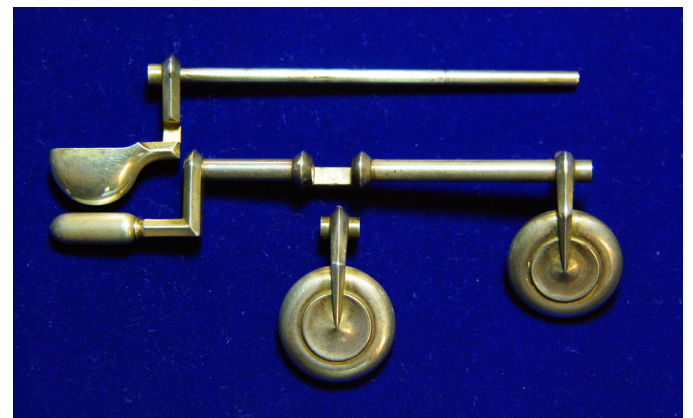
Louis Lot, #325

The dismantled parts of the backclutch show us the genius of the Lot/Godfroy mechanism. Elegant and simple, yet requiring precise machining and a brilliant mind. The “kingpost”, separating the right and left hands, will sit between the two pointed tips, bridging the gap in the photo.



Louis Lot, #325

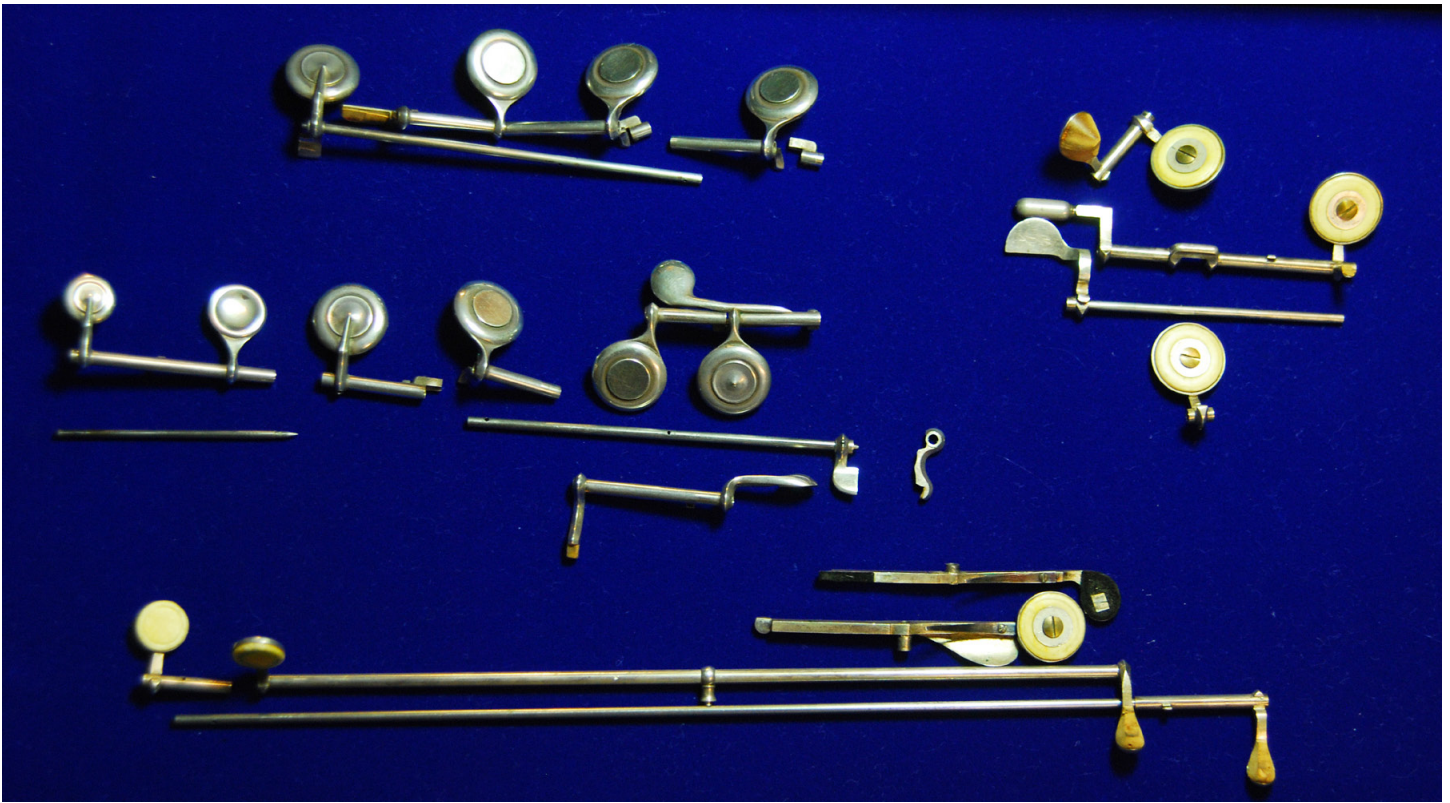
The right hand mechanism, with the clutch tail coming down from the Bb at left. The two shoulder clutches are pinned to the rod from the F# key.



Louis Lot, #325

Lot and Godfroy invented the “modern” footjoint by 1850. The C# key is pinned to the rod above, and clutched by a short tail behind. This foot clutch was eliminated by Villette in the late 1870's.

Louis Lot, #325
The Lot/Godfroy/Villette mechanism.



Louis Lot, #325

All the parts necessary to make a Louis Lot flute are illustrated here, but for a couple of steels resting elsewhere. The right hand mechanism sits above, the footjoint at right, and the left hand in the center. Designed between 1847 and 1850, this mechanism allowed the Boehm flute to exist into the future. Boehm himself adopted it finally in 1854 or so, when Mendler arrived, leading to the beautiful Boehm/Mendler/Lot flute!



Louis Lot, #325

Here we see the precision necessary for the new mechanism, as well as the little shoulder clutch, which pins to the steel rod.



Louis Lot, #325

Paul Rabinov dismantles Louis Lot flute #325 in November of 2008.

Louis Lot, #325
Resoldering the tone holes.



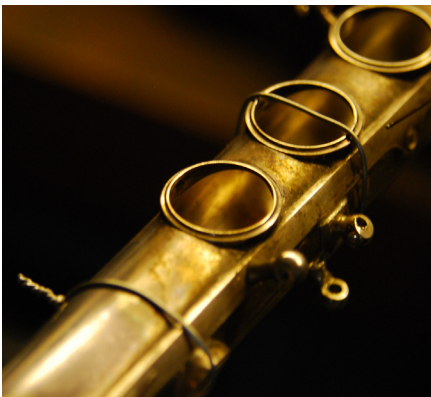
Louis Lot, #325

The solder joint lies between the tone hole ring and the silver tube of the flute. Holes in the solder form after years of quiet decay (unlike some of us, who decay loudly). Here the Bb hole on the left has lost the pure joint.



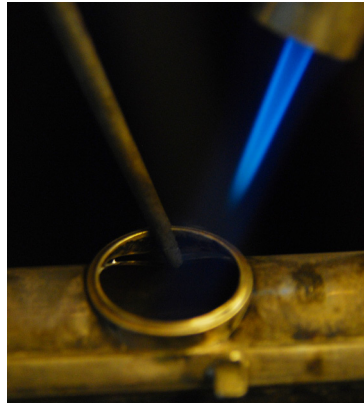
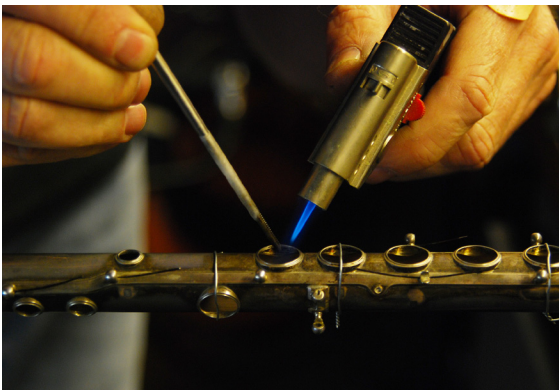
Louis Lot, #325

Paul Rabinov is squeexing the silver tube, revealing a tiny gap through which one can see his right thumb. This will cause the flute to lose airtightness below this hole.



Louis Lot, #325

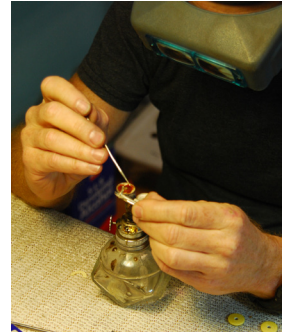
Two tone hole rims needed to be resoldered on this flute, the B hole (seen left) and the F# hole (right photo). These rims must be unsoldered without loosening anything next door. The wire wrapping is there to hold down the parts that are endangered by the heat.



Louis Lot, #325

With tweezers holding the rim, a small torch brings pointed heat to the solder joint. Once loose, the pure hole in the silver tube is seen at right.

Louis Lot, #325
Floating in the pads with shellac.



Louis Lot, #325

The Dorus G# keys are cleaned and ready for padding. The new pad washer bases are clearly visible, as is the bottom of the new plateau cover at left. These cups are filled with flake shellac (center) which is then heated to melting point in the cup.



Louis Lot, #325

The shellac cannot be too full, or it will ruin the pad. The shellaced key must be placed on the flute to check the quantity of shellac and eventual pad height. In this case there is too much shellac, and a bit is removed at right with a screwdriver.



Louis Lot, #325

With the right amount of shellac in the cup, Paul Rabinov massages the new pad (center left). The pad is placed in the hot, melted shellac and the key set on the flute. The key is heated and pressed to the hole for a perfect seal (center right). Finally the pad is checked with a light for leaks.

The flute is playable, and truly exceeds expectations. The tone has every bit of Louis Lot's famous full purity, entirely absent of rancor or discord.

Any effect that the undercutting of the embouchure may have appears to be positive, especially in the low end, without harm to the high register.

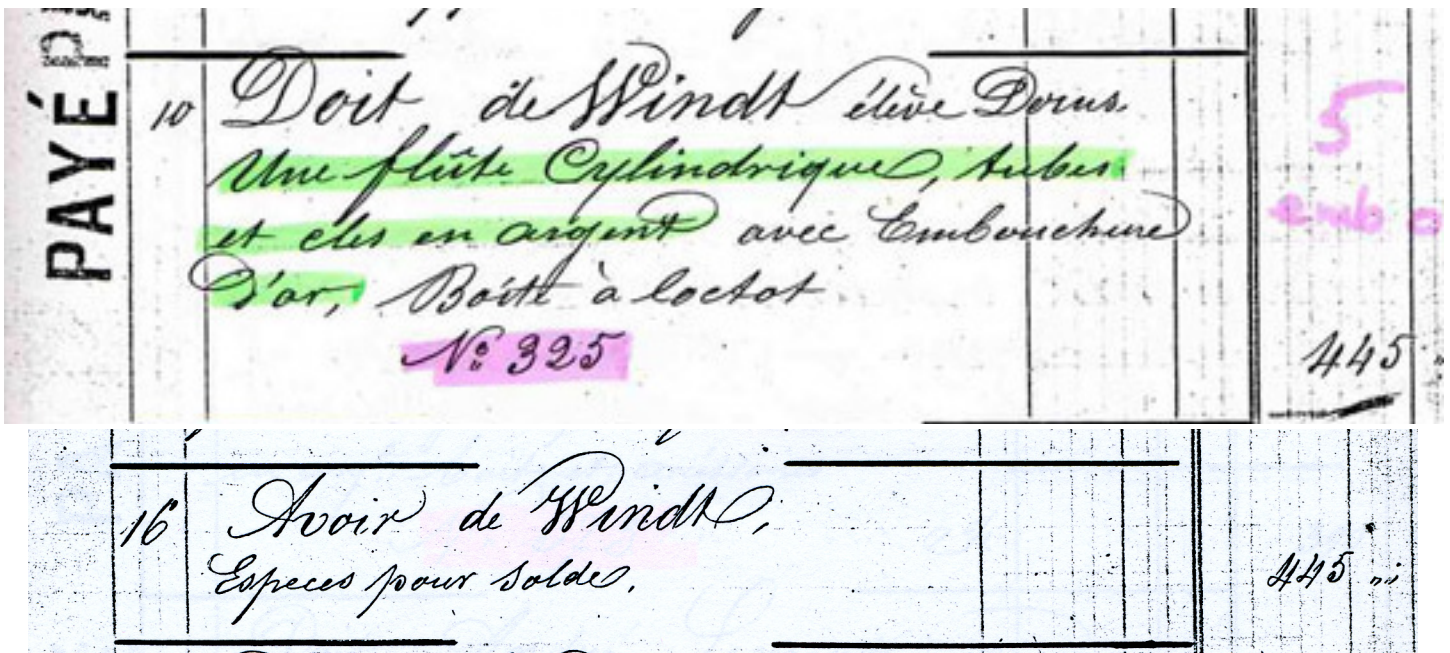
This is perhaps one of the very finest of flutes existing today. It is an absolutely perfect archetype of the Flute Tone at its best.

David Shorey, Los Angeles, CA
December 8, 2008



Louis Dorus

Dorus was an absolute gentleman, with no known harsh words for anyone. It was the guidance of Dorus that brought the silver flute to fruition. Louis Lot flute #325 was purchased for a student of Dorus in 1858, before he had been given the job at the Conservatoire in 1860. The young Taffanel was also a student of Dorus at this time.



Louis Lot, #325

The original record in Louis Lot's hand showing flute #325, made 10 December 1858. On 16 April of 1859 the flute was paid for.

Louis Lot, #325
The measurements of Louis Lot #325.

Constance Made/MA

LOUIS LOT 325

Dorus G#

Gold lipplate

C foot - 8 Trill

converted to closed hole.

	Width	In Line	Depth	Cup Size
Tr 2	7.70	7.99	1.99	11.5
Tr 1	7.9	7.93	1.48	11.54
C#	6.74	6.78	1.47	11.6
C	12.13	12.21	1.6	16.0
B	13.33	13.55	2.02 1.94	17.08
Bb	13.44	13.51	2.38	17.09
A	13.38	13.50	2.26	17.02
top. G#	13.32	13.51	2.15	17.02
side. G#				
G	13.37	13.47	2.43	17.07
F#	13.35	13.42	2.12	17.08
F	13.21	13.45	2.65	17.14
E	13.27	13.48	2.20	17.11
Eb	13.6	13.25	2.01	16.95
D	13.56	13.59	2.31	17.14
C#	13.60	13.76	2.22	17.03
C				

Dorus

Head Tenon Length	39.76
Foot Tenon Length	10.03

Side G# fill angle	NA
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Bore Size	18.9-18.7	18.78 - 10 over tenon
Tubing Thickness:		
Top of Head		.014"
Tip of Head		.014"
End of Body		.014-.012"

Embouchure	10.11 x 11.75
Embouchure to Tip:	142.28

Edge

Chimney ~~1167~~ 1167"

4.26 upper forward wall
4.52 lower

wood thread on crown

1. From End Up: to lower tone hole edge

Eb	101.62
D	69.13
C#	34.98
C	

4. From Top Down:

Tr 2	87.26
Tr 1	104.98
C#	121.24
C	147.92
B	-----

2. From E Down:

	Inner	Outer
Eb	18.0	44.47
D	50.29	77.0
C#	84.6	111.37
C		

5. From C to s. G#:

Inner	Outer

6. From ^{Dorus} sup. G# Up:

	Inner	Outer
C#	104.33	154.63
B	51.63	78.68
Bb	31.06	58.07
A	9.26	36.09

3. From E Up:

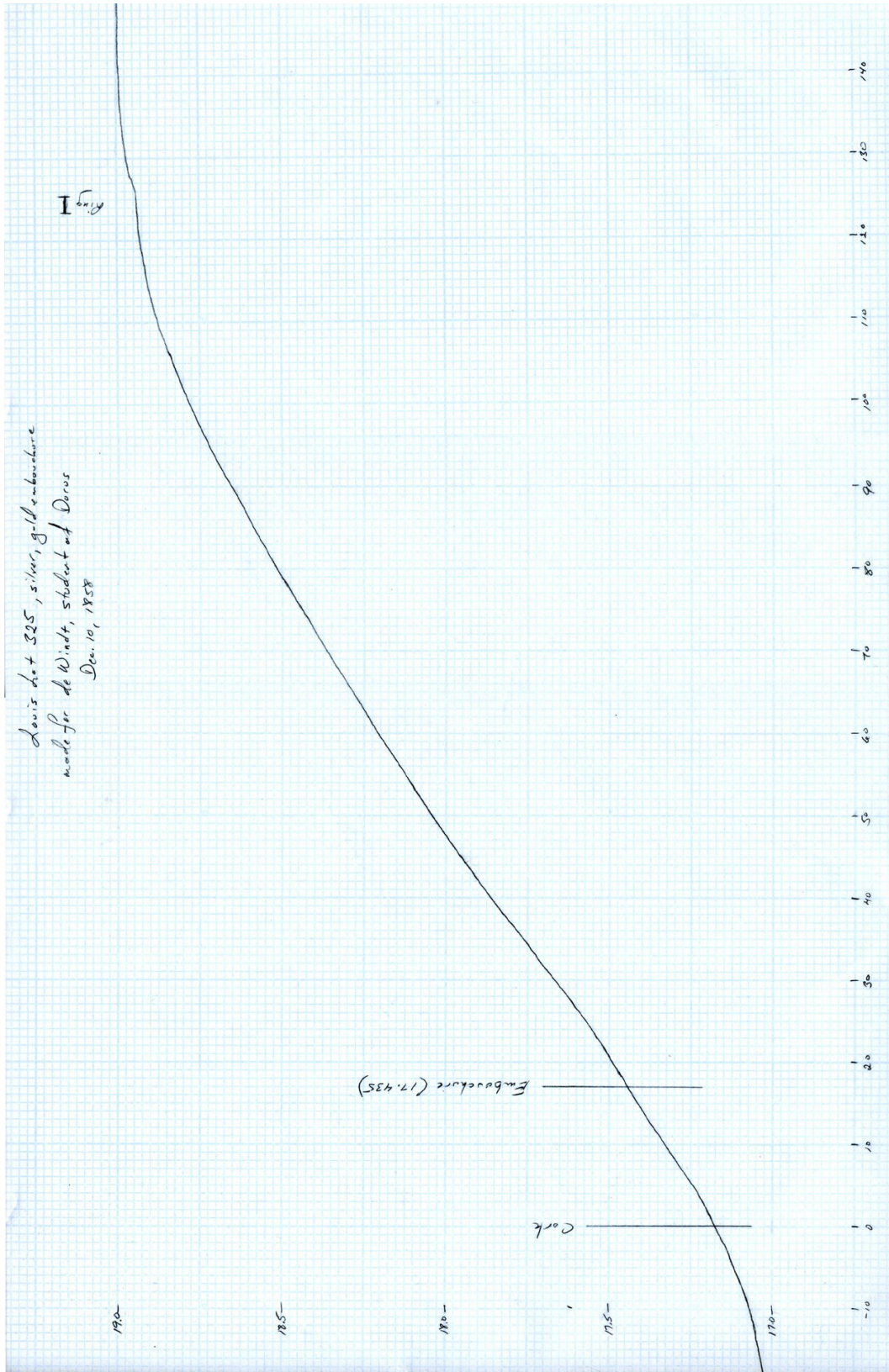
	Inner	Outer
B	178	199
B	157	-----186
Bb	136.73	164.10
A	114.95	141.78
G#	92.11	118.96
G	69.45	96.25
F#	43.55	70.53
F	16.14	43.20

Add .02 to inner only measurements for better accuracy.

Barrel length to mid ring 52.59

Louis Lot, #325

This is a graph of the taper inside the headjoint, made by Gary Lewis of San Francisco.





Louis Lot#325
Made Dec. 10, 1858 for the flutist de Windt
Student of Louis Dorus