

THE NEW YORK FLUTE CLUB PRESENTS

The Flute

from Hotteterre to Barrère



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THE FLUTE FROM HOTTETERRE TO BARRÈRE

An exhibit on the history and evolution of the flute from the beginning of the modern instrument in the late 17th century, through the industrial revolution, to the present day, sponsored by the New York Flute Club, Inc. at the Shelby Cullom Davis Museum of the Performing Arts, September 10 to November 15, 1980.

THE NEW YORK FLUTE CLUB, INC.

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Cover (Left) Jacques Hotteterre Le Romain (1674-1763), flutist, composer, probably flute maker and author of the first tutor for the one keyed, transverse flute which was invented and popularized by his family and associates at the Court of Louis XIV. Illustration is from an engraving by Picart which appeared in the tutor. (Right) Georges Barrère (1876 - 1944) flute virtuoso, solo flutist with leading orchestras in France and the United States, educator, conductor of the Barrère Little Symphony Orchestra and founder in 1920 of the New York Flute Club.

Acknowledgements And Explanatory Remarks

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Portraits of: Theobald Boehm, John Clinton,
John Firth, Jean Baptiste Hotteterre,
Charles Nicholson, J. J. Quantz and Edward Riley.
Special Collections: The New York Public Library
at Lincoln Center.

DESCRIPTIONS ENTERED IN CATALOG IN THIS ORDER

Name of instrument
Place of origin
Year or period
"Maker's marks"
Body material
Number of sections
Material of mounts (ferrules, caps, etc.)
Number, kind & material of keys (simple system)
Special keys or devices (Boehm system)
Length over-all/distance from center of embouchure
hole to end in millimeters
Lowest note as if instrument had been constructed
for A 440
Further remarks

N.B.: Materials determined by inspection only.
Illustrations are approximately one-third actual size
unless otherwise noted and are identified numerical-
ly with photo credits appended. Not all instruments
are illustrated.

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Annotated Catalog Of The Exhibit

I THE FLUTE AND ITS RELATIONS

Wind instruments that produce flute-like sounds have been known from ancient times and vary greatly in timbre, sound-producing mechanism and construction. The following is a selection from the many types that have been in use at one time or another. Emphasis of this exhibit is on the instruments of Western European art music but some ethnic instruments are included here where they illustrate a particular point in operation or construction.

WIND STREAM FORMED BY LIPS - OPEN PIPE/CROSS BLOWN

- I-1 PICCOLO; PARIS; CA 1915; "BUFFET FRANCE." Cocuswood; 2 sections; nickel silver mounts and ring keys; Boehm system with conical bore; 302/248; Db; Moskovitz Collection.
- I-2 FLUTE, TRANSVERSE; UNITED STATES; CA 1890; "C.G. CONN." Silver plated brass; 2 sections; Boehm system; foot and body sections in one; 546/470; Eb; Moskovitz Collection.
- I-3 FLUTE, TRANSVERSE; USA; EARLY 20th C; "C.G. CONN LTD/ELKHART/IND. - USA/ 20-0-273872-C-L." Silver plated nickel silver; 3 sections; Boehm system; 674/601; C; Lehman Collection No. 75.
- I-4 FLUTE, TRANSVERSE; ALTO;FRANCE; 1948; "DJALMA JULLIOT/1948/LA COUTURE BOUSSEY (EURE)/ CONSTRUIT PAR CLÉMENT MASSON." Silver plated nickel silver; 3 sections; Boehm system; unusually small bore; 863/775; G; Moskovitz Collection.
- I-5 FLUTE, TRANSVERSE, BASS; WEST GERMANY; CA 1960; "GEBRÜDER MONNIG." Silver plated; 3 sections; Boehm system; 1194/1137; C; Moskovitz Collection.

The modern Boehm system flute has been made for orchestra and band use in many sizes of which the foregoing is a sampling. Note that the Db piccolo is used in bands and is identical with the C piccolo (not shown) except for being a little shorter. In the same way, the concert flute in C has its counterpart in Db (not shown).

- I-6 FIFE; GERMANY; CA 1880; "A. KURZENBERGER/ZWOTA i. S.A. 76B." Blackwood or ebony; one section; nickel silver; no keys; 375/292; C, natural scale of Db; Hosmer Collection.

The fife is, essentially, a keyless six holed flute with a cylindrical bore which has survived from the middle ages.

WIND STREAM FORMED BY LIPS - OPEN PIPE/END BLOWN

- I-7 FLUTE, END BLOWN (SHAKUHACHI); JAPAN; Bamboo; 2 sections; brass mounts (not original); no keys; 546/546; D; Hosmer Collection.

The shakuhachi is blown like a flute but with the instrument held vertically like a clarinet. It has four finger holes in front and a thumb hole in the rear. The shakuhachi requires very light wind pressure and half covered holes for certain notes. The traditional instrument was made of a sturdy piece of bamboo and served Buddhist monks double duty as a protective weapon.

- I-8 FLUTE, END BLOWN; CHINA; 20th C., Painted bamboo; one section; bone mount; 5 finger holes front, thumb hole & 3 vent holes rear; 720/410; Eb (A440); Lehman Collection, No. 45.

The Chinese flute is also end blown but has five finger holes, a thumb hole and several vent holes. It gives a somewhat brighter tone.

- I-9 PAN PIPES; ECUADOR; CONTEMPORARY; NO MAKER'S MARKS. Bamboo; Moskovitz Collection.

Pan pipes, also called syrinx, is a set of small end blown open or sometimes stopped flutes which is moved from side to side with respect to the lips of the player. The example in this exhibit is contemporary and pan pipes are still played in Central Europe with great virtuosity. No member of the flute tribe is more ancient in origin.

WIND STREAM FORMED IN INSTRUMENT - OPEN PIPE

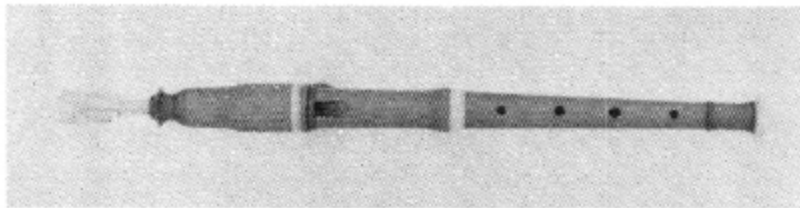
- I-10 FLUTE, NATIVE AMERICAN: Moskovitz Collection.

- I-11 RECORDER, TENOR; HAVERILL, NH, USA; CA 1946; "KOCH/USA." Cocobolo; 3 sections; English fingering; 584/526; C; Lehman Collection, No. 13.

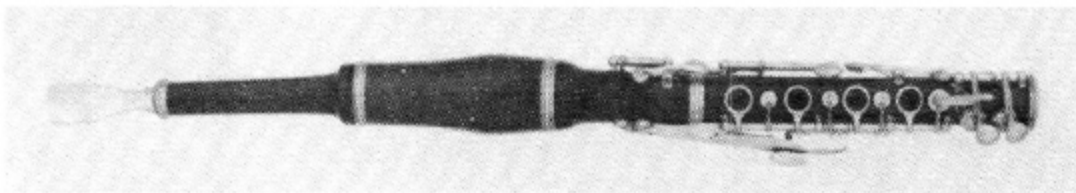
The contemporary tenor recorder is representative of the class of flute in which the wind way is built in rather than formed by the lips of the player. This example is a baroque reproduction with conical bore and three piece construction. Recorders are of the same antiquity as the transverse flute. They were, and are again today, made in many pitches from bass to soprano.

- I-12 FLAGEOLET, BIRD TUTOR, FRENCH TYPE; 19th C (?). Boxwood; 3 sections; ivory mounts & mouthpiece; 4 finger holes front, two thumb holes rear; 285/180; G#; (A440); Lehman Collection No. 17.
- I-13 FLAGEOLET, ENGLISH TYPE; PHILADELPHIA; CA 1825; "KLEMM/PHILADA." Boxwood; 4 sections; ivory mounts & mouthpiece; 7 finger holes front, one thumb hole rear; one brass key; sponge compartment beneath mouthpiece; 388/265; C#(A440); Lehman Collection No. 73.
- I-14 FLAGEOLET; PARIS; CA 1900; "JTL PARIS." African blackwood; 4 sections; nickel silver mounts and keys; mother of pearl mouthpiece; Boehm system; 410 overall; G; Eddy Collection No. 56.
- I-15 FLAGEOLET, DOUBLE; LONDON; CA 1810; "BAINBRIDGE/ & WOOD/35/HOLBORN/HILL/LONDON/PATENT" CROWN LOGOTYPE. Boxwood; 5 sections: left body section has 7 holes, 2 keys; right has 5 holes, 3 keys; ivory mouthpiece and mounts; silver keys; each body has a stop key; 478/335; loaned by Dr. Hans G. Keitel.

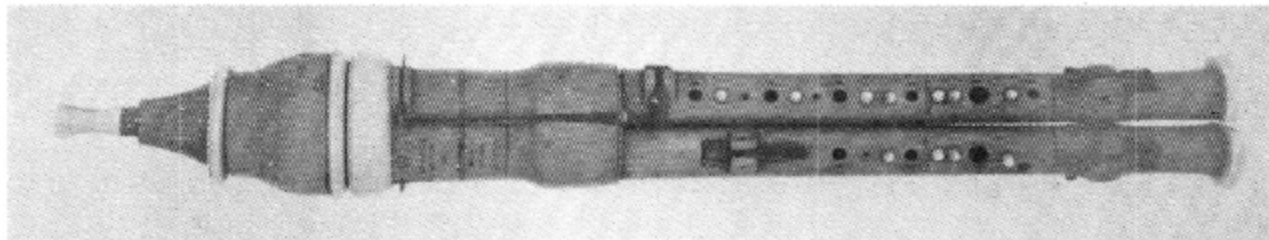
Flageolets are basically, soprano or sopranino recorders. Many have a sponge compartment between mouthpiece and fipple to absorb condensation. The French type differ from the English in having four finger holes in front and two thumb holes instead of 6 or 7 finger holes and one thumb hole. Many key systems have been applied to the flageolet including the Boehm system. The bird tutor flageolet, as the name indicates, was intended to teach melodies to pet birds. As folk instrument, the flageolet survived the eclipse that the recorder suffered from 1750 to 1900.



I-12 RAL



I-14 RAL



I-15 RAL

- I-16 ORGAN PIPE, OPEN DIAPASON: WESTFIELD, MA; CA 1875; "JOHNSON & SON/OP429." Pipe metal (lead/tin alloy); tuning slide of steel; 387/213; F; Lehman Collection No. 6a.

The open organ pipe may be made of wood or metal and is equivalent to a one note recorder which is blown mechanically. Diapason tone is characteristic of the pipe organ but an organ of any size will have a number of sets or ranks of open pipes sounding tones ranging from a rough imitation of a flute to a poor imitation of a violin and having more or less appropriate names. The various timbres are produced largely by changing the width and height of the mouth.

WIND STREAM FORMED IN INSTRUMENT - STOPPED PIPE

- I-17 ORGAN PIPE, STOPPED FLUTE; WESTFIELD, MA; CA 1875; "JOHNSON & SON/OP429." Pine and walnut; leather covered wooden tuning stopper; 328/90; F; Lehman Collection No. 6b.

The stopped organ pipe has the same sound producing mechanism as the open pipe but sounds an octave lower than an open pipe of the same length of air column. The even numbered harmonics are suppressed thus causing a decided change in timbre. Stopped organ pipes are also built to speak in a variety of tone colors.

- I-18 PIPE, TUNING; LONDON; 1854-73; "LIDDLE/35 DEVONSHIRE ST/QUEEN SQUE/ LONDON/1795." Rosewood; recorder head with brass sliding stopper calibrated for C, C#,D, Eb and E; 201-292/160-251; Lehman Collection No. 51.

The tuning pipe exhibited is a recorder with a calibrated plug. It is not a very precise means of giving the pitch to a group of musicians since this is subject to variation with wind pressure and atmospheric conditions.

- I-19 FLUTE, SLIDE; LONDON; EARLY 20th C; "SWANEE WHISTLE/OR/LOTUS FLUTE/ MADE IN LONDON ENGLAND/REGISTERED DESIGN 687087/PRO PATENT/ REG US PAT OFF." Vulcanite lined with brass; one section; nickel plated brass mount; brass sliding stopper; 272/ca 20-210 (ca 2.5 octaves); G; Lehman Collection No. 80.

The Swanee whistle is another stopped recorder type of instrument where the stopper can be moved rapidly enough to permit playing a musical composition. Toys have been marketed which were based on the same principle but the example here shown has been scored for by Ravel and other composers under the name "flute a coulisse."

II THE FLUTE IN AMERICA

- II-1** FLUTE, TRANSVERSE; PHILADELPHIA; 1794-1811; "ANTHONY PHILAD." Ebony; 4 sections; silver mounts and 5 silver keys; 587/571; 2 corps de réchange for the second section; C#. Dayton C. Miller Collection No. 1231, Library of Congress.
In the Colonial and early Federal periods, most flutes, like other small manufactured articles, were brought to this Country by the prospective settler or were imported for sale by dealers. The earliest surviving flutes manufactured here appear to be by Jacob Anthony the father (1736-1804), or his son of the same name, who were in business in Philadelphia until 1811. This flute is unusual in having a low C# key on the foot section but no C natural.
- II-2** FLUTE, TRANSVERSE; NEW YORK; 1819-31; "E. RILEY/ 29 CHATHAM ST/N-YORK." Stained fruitwood; 4 sections; ivory mounts; one square brass key; 601/531; D; Lehman Collection No. 72.
Edward Riley was a flutist, teacher, publisher and flute maker in New York during the first quarter of the 19th century. Riley's business was carried on by his sons and widow after his death but little is known about this period and no instruments appear to be extant. However, Riley's sons-in-law: John Firth (1789-1864) and William Hall (1796-1874) were independent flute makers for a while and then formed the partnership of Firth & Hall during the period 1824-40.
- II-3** FLUTE, TRANSVERSE; ALBANY; CA 1824; "MEACHAM & CO." "I.D. SHEPPARD/BUFFALO." Boxwood, stained; 4 sections; ivory mounts; one square brass key; 610/533; D; Hosmer Collection.
- II-4** FLUTE, TRANSVERSE; ALBANY; CA 1832; "POND & CO." Stained maple; 4 sections; ivory mounts and one brass key; 596/517; D; Lehman Collection No. 71.
Meacham & Co. and Pond & Co. were independent instrument makers in Albany which merged to form Meacham & Pond (1828-33). About 1833 Sylvanus B. Pond (1729-1871) left Albany to enter the firm of Firth & Hall in New York which became the celebrated Firth Hall & Pond. Sheppard is presumed to have been a dealer.
- II-5** FLUTE, TRANSVERSE; NEW YORK; 1840-47; "FIRTH HALL & POND/N-YORK." Boxwood; 4 sections; no mounts; one square, brass key; 604/534; D; Lehman Collection No. 34.
- II-6** FLUTE, TRANSVERSE; LITCHFIELD, CT; 1829-37; "A. HOPKINS/LITCHFIELD, CONN." Boxwood; 4 sections; ivory mounts; one square, brass key; 601/530; D; Lehman Collection No. 35.
Asa Hopkins (1779-1838) a clockmaker of Fluteville, a community in the south east corner of Litchfield, CT, gave up his original trade to manufacture flutes and other woodwinds from 1829 to 1837 in his factory on the Naugatuck River.

- II-7 FLUTE, TRANSVERSE; LITCHFIELD, CT; 1837-39; "J M CAMP/LITCHFIELD, CONN. Blackwood; 5 sections; brass tuning slide and fully brass lined head; silver mounts and 4 salt spoon keys; 612/537; D; Litchfield Historical Society, gift of The Misses Lord, 1914.

Hopkins was succeeded in 1837 by his employee and son-in-law, Jabez McCall Camp who sold out to Firth & Hall after two years. This flute is known to have belonged to Augustus Lord, a prominent Litchfield citizen, who played it in St. Michael's Church sometime before 1849.

- II-8 FLUTE, TRANSVERSE; NEW YORK; 1848-65; "FIRTH POND & CO./547 BROADWAY/ N-YORK." Boxwood; 4 sections; ivory mounts; 4 brass cup keys; 608/528;D; Selch Collection.

- II-9 FLUTE, TRANSVERSE; NEW YORK; 1865-67; "FIRTH SON & CO." Blackwood, 5 sections; silver mounts and 6 silver cup keys; fully lined head section with metal tuning slide; 607/526; Lehman Collection No. 81.

About 1848, the firm of Firth Hall & Pond began to disintegrate. Firth and Pond formed Firth Pond & Co. (1848-65) which in turn broke up to become William A. Pond & Co. (1865-77) and Firth Son & Co. (1863-65) (William A. Pond was the son of Sylvanus who had by then retired.)

- II-10 FLUTE, TRANSVERSE; NEW YORK; 1849-75; "WILLIAM HALL & SON/239 BROADWAY, N-YORK." Maple, dark stained; 4 sections; ivory mounts; one nickel silver round key; 602/529; D; Lehman Collection No. 67.

The third partner of Firth Hall & Pond continued in flute manufacturing as William Hall & Son from 1849 until bought out by C. H. Ditson & Co. in 1875. This latter firm apparently never manufactured musical instruments.

- II-11 FLUTE, TRANSVERSE; LITCHFIELD, CT; LATE 19th C; NO MAKER'S MARKS. Rosewood; 3 sections (no separate foot section); nickel silver mounts and one cup key; 398/334; Bb; Litchfield Historical Society; gift of Mary A. Hall widow of John A. Hall, 1907.

The original Hopkins factory of Fluteville (Litchfield) was acquired about 1867 by Frederick Porter. No instruments made by Porter have survived but this flute is known to have been made by his successor, John A. Hall (1875-ca 1900), husband of Mary A. Hall.

- II-12 FLUTE, TRANSVERSE; NEW YORK; 1829-35; "C. PELOUBET/NEW YORK." Ivory head, cocus body; 5 sections; silver mounts; 8 silver salt spoon keys; pewter plugs for low C & C#; fully lined metal head section with tuning slide; 666/589; C; Lehman Collection No. 74.

One of Firth & Hall's workmen from 1823-30 was Louis Michel Francois Chabrier de Peloubet (1806-85) who set up in business for himself and made flutes in New York City and Bloomfield, NJ from 1830-49. After that Peloubet turned to building parlor reed organs.

- II-13 PICCOLO; NEW YORK; CA 1860: "GEO. CLOOS/GC/Db/LP." African Blackwood; 3 sections; nickel silver mounts & 6 keys; ivory head section; 300/250; D; Eddy Collection No. 58.
- II-14 FLUTE, TRANSVERSE; NEW YORK; 1840-72; "E. BAACK/N-YORK." Boxwood; 4 sections; ivory mounts; 4 round, brass keys; 598/533; D; Lehman Collection No. 32.
- II-15 FLUTE, TRANSVERSE; PHILADELPHIA; 1844-61; "T.J. WEYGANDT/NO. 10 NO. 8th ST./PHILA." LYRE LOGOTYPE. Boxwood; 4 sections; ivory mounts; one square brass key; 603/533; D; Distinctive grain in wood; Hosmer Collection.
- II-16 FLUTE, TRANSVERSE; BOSTON; 1867-73; "A. HUTTL/BOSTON." Blackwood; 4 sections: head, barrel and two body sections, the lower of which incorporates the foot section; nickel silver mounts; 9 round, nickel silver keys; brass tuning slide with fully brass lined head section; 698/622; B; Hosmer Collection.
- II-17 FLUTE, TRANSVERSE; BOSTON; LATE 19th C; "J.C. HAYNES & CO./ 33 COURT ST/BOSTON, MASS./GERMAN SILVER." Boxwood; 4 sections; nickel silver mounts : 4 keys; 608/531; D; Lehman Collection No. 69.

The instruments described above are additional examples of mid-nineteenth century instruments made in New York, Philadelphia and Boston. The last noted is of interest in that it was made by William and George Haynes in the 1890's for sale by John C. Haynes & Co., a firm connected with Oliver Ditson. John was not related to William and George.

The American flutes so far described have all been of the so-called "simple system," having a conical bore and one to eight keys. During the first three quarters of the 19th century when these instruments were made, the number of keys and materials of construction were largely dependent on the cost and preference of the player since the technology was well developed by the early years of the century. We now consider the Boehm system flute in America.

- II-18 FLUTE, TRANSVERSE; NEW YORK; LATE 19th C; "BADGER." Silver; 3 sections; Boehm system; logotype on gold plaque on head section; "barrel" shaped head section with characteristic ornamentation; extra head section of ebonite; 749/660; Bb; Bondi Collection.
- II-19 FLUTE, TRANSVERSE; NEW YORK; 1849-90; "BERTELING/20/NEW YORK." Ebony; 3 sections; nickel silver mounts & keys; Boehm system, open G#; 690/606; C; Lehman Collection No. 76.
- II-20 FLUTE, TRANSVERSE; NEW YORK; LATE 19th C; "GEO. CLOOS/GC/3672/LP." Cocus; 3 sections; nickel silver mounts and keys; Boehm system; 680/602; C; Lehman Collection No. 26.

Other early makers of the Boehm flute in America were Theodore Berteling, who obtained, perhaps, the first U.S. Patent on mechanical improvements of the Boehm flute, and George Cloos.

II-21 FLUTE, TRANSVERSE; BOSTON; EARLY 20th C; "MASTER/GEO. W. HAYNES/BOSTON//THE ORIGINAL HAYNES/3509." Silver with gold embouchure plate; 3 sections; Boehm system; 670/600; C; Loaned by Theis Aitken.

II-22 FLUTE, TRANSVERSE; BOSTON; 1929; "THE HAYNES FLUTE/MFD. BY/WM. S. HAYNES CO./BOSTON MASS./10071/PATENTED/REG'D TRADE MARK." Silver; 3 sections; Boehm system; 672/601; C; Lehman Collection No. 27.

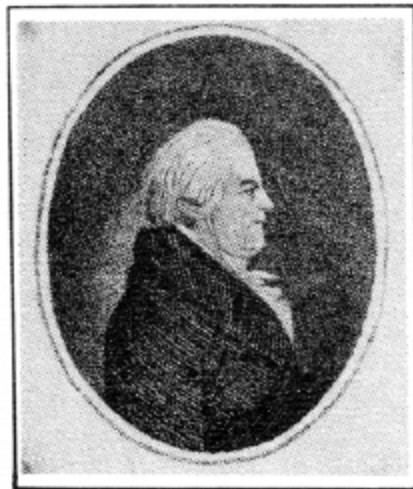
II-23 PICCOLO; BOSTON; CA 1914; "WM. S. HAYNES/BOSTON, MASS./4638." African Blackwood; 2 sections; silver keys; Boehm system; 404/340; Bb; Eddy Collection No. 57.

Without question, the most significant names in the manufacture of the highest quality Boehm flutes in the past 75 years are those of Haynes and Powell. William S. Haynes started in business in Boston in 1888 and the firm continues there today. His brother George W. Haynes began in 1888 in New York and discontinued in 1912. Subsequently he made flutes for a short time in Los Angeles. The brothers at some time worked as partners. George is generally given credit for inventing the drawn tone hole.

II-24 FLUTE, TRANSVERSE; U.S.A.; EARLY 20th C; "VERNE Q. POWELL/FORT SCOTT, KAS." Silver; 3 sections; Boehm system; covered keys with circular gold inserts in each; 675/606; C; Powell Family Collection.

II-25 FLUTE, TRANSVERSE; BOSTON; CA 1945; "VQP/VERNE Q. POWELL/BOSTON/624." Silver with gold embouchure plate; 3 sections; Boehm system with B foot section; 710/638; B; Loaned by Sue Ann Kahn.

In 1913, Verne Q. Powell made a prototype silver Boehm flute, on the basis of which he was invited to join the William S. Haynes firm. In 1926-7, Powell severed relations with Haynes and set up his own shop in Boston which is now continuing in the hands of several of his former employees in Arlington, MA.



Edward Riley
See II-2



John Firth
See II-2, 8, 9

III THE FLUTE IN FRANCE

It is fitting that the period covered by this exhibit should begin with the name Hotteterre since this family of musicians and instrument makers at the court of Louis XIV were responsible for the revolutionary improvements in the flute which were introduced during the last two decades of the 17th century. From a cylindrical bore tube with no keys the flute became a tube with cylindrical head, conical body and one key, and most important, could be played in any tonality.

Which member or members of the Hotteterre family deserve the credit is still an unanswered question. We have selected Jacques Hotteterre le Romain (1674-1763) for our cover because he was the author in 1707 of "Principes de la flûte traversiere" the first instruction book for the new flute and because of his eminence as performer and composer.

- III-1 FLUTE, TRANSVERSE; PARIS; 1680-1715; "CHEVALIER"; DOLPHIN LOGOTYPE. Boxwood; 3 sections; ivory mounts; one square brass key; 692/565; D; Leslie Lindsey Mason Collection of Musical Instruments (formerly Galpin Collection), Museum of Fine Arts, Boston, Acc. No. 17. 1846.

No one knows who Chevalier was and this is the only instrument that bears his name. Nevertheless, by comparison of the Chevalier flute with the flute held by Hotteterre on the cover and the flute held by the seated player in the foreground of the painting: "La Barre and Other Musicians" attributed to Tourneries, iconologists seem able to agree that this flute was made by the Hotteterre group in Paris about 1680-1715. Philip Bate calls this: "Probably the most important example extant..." ("The Flute," W. W. Norton, London, 1969, p. 82.)

- III-2 FLUTE, TRANSVERSE; PARIS; CA 1756; "T*LOT"; LION RAMPANT LOGOTYPE. Boxwood; 4 sections; ivory mounts; one square silver key; 645/572; D; Leslie Lindsey Mason Collection of Musical Instruments (formerly Galpin Collection) Museum of Fine Arts, Boston, Acc. No. 17.1850.

About 50 years after the Hotteterre flute was introduced, changes were made in design of a practical nature which had little to do with the sound of the instrument. The handsome, bulbous head cap and the ferrules were simplified and reduced in size and the tube was divided into 4 rather than 3 sections. The latter change made it easier to stuff the disassembled flute into the pocket and also facilitated the use of interchangeable upper body sections to adapt to the widely varying pitches of orchestras, organs, harpsichords, etc. Thomas Lot, who worked in Paris 1740-85, was a prolific and highly regarded maker and this flute is a good example of his work.

- III-3 FLUTE, TRANSVERSE; PARIS; MID-19th C; "L.L./LOUIS LOT/PARIS/668. Cocuswood; 4 sections; nickel silver mounts and 5 cup keys (lacking the long F key); metal tuning slide; 624/544; D; Lehman Collection No. 60.

- III-4 FLUTE, TRANSVERSE; PARIS; MID-19th C; "L. LOT/PARIS." Ebony; 3 sections; silver keys; Boehm system with 5 rings based on Boehm patent of 1832; 678/593; Lehman Collection No. 28.

III-5 FLUTE, TRANSVERSE; PARIS; 1879-85; "L.L./LOUIS LOT/PARIS/2892/BREVETÉ." Silver plated nickel silver; 3 sections; Boehm system; 679/603; C; Bondi Collection.

Louis Lot (?-1890) is one of the greatest names in French flute making of the 19th century. Working from 1855 to 1875 he made instruments of the simple system, the Boehm system of 1832 with ring keys and conical bore and the Boehm system of 1847 with cylindrical bore, all of which are shown here. (III-3, 4, 5) Louis Lot, with his father-in-law Clair Godefroy, aîné, was the licensee of Boehm for France. In Boehm's final model of 1847 (essentially the modern flute), the holes were too large for the fingers to cover and he therefore used padded plate keys contrary to his principle of freely vented holes. This is the usual student flute of today. Godefroy and Lot solved this problem by using plate keys with ring shaped pads which were perforated with a hole small enough for the finger to seal. This is the configuration now recognized as the "conservatory" or "professional" flute.

III-6 FLUTE, TRANSVERSE; PARIS; CA 1900; "AR/A. ROBERT/ PARIS/3550." Silver; 3 sections; Boehm system; B foot section bears monogram "CR"; gold lip plate; 717/636; B; Lehman Collection No. 34.

Louis Lot's brother-in-law, Alexandre Robert, manufactured flutes of high quality in Paris from 1868-1920. These were endorsed by Georges Barrere during his early years in France.

III-7 FLUTE, TRANSVERSE; PARIS; LATE 19th C; "BUFFET/CRAMPON & CIE/ À PARIS/BC/MADE IN FRANCE/LP," LYRE LOGOTYPE. African blackwood; 5 sections; nickel silver mounts and 12 nickel silver keys; unique key between E and F# over the small F key; 2 upper keys, one of which is operated by the third finger of the left hand; 665/590; C; Eddy Collection No. 14.

III-8 FLUTE, TRANSVERSE; PARIS; CA 1929; "BUFFET, CRAMPON & CIE." Silver; 2 sections; Boehm system; 518/445; F; Dayton C. Miller Collection No. 894, Library of Congress.

Like Louis Lot, Buffet, Crampon & Cie, flourished in Paris during the transition period when flutists were still divided as to the key system they preferred: 4 key, 6-8 key, Boehm 1832, 1847, and sundry modifications and hybrids. Flute III-7 is an advanced simple system 8 key flute to which additional keys have been added for facility and improved intonation. Flute III-8 is Boehm System.



VI-9 RR

IV THE FLUTE IN ENGLAND

- IV-1 FLUTE, TRANSVERSE; LONDON; 1798-1826; "G. ASTOR & CO./LONDON/PATENT." UNICORN LOGOTYPE. Boxwood; 5 sections; ivory mounts; 6 silver keys with pewter plugs; metal tuning slide with fully metal lined head section; 660/580; C; Eddy Collection No. 52.

George Astor and his younger brother, John Jacob, were in the musical instrument business together in London until about 1783. At this time the latter sought his fortune in the New World with results well known to everyone but which have nothing to do with the flute. Astor flutes were highly regarded and were used by the famous Charles Nicholson.

- IV-2 FLUTE, TRANSVERSE; LONDON; EARLY 19th C; "C. GEROCK/76/BISHOPSGATE ST/LONDON." UNICORN LOGOTYPE. Boxwood; 4 sections: no mounts; one square brass key; 604/530; D; Lehman Collection No. 64.

Christopher Gerock began flute making in London about 1804. He joined George Astor from 1821 to 1831 after which he was replaced by Robert Wolf.

- IV-3 FLUTE, TRANSVERSE; LONDON; LATE 18th C; "POTTER/LONDON." Boxwood; 5 sections; ivory mounts; 4 nickel silver salt spoon keys; metal tuning slide with fully metal lined head section; 603/536; D; Lehman Collection No. 39.

Richard Potter (1728-1806) was a leader in the addition of new keys (especially F G# Bb) after the D# key which was first used in the late 17th century. He also invented keys with tapered pewter plugs as an improvement on simple leather pads which were quite successful at least for normally open keys. (Pewter plugs are not on this flute but see the Astor IV-1.) The "register," an adjustable extension of the foot section for tuning, was never accepted but Potter was a pioneer in popularizing the head section tuning slide invented by Quantz.

- IV-4 FLUTE, TRANSVERSE; LONDON; 1815-1819; "DROUET/LONDON." Ivory; 5 sections; silver mounts and 8 silver salt spoon keys; 665/590; C; Eddy Collection No. 55.

Louis Francois Philippe Drouet (1792-1873) was best known as a flute virtuoso but manufactured flutes in London during only a period of 4 years. Although the Boehm system flute was available during a good part of his career, he continued to use the simple system flute of 8 keys.

- IV-5 FLUTE, TRANSVERSE; LONDON; CA 1828; "W. MILHOUSE/LONDON." African blackwood; 5 sections; nickel silver mounts and 8 salt spoon keys; square embouchure hole; 670/590. Eddy Collection No. 15.

The flute of the Renaissance and early Baroque had a circular embouchure hole. Gradually this was modified to elliptical or rectangular with rounded corners. This flute by William Milhouse is unusual in having a sharp and nearly square blow hole which works but was never generally accepted.

- IV-6 FLUTE, TRANSVERSE; LONDON; 1812-21; "METZLER/LONDON." Maple, stained dark brown; 4 sections; ivory mounts; one square brass key; cap not original; 595/531; D. Lehman Collection No. 77.

Valentin Metzler, born in Germany, opened a musical instrument business in London about 1790. His sons joined him, prospered and survived well into the 20th century.

- IV-7 FLUTE, TRANSVERSE; LONDON; 1838-52; "WYLDE/FROM/RUDALL & ROSE/25 VILLIERS ST/STRAND/LONDON." Rosewood; 5 sections; silver mounts; 8 silver salt spoon keys; 7 large bands of chased silver; 665/590; C. Eddy Collection No. 19A.

Charles Nicholson (1795-1837), a flute virtuoso who was noted for his big tone, never made flutes but had them made to his specifications by Prowse, Astor and others. Nicholson's contribution was to enlarge the tone holes of the standard 8 keyed flute. This is a good example of such a flute. Furthermore, Nicholson inspired Boehm who wrote: "...I could not match Nicholson in power of tone, wherefore I set to work to remodel my flute. (1832 model). Had I not heard him, probably the Boehm flute would never have been made." (translated by Dayton C. Miller.)

- IV-8 FLUTE, TRANSVERSE; LONDON; CA 1850; "SICCAMA PATENTEE/LONDON 404." CROWN LOGOTYPE. Rosewood; 4 sections; silver mounts and 8 salt spoon, 2 pewter plug keys; Siccama "diatonic" system; enlarged tone holes, even more than on the earlier Nicholson flutes; 640/570; C; Eddy Collection No. 4.

Abel Siccama designed and manufactured several new flute systems but his "diatonic" flute (properly "enharmonic") was the only one that had a considerable measure of success. The celebrated flutist Joseph Richardson, for instance, used and recommended it. Introduced about the same time as Boehm's final model, it was essentially a simple system instrument but with tone holes at least as large as Nicholson's and two extra keys for the A and E holes which are acoustically more correct and accessible to the players fingers.

- IV-9 FLUTE, TRANSVERSE; LONDON; 1857-71; "COUNCIL & PRIZE MEDAL/RUDALL ROSE, CARTE & CO./PATENTEES/20 CHARING CROSS/BOEHM'S PARABOLA/CARTE'S MECHANISM." Silver; 3 sections; reform system; open G#; 670/590; C; Eddy Collection No. 34.

At first, neither flutists nor flute makers were willing whole heartedly to adopt the Boehm system. This flute is an attempt to secure the advantages of Boehm's parabolic head section and large and evenly spaced tone holes but without any drastic change in fingering with respect to the simple system flute. It achieved only a temporary vogue.

- IV-10 FLUTE, TRANSVERSE; LONDON; CA 1863; "CLINTON & CO./LONDON." Silver; Clinton's Equisonant System; 657/587; C; Dayton C. Miller Collection No. 109, Library of Congress.

John Clinton (1810-64) was a flutist and flute maker. The Equisonant Flute was one of several not very successful attempts to adapt some of Boehm's principles to the simple system flute.

IV-11 FLUTE, TRANSVERSE; LONDON; CA 1890; "RUDALL CARTE & CO./23 BERNERS STREET/OXFORD STREET/LONDON/CARTE & BOEHM'S SYSTEMS/COMBINED." Silver; 3 sections; head section probably not original; open G#; 670/590; C; Eddy Collection No. 33.

This prestigious firm of instrument makers was in business under this name from 1875 to 1955. The example shown is Richard Carte's final development and adaptation of the Boehm system which was completed in 1867. It was quite successful in its time and is still preferred by some players in England. Most flutists felt that its undeniable merits failed to compensate for its added complexity.



Charles Nicholson, 1795-1837
See IV-7,8



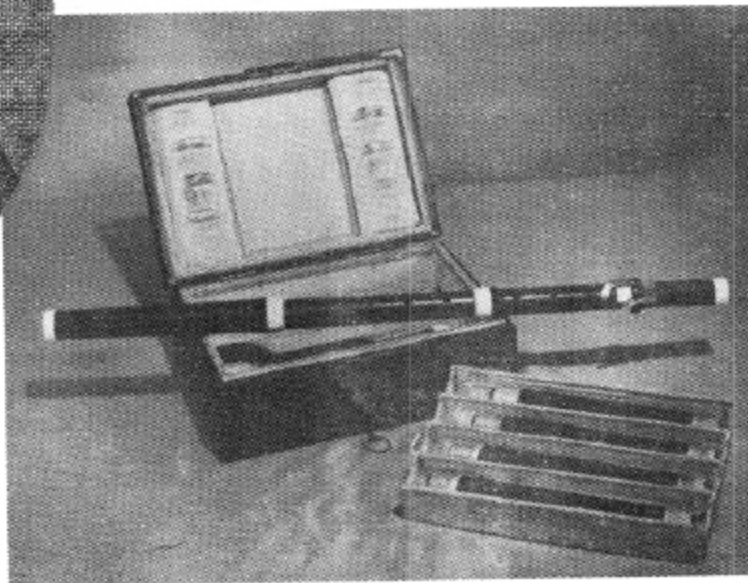
John Clinton, 1810-64
See IV-10

V THE FLUTE IN CENTRAL EUROPE

AT THE COURT OF FREDERICK THE GREAT

- V-1 FLUTE, TRANSVERSE; POTSDAM, PRUSSIA; MID-18th C; NO MAKER'S MARKS; "XV" ON EACH TENON. Ebony; 4 sections plus optional head section and 4 optional upper body sections; ivory mounts and screw end cap; brass/wood tuning slide; 2 square brass keys for low D# and Eb; 736/679 (maximum), 704/643 (minimum); D; Dorothy and Robert Rosenbaum Collection No. 22.

Johann Joachim Quantz (1679-1773) was a flute virtuoso and composer of many works for the flute, some of which are in print today. He is the author of a classical monograph: "Versuch einer Anweisung die Flöte traversiere zu spielen." Quantz was the teacher of Frederick the Great (1712-1786) in Frederick's boyhood as Crown Prince and served for over 30 years as his mentor and court composer. He is said to have supervised the making of the King's flutes and to have bored the tone holes himself. It is not known who did the rest of the work and, in any event, Quantz was certainly not a flute maker in the usual sense. He is credited with inventing the D#/Eb keys which had largely theoretical value and were soon forgotten. It is also believed that Quantz invented an early form of tuning slide which is the forerunner of that in use today. This flute is one of 5 now existing which are known to have belonged to the King. It is complete with interchangeable second sections (corps de réchange) which allow the player to make adjustments in pitch depending upon prevailing conditions and on the other instruments in use.



V-1 RR

THE WORK OF THEOBALD BOEHM

- V-2 FLUTE, TRANSVERSE; MUNICH; CA 1830; "BOEHM & GREVE." Fruitwood; 4 sections; ivory mounts; 8 round brass keys; 686/610; C; Moskovitz Collection.

The flute before Theobald Boehm was a highly imperfect instrument in spite of the addition of keys during the last half of the 18th century. Intonation was reasonably satisfactory but only in the hands of a skilled player; the timbre of the notes of the scale varied greatly depending upon whether or not the note was shaded by cross fingering; the volume was irregular and generally inadequate for the larger orchestras of the classical period. Playing of certain sequences of notes was difficult if not impossible. All of this was changed by Boehm as the result of his undeniable talents as a flutist and an engineer. In 1828, Boehm established a factory for making the 8 key simple system flute of his day but with certain improvements of his own. This is an example of a simple system flute made by Boehm and his partner Greve about 1830.

- V-3 FLUTE, TRANSVERSE; MUNICH; 1832-47; "TH. BOEHM." Cocuswood; silver mounts & keys; Boehm system with rings based on patent of 1832; open G#; Boehm No. 9; 653/577; C; Dayton C. Miller Collection No. 974, Library of Congress.

Boehm's early flutes, while well made, had all the disadvantages of those of other makers. Many of these were rectified in his next step: the 1832 flute. Here, the tone holes have been somewhat enlarged and correctly placed acoustically and a mechanism invented to make it possible for the player to reach the keys. This was a great improvement but the low notes were still weak due to the conical bore and the relatively small holes.

- V-4 FLUTE BODY SECTION; MUNICH; 1832-47; "TH. BOEHM." Brass body section with 9 large and 3 small holes with 13 slide over pieces with holes of varying sizes; experimental flute used by Boehm in developing his system. Dayton C. Miller Collection No. 471, Library of Congress.

Boehm, still not satisfied, returned to the cylindrical bore of the Renaissance but with a parabolic head section and with his sophisticated key system. This is Boehm's actual experimental model of a body section which he used to determine the optimal size and position of the tone holes.

- V-5 FLUTE, TRANSVERSE; MUNICH; 1847; "TH. BOEHM." Nickel plated brass; 2 sections; silver keys; ivory tube at embouchure; Boehm No. 2; Boehm system based on 1847 patent; open G#; 625/590; C; Dayton C. Miller Collection No. 470, Library of Congress.

Finally, we have the Boehm flute more or less as we know it today: excellent intonation, uniform timbre and volume throughout the scale, big dynamic range and facile mechanism for playing rapid and complicated sequences. Many minor changes were made during Boehm's lifetime and since but none that have reduced the greatness of his contributions.

- V-6 FLUTE, TRANSVERSE; MUNICH; CA 1850; TH. BOEHM." Silver with extra head section of wood; Boehm system with open G#; Boehm's No. 19; 663/588; C; Dayton C. Miller Collection No. 99, Library of Congress.

This is the first Boehm system silver flute to reach to this country. It was brought in 1864 by Edward Martin Heindl, a pupil of Boehm's, who played it with the Boston Symphony Orchestra at the time of its founding in 1881.

- V-7 FLUTE, TRANSVERSE; MUNICH; 1862-95; "TH. BOEHM & MENDLER/IN/MÜNCHEN." Silver, 3 sections; Boehm system with open G#; and *schleif* key; gold lip plate; 657/605; C; loaned by the Metropolitan Museum of Art, Gift of Mrs. James Leonard Corning in memory of Dr. James Leonard Corning, 1923, Acc. No. 23.273.

In the latter part of Boehm's career, Carl Mendler joined Boehm as partner. This flute is of interest in having a "schleif" key or octave key to assist in the formation of certain upper notes. While theoretically sound, the "schleif" key proved to be an unnecessary complication.

- V-8 FLUTE, TRANSVERSE; GERMANY; CA 1850; "M. KNEER/MÜNSTER." Boxwood; 4 sections; ivory mounts; 6 nickel silver keys; 3 corps de rechange; 625/549 (maximum); optional second sections decrease length by 21 and 10; D; Lehman Collection No. 31.

- V-9 FLUTE, TRANSVERSE; BUDAPEST; LATE 19th C; "STOWASSER/BUDAPEST." African blackwood; 4 sections: ivory head, barrel body, and foot; nickel silver mounts and 12 keys; 2 rings; 730/650; B; Eddy Collection No. 30.

- V-10 PICCOLO; FULDA, PRUSSIA; CA 1900; "S/MOLLENHAUER/& SÖHNE/KASSEL." Ebony with nickel silver head section; hard rubber embouchure plate; nickel silver mounts and 7 keys; simple system with additional key between A and Bb holes; 300/250; D; Eddy Collection No. 59

Like most people, musicians are conservative; they have an investment in their instruments and they are not anxious to learn new techniques. Consequently, the Boehm flute by no means supplanted all other systems. Flutes V-8, 9, 10 are examples of a few post Boehm instruments that had their day. The simple system flute was still being played in the 20th century and in recent years reproductions of early flutes are being made to further the study of authentic performance practices.



Theobald Boehm, 1784-1881

VI-A THE MATERIALS OF WHICH THE FLUTE IS MADE

Almost any hard substance which can be worked with tools can be used in the construction of a flute and the instruments displayed are a selection from the many common and uncommon materials that have been used. Scientific experiments have established to the satisfaction of scientists that *everything else being equal*, the nature of the substance of which the tube is made, if it be rigid, does not significantly affect the tone. Many factors do affect the tone: bore size and taper, finger hole size, placement and undercutting, embouchure shape and size, and so forth. Subjective factors include the feel of the instrument and the preconception of the player as to how the instrument should or will sound, for instance. In any event, it is the rare flutist, indeed, who is not firmly convinced that a gold flute sounds "darker," a silver flute more "brilliant," a wooden flute "mellow," etc., etc. Flutes VI-1 to VI-7 are examples:

boxwood/ivory	blackwood/ebonite/silver
stained maple/ivory	ivory/silver
maple/black horn	glass/silver
rosewood/silver	

- VI-1 FLUTE, TRANSVERSE; NEW YORK; MID 19th C; "FIRTH HALL & POND/FRANKLIN SQE/N-YORK/4019." Boxwood; 4 sections; ivory mounts; 4 brass salt spoon keys; 601/529; D; Lehman Collection No. 70.
- VI-2 FLUTE, TRANSVERSE; NEW YORK; MID 19th C; "WM. HALL & SON/ 239 BROADWAY/N-YORK." Maple, dark stained; 4 sections; ivory mounts; one round silver key; 502/437; F; Lehman Collection No. 36.
- VI-3 FLUTE, TRANSVERSE; EUROPE (?); 19th C; "...ING/*/D." Maple; 4 sections; black horn mounts; one square brass key; 593/523; D; Lehman Collection No. 68.
The name of the maker has not been deciphered.
- VI-4 FLUTE, TRANSVERSE; NEW YORK; MID 19th C; "WM. HALL & SON/239 BROADWAY/N-YORK/8264." Rosewood; 4 sections; silver mounts; 8 silver keys, C & C# pewter plugs; broad silver band surrounding embouchure; 660/582; C; Lehman Collection No. 61.
- VI-5 FLUTE, TRANSVERSE; GERMANY; LATE 19th C; "NACH/H.F. MEYER/HANOVER/HP." Blackwood with ebonite head; 4 sections: head, barrel with tuning slide and two additional; silver mounts; 11 silver cup keys; 710/624; B; Lehman Collection N. 62.

VI-6 FLUTE, TRANSVERSE; FRANCE (?); EARLY 19th C; NO MAKER'S MARKS. Ivory; 4 sections; silver mounts; 4 silver keys; metal tuning slide; 628/552; D; Bondi Collection.

VI-7 FLUTE, TRANSVERSE; PARIS; 1815; "LAURENT A PARIS 1815/BREVETÉ." Glass, fluted; 4 sections; silver mounts; 4 silver keys; silver covered tenons; blue glass cap; 634/553; Db; Loaned by the Metropolitan Museum of Art, Gift of Mrs. Manuel Agramonte, 1916, Acc. No. 16. 130.

Claude Laurent worked in Paris from 1806 to 1857 and was the first maker to use cast glass or crystal for flutes and one of the first to support the key axes with pillars. The glass flute has the advantage of being impervious to humidity changes and its tone is very much like other flutes of the time.

VI-B FLUTES OF CURIOUS DESIGN AND WORKMANSHIP

VI-8 FLUTE, TRANSVERSE; LONDON; 1783; "STANESBY IUNIOR." Ebony; 4 sections; ivory mounts; one square silver key; 614/555; D; Silver plaque bearing the inscription: "THE/GIFT OF HIS/ROYAL HIGHNESS/FREDERICK/PRINCE OF WALES/TO T. WACKETT 1738." Calligraphy by Gabriel Brooks, engraving by George Bickham. Embouchure has been enlarged, Dorothy and Robert Rosenbaum Collection No. 16.

Thomas Stanesby, Junior (1692-1754) in London, like Thomas Lot in Paris, was one of the earliest makers of the modified Hotteterre flute with 4 sections. Frederick Prince of Wales, was the son of George II who died before his father and never became king. George Bickham was well known as an engraver of popular song sheets many of which included a part for the German Flute.

VI-9 FLUTE, TRANSVERSE; BRUSSELS; EARLY 19th C; "SAX/FACT. DU ROY/A BRUXELLES" WITH 8 POINTED STAR ABOVE AND BELOW. Ebony; 5 sections; ivory cap with silver mounts; 9 scalloped, salt spoon keys of silver with a semi-precious stone set in the center of each; fully metal lined head section with tuning slide; usual 8 keys with upper C# trill key; 667/585; C; Dorothy and Robert Rosenbaum Collection No. 37.

VI-10 FLUTE, TRANSVERSE; LONDON; CA 1810; "POTTER/LONDON/PATENT." ivory; 5 sections; silver mounts; 8 silver keys; full metal lining in head section with metal tuning slide; 650/576; C; Leslie Lindsey Mason Collection of Musical Instruments (formerly Galpin Collection) Museum of Fine Arts, Boston. Acc. No. 17.1848.

Made by William Henry Potter (1760-1848) son of Richard Potter. (See the flute in England) Most flutes labelled "Potter London" are believed to have been made by the father.

- VI-11 FLUTE, TRANSVERSE; LONDON; 2nd QUARTER 19th C; "GOULDING D'ALMAINE/AND CO/SOHO SQUARE/LONDON" WITH CROWN AND FOLIAGE ON BARREL; "GOULDING & CO" WITH CROWN ALONE ON 3 LOWEST SECTIONS; "JAS-WOOD & SON/MAKERS" ON FOOT SECTION. Ebony; 5 sections; silver mounts and 6 silver salt spoon keys, all finely tooled; 656/585; C; Lehman Collection No. 79.
- VI-12 FLAGEOLET IN SHAPE OF A RIDING CROP; PARIS; MID-19th C; "C. H. MATHIEU/M.L.E. DEPOSÉ." Rolled brass enameled to give "tiger" finish; one section; 6 finger holes with 2 vent holes at bottom; no keys; leather riding crop handle at bottom; 370/240; D; Dorothy and Robert Rosenbaum Collection No. 7.
- VI-13 FLUTE, TRANSVERSE, IN FORM OF WALKING STICK; GERMANY; FIRST HALF OF 19th C; NO MAKER'S MARKS. Maple, stained; one section; steel shaft and ferrule on false bottom; brass rings; 2 vent holes at bottom; one square wooden key; 853/530; D; Dorothy and Robert Rosenbaum Collection No. 21.
In the days before transistor radios or paper back books, a gentleman would kill time by piping on his flageolet or flute while waiting for the eggs to boil or for the end of a tedious trip.
- VI-14 FLUTE, TRANSVERSE, BASS; ITALY; LAST HALF OF 16th C; "I. A. NENI" WITH SHIELD BEARING A 6 POINTED STAR. Boxwood; 2 sections; one brass ferrule probably of 18th C workmanship; no keys; 6 undercut holes; 949/740; G; Dorothy and Robert Rosenbaum Collection No. 14.
- VI-15 RECORDER, TREBLE; NÜRNBERG, GERMANY: CA 1720; "I. W. OBERLENDER." Boxwood, carved; no mounts or keys; 503/413; F; Dorothy and Robert Rosenbaum Collection No. 2.
- VI-16 FLUTE, TRANSVERSE, ALTO (FLAUTO DI VOCE); LONDON: 18th; "WIGLEY & MCGREGOR/PATENTEES/161 STRAND/LONDON." Boxwood; 4 sections; ivory mounts; 6 silver plated brass keys; second body section has a hole covered by a thin skin membrane to give a "reedy tone"; 750/670; G; Leslie Lindsey Mason Collection (formerly Galpin Collection). Museum of Fine Arts, Boston, Acc. No. 17.1857.
- VI-17 FLUTE, TRANSVERSE, BASS; LONDON; 1811-16; "WIGLEY & MCGREGOR/ PATENTEES/161 STRAND/LONDON." Boxwood; stained dark yellow brown; 6 sections; ivory mounts; 8 brass keys, 4 normally open, 4 closed; 1000/870; D; Leslie Lindsey Mason collection (formerly Galpin Collection), Museum of Fine Arts, Boston, Acc. No. 17.1858.
- VI-18 FLUTE, TRANSVERSE; MILAN; EARLY 20th C; "BARLASSINA & CASOLI." Silver; 3 sections, conical bore Boehm system with ring keys; hollow wall construction; 698/616; B; Moskovitz Collection No. 200.
The hollow wall construction of this flute has the advantage of lightness with rigidity and good temperature stability. It was not successful because of the high cost of fabrication.

VII MODERN REPRODUCTIONS OF EARLY FLUTES

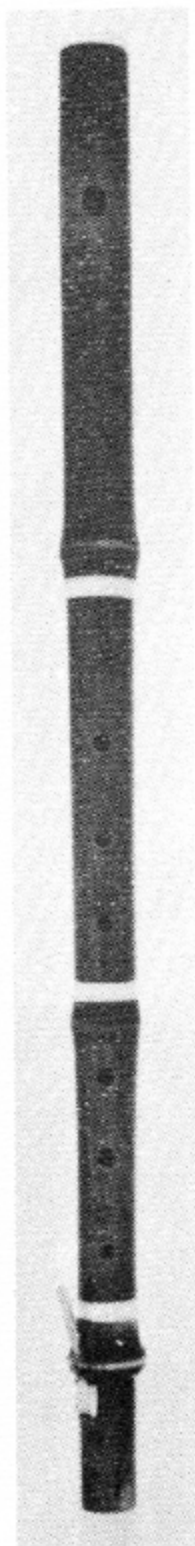
- VII-1 HOTTETERRE, LENINGRAD COLLECTION, CA 1670
Made and loaned by Friedrich von Huene, Brookline, MA
- VII-2 CHEVALIER, MUSEUM OF FINE ARTS, BOSTON, 1680-1715
Made and loaned by Friedrich von Huene, Brookline, MA
- VII-3 CHEVALIER, MUSEUM OF FINE ARTS, BOSTON, 1680-1715
Made and loaned by Philip Dickey, Seattle, WA
- VII-4 KIRST, STAATLICHE MUSIKINSTRUMENTENSAMMLUNG, CA 1740
Made and loaned by Friedrich von Huene, Brookline, MA
- VII-5 STANESBY, JUNIOR, LIBRARY OF CONGRESS, MID-18th C.
Made and loaned by Michael Seyfrit, Washington, DC
- VII-6 NAUST, MUSIKINSTRUMENTEN MUSEUM, BERLIN
Made and loaned by Friedrich von Huene, Brookline, MA
- VII-7 RENAISSANCE
Made at Sir George Williams University, Montreal. Loaned by R. A. Lehman
- VII-8 NAUST, FLUTE D'AMOUR
Made and loaned by Friedrich von Huene, Brookline, MA
- VII-9 ROTTENBURGH PICCOLO, MUSIKINSTRUMENTEN MUSEUM, BERLIN.
Made and loaned by Friedrich von Huene, Brookline, MA

VIII FLUTE INSTRUCTION BOOKS FROM THE SELCH COLLECTION

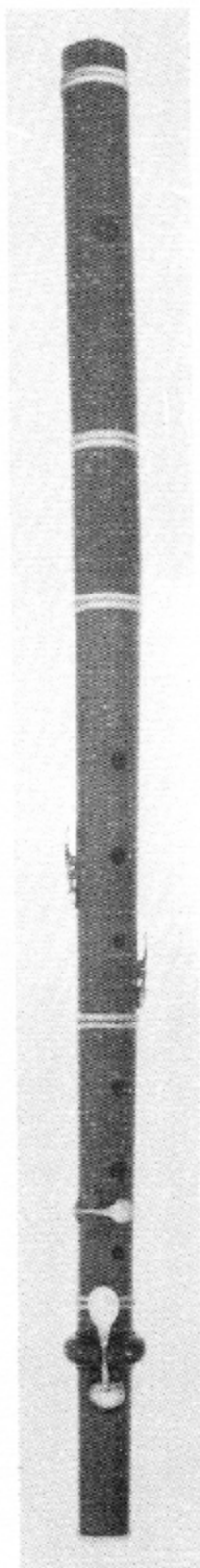
- VIII-1 John Clinton, THORETICAL AND PRACTICAL ESSAY ON THE BOEHM FLUTE, R. Cocks & Co., London, nd.
- VIII-2 V. Coche, METHODE POUR SERVIR A L'ENSEIGNEMENT DE LA NOUVELLE FLUTE, Schonenberger, Paris, nd.
- VIII-3 Hotteterre le Romain, PRINCIPES DE LA FLUTE TRAVERSIERE, OU FLUTE D'ALLEMAGNE ..., Christophe Ballard, paris, 1728.
- VIII-4 C. Nicholson, PRECEPTIVE LESSONS FOR THE FLUTE, Clementi & Co., nd.
- VIII-5 Johann Joachim Quantz, VERSUCH EINER ANWEISUNG DIE FLÖTE TRAVERSIERE ZU SPIELEN, Johan Friedrich Korn, Breslau, 1780.



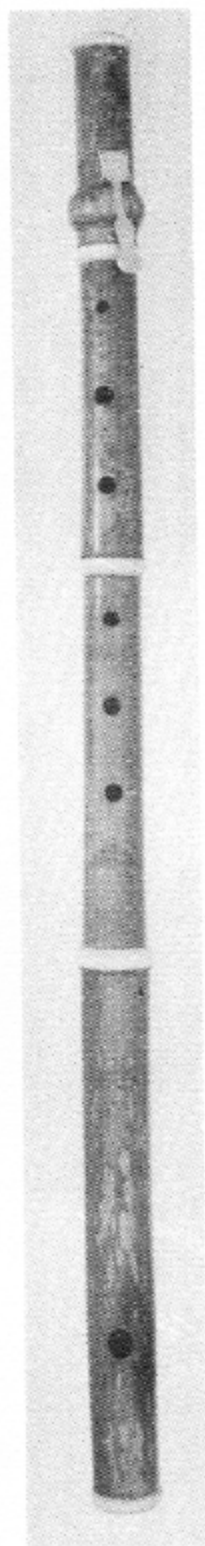
II-1 LC



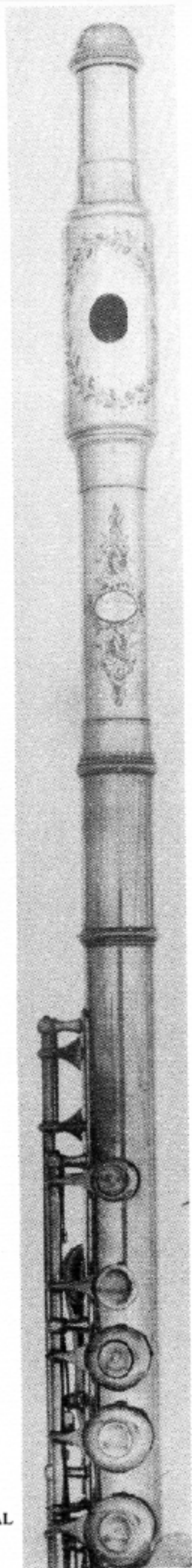
II-2 RAL



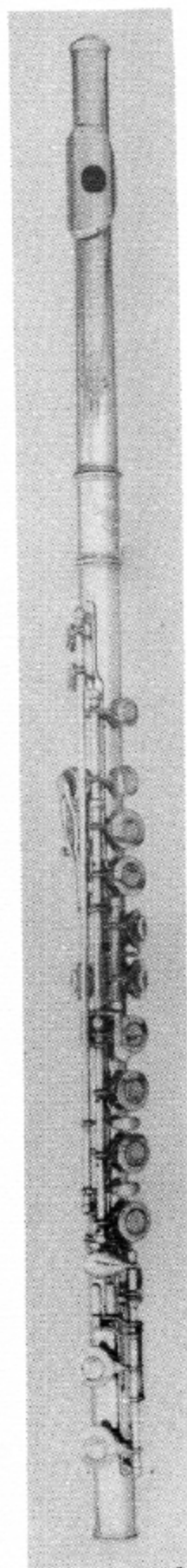
II-7 RAL



II-15 RAL



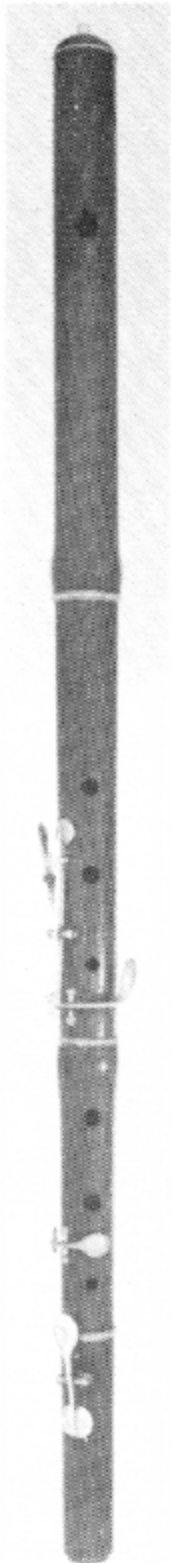
II-18 RAL
X $\frac{3}{4}$



II-24 RAL



III-1 MFA



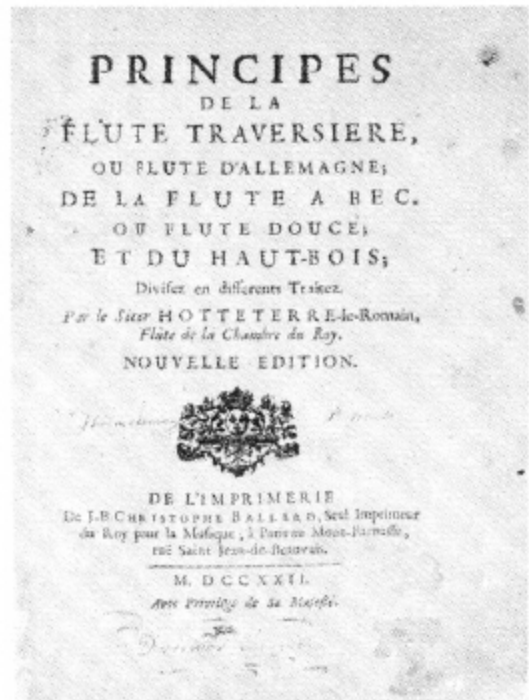
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III-4 RAL



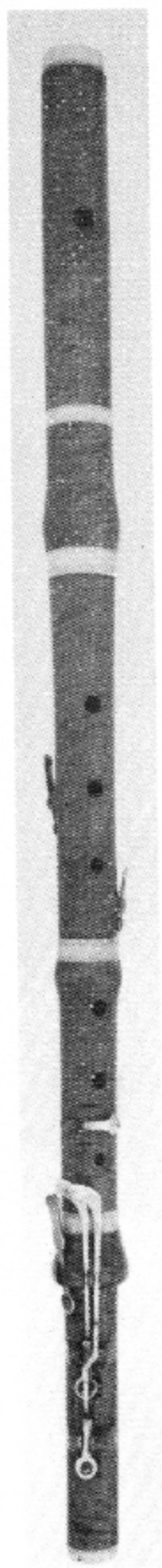
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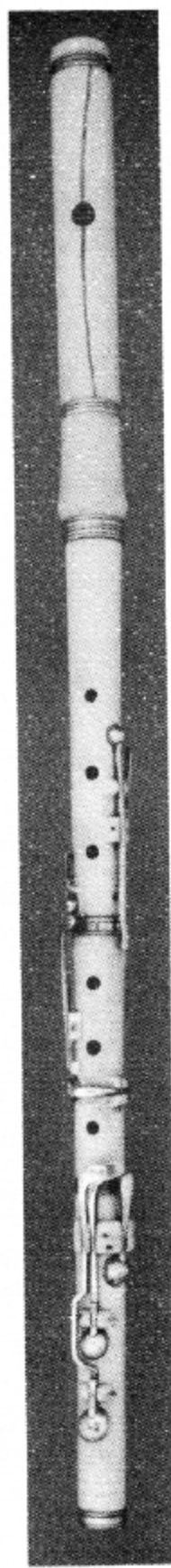
See introduction to Section III



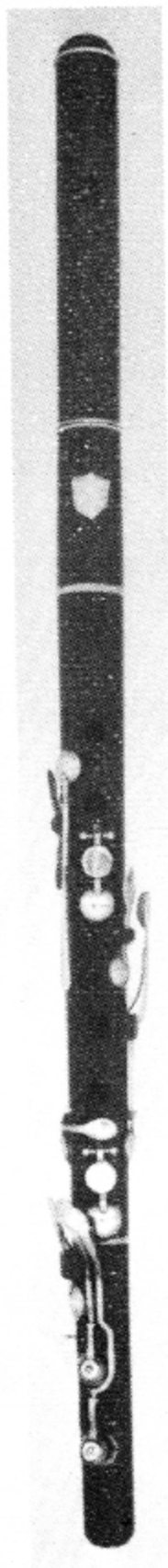
Gentleman dressed as of 1700-25 holding flute of the Hotteterre period; identified by Adolf Goldberg (*Biographien zur Porträts-Sammlung...*, Berlin, 1906) as Jean Baptiste Hotteterre son of Jacques.



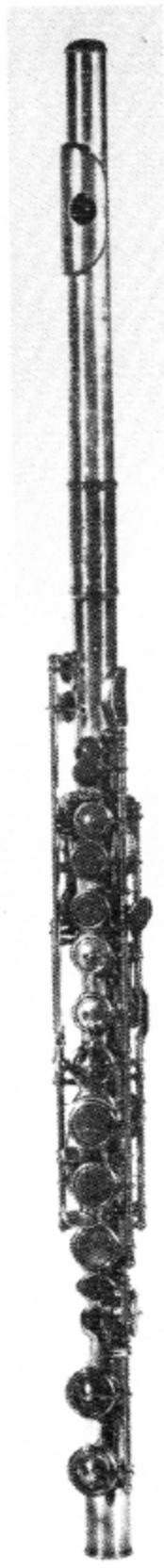
IV - 1 RAL



IV-4 RAL



IV-8 RAL



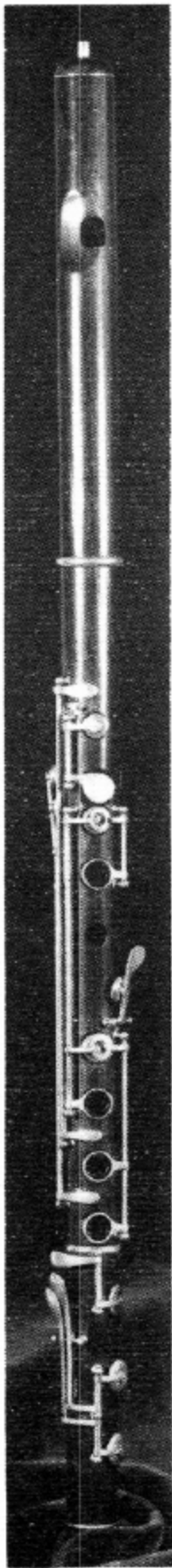
IV-10 LC



IV-9 RAL



IV-11 RAL



V-3LC



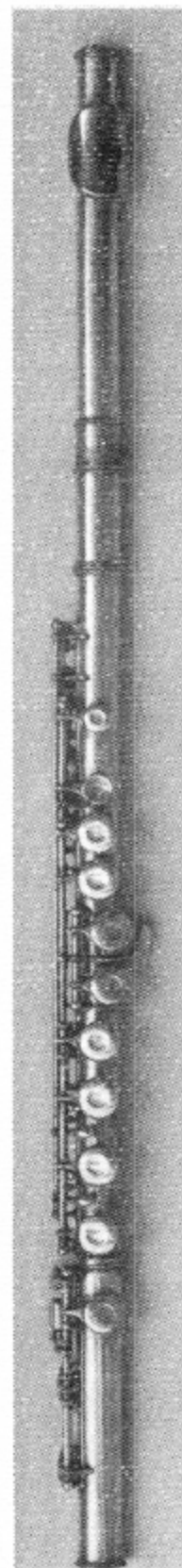
V-4LC



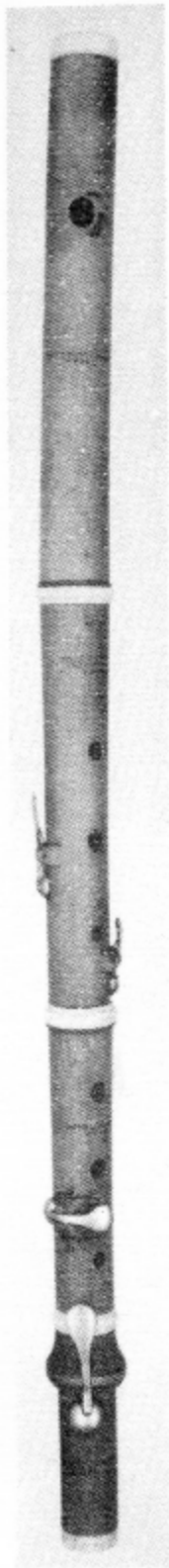
V-5LC



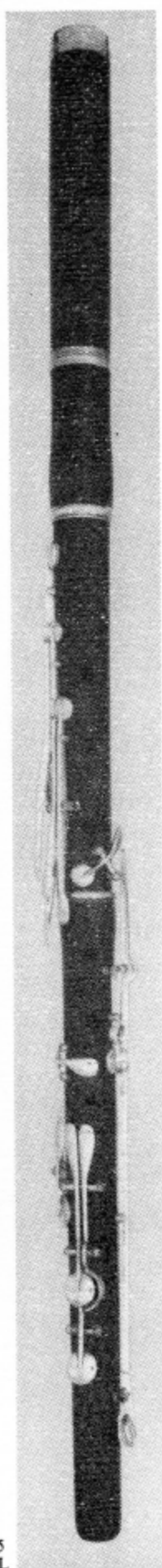
V-6LC



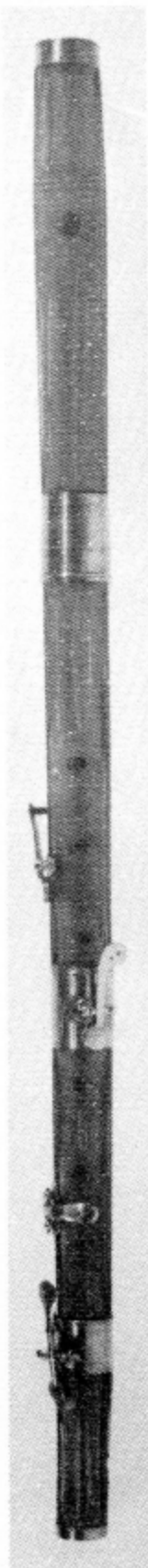
V-7MMA



VI-1 RAL



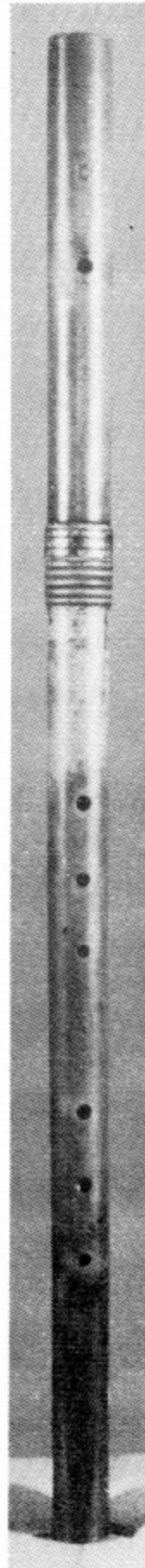
VI-5
RAL



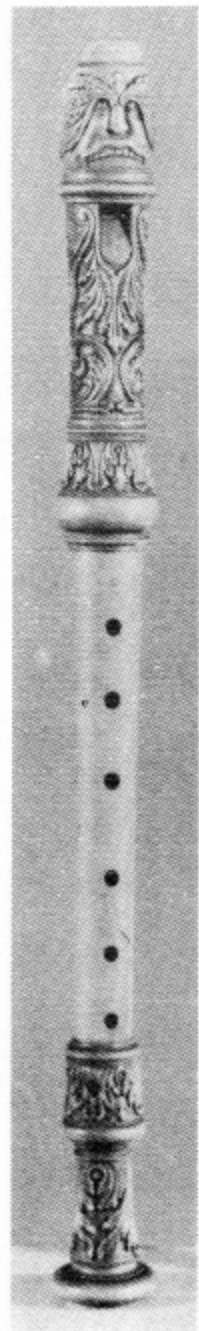
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