THE FLUTE IN TRANSITION: A COMPARISON OF EXTANT FLUTES FROM CIRCA 1650 TO 1715

BY

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To my family, with whose support, I can do anything.

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Chapter 1: INTRODUCTION

During the mid-seventeenth century the flute underwent a significant change in construction, aesthetics, and sound. The Renaissance-style cylindrical flute is well documented in treatises through 1636 culminating with Marin Mersenne's *Harmonie universelle*, and the three-piece early baroque-style flute with a D-sharp key is first depicted in Marin Marais's *Pièces en Trio* in 1692, but what happens in between is still ambiguous. Many flute historians have pieced together hypotheses regarding who made the changes and where they occurred during this time, but these remain only hypotheses. This chapter will give a brief overview of the existing research on the transition of the flute from circa 1650 to 1715, the current hypotheses, and the hypothesis and purpose of this document.

When examining the existing research on the transition of the flute from Renaissance to Baroque design, one must consult both historical and contemporary sources. No individual source at the time of this writing documents every transitional and early baroque-type flute covered here, pictorially or through the written word. The first source to show changes to the cylindrical Renaissance-style flute was Mersenne's *Harmonie universelle* (1636). Researchers have debated the accuracy of the fingering charts for the transverse flute and the military fife depicted therein; the consensus is that he probably switched the fingering charts for the two, so ideas concerning what these fingering charts indicate for the development of the flute will not be discussed here. He published a drawing of the most famous flute of his time, which shows ornate turnings or decorations at the ends (see Figure 1.1).

Figure 1.1. Mersenne's transverse flute
Source: Mersenne, *Harmonie universelle*, 241.

The first pictorial representation of the early three-piece baroque-design conical-bore flute with a D-sharp key is the frontispiece of Marais's *Pièces en Trio* (1692; see Figure 1.2). Two images of the newly designed flute are crossed at the top of the frame; the bulbous shape of the head-joint cap and foot joint, the D# key, and the three-piece design are all clearly visible.

The first known piece to use the newly designed conical-bore transverse flute with a D-sharp key is Jean Baptiste Lully's *Le triomphe de l'amour* (1681; see Figure 1.3). The use of frequent F-sharps and E-flats along with the lower range of the movement strongly suggests a distinct design change to the flute that would more easily produce not only in-tune F-sharps and E-flats, but also a stronger low octave.

Figure 1.2. Frontispiece of Marais, *Pièces en trio*

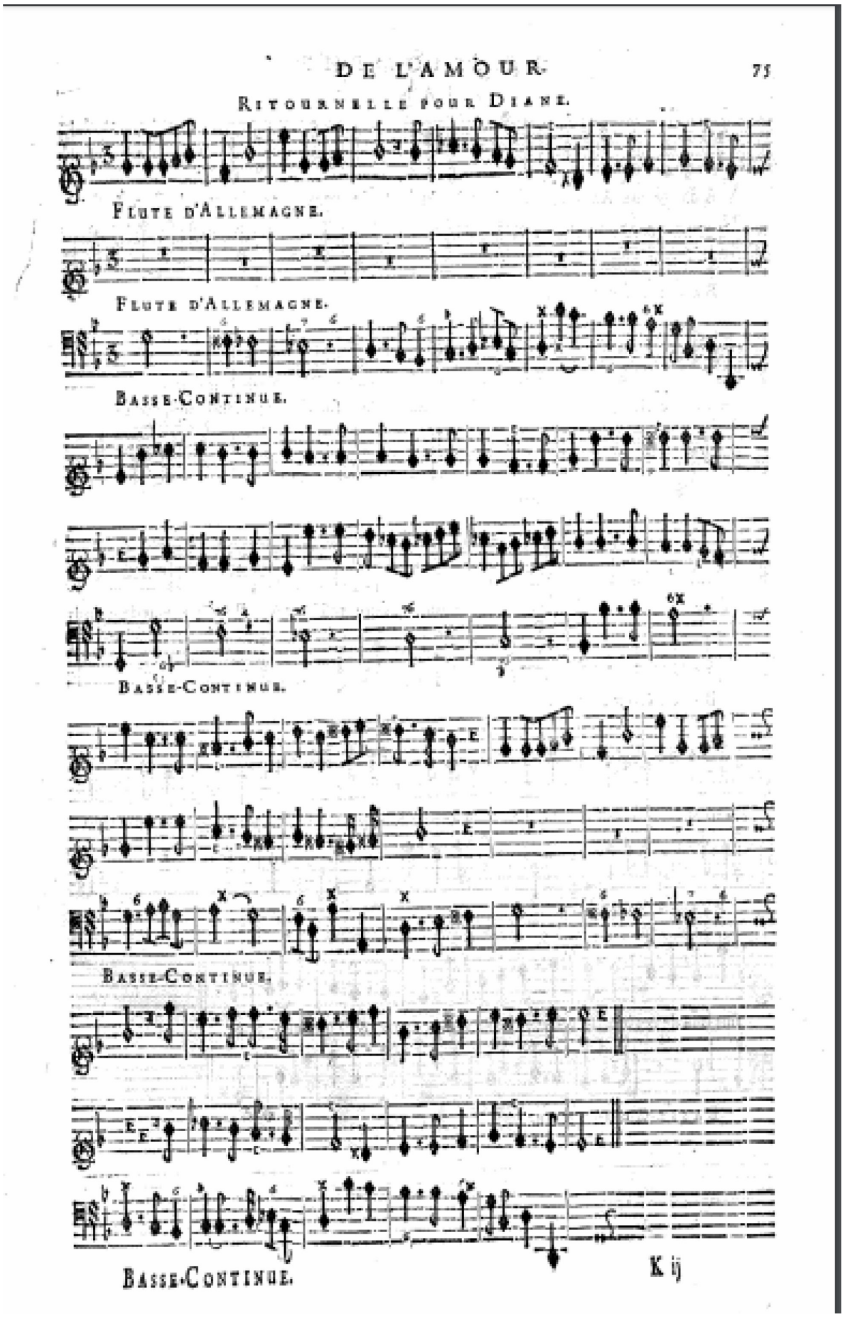

Figure 1.3. Ritournelle pour Diane
From Lully's *Le triomphe de l'amour* (1681)

Johann Joachim Quantz was the first to write about the origin of the conical-bore flute with a D-sharp key in his *Versuch einer Anweisung die Flöte traversiere zu spielen* (1752).

> The French, by the addition of a key, were the first to make the instrument more serviceable than it had been previously among the Germans. The exact time when this improvement was made, and who its originator was, cannot be fixed with certainty, although I have spared no pains to discover reliable answers. In all probability the improvement was made less than a century ago; it was, no doubt, undertaken in France at the same time that the shawm was developed into the oboe, and the bombard into the bassoon.[1]

The next prominent historical reference to the development of the early baroque-type flute is in Richard Shepherd Rockstro's treatise *The Flute* (1889).

> The name of the inventor of the D# key is still as uncertain as it was in the days of Quantz, but all the information at our disposal tends to show that the improvement was made about the year 1660, though it is impossible to fix the date precisely. …Whoever may have been the originator of [the conical bore] in the transverse flute, we cannot be very far wrong in computing that it was made about twenty years after the D# key was introduced[,] that is, about the year 1680.[2]

Rockstro's information must be examined with skepticism, since he mixes up the names of members of the Hotteterre family—probably because of the mix-up of names in François-Joseph Fétis's *Biographie universelle des musiciens* (1833–44). Philip Bate in 1969 published one of the first modern comprehensive histories of the flute. He also writes of the ambiguity of when the development took place but reiterates the research of his day that one or more of the *artiste-ouvriers* serving the French court during the time of Louis XIV likely made the transformation. He further states that "having compared the features of the early recorder with those of its Baroque successor we can make a like comparison between those of the transverse flute, and at once we see that a parallel transformation has taken place. Moreover, the details of surviving specimens suggest very strongly that the same men were responsible."[3]

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[1] Johann Joachim Quantz, *Versuch Einer Anweisung Die Flöte Traversiere Zu Spielen*, trans. Edward Reilly, Second ed. (Boston: Northeastern University Press, 2001), 30.
[2] Richard Shephard Rockstro, *A Treatise on the Construction the History and the Practice of the Flute*, trans. Georgina M. Rockstro (London: Musica Rara, 1889), 221-22.
[3] Philip Bate, *The Flute: A Study of Its History, Development and Construction*, Instruments of the Orchestra (New York: W.W. Norton and Company Inc., 1969), 80.

One begins to see a discrepancy in hypotheses among the more contemporary researchers, though most still believe that the main development of the early baroque-type flute occurred in France. This portion of the chapter will give an overview of the main research on the history of the flute. (The information contained herein is not meant to be an exhaustive treatment of the topic. For a complete list of all works consulted, please see the bibliography.) Nancy Toff, in her book *The Flute* (1985), states that Jacques Hotteterre le Romain was the principal figure in the redesign of the flute but dates his major contribution, the D-sharp key, to 1660—fourteen years before he was born.[4] In the 2012 edition, Toff re-wrote the paragraph from which this statement came, and she no longer gives any attribution to a particular person or group for the invention of the D-sharp key. Other contemporary flute researchers who maintain that the flute's development into the three-piece conical-bore instrument with a D-sharp key took place in France include Paul Carroll in *Baroque Woodwind Instruments*, Christopher Addington in "In Search of the Baroque Flute," Cheryl Ann Bowman in her dissertation "The Evolution of the Flute from the Baroque Era," and Jane M. Bowers in her dissertation "The French Flute School from 1700–1760."

John Solum and Ardal Powell are the main voices raising doubt about the French development hypothesis. In his book *The Early Flute*, Solum writes of the de La Barre account and the first publications indicating the new type flute, Lully's *Le triomphe de l'amour* and Marais's *Pièces en Trio*, "Is this scanty information enough to state with certainty that the baroque flute evolved first in France?" He also mentions how Quantz credits France with the invention but says that nothing proves that the Dutch may not have had an important role.[5] Powell, in his book *The Flute*, is the only flute researcher this author found who cited any of Bruce Haynes's research on the oboe; he compared it to the flute and discussed a correlation

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[4] Nancy Toff, *The Flute Book: A Complete Guide for Students and Performers* (New York: Charles Scribner's Sons, 1985), 43-44.
[5] John Solum, *The Early Flute*, Early Music Series (New York: Oxford University Press, 1992), 36.

between the gradual development of the oboe and his hypothesis that the flute's development was gradual as well. The inset box on page 67, titled "The Hotteterre Flute: The French Flute's Creation Myth," gives a title to his belief that the early baroque-type three-piece conical-bore flute did not develop in France but was gradually developed across Europe in several locations.[6] In his paper "The Hole in the Middle," Powell uses the examples of the Assisi and Haka flutes to support his hypothesis: "We can see from the two examples in Group I [Assisi and Haka flutes] that all three of these conditions [three-joint construction, conical bore, and addition of a key for D-sharp or E-flat] existed, probably beforehand, and elsewhere than in France. The late seventeenth-century changes to the flute, wherever they were first made, involved only an increase in the bore's taper."[7]

Sources of information on the extant transitional and early baroque three-piece flutes are scarcer than those on the broad history of the flute. The main sources for multiple flutes and comparisons of makers includes Powell's "Hole in the Middle" and *The Flute*, Solum's *The Early Flute*, and Bowers's dissertation "The French Flute School from 1700–1760." Solum and Bowers are the only two to include illustrations, though Powell's original presentation of his paper included pictures as well; none are in color, and none are comprehensive, though '"The Hole in the Middle" is by far the closest of these four works to being all-inclusive. Several journal articles cover individual flutes, such as Filadelfio Puglisi's "A Three-Piece Flute in Assisi" and Friedrich von Huene's "A *flûte allemande* in C and D by Jacob Denner of Nuremberg"; and individual makers, such as Maurice Byrne's "Pierre Jalliard, Peter Bressan."

The primary purpose of this document is to prove a French connection to each extant transitional and early three-piece baroque-type flute from circa 1650 to 1715 in an effort to

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[6] Ardal Powell, *The Flute* (New Haven and London: Yale University Press, 2002), 67.
[7] Ardal Powell, "The Hole in the Middle: Transverse Flute Bores in the Late 17th and Early 18th Centuries," in *Paper presented at the American Musical Instrument Society* (Elkhart, IN1994), 4.

support the author's hypothesis that the design transition from the Renaissance to the baroque design did indeed occur in France. A secondary purpose is to document all extant transitional and early three-piece flutes through color photographs (where available), basic measurements, and biographical data on the makers in an effort to have, for the first time, all available information on all known specimens in one document. Each maker is discussed with the data for their extant flutes—with the exception of the Hotteterre family. Owing to the long-held belief that the Hotteterre family made significant contributions to the design changes of the flute and other woodwinds, their long and prominent history of woodwind making in France, and the enormous amount of information on the family, the Hotteterres are discussed in a separate chapter. The extant flutes from 1650 to 1715 are divided into three categories by the author: transitional flutes showing design elements of both Renaissance and baroque-type flutes, flutes made in France, and flutes made outside of France. A chapter is devoted to the comparison of flutes across these three categories, and the known history of the development of the flute in this time period is compared with the similar histories of the oboe and recorder.

Chapter 2: THE TRANSITIONAL FLUTES OF THE RENAISSANCE AND BAROQUE

Given the lack of extant transitional oboes and recorders, flute historians can consider themselves lucky to have three instruments to examine. This chapter will examine all transitional flutes that possess hybrid characteristics between the Renaissance and baroque-type designs, without division by nationality of the maker, and will encompass both two- and three-piece flutes. The transitional flutes discussed below are grouped by maker, with separate measurements for each. There is a full chart of the measurements of all the extant transitional flutes at the end of the chapter. Basic defining measurements are compared: approximate sounding pitch, sounding length, bore diameter change (taper), bore diameter at the largest point, bore diameter at the smallest point, and embouchure dimensions. These measurements reflect the current state of the flute and do not account for bore shrinkage or warping over time. Color photographs are included whenever possible. The transitional flute makers are listed in alphabetical order.

ANONYMOUS, BASILICA OF ST. FRANCIS AT ASSISI

The three-piece flute preserved in the musical instrument collection of the Basilica of St. Francis in Assisi, Italy, is the only known flute in a historical Italian collection with similar design characteristics to those of the early French three-piece flutes.[8] The researcher and performer Laura Pontecorvo has uncovered the rich musical traditions and history at the Basilica Cappella, active from 1363 to 1810, by examining extant documents, inventories, and wills in the collection at the Biblioteca Comunale of Assisi and has published her findings in her article "La collezione di strumenti musicali e la prassi strumentale nel Sacro convento di San Francesco ad Assisi durante il Seicento," in the 2012 issue of Ricercare. The Urban Constitutions of the Minor Conventual Order of 1628 proclaimed that performing music and building musical instruments were among the friars' permitted occupations, and many of the friars at the Basilica had excellent

[8] Filadelfio Puglisi, "A Three-Piece Flute in Assisi," *The Galpin Society Journal* 37 (1984): 6.

musical educations.[9] Inventories of the friars' rooms from 1701 to 1704 list several instruments in the individual rooms: seven violins, a cello, a harpsichord, a Spanish guitar, two recorders (one large and one small), an oboe, and a bassoon.[10] Many documents in the collection detail purchase orders and donation inventories for instruments still housed at the collection. Of particular interest is the will, dated 1704, of Francesco Maria Rivi, who donated a collection of instruments to the Holy Convent:

> Il molto Ill.re e molt'ecc.te sig. abbate Francesco Maria Rivi romano, abitante in Fuligno, […] ordina e dispone come segue, cioè: […] Item per ragione di legato et in ogn'altro modo lascia al Serafico Convento di San Francesco d'Assisi tutti i suoi strumenti da fiato esistenti in Fuligno, cioè un oboe d'avorio e d'ebano del tuono di Francia con chiavi d'argento. Un altro di busso con legature e chiavi d'argento e loro cassette con ance. Una traversiera. Due flauti con il suo basso che concertino a tre. Un flautino. Un flautone germanico tutto d'un pezzo di busso. Tre sciallumò. Quattro cornetti con i loro bocchini, che tutti sono coristi al tuono d'Italia. E che questi si consegnino dal padre maestro Rivi suo zio al detto Sacro convento come sopra.[11]

> The very Ill.re and Mr. molt'ecc.te . Abbot Francesco Maria Rivi Roman inhabitant in Foligno , […] order and has the following, namely: […] Items tied in every way to the Seraphic Convent of St. Francis of Assisi all his wind instruments existing in Foligno, i.e., an oboe of ivory and ebony at French pitch with silver keys. Another with ligatures and silver keys and their boxes with reeds. A transverse flute. Two flutes and a bass to form a consort of three. A small flute. A dulcian in one piece of wood. Three chalumeau. Four cornetti with their mouthpieces, which are at the choir pitch of Italy. And that they will be delivered by the uncle of master Rivi to the Sacred Convent as stated above.

The will includes several items of interest, namely the transverse flute (*una traversiera*). This term clearly refers to a transverse flute and not a recorder; *traversiera* is the Italian translation of the French *traversière*, and Pontecorvo maintains that it refers to the baroque, not the Renaissance, type of instrument.[12] Although he died in Foligno, Francesco Maria Rivi lived

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[9] Laura Pontecorvo, "The Assisi Collection of Musical Instruments: Instrumental Practice in the Holy Convent of Assisi During the Seventeenth Century," in *Schola Cantorum Basilensis* (Basel 2013), 2, 6.
[10] "The Collection of Musical Instruments and Practice Instrumental in Sacred Convent of Saint Francis in Assisi During the Seventeenth Century," *Ricercare* XXIV, no. 1-2 (2012): 80.
[11] Pontecorvo, "The Assisi Collection of Musical Instruments: Instrumental Practice in the Holy Convent of Assisi During the Seventeenth Century," 7. Translation by Kelly Roudabush.
[12] "The Collection of Musical Instruments and Practice Instrumental in Sacred Convent of Saint Francis in Assisi During the Seventeenth Century," 91.

most of his life in Rome, which makes it highly likely that these instruments were purchased there.[13] The will also states that the two oboes were at French pitch, unlike the cornetti, which were at Italian choir pitch. While the pitch of the transverse flute and recorder in the will are not mentioned, the transverse flute and oboe currently in the collection that are probably connected to this will are indeed at the lower French pitch, around A = 390.[14] There is a strong possibility that the anonymous transitional flute in the collection at the Basilica is the instrument described in the will of Francesco Maria Rivi. Given the 1704 date, the flute left to the Cappella in Rivi's will likely would have been an early three-piece design and not a Renaissance-style flute. And with the Cappella's strong focus on music, it is also possible that the flute was either made by one of the friars or was specially ordered for the Cappella. The flute is considered to be of a transitional design owing to the embouchure-hole orientation and the bore, which is less tapered than is usual among baroque transverse flutes; yet it bears a striking resemblance to the French flutes of the same period (see Figures 2.1–2.3). Aspects that differ from the French three-piece flute design include the turning of head-joint cap, which is not separate but is in one piece with the head joint; the turnings of the head-joint socket and the foot joint, which are similar to those of baroque recorders; the bore, which is less conical than that of the average French three-piece flute; and the embouchure hole, which is oval, with the main axis across the instrument and rotated slightly clockwise—a common characteristic of Renaissance-type flutes.[15] Dimensions of the extant flute are given in Table 2.1.

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[13] Pontecorvo, "The Assisi Collection of Musical Instruments: Instrumental Practice in the Holy Convent of Assisi During the Seventeenth Century," 8-9.
[14] "The Collection of Musical Instruments and Practice Instrumental in
Sacred Convent of Saint Francis in Assisi During the Seventeenth Century," 90.
[15] Puglisi, 6.

Figure 2.1. Anonymous flute, Assisi.
Photo courtesy of the Biblioteca Comunale of Assisi

Figure 2.2. Anonymous flute, Assisi: head joint (detail)
Photo courtesy of the Biblioteca Comunale of Assisi

Figure 2.3. Anonymous flute, Assisi: foot joint (detail)
Photo courtesy of the Biblioteca Comunale of Assisi

Table 2.1. Anonymous flute, Assisi: dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Anonymous	IT: Assisi	390	580	3.5	19.2	15.7	9.1 × 8.2

Source: Data from Powell, "The Hole in the Middle."

HAKA

Richard Haka (ca. 1646–1705) is known by forty extant instruments: sixteen recorders of various sizes, one flageolet, one flute, eleven *deutsche schalmei*, ten oboes, and one bassoon.[16] Born in London, he and his parents, Thomas Hakay (other variations of the family name include Hacker, Haker, and Haca) and Agnes Atkins, moved to Amsterdam in or before 1652.[17] This was

[16] Phillip T. Young, *4900 Historical Woodwind Instruments : An Inventory of 200 Makers in International Collections* (London: T. Bingham, 1993), 117-20.
[17] William Waterhouse and Lyndesay G. Langwill, *The New Langwill Index : A Dictionary of Musical Wind-Instrument Makers and Inventors*, 1st ed. (London: Tony Bingham, 1993), 156.

shortly after the end of the Third English Civil War (1649–1651), so it is possible the family left England for reasons connected to that conflict. Haka's father was a maker of walking sticks.[18] Richard Haka began making woodwind instruments around 1660, flourishing in Amsterdam from 1661 to 1699, and was one of the few makers to produce instruments in both the old Renaissance style and the new baroque style.[19] Haka's instruments were in demand all over Europe: an invoice from 1685 to Johan Otto in Kalmar, Sweden, specifies forty instruments with which Haka supplied the court, including shawms, a dulcian, and—in the new French baroque style—oboes, a bassoon, and a consort of recorders.[20] It is important to note here the last part of this sentence because it indicates Haka's awareness of the new French designs as of 1685. According to Jan Bouterse, "He was one of the first to make woodwind instruments in the new baroque style in the Netherlands and probably the first to systematically stamp them with his name"; no Dutch instruments with a maker stamp predating Haka have yet been found.[21] A property-sale document from 1709 lists several instruments by Richard Haka, including two *dwarsfluyten* (traversos) in boxwood and two in ebony; one of each pair is specified as being a *kleynder* (smaller) instrument, which indicates that he must have made flutes in various sizes.[22] Haka trained three apprentices: Coenraad Rykel (1664–1726), Abraham van Aardenberg (1672–1717), and Jan Steenbergen (1676–1752).[23] Rykel took over Haka's shop in 1696 and used the Haka stamp until 1699, discontinuing its use after Haka's public objections.[24]

The extant Haka flute resides in a collection at the Rijksmuseum in Amsterdam and is in a good state of preservation (see Figure 2.4). The top head-joint turnings are in one piece with the

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[18] Ibid.
[19] Jan Bouterse, "The Woodwind Instruments of Richard Haka (1645/6 - 1705)," in *From Renaissance to Baroque*, ed. Jonathan Wainwright (Surrey, England: Ashgate Publishing Ltd, 2005), 65.
[20] Jan Bouterse, "Richard Haka," http://www.mcjbouterse.nl/dutch-ww-instruments/Haka.pdf.
[21] Jan Bouterse, *Dutch Woodwind Instruments and Their Makers, 1660-1760*, Bouwstenen (Utrecht: Koninklijke Vereniging voor Nederlandse Muziekgeschiedenis, 2005), 14.
[22] Bouterse, "The Woodwind Instruments of Richard Haka (1645/6 - 1705)," 65.
[23] Waterhouse and Langwill, 156.
[24] Ibid.

joint, not a separate cap, and the top end of the flute is open, with the cork visible from the end of the flute, as it is in Renaissance-type flutes. The shape of the foot-joint key is different from that on most traversos but is similar in style to Haka's oboes (see Figure 2.5), and the embouchure hole is oval shaped, with the longer axis across the flute, as with Renaissance-type flutes.[25] Van Acht believes, owing to the wide bore and unusual length, that the Haka flute may be a bass traverso rather than a *flûte d'amour*; he cites several builders in Amsterdam who claimed to have invented the bass around 1700.[26] Bouterse believes it probable that the Haka flute is the earliest of its kind, possibly older than those from the Hotteterre family, but is not one of the earliest instruments by this particular maker. He cites this flute as further evidence that the baroque-type flute developed some twenty years later than the baroque-type oboe and recorder.[27] The dimensions of this flute are given in Table 2.2.

Figure 2.4. Flute by Richard Haka, Rijksmuseum, Amsterdam
Photo by Jan Bouterse

[25] Bouterse, "The Woodwind Instruments of Richard Haka (1645/6 - 1705)," 67.
[26] Rob van Acht, "Dutch Wind-Instruments, 1670-1820," *Tijdschrift van de Vereniging voor Nederlandse Muziekgeschiedenis* 38 (1988): 102.
[27] Bouterse, "The Woodwind Instruments of Richard Haka (1645/6 - 1705)," 67.

Figure 2.5. Flute by Richard Haka, Rijksmuseum, Amsterdam: D-sharp key (detail)
Photo by Jan Bouterse

Table 2.2. Haka flute dimensions

Maker	Location	Pitch	Sounding length	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Haka	NL: Amsterdam	408	645	1.8	18.5	16.7	9.04 × 8.53

Source: Data from Powell, "The Hole in the Middle."

LISSIEU

Lissieu is known by three extant instruments: one recorder, one flute, and one musette.[28] The identity of this maker is probably Jean Lissieux (ca. 1625–1695), a turner originally from Normandy and the origin of the Lot family and other French woodwind makers.[29] Jean Lissieu's son of the same name (1670–1740) was present at the land sale of Antoine Delerablée (1686–1734), the document of which states that his father was a turner from La Couture married to Marie Regnault.[30] Piere Borjorn de Scellery's *Traité de la musette* (1672) also mentions a Sieur Lissieux:

[28] Young, 147.
[29] Ardal Powell, http://www.baroqueflute.com/models/renaissance/Lissieu.html.
[30] Tula Giannini, *Great Flute Makers of France : The Lot and Godfroy Families, 1650-1900* (London: Bingham, 1993), 6.

> Le sieur Lissieux, qui depuis quelques anneé s'est étably à Lyon, en construit [des musettes] avec beaucoup de propreté et de justesse, aussi bien que toute sorte d'utres instruments à vent. Je n'en connois point qui approche davantage de l'adresse des sieurs Hotteterre.
>
> The Sieur Lissieux, who several years ago established himself in Lyon, constructs [musettes] properly and correctly, as well as all other sorts of woodwind instruments. I don't know any other maker who approaches him in quality of work, apart from the Hotteterres.[31]

The flute is in two pieces with no head-joint cap, plays with Renaissance flute fingerings, and has baroque-style turnings at the ends of each joint (see Figure 2.6). The flute is pitched high, A = 462, which, according to Powell, indicates it was meant to play with curved cornets and voices without transposing.[32] On the other hand, the extant recorder by Lissieu is pitched at A = 410.[33]

Figure 2.6. Flute by Lissieu, Vienna, Kunsthistorisches Museum
Photo by Boaz Berney

Table 2.3. Lissieu flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Lissieu	AT: Vienna, Kunsthistorisches Museum	462	502.4	0	16	16	8.0 × 7.8

Source: Boaz Berney, personal communication.

[31] Ibid. Translation by Tula Giannini.
[32] Powell, http://www.baroqueflute.com/models/renaissance/Lissieu.html.
[33] "Recorder Home Page Databases," http://www.recorderhomepage.net/databases/Historic_Instrumentsview.php?showdetail=&Instrument_Number=446.

CONCLUSIONS

The full chart of measurements for all transitional flutes is given in Table 2.4. The pitches of these instruments vary between 390 and 462 Hz; the wide variation is likely due to the differences in their probable dates of construction (the Lissieu flute is almost certainly much earlier than either the Haka or the anonymous Assisi flute). All three flutes have a distinctly different bore taper, ranging from none to 3.5 mm. The anonymous Assisi flute and the Haka flute have similar embouchure measurements, with an average of 9.07 × 8.37 mm, as compared to the very small embouchure of the Lissieu, 8.0 × 7.8 mm.

Table 2.4. Transitional flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Anonymous	IT: Assisi	390	580	3.5	19.2	15.7	9.1 × 8.2
Haka	NL: Amsterdam	408	645	1.8	18.5	16.7	9.04 × 8.53
Lissieu	AT: Vienna, Kunsthistorisches Museum	462	502.4	0	16	16	8.0 × 7.8

There are similarities in turning styles among all three flutes. None have the characteristic head-joint cap of the French three-piece flutes: all extant transitional flutes are open-ended, exposing the cork. All three also have a similar onion-like bulb at the head-joint socket, though the anonymous Assisi flute has an extra ridge in the middle of this turning. The Haka and Lissieu flutes have simple turnings at the top of the head joint and foot joint, whereas the top of the anonymous Assisi flute head joint is more bulbous, somewhat similar to the French three-piece flutes.

Chapter 3: THE HOTTETERRE FAMILY: A BRIEF HISTORY

The Hotteterre family is one of the most famous families of instrument makers to date because of the innovations to many woodwind instruments with which they are credited.[34] Starting with Loys de Haulteterre in the mid-sixteenth century, the family was well-known for their wood-turning and instrument-making skills well into the eighteenth-century. This chapter will include a brief history of the historical research on the family, an overview of prominent family members of the seventeenth and eighteenth centuries, and a more in-depth look at the life of Jacques Hotteterre le Romain.

HISTORICAL RESEARCH

With a family as important to the development of several woodwind instruments as the Hotteterres, it should come as no surprise that, over time, several authors sought to publish its history. The first such book was published in 1877 by Jules Carlez. According to Powell, Carlez based his writings on many primary sources but failed to cite many of the documents he used.[35] Ernest Thoinan published the second history of the family in 1894 in his book *Les Hotteterre et les Chédeville: Célèbres joueurs et facteurs de flûtes, hautbois*, which continued Carlez's work and provided more documentation. Both Carlez's and Thoinan's works seem to have been written in response to the inaccurate information found in François-Joseph Fétis's *Biographie universelle des musiciens et bibliographie générale de la musique* (1835–44). Fétis's work was apparently the source of much confusion and inaccuracy; "He refers to 'le Romain' as Louis Hotteterre, the third son of Henri, misdates the *Principes*, and lists … a number of works that are unsubstantiated in any other source."[36] Nicolas Mauger published the third history of the Hotteterre family in

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[34] Jane M. Bowers, "The Hotteterre Family of Woodwind Instrument Makers," in *Concerning the Flute: Ten Articles About Flute Literature, Flute Playing, Flute Making, and Flutists*, ed. Rien de Reede (Amsterdam: Broekmans & van Poppel, 1984), 33.
[35] Powell, *The Flute*, 229.
[36] Delpha LeAnn House, *Jacques Hotteterre "Le Romain": A Study of His Life and Compositional Style* (Chapel Hill: University of North Carolina at Chapel Hill, 1991), 4.

1912. Prominent contemporary researchers of the Hotteterre family include Ardal Powell, Tula Giannini, and Jane Bowers. Family trees created by Tula Giannini and Jane Bowers are reproduced in Figures 3.1 and 3.2.

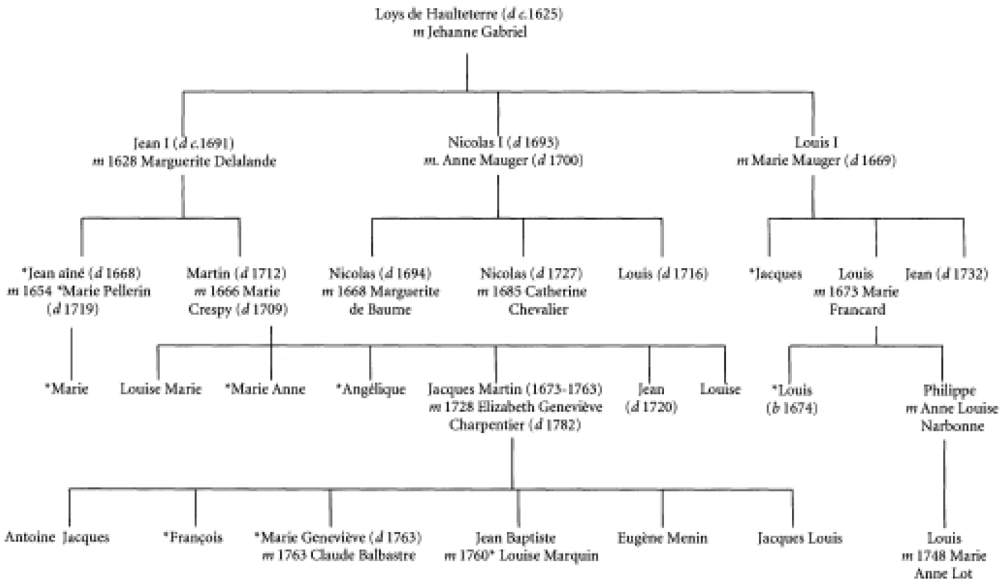

Figure 3.1. Family tree of Jacques Hotteterre le Romain and his father, Martin
Diagram courtesy of Tula Giannini

Note: This family tree includes members of the family discovered by Giannini in researching her article. Newly discovered family members are denoted by an asterisk (*).

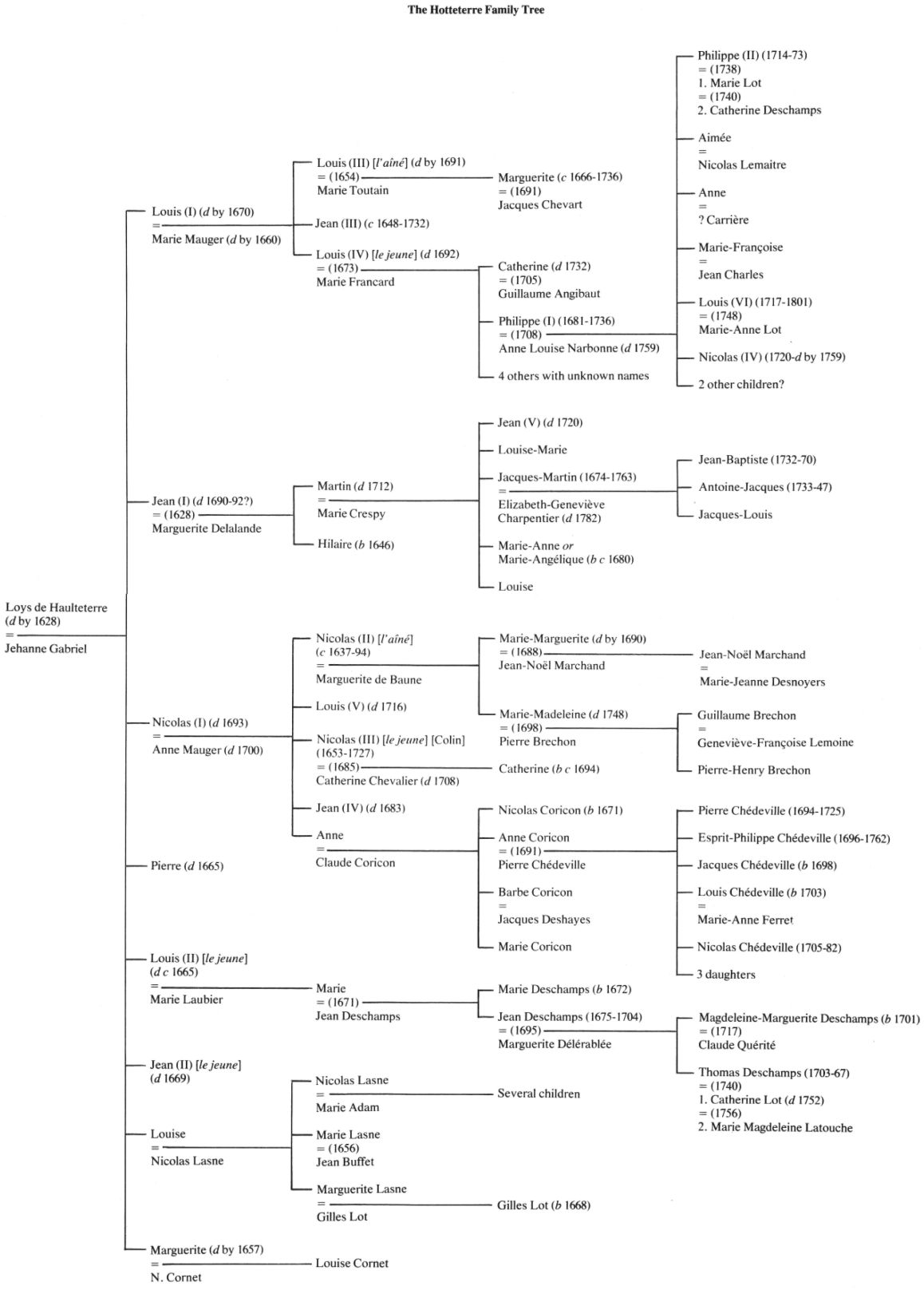

Figure 3.2. The Hotteterre family of woodwind-instrument makers
Diagram courtesy of Jane Bowers

JEAN (I) HOTTETERRE

Jean (I) (d. 1691) was born to Loys de Haulteterre and Jehanne Gabriel; his brothers included Nicolas (I) and Louis (I). Jean's date of birth is unknown, and the date of his death is approximate because the registers for 1690–92 of the *état civil* of La Couture are missing.[37] He married Marguerite Delalande in 1628 and was most likely the first of the Hotteterre family to move to Paris from La Couture–Boussey in Normandy, settling in Paris by 1636.[38] In 1646 he was listed as a master maker of instruments, and by 1650 Jean (I) was admitted to the *Haubois et Musettes du Poitou*.[39] Despite his move to Paris, he must have visited La Couture often, as suggested by his purchase of a house at La Couture in 1664, a building marked by the sign "*L'Ancre Noire*." This building is probably the origin of the anchor stamp on many instruments marked HOTTETERRE, which indicates Jean (I), and later Martin, as the maker.[40]

MARTIN HOTTETERRE

Martin Hotteterre (d. 1712), son of Jean (I) and Marguerite Delalande, was also a very prominent instrument maker. Of the many innovations credited to the Hotteterre family, Martin's addition of the second chanter to the musette to increase the range of the instrument is the only one we can with any certainty credit to them.[41] Martin began work as an instrument maker in partnership with his father, and from 1668 to 1673 the shop was in the *Enclos du Palais sur la petite porte*—at the sign of the musette, according to Giannini.[42] Since Jean (I) is documented as having purchased the "*L'Ancre Noire*" building in La Couture in 1664,[43] one must assume that by

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[37] Nicolas Mauger noted this in his book on the Hotteterre family; see Mauger, *Les Hotteterre, célèbres joueurs et facteurs de flûtes, hautbois, bassons et musettes des 17e & 18e siècles: Nouvelles recherches par N. Mauger* (Paris: Librarie Fischbacher, 1912). See also Jane Bowers, "The Hotteterre Family of Woodwind Instrument Makers," in *Concerning the Flute* (Amsterdam: Broekmans & Van Poppel, 1984), 35.
[38] House, 38.
[39] Bowers, 34.
[40] Ibid.
[41] Bowers, "The Hotteterre Family," 40.
[42] James B. Kopp, "The Musette De Poitou in 17th Century France," *The Galpin Society Journal* 57 (2004): 139-40.
[43] Bowers, "The Hotteterre Family," 34.

1668 he had either moved locations or set up a second shop for instrument building in Paris, or that the building in La Couture was a residence and not a workshop. A posthumous inventory of Marie Crespy in 1711 described Martin as *maître facteur d'instruments*. This title is rarely found among the Hotteterre family; usually they were listed in documents according to their titles as musicians to the court. To be listed as a "Master Instrument Maker" instead indicates that Martin was exceptionally famous not as a performer, but for his instrument-making skills.[44] This same inventory listed the inventory of Martin's shop, which included recorders (flutes), bassoons, musettes, and, in greater numbers than any of the other instruments, transverse flutes. The mention of transverse flutes is the only one known in inventories of the Hotteterre family of instrument makers and indicates that Martin may have specialized in them.[45]

JACQUES HOTTETERRE LE ROMAIN

Jacques Hotteterre, born on September 29, 1674, to Martin Hotteterre and Marie Crespy, is undoubtedly the most famous of the Hotteterre family. Until about thirty years ago his date of birth had been in question owing to the late date of his first publication, *Principes de la flûte traversière, de la flûte à bec, et du hautbois* (1707) and to the fact that he was listed in court documents up until 1761.[46]

Name Variations

Jacques Hotteterre is presumed to have used many variations of his name over the course of his life. He was born Jacques Martin Hotteterre,[47] some court documents and legal documents list a Jacques-Jean around the time of Jean (I)'s death in 1692, one sees the suffix of "le Romain" added in 1707, and many legal documents list a Jacques-Martin again around the time of Martin's

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[44] Tula Giannini, "Jacques Hottetere Le Romain and His Father, Martin," *Early Music* 21, no. 3 (1993): 380.
[45] Ibid.
[46] House, 31.
[47] Tula Giannini, "Jacques Hotteterre Le Romain and His Father, Martin: A Re-Examination Based on Recently Found Documents," *Early Music* 21, no. 3 (1993): 378.

death in 1712.[48] Some researchers, including Bowers, believe that all of these names belong to the same Jacques Hotteterre born in 1674, and House points out that he did not need these designations to distinguish himself from others in the family because there were no other family members named Jacques at the time.[49] Instead, the addition of "Jean" and the later change to "Martin" were more likely an homage to his late grandfather and father, and the addition of "le Romain" was due to pride in his trip to Rome to perform, which will be discussed in more detail later in this chapter.[50] House notes: "[Travel] was expensive and musicians were generally bound to their court duties with little opportunity to get away for extended periods of time. Louis [XIV] did not lend his [instrumental] musicians to other courts, as did the Italians, nor encourage them to learn about music outside of France."[51] The addition of "le Romain" came in 1707 with his first publication and was probably a way of making his training and education known.

Maker, Teacher, and Performer

As with the rest of his immediate family, Jacques Hotteterre was well-known as an instrument maker, teacher, and performer. J. F. A. von Uffenbach's account of his visit to Jacques mentions specifically that he made transverse flutes and musettes, at the very least.

> I went to Mr. [Hotteterre's], flute du roy, who received me in his quarters on the rue Dauphine very politely though somewhat pompously and superciliously. He led me into a tidy room and showed me there many beautiful transverse flutes that he himself makes and from which he wishes to gain special profit. After that he brought forth his musical works, five of which he has published to considerable applause, and of which I bought one on the instruction of the transverse flute for two *livres*. After that he showed me another curious instrument improved by him, a musette or sort of bagpipe, which can be tuned in all keys and is very pleasing as well as very fashionable here now. It was … very costly, covered with velvet and trimmed with wide golden borders and fringes, and also provided with great many pipes … and with many silver keys that make semitones. With another musician who accompanied on the harpsichord, he played a sonata incomparably well and in a completely pleasing manner, with such carefully studied *agréments* that I could not hear

[48] House, 40.
[49] We now know from Giannini's research that there was another Jacques Hotteterre, son of Louis (I) Hotteterre and Marie Mauger, who would have been Jacques Hotteterre le Romain's uncle. Giannini, "Jacques Hottetere Le Romain and His Father, Martin," 337.
[50] Ibid.
[51] House, 40. Louis XIV did not fund trips for instrumentalists to study outside of France, as was customary for the French singers at the time

> and admire him enough. I immediately took a fancy to have such a bagpipe, but this disappeared soon when he told me the exact price, namely 10 *pistolen*. At the same time, however, he also informed me that he made others without decoration for 5 *pistolen*. He gives his lessons mostly at home and charges one *pistol* an hour, which he spoke of as a trifle. I declined such distinguished instruction and at the same time thanked him for the courtesy he showed me.[52]

Bowers states that Jacques was the only of his generation to achieve fame as an instrument maker,[53] while Giannini states that his brother Jean (V) also had a fine reputation in that field and was mentioned in the *Livre commode* (1692) as among the most highly regarded makers of woodwinds.[54]

Von Uffenbach also mentions that Jacques was an international sought-after teacher, noting that he taught several Germans. Two of his most illustrious students were the *duc d'Orléans*, nephew of King Louis XIV, and the *chambellan du duc*, M. du Fargis; both were lovers of the newly fashionable Italian style.[55] Jacques published thirteen sets of music and treatises from 1707 to 1723, including suites for solo instruments, trios, airs, educational treatises, and 2 arrangements of Italian pieces by Valentine and Torelio, but there are no known extant publications after his musette treatise of 1723, even though he lived for another forty years. Jacques was not only a well-respected player, he was also an internationally known teacher. Upon the publication of his *Principes de la flûte* in 1707, the *Mémoires pour l'histoire des sciences et des beaux arts* said of it: "The name of the author corresponds to the excellence of the book. This capable flutist is not ignorant of any of the secrets of his art."[56] Jacques is first listed as a performer in 1689 as a member of the *Grande Écurie du Roi*, serving as *basse de hautbois et basse de violon*. In 1717 he was awarded the position of *Joüeur de Fluste de la musique de la chambre* from René Pignon Descoteaux, and on December 20, 1747, he arranged to pass his

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[52] Translation slightly modified from Bowers, "The Hotteterre Family," 42-43.
[53] Ibid, 40.
[54] Giannini, "Jacques Hottetere Le Romain and His Father, Martin," 379.
[55] Bowers, "The Hotteterre Family," 42.
[56] Ibid

position to his son Jean-Baptiste.[57] We know that the music community of the time recognized his talents for performing, since in 1743 he was included in Titon du Tillet's *Orchestre du Parnasse*,[58] which included the most famous musicians in France.

Jacques's Trip to Rome

Thoinan was the first to speculate that Jacques's appellation indicated an important sojourn in Rome. Saverio Franchi found definitive proof of Jacques Hotteterre's Roman connection in the archives of Prince Ruspoli, held in the Vatican archives, and published his findings in 2002.[59] A "Giacomo Hotteterre" is listed in the court records of the Roman Marquis Francesco Maria Ruspoli between October 1698 and August 1700 as *maestro di flauto* and *maestro delli flauti*. Hilsheimer states, "The stay was probably for no longer than two years, since in 1698 and once again in 1700 Hotteterre was on the salary lists for Louis XIV."[60] He notes that such a trip was very costly, since a position at a court was not certain, and was most likely funded by the Hotteterre family. Jacques Hotteterre may have gotten the idea for the trip from the famous French violinist Jean-Jacques Baptiste Anet, who traveled to Italy in 1695–96 to study with Arcangelo Corelli.[61] Musical life in Rome during the end of Jacques Hotteterre's stay was restricted by the Vatican, which limited the performance of opera and any other music that could be considered Carnival music during the jubilee year of 1700. [62] This lead to an increase in music making in private homes and in courts and a subsequent increase in chamber-music performance, which probably led to Jacques Hotteterre's temporary appointment at Ruspoli's court. With the ambiguous titles of *maestro di flauto* and the later plural *maestro delli flauti*, researchers are still

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[57] House, 80.
[58] Bowers, 43.
[59] Saverio Franchi, "Il Principe Ruspoli: L'oratorio in Arcadia. - Indice Dei Nomi, Dei Titoli E Dei Luoghi.," in *Percorsi Dell'oratorio Romano. Da "Historia Sacra" a Melodramma Spirituale, Atti Della Giornata Di Studi*, ed. Saverio Franchi (Rome: Istituto di Bibliografia Musicale, 2002).
[60] Gabriele Hilsheimer, "Jacques Hotteterre 'le Romain's Aufenthalt in Rome (1698-1700)," *Tibia* 33, no. 2 (2008): 2.
[61] Hilsheimer, 2.
[62] Ibid., 3.

left with the question: what instrument(s) did Jacques Hotteterre play while in Rome? Most court and legal documents reference Jacques as primarily an oboe and transverse flute player, so one can assume at the very least that he played these particular instruments during his Rome stay, given the dates of his stay in comparison to the maturation of the baroque-type oboe and transverse flute in France at this time. This leads to another question: what does Jacques Hotteterre's stay in Rome mean for the introduction of the transverse flute to Italy? Because so much music was copied and performed every week, there is little extant chamber music from this time —most of it has simply been lost. Hilsheimer notes that Servio Franchi believes the Quirino Colombani quartet, for two violins, traverso, and basso continuo, can be dated to the years of Jacques's stay, and other early Italian pieces probably date to this time as well.[63] Again, there is no definitive proof, but taking the circumstantial evidence and the dates of pieces composed around this time that appear to include the transverse flute,[64] this author believes the introduction of the baroque-type three-piece traverso to Italy dates to this same time, and not the previously accepted date of around 1720, or even the first decade of the eighteenth century, as proposed by Hilsheimer. Jacques continued his fascination with Italy upon his return, including Italian elements in his compositions and titles and transcribing Italian works. He transcribed at least three sets of pieces by Italian composers, setting the music with the French violin clef: the *Sonates a deux dessus*, op. 5, by Roberto Valentine (1721); the *Sonates a deux dessus*, op. 1, by Francesco Torelio (1723), and a lost set of arranged trios by Tomaso Albinoni.

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[63] Ibid.

[64] "Until now the flute in Italy was dated to the 1720s: Powell dates the first evidence as 1722 with a portrait from Turn and points to Vivaldi's opera *Orlando furioso* (1727), in which the composer used the traverso for the first time, and in 1728 there were the Barsanti sonatas for the traversiera. However, the most recent research has provided support for the first decade of the century. Sardelli names various vocal works from these years, in which one or more traversi were used: Handel's oratorio from Rome, *La Resurrezione*, performed on commission from Ruspoli on Easter Sunday 1708; D. Scarlatti's cantata *La virtu in trionfo* (1711); and a few more. He points as well to sonatas by Haym and Bitti and gives names of wind players, who also are documented as traverso players." Hilsheimer,"Jacques Hotteterre le Romain's Aufenthalt," 5

The Later Years

There is much speculation about the late years of Jacques Hotteterre's life. An inventory of his belongings was made in 1728 upon his marriage to Marie Charpentier, which included no mention of transverse flutes or flute-making tools but did list thirty volumes of music by Lully and other volumes by French composers, viols of various sizes, violins, theorbos, musettes, a dulcimer, and "several other instruments."[65] Giannini also writes of Jacques's posthumous inventory in 1763: "It seems at first quite astonishing to learn that neither the inventory in Jacques's marriage contract nor that made after death provides any evidence that he was a flute-player or maker; they seem to contradict the generally held view that he was a maker—a view which is supported by an entry in von Uffenbach's diary that records a visit he paid Jacques in 1715."[66] Neither the marriage nor the death inventory mentions any instrument-making tools, so the absence of traverso-making tools should be no surprise.[67] One can assume that instrument building took place in a separate shop, presumably the one previously owned by his father and grandfather in at the "*L'Ancre Noire*" shop in La Couture or at the shop in Paris at the sign of the musette. Also, the listing of "several other instruments" in the marriage inventory is ambiguous and does not exclude a traverso. The highly ornate descriptions of the musettes in the marriage inventory may indicate that only the most valuable instruments were inventoried. This inventory has led many researchers to insist that in it lies evidence that Jacques had stopped playing the traverso by this time. Citing the inventories and the absence of any published works after 1723, Giannini repeats the received wisdom that Jacques Hotteterre had retired from flute making and performing by the time of his marriage.[68]

> By the year 1720 the three-piece flute was rapidly being replaced by the four-piece with *corps de rechange*, which was already being played by leading French flautists. …

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[65] Giannini, "Jacques Hottetere Le Romain and His Father, Martin," 393-94.
[66] Ibid., 383-84.
[67] Giannini only lists items 14–17 of the posthumous inventory of Jacques Hotteterre in 1763. She does not state whether the other entries are not available or not music related.
[68] Giannini, "Jacques Hottetere Le Romain and His Father, Martin," 384.

> Furthermore, it coincided with a marked increase in both the technical demands of the music and the number of flute compositions being published. (It is useful to note that Jacques's musical compositions belong to the pre-1720 period.) These developments, which produced a new generation of flute soloists (Blavet, Lucas, Desjardins *et al.*), seem to explain his apparent loss of interest in the flute indicated by the inventories.[69]

There are a few records of Jacques performing after 1728 which indicate that he was performing on flute rather than the oboe or recorder. On March 8, 1729, a *brevet d'assurance* was recorded providing Jacques, *joueur de flute de la Chambre du Roy*, with three thousand *livres*, payable to him or his family. [70] The *Mercure* also reported on a concert held on October 10, 1731, which presented François Colin de Blamont's opera *Endimion*. The review lists a Miss Lenner, accompanied on flutes by "the Sirs Opteteire le Romain, Pieche and Lucas.'[71] The opera calls for violins, flutes, oboes, and bassoon. Because of the date, we can more or less assume that it called for transverse flutes rather than recorders, an instrument that had started to fall out of favor by this time. The flute players are Jacques Hotteterre and presumably the well-known transverse flute soloists Pierre (I) Pièche and "Mr. Lucas"[72]—further evidence that the instruments used were transverse flutes. These two pieces of evidence alone should be enough to show that Jacques Hotteterre did not entirely give up flute playing around the time of his marriage and in fact continued to play at least through 1731. French court documents list Jacques Hotteterre's name through 1761, when Jacques was in his late eighties.[73] He died in 1763 at the age of eighty-eight.

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[69] Ibid.
[70] House, 74.
[71] Ibid., 71.
[72] "Mr. Lucas" is frequently mentioned in documents of the time (including documents concerning the *concert spirituel*) as performing on flute, but no first name is given.
[73] Ernst Thoinan, *Les Hotteterres Et Chedeville*, 42.

Chapter 4: FRENCH THREE-PIECE FLUTE MAKERS AND THEIR INSTRUMENTS

Because three-piece flutes from France make up the largest group of extant early baroque-type flutes, the conventional thinking has been that this type of flute developed from its Renaissance counterpart in France. Owing to the destruction of both people and property seen during the French Revolution (1789–99), many French instruments of all types from the *ancien régime* were destroyed, yet, remarkably, quite a number of flutes have survived. The French three-piece flutes discussed below are grouped by maker, with separate measurements for each presented in tables. A full chart of the measurements of all extant French three-piece flutes is provided at the conclusion of the chapter. Basic defining measurements are compared: approximate sounding pitch, sounding length, bore diameter change (taper), bore diameter at the largest point, bore diameter at the smallest point, and embouchure dimensions. These measurements reflect the current state of the flute and do not account for bore shrinkage or warping over time. Color photographs are included whenever possible. The French three-piece flute makers are listed in alphabetical order.

CHEVALIER

Chevalier is known by only one extant instrument, now housed at the Museum of Fine Arts in Boston. The maker's first name is unknown; the *New Langwill Index* lists him as "related to Catherine de Chevalier, who in 1685 married Nicholas Colin Hotteterre."[74] Several prominent Chevalier family members were employed at the court of Louis XIV, most of them part of the *Vingt-quatre Violons du Roi*. Of the Chevaliers listed, the possibilities for the identity of this maker include Catherine de Chevalier (married to a woodwind-instrument maker), Joseph Michel Chevalier (listed as *simphoniste* in 1717), and Jacques Chevallier (listed as *jouer d'instr.* in

[74] Waterhouse and Langwill, 63.

1689).[75] Powell lists Chevalier as flourishing from 1680 to 1715.[76] The embouchure of the extant Chevalier flute is bushed with metal, and the mark is followed by a dolphin, similar to Rippert (see Figure 4.1). The flute's dimensions are given in Table 4.1.

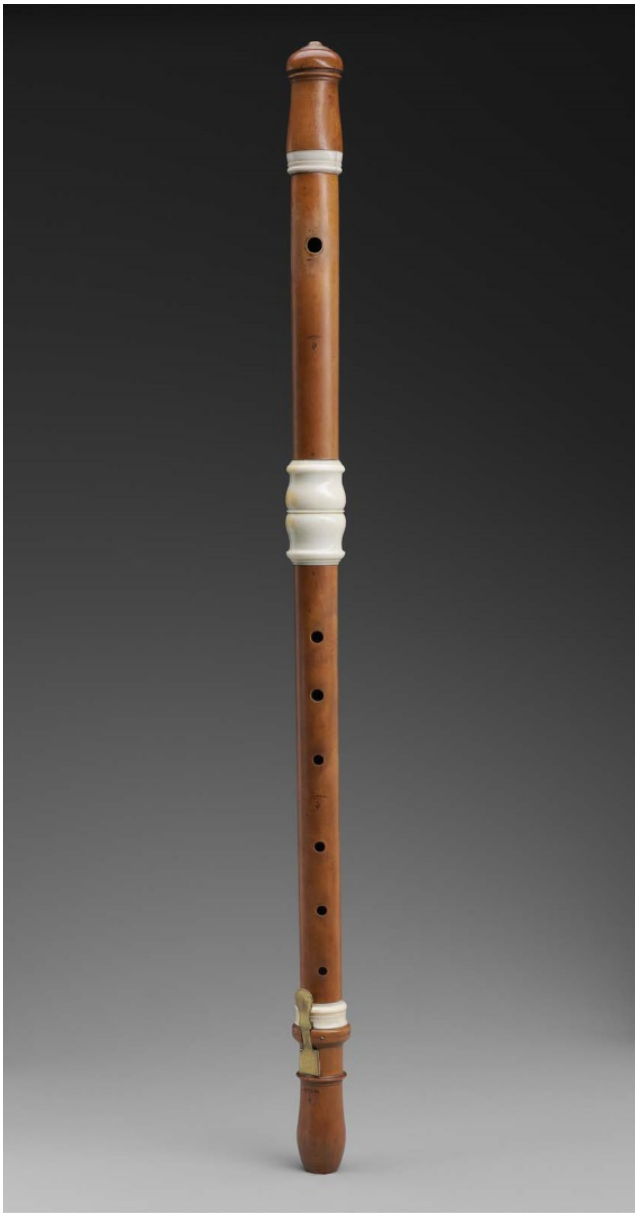

Figure 4.1. Flute by Chevalier
Photo courtesy of the Museum of Fine Arts, Boston

[75] Yolande de Brossard, *Musiciens De Paris, 1535-1792; Actes D'ctat Civil D'apres Le Fichier Laborde De La Bibliotheque Nationale*, Vie Musicale En France Sous Les Rois Bourbons (Paris,: A. et J. Picard), 62.
[76] Powell, 74.

Table 4.1. Chevalier flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm).	Bore min. (mm).	Embouchure measurement (mm)
Chevalier	US: Boston 17.1846 ex Galpin	408	566	5.3	18.8	13.5	9.6 × 9.0

Source: Data from Powell, "The Hole in the Middle."

DUMONT (DU MONT)

Dumont is known by three extant instruments: one recorder and two flutes.[77] In Abraham du Pradel's publication *Le livre commode des adresses de Paris pour 1692* Dumont is listed as "*Maitre pour le Jeu et pour la Fabrique des Instruments á Vent*."[78] Both of the Dumont flutes have a four-piece design: the US DCM 870 instrument is an alto flute in B-flat pitched at A = 410, and the ivory flute, Berlin 5054, is a D flute pitched at A = 428.[79] Dumont is included here because he is a known maker of flutes and was active during this time, even though no three-piece flutes that can be safely attributed to him survive.

FORTIER/LECLERC (LE CLERC)

Fortier and Le Clerc are known by only two extant flutes. Both are marked "Fortier" and "Leclerc" in various configurations. Fortier is documented in 1721 as "*faiseur de fluttes, haubois, bassoon et autres insts. de bouche*."[80] Jean Nicolas Leclerc died in 1752; the year of his birth is unknown. The *New Langwill Index* does not list him as an instrument maker, but a few legal documents do. He was accomplished enough as a maker to take on several apprentices, as mentioned in a letter cited by Giannini.[81] The date of his death, 1752, is on the late side for him to be the maker of these early three-piece flutes, unless he lived a very long time and began

[77] Young, 66.
[78] Waterhouse and Langwill, 97.
[79] Data from Jean-François Beaudin, personal communication.
[80] Waterhouse and Langwill, 120.
[81] Giannini, *Great Flute Makers of France: The Lot and Godfroy Families, 1650-1900*, 13-14.

instrument making under his own name early in life. The other possibility is that his father, Jacques Leclerc, is the maker of these flutes, and that woodwind making was a family skill. According to Giannini, "The death record of Jean Leclerc suggests that his father, Jacques, was related to Gilles Lot (Arch., La Couture). It states that Jean, son of 'Jacques Leclerc bourgeois de Paris living there, home of Jean Lot, father of Gilles.'"[82] The Fortier flute in Frankfurt is marked both Fortier and Leclerc on the head, Fortier on the body, and Leclerc on the foot (see Figure 4.3), while the Fortier in Paris is marked Fortier and Leclerc on the head joint only (see Figure 4.2). It is unknown why both makers' names appear on both flutes. Perhaps one was an accomplished apprentice of the other; perhaps they were partners; or perhaps one was a reseller of the other's instruments. Dimensions of the two extant flutes are given in Table 4.2.

Table 4.2. Fortier/Leclerc flute dimensions

Maker	Location	Pitch	Sounding length	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Fortier/ Leclerc	FR: Paris, Musée instrumental de la Cité de la musique E 984.8.1	400		5.7	19.6	13.9	9.05 × 9.3
Fortier/ Leclerc	GR: Frankfurt, Spohr, ex San Paulo—Holz ex Cotte	410	574.7	6.6	20.2	13.6	9.2 × 9.1

Sources: Measurements of the Paris flute: Jean François Beaudin, personal communication; measurements of the Frankfurt flute: Boaz Berney, personal communication.

[82] Giannini, "Jacques Hotteterre and His Father", 47.

Figure 4.2. Flute by Fortier/Leclerc, Paris
Photo courtesy of the Musée instrumental de la Cité de la musique

Figure 4.3. Flute by Fortier/Leclerc, Frankfurt
Photo courtesy of Phillipe Allain-Dupré

GARION

Garion is known by two extant flutes, only one of which has been located, and only recently. Nothing is known about the maker regarding dates, other instruments made, profession, or anything else. The second flute is mentioned by Jayson Kerr Dobney as residing in the municipal museum in Toulouse, but no such flute has been found to date.[83] Although this flute has a three-piece design, the aesthetics of its design paired with the rosewood-family wood used, dates this flute to a later time period, likely ca. 1750 or later. The maker's mark is followed by a dolphin, which suggests a connection with Jean Jacques Rippert. Owing to the post-1715 construction date, the measurements for this flute and detail photos will not be part of the comparisons in this document.

Figure 4.4. Flute by Garion
Photo courtesy of the Metropolitan Museum of Art

[83] Antoine Watteau, Katharine Baetjer, and Georgia Cowart, *Watteau, Music, and Theater* (New York: Metropolitan Museum of Art, 2009), 138.

HOTTETERRE

The extant instruments by the Hotteterre family consist of thirteen recorders, three flutes, and two oboes.[84] This document will focus on the flutes marked "Hotteterre" in any variation and will not differentiate among family members. Two of the three flutes are marked "Hotteterre" with an anchor, and the third is marked "Hotteterre" followed by the monogram "LR." This last flute will be discussed separately later in this section. There are also many copies of Hotteterre-stamped flutes, fueled by the increasing fascination in the late nineteenth and early twentieth centuries with the old-style instruments and the desire to have a representative in many museum collections, even if it is a copy. Lack of documentation of these copies has led to much debate over which flutes are authentic. Flutes judged to be inauthentic are not included in this document. Flutes about which there is some doubt and those that are unquestionably authentic are discussed and their measurements given.

The abbreviations used to identify flutes marked "Hotteterre" regardless of authenticity are:

G—Graz Landesmuseum, 08447-1384
S—Stuttgart, private collection[85]
Bn—Berlin Staatliches Institut für Musikforschung, 2670
P471—St. Petersburg Museum of Musical Instruments, 471
P472—St. Petersburg Museum of Musical Instruments, 472
C—La Couture Musical Instruments Museum, 11
Br—Brussels Museum of Musical Instruments, 3131
M—Dayton C. Miller Collection, Library of Congress, 428

Of the above-listed flutes, P472, C, Br, and M are generally accepted as being copies of either Bn, P471, or a lost original. Both the St. Petersburg flutes and the Berlin flute are listed in their respective catalogs as originals acquired from the Caesar Snoeck collection. No inventory

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[84] Young in, *4900 Historical Woodwind Instruments* on page 126, lists the three flutes as the one from Berlin, the one from Graz, and P471 from St. Petersburg. More recent research has discredited P471 as a copy, and another flute marked "Hotteterre LR" has since surfaced.
[85] This flute is marked as anonymous but is included here because Powell's research on the instrument in "The Hotteterre Flute - Six Replicas in Search of a Myth" leads him to include it with the flutes marked "Hotteterre." This flute is discussed in this chapter in the section on anonymous makers.

was made at either museum when portions of the Snoeck collection were acquired, and the catalog of the Snoeck collection in 1894 adds to the confusion, since a "single listing in [his] catalogue sometimes covered as many as fifty objects."[86] This makes it entirely possible that Snoeck owned more than one original, though Powell argues that the one "original" in the collection was a copy purchased on the assumption that it was an original.[87] Powell provides a thorough and well-reasoned argument that P471 is a copy, noting construction characteristics dating it to no earlier than the last quarter of the eighteenth century; therefore, in this document it will be considered a copy.[88] Powell believes Bn is a copy because of the rounded key flap and because the varnish, though worn, is the same as that found on the copy C; furthermore, the head joint is warped, which he attributes to the maker's inexperience with seasoning wood.[89] At present this author is not convinced to dismiss this flute. Other authors counter Powell's claims with seemingly equal reasoning and scientific backing. Thomas Lerch affirms that it is "entirely conceivable that polishes have been refreshed, or even newly applied, in order to provide a valuable instrument with a subjectively appropriate appearance. The modern understanding of restoration, that excludes such a procedure, only began around 1960. Unfortunately our documentation of restoration reaches back only to the 1950s, so that we have no evidence of the practice in regard to the flute from the Hotteterre workshop."[90] Powell does mention in his article that the key seat of the Bn flute is rectangular and made with a file, which is consistent with eighteenth-century techniques (see Figure 4.8).[91] The Hotteterre flute in Graz is the only flute

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[86] Ardal Powell, "The Hotteterre Flute-Six Replicas in Search of a Myth," *Journal of the American Musicological Society* 49, no. 2 (1996): 249.
[87] Ibid., 258.
[88] Ibid., 253.
[89] Ibid., 257.
[90] Thomas Lerch, "Die Traversflöte Von Jean Hotteterre – Original Oder Fälschung?," in *Jahrbuch Des Staatlichen Instituts Für Musikforschung Preußischer Kulturbesitz*, ed. Günther Wagner (Stuttgart · Weimar: Verlag J.B. Metzler, 2001).
[91] Powell, "The Hotteterre Flute-Six Replicas in Search of a Myth," 253.

stamped “Hotteterre” (as far as was known at the time of Powell’s article “The Hotteterre Flute”) whose authenticity remains unquestioned (see Figure 4.7).[92]

In addition to the above-named flutes, a flute surfaced after Powell’s 1996 article marked “Hotteterre” with the monogram “LR” beneath and without the characteristic anchor stamp (see Figures 4.5 and 4.6). There is no definitive information on what the “LR” stands for, but it is certainly possible that it stands for “le Romain” and is an indication that this flute was produced by Jacques Hotteterre le Romain in a separate shop from his father’s. The original is missing the footjoint, which was recreated by Claire Soubeyran. Dimensions of the extant Hotteterre flutes are given in Table 4.3.

Figure 4.5. Flute by Hotteterre LR, Paris
Photo courtesy of the Musée instrumental de la Cité de la musique

Figure 4.6. Flute by Hotteterre LR: close-up of monogram
Photo courtesy of the Musée instrumental de la Cité de la musique

[92] Ibid., 259.

Figure 4.7. Flute by Hotteterre, Graz
Photo courtesy of Martin Wenner

Figure 4.8. Flute by Hotteterre, Berlin
Photo courtesy of the Staatliches Institut für Musikforschung

Table 4.3. Hotteterre flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Hotteterre	FR: Paris, Musée instrumental de la Cité de la musique E.999.6.1	398		6.1	19.5	13.4	9.15 × 9.4
Hotteterre	AT: Graz, Landesmuseum Johanneum 1384 ex Sowinsky	395	566	4.8	18.8	14	9.58 × 9.63
Hotteterre	GR: Berlin 2670	398	583	6.3	19.4	13.1	10.5 × 9.2

Source: Powell "The Hole in the Middle."

NAUST

Pierre Naust (ca. 1660–1709) is known by seventeen extant instruments: two recorders, three flageolets, eight flutes (four with the three-piece design and four with the four-piece), two oboes, and two clarinets.[93] Naust was born in La Couture, France; in 1686 he married Barbe Pelletier, a relative of the maker Étienne Frémont, for whom Naust was working for at the time. Frémont died in 1692, and Pierre Naust succeeded him in his shop. Upon Naust's death in 1709, his wife, Barbe, succeeded him, and she was listed in 1715 as "*maitre faiseur d'instruments de la maison du Roy*."[94] Barbe Pelletier's mother, Barbe Frémont, was of the same family as Étienne Frémont. Her aunt, also named Barbe Pelletier, married Pierre Noë, described in 1681 as an instrument maker who had close ties with the Hotteterre family; in 1674 he became the godfather to Louis Hotteterre, son of Louis and Marie Francard, and Philippe Hotteterre, born in La Couture on April 12, 1681.[95] Based on the dates on which Pierre Naust took over the Frémont shop, his three-piece flutes must date from 1692 or later.

[93] Young, 167.
[94] Waterhouse and Langwill, 278.
[95] Giannini, *Great Flute Makers of France: The Lot and Godfroy Families, 1650-1900*, 4.

One of the extant Naust flutes stands out from the others in its sounding length; the instrument in the Paris museum is 60 to 70 mm longer than the other three and much longer than the average sounding length of the other French three-piece flutes. This flute could be either a *flûte d'amour* pitched a half step lower in C or a flute at A=360 pitched in D. Addington believes this flute is only one of two to survive that play at the true French chamber pitch of A=360.[96] Three of the four extant three-piece flutes are shown in Figures 4.9–4.11 (The authorr was unable to locate pictures of the St. Petersburg Naust). Dimensions of these flutes are given in Table 4.4.

Figure 4.9. Flute by Naust, United States
Photo courtesy of the National Music Museum, University of South Dakota, Vermillion, SD

Figure 4.10. Flute by Naust, Berlin No. 2667
Photo courtesy of the Staatliches Institut für Musikforschung

[96] Christopher Addington, "In Search of the Baroque Flute- the Flute Family 1680-1750," *Early Music* 12, no. 1 (1984): 38.

Figure 4.11. Flute by Naust, Paris B.710, C.441
Photo courtesy of Boaz Berney

Table 4.4. Naust Flute Dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm).	Bore min. (mm)	Embouchure measurement (mm)
Naust	GR: Berlin 2667	395	583	5.6	18.9	13.3	9.2 × 9.8
Naust	FR: Paris, Musée instrumental de la Cité de la musique B.710. C.441	400	643.8	5.7	20	14.3	9.9 × 9.7
Naust	Russia: St. Petersburg 465	408	576	6.3	19.6	13.3	9.58 × 9.53
Naust	US: University of South Dakota, National Music Museum, ex Brookline—von Huene	405	583	4.2	18.6	14.2	9.4 × 9.3

Sources: Data from Powell, "The Hole in the Middle"; Phillipe Allain-Dupré, personal communication; and Emanuele Marconi, personal communication.

PANON

Nothing is known about the identity of Panon, who is known by only one extant flute (see Figure 4.12). Powell mentions that the bore profile is crudely done and states that it must not have been made by an accomplished maker.[97] Dimensions of this flute are given in Table 4.5.

Figure 4.12. Flute by Panon, Toulouse 9.754
Photo courtesy of the Musée Paul Dupuy

Table 4.5. Panon flute dimensions

Maker	Location	Pitch	Sounding length	Taper in mm	Bore max. (mm).	Bore min. (mm)	Embouchure measurement (mm)
Panon	FR: Toulouse, Musée Paul Dupuy 9.754	401	589	5.8	18.9	13.1	8.97 × 9.2

Source: Data from Powell, "The Hole in the Middle."

RIPPERT

Jean Jacques Rippert (ca. 1645–1724) is known by twenty-nine extant instruments: twenty-two recorders, four flutes, and three oboes.[98] He is documented in 1696 as "*maitre faiseur d'instruments a vent*" and "*Faiseur de Flutes*."[99] In 1704 Joseph Sauveur listed Rippert along with Jean Hotteterre as the most able woodwind maker in Paris in his book *'Principes d'acoustique et de musique, ou systême général des intervalles des sons'*.[100] The diary entries for 1715 and 1716 of the German traveler von Uffenbach give accounts of his interactions with

[97] Powell."The Hole in the Middle"
[98] Young, *4900 Historical Woodwind Instruments,* 188-89.
[99] Waterhouse and Langwill, 329.
[100] Tula Giannini, "Rippert, Jean-Jacques," in *Grove Music Online. Oxford Music Online* (Oxford University Press).

Rippert and describe him as “an old, somewhat surly grouch, whose flutes he reported to be in demand as far away as Frankfurt.”[101] Giannini cites a document from 1716 that mentions Rippert moving in 1703 to rue Columbier, Faubourg St. Germain—an aristocratic section of Paris—as proof that he had mostly retired from woodwind making at this time, but she does not explain how the document shows this.[102] Giannini’s statement also contradicts von Uffenbach’s account of purchasing an instrument from Rippert during one of his visits in 1715 or 1716. In 1722 Rippert secured a royal privilege for publishing and later published two (or possibly three) books of pieces for flute.[103]

The embouchures of the St. Moritz and Glasgow flutes have probably been enlarged, and the key on the St. Moritz is not original, according to Powell.[104] The middle section of the wooden flute in the private collection in Paris is missing, and of the set, only the wooden flute sections are marked with Rippert’s stamp; the ivory flute is assumed also to be by Rippert, given the similarity in construction and its being cased together. The St. Moritz Rippert flute has intricate scalloped carvings on all of the ivory rings (see Figures 4.13–4.15). The dimensions of these flutes are given in Table 4.6.

[101] Waterhouse and Langwill, 329.
[102] Giannini, "Rippert, Jean-Jacques."
[103] A book titled “Brunettes ou petits airs à II dessus, à l’usage de ceux qui veulent apprendre à jouer le flûte-traversière par Mr. R*” and published in 1722 is attributed to Rippert.
[104] Powell."The Hole in the Middle"

Figure 4.13. Flute by Rippert, Glasgow, Kelvingrove 42-68H
Photo courtesy of the Kelvingrove Collection, Glasgow Museum

Figure 4.14. Flute by Rippert, St. Moritz 1645
Photo courtesy of the Musée Engadin

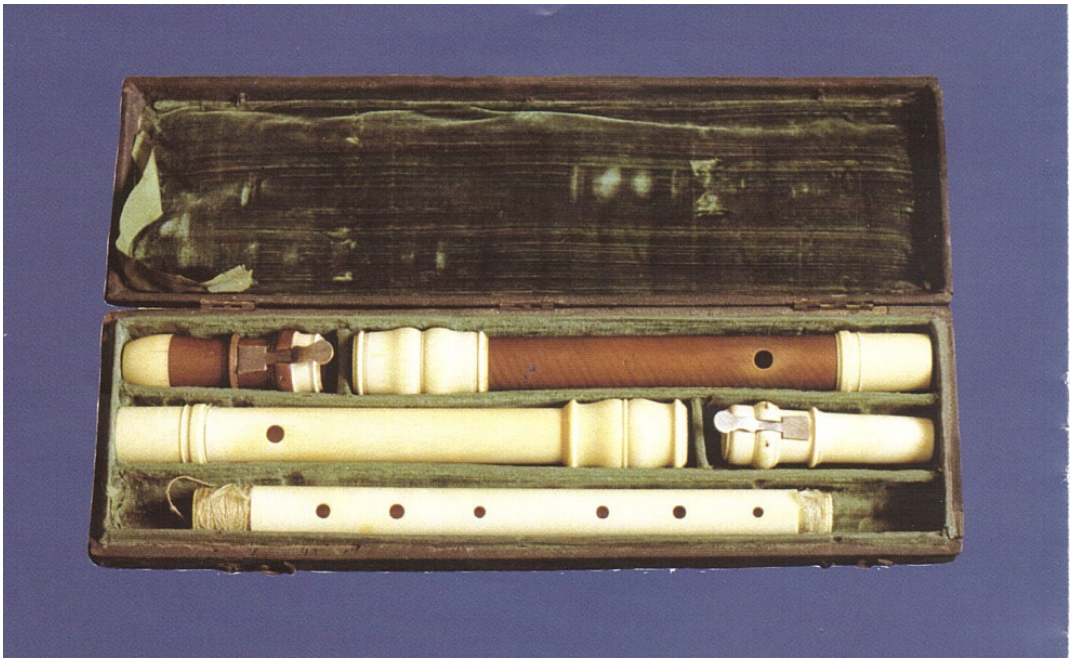

Figure 4.15. Flute by Rippert, Paris, private collection, Dorgeuille ex le Roy
Photo courtesy of *Traversieries*, no. 83

Table 4.6. Rippert flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Rippert	CH: St. Moritz, Musée Engadin 1645	400	575	5.2	19.2	14	9.28 × 9.87
Rippert	GB: Glasgow, Kelvingrove 42-68H	395	583	5.4	19.5	14.1	9 × ?
Rippert	FR: Paris, private collection; wooden head and foot sections from Dorgeuille flute	398		5.2	19.7	14.5	9.2 × 9.4
Rippert	FR: Paris, private collection, Dorgeuille ex le Roy	395		5.45	19.6	14.15	9.0 × 8.95

Sources: Data from Powell, "The Hole in the Middle"; and drawings nos. 28 and 29 by Jean François Beaudin

ANONYMOUS FLUTES

There are two known three-piece flutes that are unmarked but have a characteristically French design. The incomplete flute, which is missing the head joint, has an ebony body and an ivory foot with a bulbous turning very similar to the Naust, Rippert, and Hotteterre flutes (see Figure 4.16). The other anonymous flute is complete and is also made of ebony and ivory, with a design connection, both aesthetically and internally, to the Graz Hotteterre flute (see Figure 4.17). According to Powell, "The other authentic flute of a similar pattern (S), without a stamp, can be linked with the Hotteterre name and with the genuine [Graz flute] only by shared decorative features and a loosely comparable acoustical design."[105] Laszewski, in his analysis of this instrument in comparison with the other flutes marked Hotteterre, adjusts the bore values according to the scaling, or sounding length, of the instrument and finds that "the dimensional consistency of this degree can be taken as … confirmation that the unmarked flute, S, actually is an Hotteterre instrument."[106] Dimensions of these anonymous French-design flutes are given in Table 4.7. Both flutes have been included in the French flute section because of their typically French design and the Stuttgart flute's probable connection to the Hotteterres.

Figure 4.16. Anonymous flute, Berlin 2666
Photo by Thomas Lerch

[105] Powell, "The Hotteterre Flute-Six Replicas in Search of a Myth," 260.
[106] Ronald M. Laszewski, "On "the Hotteterre Flute: Six Replicas in Search of a Myth" by Ardal Powell, Summer 1996," ibid.50, no. 1 (1997): 231.

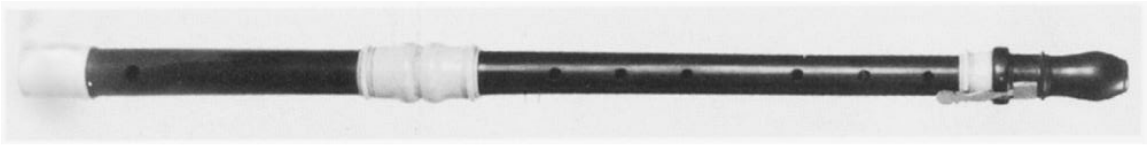

Figure 4.17. Anonymous flute, private collection, Stuttgart
Photo by Tony Bingham

Table 4.7. Anonymous flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Anonymous	GR: private collection, ex Bingham	398	583	6	19.2	13.2	9.5 × 8.8
Anonymous	GR: Berlin 2666		373.4			15.8	

Sources: Data from Powell, "The Hole in the Middle," and Boaz Berney, personal communication.

CONCLUSIONS

The measurements of all the French three-piece flutes are given in Table 4.8. Their pitches vary between 395 and 410 Hz, with an average of 400.25 Hz, which does not take into account the differences in how flutists blow, which can cause the pitch to change. The amount of bore taper varies from 4.2 mm to 6.6 mm, with an average of 5.6 mm. The maximum diameters of the bores range from 18.6 mm to 20.2 mm, with an average of 19.34 mm. The minimum diameters of the bores range from 13.1 mm to 15.8 mm, with an average of 13.85 mm. The average embouchure measurement is 9.38 × 9.35 mm. There are two distinct head-joint socket turning designs among the French three-piece flutes: a double bulb, with one or both bulbs in ivory, and a single bulb with a turning ridge, which is only found on the Fortier/Leclerc flutes, as illustrated in Figures 4.18–4.20.

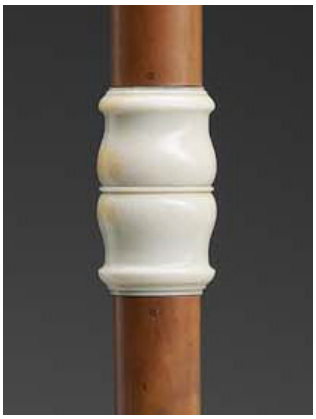

Figure 4.18. Flute by Chevalier: head-joint socket (detail)
Photo courtesy of the Museum of Fine Arts, Boston

Figure 4.19. Flute by Rippert, Glasgow, Kelvingrove 42-68H: head-joint socket (detail)
Photo courtesy of the Kelvingrove Collection, Glasgow Museum

Figure 4.20. Flute by Fortier/Leclerc, Frankfurt: head-joint socket (detail)
Photo courtesy of Phillipe Allain-Dupré

There are also two main designs of head-joint caps amongst the French three-piece flutes: the ornamented bulb design as found on two of the Hotteterre flutes among others (also found on the Chevalier, the Graz Hotteterre, the Berlin Hotteterre, the Paris Naust, and the St. Moritz Rippert; see example in Figure 4.21); and the straight head-joint cap, which is further divided into those with the turning ridge at the bottom (the Dorgeuille Rippert, the Frankfurt Fortier/Leclerc, and the Paris Fortier/Leclerc), those with the turning ridge at the top and bottom (the Glasgow Rippert, the Berlin, and the U.S. Naust), and those with no turnings (the anonymous Stuttgart, the Panon, and the Paris Hotteterre LR) (see Figures 4.22–4.24).

Figure 4.21. Flute by Hotteterre, Graz: head-joint cap (detail)
Photo courtesy of Martin Wenner

Figure 4.22. Flute by Hotteterre LR, Paris: head-joint cap (detail)
Photo courtesy of the Musée instrumental de la Cité de la musique

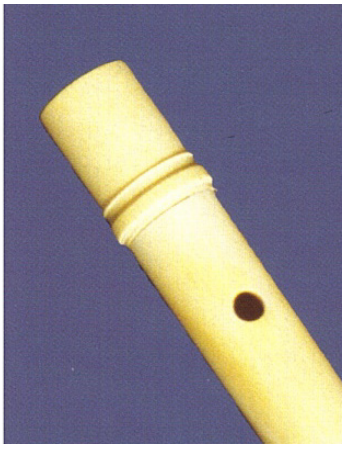

Figure 4.23. Flute by Rippert, Paris, private collection, Dorgeuille ex le Roy: head-joint cap (detail)
Photo courtesy of *Traversieries*, No. 83

Figure 4.24. Flute by Rippert, Glasgow, Kelvingrove 42-68H: head-joint cap (detail)
Photo courtesy of the Kelvingrove Collection, Glasgow Museum

The foot joints have two basic designs: those with a bulb foot in either wood or ivory (the Chevalier, the Paris Hotteterre LR, the Graz Hotteterre, the Berlin Hotteterre, the U.S. Naust, the Berlin Naust, the Glasgow Rippert, the St. Moritz Rippert, the wooden foot of the Dorgeuille Rippert, and both anonymous flutes; see Figure 4.25) and those with a straight foot (the Paris Fortier/Leclerc, the Frankfurt Fortier/Leclerc, the Paris Naust, the Panon, and the ivory foot of the Dorgeuille Rippert; see Figure 4.26).

The variance in bore taper, starting and ending diameters, and turning aesthetics are enough to prove that these makers did not base their flutes on a single design; rather, each maker

appears to have solved the various acoustical issues with the early three-piece flute differently, although they were evidently very familiar with the designs of other one another's flutes.

Figure 4.25. Flute by Chevalier: Footjoint (detail)
Photo courtesy of the Museum of Fine Arts, Boston, MA

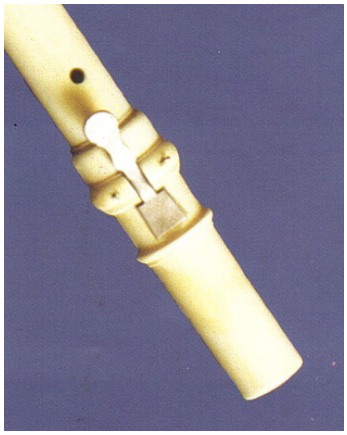

Figure 4.26. Flute by Rippert, Paris, private collection, Dorgeuille ex le Roy: Footjoint (detail)
Photo courtesy of *Traversieries* magazine, No. 83

Table 4.8. Dimensions of French three-piece flutes

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Anonymous	GR: private collection, ex Bingham	398	583	6	19.2	13.2	9.5 × 8.8
Anonymous	GR: Berlin 2666		373.4			15.8	
Chevalier	US: Boston 17.1846 ex Galpin	408	566	5.3	18.8	13.5	9.6 × 9.0
Hotteterre	FR: Paris, Musée instrumental de la Cité de la musique E.999.6.1	398		6.1	19.5	13.4	9.15 x 9.4
Hotteterre	AT: Graz, Landesmuseum Johanneum 1384 ex Sowinsky	395	566	4.8	18.8	14	9.58 × 9.63
Hotteterre	GR: Berlin 2670	398	583	6.3	19.4	13.1	10.5 × 9.2
Fortier/Leclerc	FR: Paris, Musée instrumental de la Cité de la musique E. 984. 8.1	400		5.7	19.6	13.9	9.05 × 9.3
Fortier/Leclerc	GR: Frankfurt, Spohr ex San Paulo, Holz ex Cotte	410	574.7	6.6	20.2	13.6	9.2 × 9.1
Naust	GR: Berlin 2667	395	583	5.6	18.9	13.3	9.2 × 9.8
Naust	FR: Paris, Musée instrumental de la Cité de la musique B.710. C.441	400	643.8	5.7	20	14.3	9.9 × 9.7
Naust	Russia: St. Petersburg 465	408	576	6.3	19.6	13.3	9.58 × 9.53
Naust	US: University of South Dakota, National Music Museum ex Brookline—von Huene	405	583	4.2	18.6	14.2	9.4 × 9.3
Panon	FR: Toulouse, Musee Paul Dupuy 9.754	401	589	5.8	18.9	13.1	8.97 × 9.2
Rippert	CH: St. Moritz, Musée Engadin 1645	400	575	5.2	19.2	14	9.28 × 9.87
Rippert	GB: Glasgow, Kelvingrove 42-68H	395	583	5.4	19.5	14.1	9 × ?
Rippert	FR: Paris, private collection; wooden head and foot sections from Dorgeuille flute	398		5.2	19.7	14.5	9.2 × 9.4
Rippert	FR: Paris, private collection, Dorgeuille ex le Roy	395		5.45	19.6	14.15	9.0 × 8.95

Chapter 5: THREE-PIECE FLUTE MAKERS OUTSIDE OF FRANCE AND THEIR INSTRUMENTS

The group of three-piece flutes made outside of France is considerably smaller than the group of three-piece flutes made by makers residing in France. This list encompasses three-piece flutes that have a tapered bore and a D-sharp key and that utilize fingering systems found in the early baroque tutors. (Other three-piece flutes that have hybrid baroque and Renaissance characteristics were discussed in chapter 2.) The three-piece flutes discussed below are grouped by maker, with separate measurements for each given in the tables. A table of the measurements of all the extant three-piece flutes made outside of France is included at the end of the chapter. Basic defining measurements are compared: approximate sounding pitch, sounding length, bore diameter change (taper), bore diameter at the largest point, bore diameter at the smallest point, and embouchure dimensions. These measurements reflect the current state of the flute and do not account for bore shrinkage or warping over time. Color photographs are used wherever possible. The three-piece flute makers outside of France are listed in alphabetical order.

BRESSAN

Pierre Jalliard Bressan (1663–1731) is known by sixty-two extant instruments: fifty-nine recorders of various sizes and three flutes (two with the three-piece design and one with the four-piece).[107] Bressan was born Pierre Jalliard in Bourg-en-Bresse on May 27, 1663, and died in Tournai on April 21, 1731. He flourished as a maker of instruments in London from 1688 to 1730.[108] He apprenticed with Jean Boissier, a turner in Bourg, from 1678 to 1680, and many scholars believe he had further instrument-making training in France.[109] Friedrich von Huene notes that Bressan's treble recorders are constructed similarly to those of Rippert; given the dates that both men became master instrument makers, it is likely they were contemporaries and may

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[107] Young, "*4900 Historical Woodwind Instruments"*, 35-37
[108] Waterhouse and Langwill, 44.
[109] Ibid.

even have served under the same master during their apprenticeships.[110] Upon arriving in London in 1688 he changed his last name to Bressan and is listed by many variations of this name in various documents, including Brazong, Brezong, and Bressand.[111] Bressan is listed in Talbot's manuscript as "associated with French hautbois, tenor hautbois, flute d'allemagne, and tenor and bass recorders."[112] He received a letter of denization as a French Catholic in 1723, which granted a foreigner the right to purchase land in England and exemption from paying alien taxes. He died in France in 1731, having returned there a year before owing to financial difficulties.[113]

The middle joint of the three-piece flute located in the Dayton C. Miller Collection in Washington, D.C. is widely believed by most, if not all, flute historians to be a later replacement or copy. The authenticity of the joint brings the sounding pitch of this instrument, A = 418, into question because it differs from that of the other extant three-piece flute by this maker as well as all of his extant recorders, which are all pitched around A = 405. Complete measurements and color pictures of the Bressan flute in the private collection in London are not available at the time of this writing.[114] A black-and-white photo of the Bressan flute in the Oldham collection, reproduced in Figure 5.1, can be found in Bowers's dissertation.[115] Dimensions of the extant flutes are given in Table 5.1.

Figure 5.1. Flute by Bressan, Oldham Collection, London
Photo courtesy of Jane Bowers

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[110] Maurice Byrne and David Lasocki, "Bressan, Peter," in *Grove Music Online. Oxford Music Online* (Oxford University Press, 2015).
[111] Maurice Byrne, "Pierre Jaillard, Peter Bressan," *The Galpin Society Journal* 36 (1983): 5.
[112] Ibid.
[113] Waterhouse and Langwill, 44.
[114] The owner did not respond to the author's requests for information.
[115] Jane M. Bowers, "The French Flute School from 1700–1760" (Ph.D. diss., University of California, Berkeley, 1971).

Figure 5.2. Flute by Bressan, United States, Washington DCM 1207
Photo courtesy of the Dayton C. Miller Collection

Table 5.1. Bressan flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Bressan	GB: London - Oldham	400	523		19.5		
Bressan	US: Washington DCM 1207	418	553	4.2	19.6	15.9	9.25 × 9.05

Source: Data from Powell, "The Hole in the Middle."

DENNER

Johann Christoph Denner (1655–1707) is known by 119 extant instruments: fifty recorders, one shawm, fifty oboes, four clarinets, two racketts, five dulcians, and seven bassoons. Jacob Denner (1681–1735) is known by forty-nine extant instruments: eighteen recorders, seven flutes (two with a three-piece design and five with a four-piece), nineteen oboes, and five clarinets.[116] The Denner family is the largest family within the hunt-lure and bone turners in Nuremberg. Family marks include "I. C. Denner" and "I. Denner," most likely for Johann Christoph and Jacob respectively.[117]

Johann Christoph Denner probably learned woodwind making after completing time training with his father as a journeyman in 1678. In 1696 he petitioned the instrument-maker's guild in Nuremberg for permission to build instruments in the French style—"*französischen musicalischen Instrumenta, so mainsten in Haubois undo Flaudodois bestehn* (French musical instruments, mainly consisting of oboes and recorders)—models which had been developed twelve years earlier." The petition was granted as an exception one year later.[118]

Jacob Denner was the eldest son of Johann Christoph and trained as an instrument maker with his father. Jacob married in 1702 and was first documented as an instrument maker in 1711. He was known primarily not as an instrument maker but as an oboist, "being considered the finest ever heard in Nuremberg, and active also at the courts of Ansbach, Bayreuth, Sulzbach, Hildurghausen, and often at Frankfurt."[119] According to Haynes, Jacob "was said to have played

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[116] Young, "*4900 Historical Woodwind Instruments",* 56-57, 59-61. Young later increased the number of known extant instruments by the Denner family to 123, though without giving the specific numbers of each type of instrument. Phillip T. Young, "Some Further Instruments by the Denners," *The Galpin Society Journal* 35 (1982): 78.
[117] Waterhouse and Langwill, 85.
[118] Ibid., 86.
[119] Ibid.

with ‘radiant grace and sensitivity.’”[120] He studied in Altdorf at the University of Nuremberg, Halle, Oxford, London, and Leiden, returning to Nuremberg in 1702.[121]

The two extant three-piece flutes were made by Jacob Denner, but today only the location of one is known. The Berlin collection housed a second ivory flute by the maker, but it was either destroyed or stolen during or after World War II (see Figures 5.4 and 5.5). Measurements for this flute are no longer available. Kirnbauer believes, on the basis of the form and turning designs that the one remaining extant ivory three-piece flute by Denner is of a later design than the ivory flute lost after World War II, assigning the later flute a date of 1715–20.[122] Illustrations of flutes similar to the extant ivory flute by Jacob Denner, depicting a three-piece design with an extended foot down to c′, can be found until Joseph Majer’s *Museum musicum theoretico practicum* (1732), which is the latest the flute can be dated.[123] The ivory three-piece flute housed in the Germanisches Nationalmuseum was acquired in 1988 (see Figure 5.3).[124]

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[120] Bruce Haynes, *The Eloquent Oboe: A History of the Hautboy 1640-1760*, Oxford Early Music Series (New York: Oxford University Press, 2001), 336.
[121] Martin Kirnbauer, Peter Thalheimer, Catherine Taylor, "Jacob Denner and the Development of the Flute in Germany," *Early Music* 23, no. 1 (1995): 83.
[122] Ibid., 96.
[123] Christopher Addington, "In Search of the Baroque Flute- the Flute Family 1680-1750," ibid.12 (1984): 39.
[124] Martin Kirnbauer, Peter Thalheimer, Catherine Taylor, "Jacob Denner and the Development of the Flute in Germany," ibid.23 (1995): 87.

Figure 5.3. Flute by Jacob Denner, Germanisches Nationalmuseum 566
Photo courtesy of the Germanisches Nationalmuseum

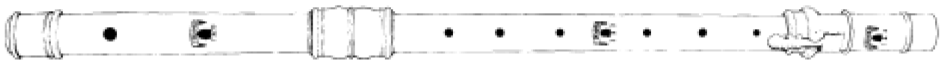

Figure 5.4. Flute by Denner: drawing of lost Berlin flute
Drawing by Friedrich von Huene

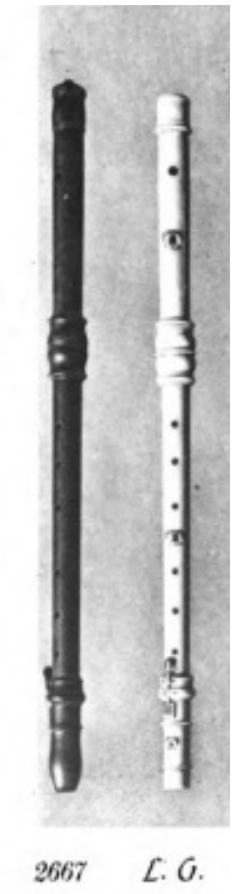

Figure 5.5. Flute by Denner: lost Berlin flute with Naust 2667
Photo from Peter Sachs's catalog of the Berlin collection (1922)

Table 5.2. Denner flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Denner	GR: Berlin Grosskopf						
Denner	GR: Nuremberg 566	408	558	5.7	19.9	14.2	9.8 × 9.75

Source: Data from Powell, "The Hole in the Middle."

HEITZ

Johann Heitz (1672–1737) is known by eighteen extant instruments: seventeen recorders and one flute.[125] Eight of his recorders are veneered in tortoiseshell with ivory mounts. Heitz was born in Herrenof and died in Berlin, where he had been an active maker since around 1700.[126] In 1710 he received a court appointment as "Royal Court and ornamental turner, also Music Instrument maker."[127] In 1719 and 1721 he supplied recorders to the Munich court through the Naust workshop.[128] Two spellings of his name are used, Heitz and Heytz, as are two different marks: "Heytz" with a fleur-de-lis on top, and "Heytz" with a crown above and a flower below.[129] Schmid suggested in his 1986 article that Heitz may have used the mark with the fleur-de-lis for instruments made for the French market.[130] The three-piece flute listed by Young as attributed to Heitz is boxwood veneered in tortoiseshell; it has ivory rings and is unmarked. It is in a private collection in Tokyo, and no study of it has been made to date.[131] The attribution to Heitz is likely due to the tortoiseshell veneer, a characteristic material used by this maker, though we know that Bressan and a member of the Hotteterre family also made recorders with the same veneer during this time.[132]

The three-piece flute attributed to Heitz has an enameled scene of four cherubs playing musical instruments on the ivory head cap, gilded flowers on the key touch, and an ivory carving of a child's head on the key flap (see Figures 5.6 and 5.7). The embouchure is bushed with ivory. The turning style of the flute is very similar to that of many French three-piece flutes: the head-

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[125] Young, "*4900 Historical Woodwind Instruments"*, 123.
[126] Waterhouse and Langwill, 170.
[127] Ibid.
[128] Ibid.
[129] Ibid.
[130] Ibid.
[131] Young makes the attribution to Heitz in his *4900 Historical Woodwind Instruments*, 123. Haynes, "The Eloquent Oboe," 330, reproduces a letter by Boehm in which a three-piece flute from Berlin is mentioned. Haynes elaborates that "the traverso would have been too early to be by Quantz or Kirst; the only known maker working at Berlin at this time was Heitz" (330).
[132] The Hotteterre recorder veneered in tortoiseshell is marked */N/HOTTETERRE, which can reasonably be assumed to indicate Nicolas Hotteterre.

joint socket has a double bulb, and it has the bulb foot joint only found on the French three-piece flutes (see Figure 5.8). Because of the characteristically French design, and because Heitz marked his instruments consistently, this author doubts the attribution to Heitz. The design elements lead this author to believe that it is probably a French-made flute. The flute was formerly part of the collection of Barons Nathaniel and Albert von Rothschild and has been documented since 1934 in the Theresianumgasse inventory with the number AR1394.[133]

Table 5.3. Dimensions of flute attributed to Heitz

Maker	Location	Pitch	Sounding length (mm)	Taper mm (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Heitz (attrib.)	JP: Tokyo, private collection, ex Rothschild		591				

Source: http://www.christies.com/lotfinder/lot/a-one-keyed-tortoiseshell-veneered-flute-1479889–details.aspx?intObjectID=1479889.

[133] "A One Key Tortoise Shell Veneered Flute," http://www.christies.com/lotfinder/lot/a-one-keyed-tortoiseshell-veneered-flute-1479889-details.aspx?intObjectID=1479889.

Figure 5.6. Flute attributed to Heitz, private collection, Tokyo
Photo courtesy of Christie's Auctions

Figure 5.7. Flute attributed to Heitz: head-joint cap (detail)
Photo courtesy of Satoshi Asaoka

Figure 5.8. Flute attributed to Heitz: foot joint (detail)
Photo courtesy of Christie's Auctions

CONCLUSIONS

The measurements for all of the three-piece flutes made outside of France are given in Table 5.4. An average of the measurements for the sounding length, sounding pitch, taper, bore minimum, and embouchure measurements is not useful because only two measurements are available in some cases, and because the middle joint of the Bressan flute in the Dayton C. Miller Collection is not authentic. The average bore maximum is 19.67 mm. There is a wide variation in the aesthetics and turning styles of the flutes, but with both the Bressan and the Jacob Denner, one can see the juxtaposition of the characteristic French flute turning style with the turning profiles of baroque recorders and oboes. These makers probably learned of this style of flute from similar sources but developed their own models independently from each other, as will be discussed in greater depth in chapter 6. The flute attributed to Heitz shares the French design of the head-joint socket but differs in the materials used and in design of the foot joint.

Table 5.4. Dimensions of three-piece flutes made outside of France

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Bressan	GB: London, Oldham	400	523		19.5		
Bressan	US: Washington DCM 1207	418	553	4.2	19.6	15.9	9.25 × 9.05
Denner	GR: Berlin, Grosskopf						
Denner	GR: Nuremberg 566	408	558	5.7	19.9	14.2	9.8 × 9.75
Heitz (attrib.)	JP: Tokyo, private collection, ex Rothschild		591				

Chapter 6: Connections and Comparisons Between the Transitional and Three-Piece Flutes and Their Makers

This chapter will compare the biographies of the transitional and non-French three-piece flute makers and their extant instruments with those of the French three-piece flutes and makers discussed in chapters 2, 4, and 5. The three divisions of flutes—French, non-French, and transitional—have all been compared to each other within their categories; therefore this chapter will focus on comparisons across the three categories. In addition to maker biographies, the turning style, other aesthetic designs, and internal designs are also compared in an effort to find similarities and differences.

THE ANONYMOUS ASSISI FLUTE COMPARED

The anonymous flute found in the collection of the Biblioteca Comunale of Assisi bears a resemblance to several other extant flutes despite its transitional design. The turning of the Assisi flute's foot joint is very similar to that usually found on baroque recorders. Two other makers, Haka and Bressan, also utilize a turning style on the foot joint that matches each maker's recorder turning style. There are other three-piece flutes that have straight foot joints, but with fewer turnings, so they are not included in this comparison. It is this author's conclusion, based on the turning style of the foot joint, that the maker of the anonymous Assisi flute must have also made baroque-type recorders (see Figures 6.1–6.3).

Figure 6.1. Anonymous flute, Assisi: foot joint (detail)
Photo courtesy of the Biblioteca Comunale of Assisi

Figure 6.2. Flute by Bressan: foot joint (detail)
Photo courtesy of the Dayton C. Miller Collection

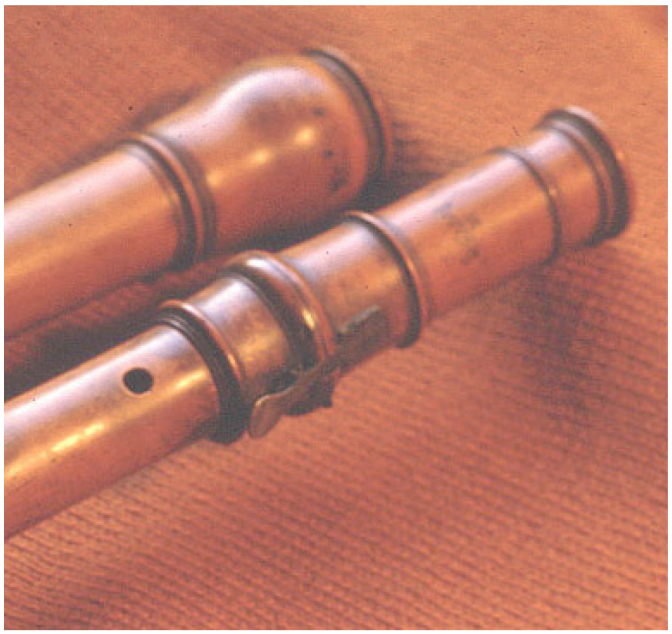

Figure 6.3. Flute by Haka: foot joint (detail)
Photo by Jan Bouterse

The decorative edges of the Assisi flute's D-sharp key also bear a strong resemblance to those of the Haka flute (see Figures 6.4 and 6.5). These are the only two extant flutes that have this type of key design, though it is found on many Dutch oboes of the same time period. The double point design on the sides of both keys suggests the Assisi flute maker had either a Dutch origin or knowledge of the construction characteristics of Dutch flutes and oboes.

Figure 6.4. Anonymous flute, Assisi: foot-joint key (detail)
Photo courtesy of the Biblioteca Comunale of Assisi

Figure 6.5. Flute by Haka: foot-joint key (detail)
Photo by Jan Bouterse

The head-joint cap area of the anonymous Assisi flute is also very similar to that of a few of the French three-piece flutes, despite its not being a separate cap slid over the end of the head. The section where a cap is usually found has a bulb and turning decorations similar to those of the Berlin and Graz Hotteterre flutes, but without the final round bulb at the very end (see Figures 6.6–6.8). If the anonymous Assisi flute is the transverse flute mentioned in Rivi's will of 1704,

then it is possible it was created after Jacques Hotteterre le Romain's trip to Rome from 1698 to 1700, making the head-joint cap similarities more of an important correlation. The French hautboy is also documented in Vienna from 1700, when Joseph I (1678–1711) invited Pierre de La Buissière to the court. La Buissière brought six students with him, all with French names, and employed the ensemble at the court beginning in 1701. Joseph I was fond of the new French woodwinds and is also known to have been a traverso player.[134] Most hautboy players during the late seventeenth and early eighteenth centuries were also traverso players, so it is also possible the new French-design traverso traveled with these players to Italy.

Figure 6.6. Anonymous flute, Assisi: head joint (detail)
Photo courtesy of the Biblioteca Comunale of Assisi

Figure 6.7. Flute by Hotteterre, Berlin 2670: head joint (detail)
Photo courtesy of the Staatliches Institut für Musikforschung

[134] Haynes, *The Eloquent Oboe,* 355.

Figure 6.8. Flute by Hotteterre, Graz 1384 ex Sowinsky: head joint (detail)
Photo courtesy of Martin Wenner

The anonymous Assisi flute also shares design details of the head-joint socket with the Fortier/Leclerc flutes as well as the Haka and Lissieu flutes. The Fortier/Leclerc flutes both have an extra band around the middle of the bulb, though it is not as pronounced as on the anonymous Assisi flute, and this grouping does not have the double bulb found on all the other French three-piece flutes. Details of the head-joint socket turnings are given in Figures 6.9–6.13.

Figure 6.9. Anonymous flute, Assisi: head-joint socket (detail)
Photo courtesy of the Biblioteca Comunale of Assisi

Figure 6.10. Flute by Fortier/Leclerc, Frankfurt: head-joint socket (detail)
Photo by Phillipe Allain-Dupré

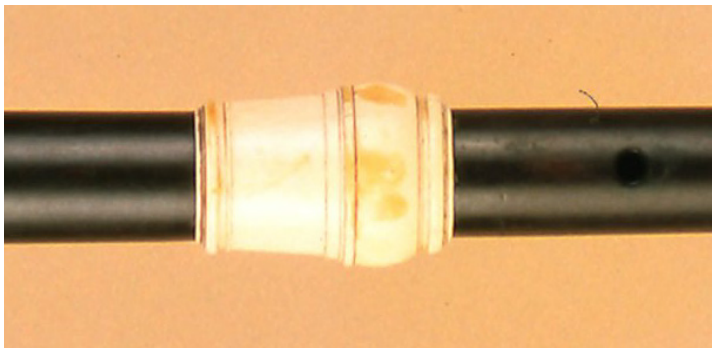

Figure 6.11. Flute by Fortier/Leclerc, Paris E. 984, 8.1: head-joint socket (detail)
Photo courtesy of the Musée instrumental de la Cité de la musique

Figure 6.12. Flute by Haka, Rijksmuseum, Amsterdam: head-joint socket (detail)
Photo by Simon Polak

Figure 6.13. Flute by Lissieu, Vienna: head-joint socket (detail)
Photo by Boaz Berney

The anonymous Assisi flute shares many design elements with other three-piece and transitional flutes with French origins and also with the Haka flute. The dimensions of the anonymous Assisi flute are compared with those of the average French three-piece flute and the Haka flute in Table 6.1. The anonymous Assisi flute is lower in pitch than any of the extant French three-piece flutes, but the sounding length and starting bore diameters are almost the same.[135] The anonymous Assisi flute has a shallower taper—only 3.5 mm instead of the average 5.7 mm taper of French three-piece flutes—and the embouchure hole is oval rather than round. All of these points, coupled with the aesthetic designs discussed above, suggest that the maker had a certain degree of familiarity with early French three-piece flutes, Renaissance flute construction, and early baroque recorder turning aesthetics.

[135] The sounding length of the Paris Naust flute was not included in the average because it is unusually long; furthermore, it is a different type of flute from the others discussed here.

Table 6.1. Dimensions of anonymous Assisi flute compared with those of average French three-piece flute and Haka flute

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Anonymous	IT: Assisi	390	580	3.5	19.2	15.7	9.1 × 8.2
Avg. French		400.25	578.8	5.6	19.34	13.85	9.38 × 9.35
Haka	NL: Amsterdam	408	645	1.8	18.5	16.7	9.04 × 8.53

Note: Average dimensions of French three-piece flute obtained from those given in Table 4.8; dimensions of Haka flute obtained from those given in Table 2.2.

BRESSAN FLUTES COMPARED

The flute by Pierre Jalliard Bressan in the Dayton C. Miller Collection has many similarities to some of the French flutes and to the lost ivory flute by Jacob Denner. The head-joint cap has pronounced turnings but is straight, lacking the bulb found on the Hotteterre flutes marked with an anchor (see Figures 6.14–6.18). From the grainy picture in Bowers's dissertation it is difficult to tell anything about the Oldham Bressan's head-joint cap, but it appears to resemble the head-joint cap of the Chevalier flute (see Figure 6.19).

Figure 6.14. Flute by Bressan, United States, Washington DCM 1207: head-joint cap (detail)
Photo courtesy of the Dayton C. Miller Collection

Figure 6.15. Flute by Naust, United States, National Music Museum ex von Huene: head-joint cap (detail)
Photo courtesy of the National Music Museum

Figure 6.16. Flute by Rippert, Glasgow, Kelvingrove 42-68H: head-joint cap (detail)
Photo courtesy of the Kelvingrove Collection, Glasgow Museum

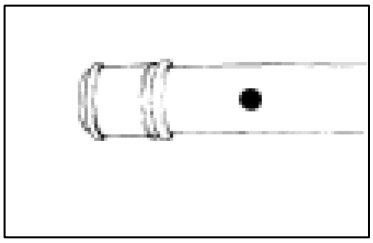

Figure 6.17. Flute by Denner, drawing of lost Berlin flute: head-joint cap (detail)
Drawing by Friedrich von Huene

Figure 6.18. Flute by Haka, Rijksmuseum, Amsterdam: head-joint cap (detail)
Photo by Simon Polak

The Bressan flutes in the Dayton C. Miller Collection and the Oldham private collection also have the characteristic double head-joint socket bulb found on all of the French three-piece flutes except for those by Fortier/Leclerc. The socket bulb on the Bressan flute in the Dayton C. Miller Collection is half wood and half ivory, like one of Rippert's flutes, and the Oldham Bressan is made entirely of ivory (see Figures 6.19–6.21).

Figure 6.19. Flute by Bressan: Oldham, private collection, London
Photo by Jane Bowers

Figure 6.20. Flute by Bressan, United States, Washington DCM 1207: head-joint socket (detail)
Photo courtesy of the Dayton C. Miller Collection

Figure 6.21. Flute by Rippert, Glasgow, Kelvingrove 42-68H: head-joint socket (detail)
Photo courtesy of the Kelvingrove Collection, Glasgow Museum

The foot joint of the Bressan flute located in the Dayton C. Miller Collection has a turning style similar to that of his recorders and of other flutes that also borrow from the baroque recorder turning style (see again Figures 6.1–6.3). The foot joint of the Bressan flute in the Oldham private collection is a bulb, like those of many of the French flutes, such as the Hotteterre flutes in Graz and Berlin. The average dimensions of the two extant Bressan flutes are given in Table 6.2. The pitch and sounding length averages are fundamentally flawed because of the middle joint of the flute in the Dayton C. Miller Collection is a replacement. The pitch of the

Oldham Bressan matches the average French three-piece flute pitch, as does the starting bore diameter.

Table 6.2. Dimensions of Bressan flute compared compared with those of average French three-piece flute

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Bressan	GB: London, Oldham	400	523		19.5		
Bressan	US: Washington DCM 1207	418	553	4.2	19.6	15.9	9.25 × 9.05
Avg. Bressan		409	538		19.55		
Avg. French		400.25	578.8	5.6	19.34	13.85	9.38 × 9.35

Note: Average dimensions of French three-piece flutes obtained from those given in Table 4.8.

The bore taper is shallower in the Dayton C. Miller Bressan, which more closely matches the taper found in the anonymous Assisi flute. The embouchure hole of the Dayton C. Miller Bressan is similar to the French three-piece flute average but is slightly more ovoid.

Bressan had connections to both France and Holland. Friedrich von Huene states that Bressan's treble recorders are similar in style and construction to those of Rippert. He also supposes, from the years of their birth, that Rippert and Bressan could have been contemporaries and may even have apprenticed under the same master,[136] which could be the reason behind the design similarities of the head-joint cap and the head-joint socket. Bressan was born in France, so Halfpenny surmises that he may have settled in London at the request of his friend James Paisible, one of the first players of the new French woodwinds in England in 1674, in order to supply instruments in the new French style.[137] Bressan also joined King William III on his trip to Holland in 1691 as one of five oboists: "Hooboys that were in Holland only for that viage.

[136] Byrne."Bressan, Peter"
[137] Eric Halfpenny, "Biographical Notices of the Early English Woodwind-Making School C1650-1750," *The Galpin Society Journal* 12 (1959): 46.

George Sutton—, Franciss: Lari—, —Brazong—, —Baptist, —Granvell. These are to bee payed for their Journey into Holland, and no longer."[138] Since many oboists at the time also doubled on flute, it is possible that he brought the newly designed three-piece flute with him on this trip.

DENNER FLUTES COMPARED

The two documented three-piece flutes by Jacob Denner differ greatly in aesthetics, probably because of a difference in the date of construction, the lost Berlin flute being the earlier of the two. The Denner flute at the Germanisches Nationalmuseum bears little aesthetic resemblance to either the French three-piece flutes or the transitional flutes. There are few extra turnings on the flute, and its outward design is more similar to that of later four-piece flutes than its earlier counterparts. The earlier three-piece flute once housed in Berlin, however, shows considerable similarities to many other extant flutes. The head-joint cap is similar to those of Bressan, Rippert, Naust, and Haka (see again Figures 6.14–6.18). The bulb on the head-joint socket is the same double bulb found on most French three-piece flutes (see Figures 6.22 and 6.23).

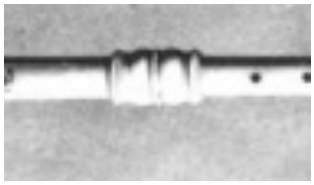

Figure 6.22. Lost Berlin flute by Denner: head-joint socket (detail)
Photo from Peter Sachs's catalog of the Berlin collection, 1922

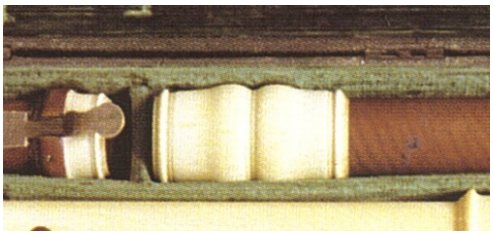

Figure 6.23. Flute by Rippert, Paris, Dorgeuille collection: head-joint socket (detail)
Photo courtesy of *Traversieries*, no. 83

[138] Susi Jeans, "Bressan in 1690," ibid.11 (1958): 92.

The foot joint of the lost Berlin Denner also has basic turnings on a straight profile, similar to the Haka flute, the unmarked ivory flute attributed to Rippert in the Dorgeuille private collection, the Paris Fortier/Leclerc, and the Paris Naust (see Figures 6.24–6.28).

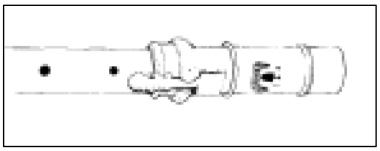

Figure 6.24. Lost Berlin flute by Denner: foot joint (detail)
Drawing by Friedrich von Huene

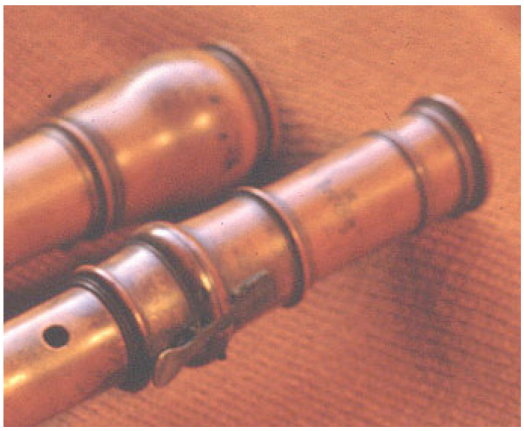

Figure 6.25. Flute by Haka: foot joint (detail)
Photo by Jan Bouterse

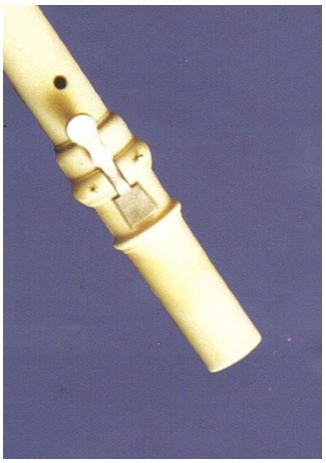

Figure 6.26. Flute by Rippert, Paris, Dorgeuille collection: foot joint (detail)
Photo courtesy of *Traversieries*, no. 83

Figure 6.27. Flute by Fortier/Leclerc, Paris: foot joint (detail)
Photo courtesy of the Musée instrumental de la Cité de la musique

Figure 6.28. Flute by Naust, Paris B.710, C.441: foot joint (detail)
Photo courtesy of Boaz Berney

Table 6.3 compares only the dimensions of the later Denner flute to the average French three-piece flute, since, to date, no measurements of the lost Berlin Denner flute have been found. The later Denner flute is 20 mm shorter than the average French three-piece flute but has the

same degree of taper as the French flutes. The later Denner flute's embouchure hole is roughly 0.5 mm larger on both axes, and the pitch is slightly higher than that of the average French three-piece flute. Regarding French influence in Germany at the time, Jacob Denner's father, Johann Christoph, applied to make the new French woodwinds in 1696, and it is quite probable that Jacob learned the French style of instrument making from his father. The French hautboy player La Riche was the senior hautboy player at Dresden in 1699, and according to Haynes "a French presence was an important part of Friedrich August I's [1694–1733] musical establishment."[139] Rippert's flutes were also known as far away as Frankfurt, according to the account by von Uffenbach.

Table 6.3. Dimensions of Jacob Denner flute compared with those of average French three-piece flute

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Denner	GR: Berlin, Grosskopf						
Denner	GR: Nuremberg 566	408	558	5.7	19.9	14.2	9.8 × 9.75
Avg. French		400.25	578.8	5.6	19.34	13.85	9.38 × 9.35

Note: Average dimensions of French three-piece flutes obtained from those given in Table 4.8.

HAKA FLUTE COMPARED

The Haka flute has many similarities not only to the other transitional flutes, but also to many of the three-piece flutes from France and elsewhere. The head-joint cap area is similar to that of the Dayton C Miller Bressan, the National Music Museum Naust, the Glasgow Rippert, and the lost Berlin Denner (see again Figures 6.14–6.18). The head-joint socket features a single bulb with decorative turnings at the top and bottom, similar to the Lissieu flute and both Fortier/Leclerc

[139] Haynes, "*The Eloquent Oboe"*, 325, 327.

flutes, and somewhat similar to the anonymous Assisi flute (see again Figures 6.9–6.13). The foot joint of the Haka flute is turned similarly to Haka's recorders, and most similarly to the Dayton C. Miller Bressan flute, the lost Berlin Denner flute, and the Paris Naust (see Figures 6.29–6.32). The Haka flute also has similar proportions to the Lissieu flute in terms of the length of the head joint and the positions of the turnings when compared to the total length of the flute (see Figures 6.33–6.34).

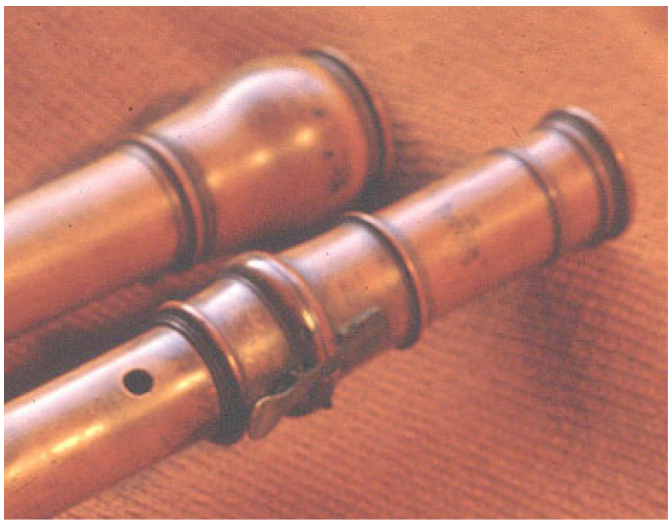

Figure 6.29. Flute by Haka: foot joint (detail)
Photo by Jan Bouterse

Figure 6.30. Flute by Bressan: foot joint (detail)
Photo courtesy of the Dayton C. Miller Collection

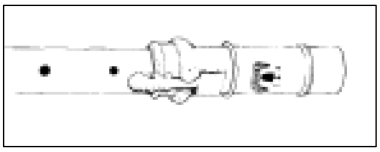

Figure 6.31. Lost Berlin Denner flute: foot joint (detail)
Drawing by Friedrich von Huene

Figure 6.32. Flute by Naust, Paris B.710, C.441: foot joint (detail)
Photo courtesy of Boaz Berney

Figure 6.33. Flute by Haka, Rijksmuseum, Amsterdam
Photo by Simon Polak

Figure 6.34. Flute by Lissieu, Vienna
Photo by Boaz Berney

The measurements of the Haka flute when compared to the average French three-piece flute, as shown in Table 6.4, indicate the distinct internal design differences between the flutes. The length is similar to that of the Paris Naust and other later *flûtes d'amour*. The bore, however, starts smaller and has a shallower taper, and the embouchure is ovoid rather than circular. The general dissimilarity with the French three-piece flutes and greater similarity to other transitional flutes could be because Haka was influenced by an early prototype, French or that of some other nationality, which is now lost. Bouterse believes that "it is unlikely that Haka and the French makers developed their traversos independently because, despite the differences, the instruments show important technical similarities. The basic idea was the same: the three joints, the D-sharp/E-flat key and the shape of the bore (cylindrical in the head joint, narrowing in the middle joint, widening at the foot)."[140]

Table 6.4. Dimensions of Haka flute compared with those of average French three-piece flute

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Haka	NL: Amsterdam	408	645	1.8	18.5	16.7	9.04 × 8.53
Avg. French		400.25	578.8	5.6	19.34	13.85	9.38 × 9.35

Note: Average dimensions of French three-piece flutes obtained from those given in Table 4.8.

There was also considerable French influence in Amsterdam, in addition to Haka's influence outside of the Netherlands. Two documents list Haka's instruments outside of the Netherlands during this time period: a woodwind delivery to Sweden and an inventory of sixteen recorders at Ferdinand of Tuscany's court in Florence.[141] Lully's operas were performed in Amsterdam and The Hague starting in 1677, and these operas were also the main repertoire of the

[140] Bouterse, "The Woodwind Instruments of Richard Haka (1645/6 - 1705)," 67.
[141] Bouterse, *Dutch Woodwind Instruments and Their Makers, 1660-1760*, 2.14.

first opera house in Brussels, the *Opéra du Quai au Foin*, which opened in 1681. French musicians and dancers were often hired for Lully's operas performed in these cities.[142] Many French Huguenots also immigrated to the Netherlands after the revocation in 1685 of the Edict of Nantes, a law signed in 1598 that granted French Protestants rights to live, work, and practice their religion in France.[143] William III of England also visited Holland in 1691 with a band of hautboy players that included Pierre Jalliard Bressan. With the considerable influx of French music, musicians, and makers to the Netherlands from the 1670s onward, it is very possible that Haka learned of a French transitional flute design from someone visiting or who had recently moved to the area.

HEITZ-ATTRIBUTED FLUTE COMPARED

The tortoiseshell-veneered flute attributed to Heitz has many aesthetic design similarities with the French three-piece flutes. The head-joint cap is not as large as that on most of the flutes, but it does have a large round turning at the top similar to the Glasgow Rippert, the Dayton C. Miller Bressan, and the National Music Museum Naust, though it lacks the lower turning and straight section (see Figures 6.35 and 6.36). The head-joint socket has the double bulb characteristic of most French three-piece flutes, the Dayton C. Miller Bressan, and the lost Berlin Denner (see Figures 6.37 and 6.38). The author has not been able to obtain measurements for the flute attributed to Heitz, so a comparison to the average French three-piece flute is not possible. Other makers that utilized a tortoiseshell veneer on instruments during this time include Bressan and Nicolas Hotteterre. Given the strongly French aesthetic design of this flute and the lack of a maker's mark, it is very likely the flute's origins are French rather than German.

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[142] Haynes, "*The Eloquent Oboe*", 152-55.
[143] Ibid, 153.

Figure 6.35. Flute attributed to Heitz, private collection, Tokyo: head-joint cap (detail)
Photo courtesy of Christie's Auctions

Figure 6.36. Flute by Naust, United States, National Music Museum, ex von Huene: head-joint cap (detail)
Photo courtesy of the National Music Museum

Figure 6.37. Flute attributed to Heitz, private collection, Tokyo: head-joint socket (detail)
Photo courtesy of Christie's Auctions

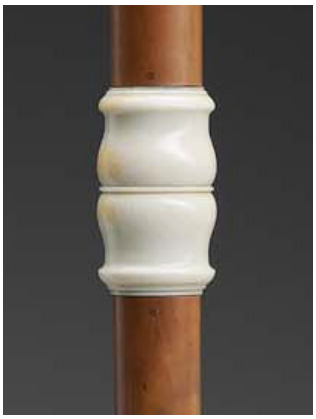

Figure 6.38. Flute by Chevalier: head-joint socket (detail)
Photo courtesy of the Museum of Fine Arts, Boston

The foot joint of the flute attributed to Heitz also has a bulge similar to that on many of the French three-piece flutes (see Figures 6.39 and 6.40).

Figure 6.39. Flute attributed to Heitz, private collection, Tokyo: foot joint (detail)
Photo courtesy of Christie's Auctions

Figure 6.40. Flute by Chevalier: foot joint (detail)
Photo courtesy of the Museum of Fine Arts, Boston

LISSIEU FLUTE COMPARED

The Lissieu flute is probably the earliest of the extant transitional flutes between the Renaissance and baroque eras. The pitch, A = 462, indicates that it was designed to perform with cornetti and voices without transposing, and is quite different from that of any other extant transitional or three-piece flute. The turning at the top of the head joint is similar to that of the Haka flute, but it lacks the second turning ring lower on the head joint (see Figures 6.41 and 6.42).

The head-joint socket has a single bulb flanked by turnings, similar to the Haka and both Fortier/Leclerc flutes (see again Figures 6.10–6.13). The turning at the end of the foot is similar to the Haka, Dayton C. Miller Bressan, and Assisi flutes, though these flutes have additional turnings across the length of the foot joint (see Figures 6.43–6.46). Lissieu was also a recorder maker, as were Haka, Bressan, and, presumably, the maker of the anonymous Assisi flute, which may well explain the similarities in turning styles.

Figure 6.41. Flute by Lissieu, Vienna: head joint (detail)
Photo by Boaz Berney

Figure 6.42. Flute by Haka, Rijksmuseum, Amsterdam: head joint (detail)
Photo by Simon Polak

Figure 6.43. Flute by Lissieu, Vienna: head joint (detail)
Photo by Boaz Berney

Figure 6.44. Anonymous flute, Assisi, Italy: foot joint (detail)
Photo courtesy of the Biblioteca Comunale of Assisi

Figure 6.45. Flute by Bressan: foot joint (detail)
Photo courtesy of the Dayton C. Miller Collection

Figure 6.46. Flute by Haka: foot joint (detail)
Photo by Jan Bouterse

Table 6.5. Lissieu flute dimensions

Maker	Location	Pitch	Sounding length (mm)	Taper (mm)	Bore max. (mm)	Bore min. (mm)	Embouchure measurement (mm)
Lissieu	AT: Vienna, Kunsthistorisches Museum	462	502.4	0	16	16	8.0 × 7.8
Avg. French		400.25	578.8	5.6	19.34	13.85	9.38 × 9.35

Note: Average dimensions of French three-piece flutes obtained from those given in Table 4.8.

When comparing the internal characteristics of the Lissieu flute against the average French three-piece flute, one can see there is little internal design similarity. The earliest the Lissieu flute could date to is circa 1650, and it likely dates from between 1650 and 1670, which makes it the earliest of the extant transitional flutes. The early date and Renaissance construction (no bore taper and use of Renaissance fingerings) are why the flute shares no internal design characteristics with the French three-piece flutes.

Chapter 7: A Brief Overview of the Transition of the Recorder and Oboe from Renaissance to Baroque-Type Design

This chapter will cover design changes, differences in playing characteristics, where these changes took place, and who possibly made the first changes with respect to recorders and oboes. As an overview, it is intended not to be comprehensive in either sources or research ideas, but to provide a point of comparison for the reader's understanding of the flutes of the same time period.

THE RECORDER

The main changes between the Renaissance- and baroque-type design of the recorder include both internal and external (or aesthetic) changes. The Renaissance recorder is characterized by a wide bore, crafted in one piece with no or few turnings, a small beak, and an extra eighth hole for the bottom hand fifth finger to facilitate playing with either the left or right hand on top.[144] The wide bore produced more overtones in the lower notes, making them considerably louder than the higher ones. It also limited the range of the Renaissance recorder, which is usually documented as being no more than a thirteenth.[145] The new design that appeared during the middle of the seventeenth century included a three-piece construction, a more narrow and tapered bore, a curved beak, and doubled seventh and eighth holes.[146] According to Eve O'Kelly, "The flattening effect of the tapered bore made it possible to place the finger-holes closer together and this, as well as the altered dimensions of the bore, meant that chromatic notes could be played satisfactorily by means of cross- and forked-fingerings. The baroque recorder has 'a softer and sweeter tone than its predecessors.'"[147] Eva Legêne postulates that the change from

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[144] Margaret A. Nosek, "The Recorder in the Sixteenth and Early Seventeenth Centuries; Part IV: The Recorder in Seventeenth-Century England," *Bach* 6, no. 2 (1975): 17.
[145] Ibid.
[146] Ibid.
[147] Eve O'Kelly, *The Recorder Today* (Cambridge: Cambridge University Press, 1990), 30.

an instrument that favored the loud low register to the baroque design that favored the upper register and had a lighter tone occurred when ensemble sounds changed from loud winds (sackbuts, shawms, and crumhorns) to soft strings.[148] The general consensus among all recorder researchers consulted for this document is that the baroque-type recorder was developed in France. Some, such as Paul Carroll, go so far as to claim the Philidor and Hotteterre families were responsible for the transformation,[149] though the memoir of Michel de La Barre only states, regarding the transformation of instruments at the time, that

> [Lully's] promotion meant the downfall of all the old instruments except the hautbois, thanks to the Filidors and Hautteterres, who spoiled so much wood[,] and … they finally succeeded in rendering it usable in ensembles. From that time on, musettes were left to shepherds, and violins, recorders, theorbos, and viols took their place, for the traverso did not arrive until later.[150]

Despite the general belief that the transformation of the recorder began in France, as of the time of this writing there are no transitional French instruments tied to the Hotteterre family or any other French maker from the 1660s, though Anthony Rowland-Jones believes that circumstantial evidence in Lully's music suggests that the new baroque-type design of the recorder came into use in the French court in the late 1660s.[151] Legêne writes that the new type of recorder made its way to England from France by 1673, when Robert Cambert brought four woodwind players, including James Paisible, with him to London.[152] Other evidence of the French connection includes the application by Johann Christoph Denner and Johann Schell in 1696 in Nuremberg to begin making woodwind instruments of the French design, in which they stated their belief that the oboe, bassoon, and recorder undergone similar development about twelve years earlier.[153]

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[148] Eva Legêne, "The Recorder in the 17th Century" (paper presented at the International Recorder Symposium, Utrecht, 1993), 106.
[149] Paul Carroll, *Baroque Woodwind Instruments : A Guide to Their History, Repertoire, and Basic Technique* (Aldershot, Hants, England ; Brookfield, Vt.: Ashgate, 1999), 120.
[150] Haynes, "*The Eloquent Oboe"*, 14.
[151] Jonathan Wainwright, *From Renaissance to Baroque* (Surrey, England: Ashgate Publishing, 2005), 91.
[152] Legêne, 107.
[153] Ibid., 106.

There is no complete catalog of extant transitional and early baroque recorders, but various researchers have compiled small sections of such a list. The most important for this document is a short tabulation created by Legêne that documents early baroque recorders, many of which are of a one-piece design and were made around the same time period as the flutes examined in this document. The list has been edited into the chart presented as Table 7.1 and includes numbers calculated by this author for baroque-era recorders, utilizing Young's *4900 Historical Woodwind Instruments*.

Table 7.1. List of transitional and baroque recorders from the middle of the seventeenth century to 1740 by country of origin

Country of origin	Transitional recorders	Baroque recorders through ca. 1740
Anonymous	6	
Marked but unknown	3	
Dutch	2	85
German	6	145
French	0	41
English	0	91
Swiss	0	1

Note: Table of transitional recorders compiled from data found in the proceedings of the International Recorder Symposium in 1993 on pages 108 and 109[154]

OBOE

The early baroque-type hautbois—or "protomorphic hautboy," as Haynes terms it—developed from the shawm. The new style of music performed at the court of Louis XIV meant that shawm players needed to find a way to express affections, something difficult to do without embouchure control of the reed. A shift in the shawm probably started around 1636, when a

[154] Parameters for counting baroque recorders consisted of a flourish date before 1715 and an end of output around 1740. Only makers with definitive date ranges were used, and the only source consulted was Young, *4900 Historical Woodwind Instruments*.

diagram in Mersenne's *Harmonie universelle* was published showing the reed without the usual pirouette on the shawm.[155] The early hautbois had very few bore changes, and Paul Hailperin believes that early makers used the reamers they had previously used for treble shawms to make the new type of early hautbois.[156] The aesthetic attributes associated with the baroque-type hautbois are first seen in Borjon's musette book of 1672, which means the transition from a shawm with no pirouette to the baroque-type design took place sometime between 1636 and 1672.[157] The main design differences between the shawm and the baroque-type hautbois have been outlined by Haynes:[158]

1. The hautboy's reed had much less of a fan or fishtail shape than the shawm, and it dispensed with the pirouette.
2. About half the length of a treble shawm was below the finger holes, whereas the bell was relatively foreshortened on the hautboy.
3. The hautboy had only one pair of resonance holes below the tone holes; the treble shawm had three sets, a total of five resonance holes.
4. The tone-holes were placed much lower along the hautboy's length.
5. The tone-holes were drilled smaller on the hautboy.
6. The walls of the treble shawm were about 1 cm thick; the walls of the hautboy were a third to half as thick.
7. The hautboy's tone holes were undercut; shawms generally had cylindrical or even overcut holes.
8. The tone holes of treble shawms were usually drilled straight; on the hautboy, holes 1, 2, 3, and 6 were often drilled at a slant.
9. The hautboy was divided into three joints linked by tenons; the shawm was normally in one piece.
10. The hautboy bore had a broken profile, or steps at the changes of joint, which were especially noticeable at the beginning of the bell.
11. The hautboy had a complex outer profile, with ornamental thickenings at specific places along its length corresponding to the divisions between the joints. The shawm had a simple, smooth exterior.
12. The hautboy bell had a lip, a thick interior contraction rim at the bottom that was not present on the shawm.
13. Besides the articulated open-standing Great-key for C, the hautboy had a closed Small-key for the note E-flat.
14. The shawm's fontanelle, a detachable barrel perforated with small holes that protected the key mechanism, was absent from the hautboy.

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[155] Haynes, "*The Eloquent Oboe",* 13.
[156] Bruce Haynes, "Lully and the Rise of the Oboe as Seen in Works of Art," *Early Music* 16, no. 3 (1988): 325.
[157] Haynes, "*The Eloquent Oboe",* 14.
[158] Ibid*,* 22-23.

It is universally believed that the hautboy, like the recorder, was developed in France. This is corroborated by the quote from de La Barre, by German and English sources (Denner's petition), and particularly by the name of the instrument in all European languages, being either copied or translated from the French *hautbois*.[159] Some type of transitional hautboy was likely used for the first time in Lully's ballet *L'amour malade* in 1657, and the hautboy was frequently used in such works through 1664. Between 1664 and 1670 Lully seemed to have written fourteen large-scale ballets without an hautboy, something Haynes believes was a deliberate choice: it is during this time period that the protomorphic hautboy was probably further developed into its early baroque-type form, and Haynes believes Lully gave the hautboy players time off to master the new instrument.[160] De La Barre stated that it was the Philidors and Hotteterres who developed the hautboy into the baroque-type design. Of the Hotteterre family members working in Paris during the mid-seventeenth century, Jean (I) Hotteterre is the only one whose career encompasses the time between the publication of Mersenne's treatise in 1636 and the first documentation of the definitive baroque-type form of the hautboy in the 1670s, and it is likely Jean (I) to whom de La Barre referred. Two members of the Philidor family who could have been involved are Michel and Jean (ca. 1620–1679). No instruments bearing either name survive, however, so it is also possible they were consultants rather than makers.[161]

The protomorphic hautboy seemed to not spread geographically during its evolution, but in the 1670s the new early baroque-type design of hautboy spread throughout Europe very quickly. Haynes stated that it was played in London by 1673; in Turin, Amsterdam, and The Hague by 1677; in Madrid by 1679; in Celle and Stuttgart by 1680; in Brussels by the 1680s; and in Venice and Vienna by the 1690s.[162] Two forces facilitated the spread of the new baroque-type

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[159] Ibid, 14.
[160] Ibid, 56-57.
[161] Ibid, 36-37.
[162] Ibid, 121.

hautboy: Lully's monopoly of power, which forced many musicians to leave the court in the 1670s, and the revocation of the Edict of Nantes in 1685, which deprived the Huguenots of their religious and civil liberties. Haynes observes that "within a few years, more than 400,000 people—artists, craftsmen, intellectuals, and the cream of the most industrious commercial class in France—had left the country for courts all over Europe."[163] These craftsmen took with them the new hautboy design, and it spread rapidly. Table 7.2 shows Haynes's chart of extant hautboys categorized by construction time period (limited to the time period examined in this document) and country of origin. The number of extant hautboys from Germany and the Dutch Republic far outnumber those from other countries, including France. Haynes believes that few protomorphic hautboys survive because few were produced and they were used for less than a generation.[164] Another possible reason for the low number of French instruments is the French Revolution. The hautboy's tie with the aristocracy and the court probably led to the destruction of many instruments, as is documented with respect to harpsichords and, undoubtedly, other types of instruments as well during this same time. Nonetheless, the large number of surviving early instruments and the huge increase in extant instruments across Europe after 1700 demonstrates the immediate popularity of the new hautboy and the degree to which new design ideas spread during the late seventeenth and early eighteenth centuries.

Table 7.2. List of early transitional and baroque-type hautbois from 1640 to 1730 by country of origin

Country of origin	1640–70	1670–1700	1700–1730	Total
France	0	12	20	32
Italy	0	0	15	15
Germany	0	13	60	73
England	0	4	10	14
Dutch Republic	10	11	54	65
Habsburg Empire	0	0	3	3
Other	0	0	3	3

Note: Table adapted from Haynes, *The Eloquent Oboe*, 63, Table 2.1.

[163] Ibid, 134.
[164] Ibid, 35.

Chapter 8: CONCLUSION

This chapter will summarize the points made in this document as they pertain to the original hypothesis regarding the origin of the baroque-type flute design. A comparison of the flute's development during the transition from the Renaissance-type design to the baroque-type design to the development of the oboe and recorder during the same time, along with a comparison of extant instruments of all three types, will add further support to this author's conclusions.

THE FRENCH CONNECTION

Each flute discussed in this document has a connection to France through either the life of the maker, the culture of the country, or the travel patterns of musicians. All of the French-origin flutes show enough similarity in aesthetic design and general dimensions that one can assume a transfer of ideas between makers took place in late seventeenth-century France. This author believes that the fact that extant flutes seem to have been made or held outside of France can be explained by an examination the maker's life, the country of origin, and the travel of musicians from France. The anonymous Assisi flute has very strong aesthetic ties to French and Dutch woodwind-instrument making of the time. Joseph I of Italy was also very fond of the new French-designed instruments and brought French musicians to Italy in 1700. Jacques Hotteterre le Romain also traveled to Rome at the same time (1698), lending a very strong probability that the maker of the Assisi flute was exposed to the early baroque-type design flute and other wind instruments. In England, Peter Bressan was born in France, had exposure to the early baroque-type French woodwind instruments before immigrating to England in the mid-1670s, and possibly apprenticed under the same Master as Rippert. In Germany, Johann Christoph Denner applied to make the new French woodwind instruments in 1696, indicating the extent to which knowledge of the new baroque-type instruments traveled. Rippert's flutes were also known as far away as Germany, according to one account, and there were French musicians at the court of

Friedrich August I. Furthermore, the opera houses in the Netherlands almost exclusively produced the ballets of Lully in the late seventeenth century; many French Huguenots immigrated to the Dutch Republic after the revocation of the Edict of Nantes in 1685; and Bressan, who was already making French-style flutes and recorders, traveled to Holland in 1691 with King William III as a part of an hautboy ensemble.

COMPARISONS TO THE DEVELOPMENT OF THE BAROQUE-TYPE RECORDER AND OBOE

Despite the large amount of research into the transition from Renaissance-type to baroque-type design of the flute, oboe, and recorder, large gaps in the evidence still remain for all three instruments. This author believes that compiling and comparing the research on these three types of instruments will fill in some of these gaps for the flute. All research consulted for this document concluded that the early baroque-type oboe and recorder were developed in France and that the development of the baroque-type design was a gradual change. The French origins of these instruments do not appear to be in question, though De La Barre's account is the main source of concrete evidence for it. This theory of origin, along with the charts of extant instruments for the baroque-type recorder and oboe, leads this author to the question of a French origin of the early baroque-type design flute. The three charts are compared in Table 8.1.

Table 8.1 clearly illustrates the difference in numbers of extant instruments as compared to country of origin: there is a distinct difference in pattern, especially between the early hautboys and the early flutes. There are no French examples of what Haynes terms the "protomorphic hautboy," whereas there is one French transitional flute (Lissieu). Also, the extant early baroque-type hautboy is more or less evenly distributed across France, Germany, and the Dutch Republic, whereas there are far more extant early baroque-type flutes from France than from other countries. No transitional French recorders are extant, and the Hotteterre family is represented by thirteen extant recorders of various sizes. The number of baroque recorders before 1740 is difficult to compare to the other columns, and a more date-specific list was unable to be

determined by the author despite thorough examination of Young's *4900 Historical Woodwind Instruments.* However, there are far fewer recorders extant from France than from Germany, England, or the Dutch Republic. This data comparison prompts the question: Why the difference in numbers if all three instruments were developed in France? And can it now be stated definitively that the new baroque-type three-piece design flute was developed in France and did not instead undergo simultaneous development across Europe? If one believes the de La Barre account, the petition of Johann Christoph Denner, and other anecdotal writings suggesting that the oboe, recorder, and flute were all developed in France in the last third of the seventeenth century, then one must examine the political climate and culture of France and Europe at this time to make sense of the difference in numbers. The new oboe and recorder designs were disseminated across Europe very quickly in the 1680s owing to the revocation in 1685 of the Edict of Nantes. At this time the flute was most likely still in a transition phase and had not solidified into the Hotteterre-style three-piece design that was prevalent from the 1690s through the early eighteenth century. The revocation of Nantes and the mass movement of Huguenots during this time would explain the sudden change in numbers across many locations for the oboe and the existence of several transitional flutes across Europe. After 1685 France for the most part closed down culturally to outside influence, a pattern that did not change until after the death of Louis XIV in 1715; this would explain the large number of early three-piece baroque-type flutes in France and few elsewhere. The newly designed oboe and recorder had already traveled across Europe before 1685, so the change in political climate of France after that date had little effect on these instruments. The lack of transitional French recorders and the low number of French oboes from 1640–1730 could be due to the class associations of the instruments during the French Revolution and the short time period in which the transitional instruments were used. Many musical instruments associated with the upper classes were destroyed or used for firewood. It is possible that, since the flute was more common and accessible among the lower classes than the oboe specifically, a larger number of early French baroque-type flutes escaped destruction.

Table 8.1. List of early transitional and baroque-type hautbois of 1640–1730, flutes of 1640–1715, and recorders of 1640–ca. 1740 by country of origin

Country of origin	Transitional hautboy	Baroque-type hautboy to 1730	Transitional recorders	Baroque recorders to 1740	Transitional flutes	Baroque-type 3-piece flutes
France	0	12	0	41	1	15
Italy	0	0	0	0	1	0
Germany	0	13	6	145	0	2
England	0	4	0	91	0	2
Dutch Republic	10	11	2	85	1	0
Switzerland	0	0	0	1	0	0
Anonymous	0	0	9	-	0	3

Note: Table adapted from Tables 2.4, 4.8, 5.4, 7.1, and 7.2 of this document.

The evidence and research presented in this document produce a strong argument for the development of the early baroque-type three-piece flute in France and not a simultaneous development across Europe, as some researchers have suggested. The life of the instrument makers, the culture of the countries, and the travel of musicians in the last third of the seventeenth century can all be used to draw connections between each instrument and France. Compared to the research available for the oboe and recorder, there are as many or more such connections for the flute than for the oboe or recorder, and it is this author's hope that future researchers will look more closely into the archives and lives of the early woodwind makers in Paris and La Couture in an effort to learn more about these early woodwind-making centers, which are responsible for the development of the early baroque-type woodwind instruments.

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