

a concise story of the western flute from 1700 onward

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The physical representation of an instrument evolves alongside the musical aesthetic and expressiveness of its time. Being one of the oldest musical instruments, the flute has evolved substantially alongside the course of music development. Before 1700, the western flute existed largely in the form of cylindrical renaissance flute with just 6 tone holes. Even though it was a beautiful instrument, its use was limited by its inefficiency with chromatic notes.



(More photos and information about renaissance flute on Amanda Markwick's website
<https://amandamarkwick.com/flutes/renaissance-flutes/>)

Not until around 1700, a new type of flute was invented. Its shape was conical, in 3 parts, and had 1 key - a mechanism that helps the flutist to open and close an extra tone hole for D#/Eb. With this conical flute with 7 tone holes, flutists could finally play all chromatic notes efficiently and effectively. This new flute – baroque flute, as we now call it- quickly gained its popularity and flourished during the apex of the baroque music period.



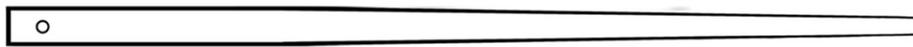
Baroque flute after Hotteterre

The conical shaped body of the baroque flute allows a less spread-out tone hole positions for the hands, and also helps with intonation of high notes and gives a darker but richer sound. Like the renaissance flute, this new type of flute was still built upon the scale of D major. To play the other notes, the player has to use fork fingerings and correct the intonations with the change of air. As a result, some notes are strong and bright, while some can only be played dark and soft. The quality of the notes on the conical flute can never sound even. This seemingly limitation and flaw from our modern point of view is however favoured by the baroque music aesthetic of inequality. The baroque flute can sound pure, sacred and heavenly in one tonality, but complex, sensitive, earthy in another.

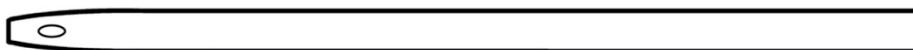
Renaissance flute
cylindrical



Baroque/classical/1832 Boehm/romantic flute
conical



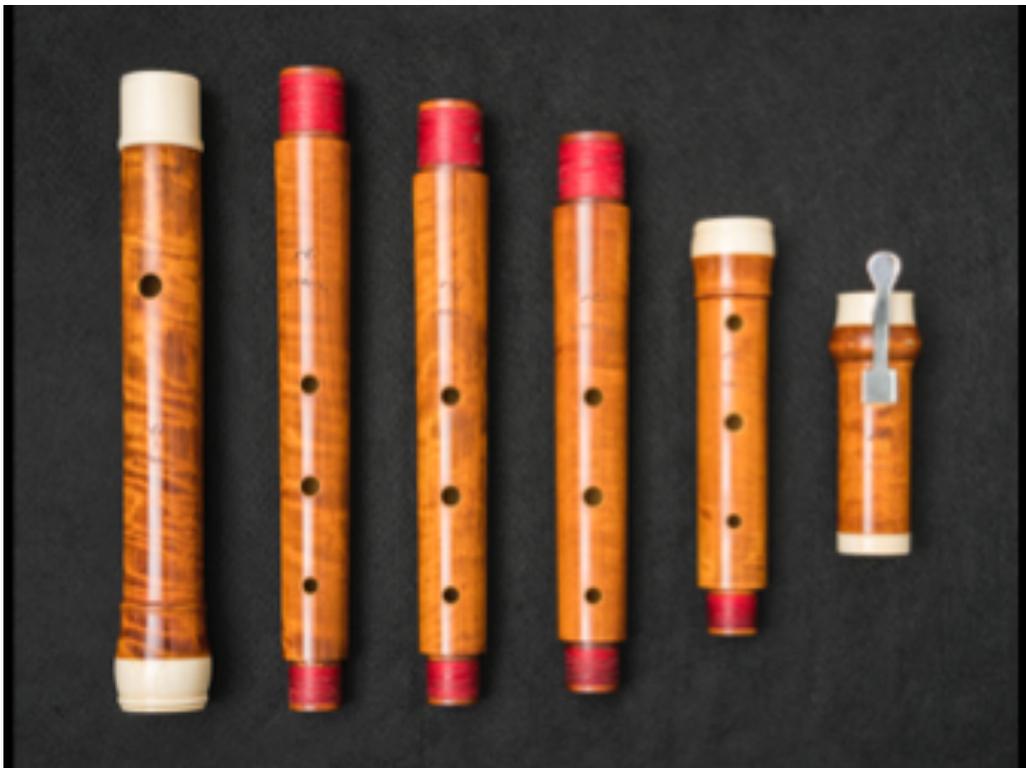
1847 Boehm flute
cylindrical



French family of musical instrument makers, the Hotteterres, were said to be the inventors of the first baroque flute. The most famous of them is Jacques-Martin Hotteterre (1674–1763), also known as “*Le Romain*”. As a flutist at the royal courts of Louis XIV and Louis XV, as well as a composer, teacher and instrument maker, he was well known throughout Europe. Not only did Hotteterre produce musical instruments and volumes of high-quality music, he also wrote the first teaching manual for the one-keyed flute - *Principes de la flûte traversière* in 1707 covering the basic knowledge of flute playing and French baroque performance practice. Having a great understanding of his instrument, Hotteterre expanded the tonal and musical boundary of the flute.

Like instrument makers, 18th-century wind players were expected to be adequate for all types of wind instruments. But since Hotteterre, a new generation of musicians specialising in the flute started to emerge, to name a few: Blavet, Buffardin and Quantz. They explored and expanded the possibilities of the 1-keyed flute even further. More composers became interested in writing for the flute. Flutists were soon in demand and started to travel between cities and countries to perform with different ensembles and

orchestras. However, each city had its own pitch level and a flute cannot switch pitch level easily like a string instrument. To overcome this problem for traveling flutists, flute makers came up with the solution of dividing the body of the flute further into two parts. The three-part flute (Head-Body-Foot) was then divided further into four parts (Head-Upper Body-Lower Body-Foot). By replacing only the upper body part with a longer or shorter one (*corps de rechange*), the flute can then alternate between different pitch levels within an acceptable range and at the lowest economical cost. This baroque flute in 4 parts became the norm in around 1730.



Baroque flute after Buffardin with 3 *corps de rechange* in 392, 402, 415Hz

The sensitivity, virtuosity, portability, accessibility and endorsement from powerful figures helped the flute to gain popularity among amateur musicians in Europe. One of the most influential amateur flutists is Frederick II, the Great (1712-1786), third King of Prussia. He employed and studied the flute with Quantz for more than 40 years. His famous love in the flute and taste in music has shaped the development of *Empfindsamkeit* style, in which the flute thrived; Another example of „*Nobile Dilletante*“ is Carl Theodor von der Pfalz (1724-

1799), whose love in flute, music and art attracted and gathered famous musicians and composers, including the young Mozart, all over Europe to his court orchestra in Mannheim. Together they established *The Mannheim School* music style, and set the foundation of classical orchestra and symphonic music.

The ever-growing flute amateur market around the mid-18th-century demanded not only more and better instruments, but also music, flute teachers, teaching manuals and methodical material. To name a few examples: Handel's flute Sonatas in his Op.1 (1732), Telemann's 12 solo Fantasias (1732/33) and Methodical Sonatas (1728 and 1732), Quantz's teaching manual "*On Playing the flute*" (1752), and even Mozart's Flute Quartets and Concertos can be viewed as products resulting from the amateur flutists market. Playing the flute was even considered indispensable to an English gentleman's education. English flute makers started to produce and develop their own instruments with characters different from those of their continental counterparts. This would later have prompted Theobald Boehm to re-invent the flute in the 19th-century.

During second half of 18th-century, Mozart's time, the "baroque" one-keyed flute was still the norm, although it had already evolved to favour the high register instead of the low. The development to sudden extreme changes in dynamics and expressions in music, as well as the ever-growing size of the orchestra around mid 18th-century triggered the second stage of flute development. Flutists were pushed to play higher, the weaker notes stronger, and in more foreign tonalities far away from D major. These challenges were solved by adding more new tone holes onto the flute, and covered them with keys. When the extra keys are not pressed, the flute functions just like a normal 1-keyed baroque flute. When one feels the need to play a weak note stronger, one can then uncover the designated tone hole by pressing the corresponding key. British flute makers, like Pietro Florio (c1730-1795), were said to be the

first to experiment with additional keys. By the time Ludwig van Beethoven (1770–1827) was a young man, three more keys (Bb, G#, F) had already been added to the flute, and by the time of his ninth symphony (1824), a flute would have at least six keys (C, Bb, G#, 2 for F, D#). The evolution of the flute was reflected in the more prominent and soloistic flute parts in symphonic music throughout the 19th-century.

In comparison to the modern flute, this type of conical flute with multiple keys is now known as keyed-flute or simple-system flute. However, one should not be misled by the name. The new tone holes make the notes easier to play, but, on the contrary, the key mechanism further complicates the fingering system.



8-Keyed flute after Grenser with 2 *corps de rechange*

With the support of the huge flute amateur market and competition among others, 19th-century flute makers and flutists around Europe continued to build the “perfect” flute which would allow them to express the most technically and musically. They experimented with different materials from crystal to ivory,

expansion of the range and the further addition of keys. The new tone holes also gave flutists even more possibilities for alternative fingerings and thus more choices of tone colors. But since the basic conical body construction is still the same as the baroque flute, quality of the notes are still uneven, which was however perceived and favoured as a big spectrum of sound colours, sweetness, and sensitivity. For the romantic musical minds, the simple-system flute has indispensable characteristics, which distinguished it from the other wind instruments, and has an essential role in orchestral music. But its role as a solo instrument was lessened throughout the 19th-century.



Keyed flute made by Stephan Koch in Wien, around 1815 (Private collection in Freiburg)

Some of the most famous simple-system flutists of the 19th-century included Louis-François-Philippe Drouet (1792-1873), a Dutch-born flutist, teacher of Louis Bonaparte, Napoléon's brother. He lived and worked in Europe and America, and was famous for his extraordinary fast fingers and double tongue, which earned him the title “Paganini of the flute”; Anton Bernhard Fürstenau (1792-1852), the most prominent exponent of German flutist and close friend of Carl Maria von Weber; Jean Louis Tulou (1786-1865), the best French flutist of his time, professor, official flute supplier at the Paris Conservatory and later an ardent opponent of the Boehm-flute; Charles Nicholson (1795-1837), who represented the British flute playing and was famous for his big sound, virtuosity and Adagio playing; and, last but not least, Theobald Boehm (1794-1881).



Keyed flute made by Theobald Boehm, around 1839 (Private collection in Freiburg)

Boehm started his music career as a gifted German simple-system flutist and maker. In 1831, he went on a concert tour to London and listened a concert given by Charles Nicholson, who played on an English type of flute with relatively big tone holes. Boehm was struck with the volume of Nicholson's sound. Determined to build an even louder but easier-to-play flute himself, Boehm went on to study acoustics at the University of Munich and invented a new type of flute in 1832. It is a conical flute that has large tone holes and an innovative new key mechanism – ring keys – which allows multiple keys to move together under one finger action. This mechanism greatly simplifies the fingering of the flute. This type of flute is now known as ring-keyed flute. With this new design, all tonalities became even and easily playable. Boehm was however still not satisfied with its sound volume. He realised tone holes were not the fundamental problem.



Ring-key flute made by Clair Godfroy, aîné in Paris, 1865 (Private collection in Freiburg)

In 1847 he invented a second type of flute - a metal flute with tone holes so large that normal fingertips cannot cover. In addition, Boehm's new flute has a cylindrical body. The cylindrical body and large tone holes gave the flute a bigger, brighter and more penetrating sound. All 12 notes can sound evenly loud. This 1847 design then stood the challenge of western music development for more than 170 years and is nowadays known as Boehm-flute or modern flute.

Boehm's vision of making a flute capable of producing all 12 notes evenly and loudly was too far ahead of his time. When the first ring-keyed flute came out in 1832, Wagner (1813-1883) and Liszt (1811-1886) were still in their early 20s and Brahms (1833-1897) was not yet born. Music was still comfortably grounded on tonalities (thus unevenness) for at least 50 more years. Boehm's contemporary flutists understood the potential of his new flutes, but they had little to no need of switching to and re-learning a new fingering system, which may potentially sabotage their already established careers. Flutists like Fürstenau and Drouet, however, did encourage their students to take up the new flutes.



Boehm flute made by Boehm & Mendler in München, around 1870 (Private collection in Freiburg)



Keyed flute made by H.F. Meyer in Hannover, around 1870

Late 19th-century is certainly the most dynamic and colorful period for flute development. Boehm's inventions inspired many new modifications on the simple-system flute. For more than half a century, these different types of simple-system flutes and the two types of Boehm-flutes coexisted, sometimes even in the same orchestra. The British adopted the Boehm-flute quickly due to their preference of big sound, but many also wanted to keep the old fingering system. This resulted in many types of hybrid flutes, like the Siccama, Clinton, and Radcliff system flutes. On the other hand, many of Boehm's conservative German colleagues strongly rejected his inventions due to their preference of sweeter sound and stayed faithful to their old flutes. For example, Wagner famously criticised the cylindrical Boehm-flute to be too loud and sounded like a "cannon". As a result, his flutist later switched back playing on a conical ring-keyed flute. Another strong opposition to the Boehm-flute came from Leipzig in the circle of Wilhelm Barge (1836–1925) and Maximilian Schwedler (1853–1940), both solo flutists of one of the leading orchestras of their time - Leipzig Gewandhaus Orchestra. Flutists and makers continued to make new developments and improvements to their simple-system conical flutes, and resulted in the Schwedler- and later Reformed-system flutes.

French were the first to fully adopt the cylindrical Boehm-flute. As early as 1839, a course on the conical ring-keyed flute had already been proposed at the Paris Conservatory. But due to the then flute professor and official flute supplier Tulou's strong objections, the course was not approved. Instead, Tulou responded to the Boehm-flute with his improved system – the *flûte perfectionnée*. However, after his retirement in 1860, the cylindrical Boehm-flute was immediately adopted. Through the conservatory's influence, flutists all over France quickly followed. Their conservative and centralized music authority system ironically made the adoption of a new instrument faster.



Boehm flute made by Vanotti in Milano, around 1920

The French Flute School then produced generations of excellent Boehm-flutists who later dominated teaching and solo flute positions all over the world. Their superior technique and evenness of the flute inspired and encouraged composers to write music confidently in a language that moved away from tonality in the late 19th-century. Slowly, younger German-speaking symphonic composers and conductors, such as Richard Strauss (1864-1949) and Gustav Mahler (1860-1911), also opted for the cylindrical Boehm-flute. After Claude Debussy's (1862-1918) prominent and sensitive use of the Boehm-flute in *Prélude à l'après-midi d'un faune* in 1894 — the beginning of modern music, as considered by Pierre Boulez (1925-2016), the Boehm-flute "brought new breath to the art of music". Given the development of complexity and atonality in music with a strong emphasis on the evenness of all 12 notes in the beginning of the 20th-century, the die-out of conical flutes became inevitable. Its development ended together with the death of its last advocate Maximilian Schwedler in 1940.