

THE CLARINET

Its History and Development



William Davis

Unlike the flute and oboe, the clarinet's beginning cannot be traced to early civilization. While it is a fact that the people living in the Nile region had a single reed chalumeau-like instrument around 2,700 B.C., and that the people of the British Isles had similar instruments called pibcorns or pipehorns, these folk instruments are not significant in music history.

The chalumeau, a forerunner of the clarinet, was found in central Europe from the 13th through 18th centuries. It was used in serious music, mainly for harmonic accompaniment or special sound effects. The chalumeau was about 12 inches in length, had seven or eight finger holes, and a range that was restricted to barely an octave. It was keyless, had no barrel or bell, and resembled the 17th century recorder. The instrument's coarse sound, limited range, and unreliable intonation may be among the reasons it was rarely given a prominent role in any musical ensemble.

The Beginning

In 1690 Johann Christoph Denner, a maker of flutes, oboes, and bassoons from Nuremberg, Germany, made improvements on the chalumeau. He increased the instrument's range by adding two keys, one opposite the other near the mouthpiece end, to produce A4 and B4. The result was the clarinet. The keys, operated by the left forefinger and thumb respectively, are one of the most important characteristics that set the clarinet apart from the chalumeau during this early stage of development.

An Early Clarinet



Illustrations by Sally Hagaman

One of the holes near this clarinet's mouthpiece functioned as the A key as well as a register key that made it possible for players to produce notes a 12th higher than the fundamental. This feature greatly extended the instrument's range. The clarinet's cylindrical bore functions as a stopped pipe that results in overblowing at the 12th. Other woodwinds are conical in bore shape and produce notes which overblow at the octave. The actual use of the clarinet and other single reed instruments was delayed because their reeds and mouthpieces were difficult to make and the acoustical properties of the instruments made them difficult to play.

Denner's son, Jacob, is believed to have added a third key, operated by the left hand little finger, which covered a hole toward the bell of the instrument. This key produced E3 in the low register and B4 a 12th higher. He is also credited with re-

ducing the size of the thumb-operated B key and moving it closer to the mouthpiece. This technical adjustment had the effect of producing B \flat (with the two top keys depressed) and B \sharp (with all tone holes covered and the low E key added). Through the advent of the third key and with cross fingerings, the clarinet was now capable of being played diatonically from E3 to C6.

During this period the reed on the early clarinets was not held in place against the mouthpiece with a ligature. Instead, it was tied to the mouthpiece with string and played according to the performer's preference or custom, with the reed either against the upper lip (which made articulation difficult) or against the lower lip. Because of the mouthpiece and reed's small size, the tones of these instruments were lighter and more penetrating than the clarinet today, and the timbre resembled that of an oboe. Also, using an inverted mouthpiece that placed the reed against the upper lip may have produced a shrill sound.

For about 50 years after Denner's modifications, the terms "clarinet" and "chalumeau" were used interchangeably and led to confusion in identifying the time when the clarinet became an established instrument. Evidence suggests that Reinhard Keiser and Giovanni Bonocini composed specific musical parts for the clarinet as early as 1710. Curt Sachs, however, states that although Denner produced a genuine clarinet, the instrument's name is not mentioned before the 1732 publication of Johann Gottfried Walther's *Musicalisches Lexicon*. According to H.W. Schwartz, the first undisputed reference to clarinets in a musical score was found in 1762, when Thomas Arne included clarinet in his *Artaxerxes*. J.C. Bach, Gluck, and Haydn composed for the early clarinet; but Mozart was the first eminent composer to write for it in quantity as well as quality. Recognizing the instrument's possibilities, he composed a divertimento for strings, horn, and clarinets in 1771 at the age of 15. Mozart continued to compose a number of major works for the clarinet during the final years of his life. These include the *Clarinet Trio* in E \flat (K. 498), *Clarinet Quintet* in A (K. 581), and the *Clarinet Concerto* in A (K. 622). Mozart did not compose his *Clarinet Concerto* for the standard five-key in-

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strument of the day. Instead, he composed the piece for the basset clarinet in A (not to be confused with the basset horn), developed by Anton Stadler. The basset clarinet extended the range of the standard instrument down a major third from written E3 (the lowest note on most clarinets) to written C3. Shortly before his death, Mozart re-wrote passages originally playable only on the basset clarinet to allow the piece to be performed on the five-key clarinet. This is the version that is popular today.

Beethoven was an enthusiastic exponent of the clarinet. His *Third Symphony*, written in 1803, contains many prominent passages for the instrument. From the turn of the 19th century, many major composers used clarinets as standard practice.

About the time the basset clarinet was making its presence known in the musical world, the basset horn (pitched in G or F) was gaining popularity with players and composers. Like the basset clarinet, the range of the basset horn extends a major third lower than the clarinet's. A player achieved the additional notes by manipulating levers with his right thumb. A bulky box in the instrument's midsection housed extra tubing to eliminate about 40 inches of length.

The Basset Horn



The basset horn is thought to have been developed by Anton and Michael Mayrhofer during the 1760s.

Mozart, the chief composer for the basset horn, used it in about 20 compositions including the *Serenade in B \flat* (K. 361/370a) and the *Requiem* (K. 626). Beethoven scored the instrument in his ballet *Prometheus*; and Mendelssohn wrote two trios for soprano clarinet, basset horn, and piano. Richard Strauss and Roger Sessions are among other composers who have written for the basset horn.

Technical improvements in the clarinet took place about the time Mozart was starting to write for it. Sometime before 1766 Berthold Fritz added the fourth and fifth keys, F \sharp /C \sharp and G \sharp /D \sharp . This five-keyed clarinet was the one used by Mozart, Haydn, and Beethoven in the late 18th and early 19th centuries.

Five-Keyed Clarinet



From about 1780, changes in the clarinet's construction allowed for more frequent use of the low, or chalumeau register, which up to that time had been avoided because of inherent intonation problems. Changes in bore dimensions (diameter, taper) and tone hole undercutting permitted the instrument's full range to be explored, as seen in the compositions of Karl Stamitz, Georg-Friedrich Fuchs, and Ernst Eichner. During the latter part of the 18th century, clarinets in different sizes and keys were produced to alleviate the problems of

playing in awkward tonalities. Some of the more prevalent instruments were made in the keys of C, D, B \flat , A, and E \flat .

A Better Idea

Although the early development of the clarinet took place in Germany, it was the French who carried out the next breakthrough in the clarinet's design. In 1810 Ivan Mueller, a Parisian virtuoso, demonstrated technical improvements with a 13-key clarinet that astonished the musical world.

Mueller's 13-Keyed Clarinet



Until this time, instrument makers had added keys and made a few technical improvements; but nothing could compare with Mueller's ingenious refinements. He redesigned the keys — they were sloped, vented, and padded — and added new ones. Before this change, air leakage and intonation problems resulted from leather or felt that were wrapped around solid material, usually brass. Mueller's newly added keys made some trills easier, and the elimination of awkward cross fingerings made other trills possible. Tone holes were countersunk, producing a secure leak-proof seating for the newly designed pads. Unfortunately, tone quality suffered because of additional holes drilled into the body of the instrument.

Mueller is also credited for developing the metal ligature to hold the reed to the mouthpiece as well as thinning and tapering the reed, making it more responsive to the players' demands. Mueller's clarinet was the impetus for other so-called "improved" models; they were merely variations on the basic Mueller design.

The Klosé-Böhm- Buffet Connection

With some sage advice from Theobald Böhm, the famous refiner of the flute, and August Buffet, a builder of fine woodwinds, Hayacinthe-Eléonore Klosé developed a clarinet that mechanically and acoustically surpassed any other system developed to that time. Its construction included fewer tone holes than Mueller's system, eliminating the instrument's deficient tone quality. Böhm suggested using his key ring invention, developed for the flute, on the clarinet. This complicated system allowed for the opening and closing of holes that could not be reached by the hand. With this mechanism, holes did not have to be small in size or positioned within finger reach. Vent holes, placed in acoustically correct locations, dramatically improved the overall intonation of the instrument. With these mechanical improvements, the clarinet could be played in all keys, with trills being much easier to execute.

1843 Clarinet With Key Rings



In 1843 August Buffet incorporated the ideas of Klosé and Böhm to build the instrument that re-

mains the standard design even today.

Around the turn of the 20th century, Oscar Oehler, a German clarinetist and instrument builder designed a clarinet worthy of mention. The Oehler system is used in a number of European countries, most notably Germany. It is a refinement of Mueller's system with changes in the shape and position of keys to improve a player's hand position and the addition of vent holes to improve intonation. Its mechanism, which is more complex than the Böhm system's, may have hindered the instrument's adoption outside of Germany.

The Oehler Clarinet



Other Clarinets

The most common of the soprano instruments, the E^b clarinet, is close in tonality and size to many of the clarinets constructed in the 18th century. This instrument is found mainly in military and concert bands, but it has been used by many prominent composers in symphonic and opera scores. Cherubini used the E^b clarinet in a number of his late 18th century operas, while Berlioz used it effectively in his *Symphonie Fantastique*. Richard Strauss, Stravinsky, Ravel, Elgar, and Schoenberg are among the late 19th and 20th-century composers who have used the instrument.

The history of the E^b alto clarinet is subject to much debate. It may have been fashioned after either a clarinet pitched in G, the clarinette d'Amour, or a variation of the basset horn; and Ivan Mueller is sometimes given credit for its invention around the turn of the 19th century. The mechanism of the modern day alto clarinet has finger holes that must be covered by plates because of their large size. A dual-function speaker key allows for the independent use of throat B^b and the register key. Today the alto clarinet is found almost exclusively in the concert band.

The B^b bass clarinet is pitched one octave below the B^b soprano clarinet. In most players' hands the useful range is restricted to little more than two and one half octaves; however, a good player can extend the range to that of the soprano clarinet.

The earliest bass clarinet was made in about 1750 by an unknown craftsman. It may have been built to replace the bassoon in the military band. Adolph Sax and Theobald Böhm refined the instrument about 1838. Toward the end of the 19th century, the bass clarinet found a permanent place in the symphony orchestra; and Mahler, Wagner, Schoenberg, Stravinsky, and Webern frequently wrote for it. The earliest bass clarinets were pitched in C, and later in B^b and A. Today, the B^b instrument is standard; finger holes are covered by plates and the dual speaker key is a standard feature.

The contrabass clarinet evolved through at least three distinct transformations leading up to today's modern instrument pitched in either B^b or E^b. The first contrabass clarinet, called the contre-basse guerrière was supposedly invented by

the goldsmith Dumas. There is no existing example of this 1808 invention and no information as to how it was used in performing groups.

Friedrich Wieprecht, a Prussian band leader, invented the bathyphon in 1839. Built to exact acoustical standards, this excellent instrument produced a good quality of sound and played in tune. Because it never gained much popularity, few were constructed.

Little is known about a third contrabass clarinet, the clarinette-bourdon, produced during the 19th century. Built by Adolph Sax, the instrument suffered the same fate as the contre-basse guerrière and the bathyphon.

After 1889, the contrabass clarinet took on the appearance of the modern day instrument. Makers were numerous and include Fontaine-Besson, Kohl, Heckel, and Huller. The modern instrument is used frequently in bands and has seen limited use in the orchestra. Some notables who have composed for the contrabass clarinet include d'Indy, Weingartner, Schoenberg, and R. Strauss.

Since the 1843 changes made by Hayacinthe-Eléonore Klosé, few major adjustments, mechanically or acoustically (with the exception of the Oehler system), have been made to the clarinet. In 1952 William Stubbins and Edward Kalmus made an adjustment in the function of the compromised register key. Since Denner's time this key served the dual purpose of assisting the player to overblow the twelfth as well as functioning as the key necessary to play a written B^b4. Because of the small diameter of the hole (in comparison to the other tone holes), the tone of the B^b is unfocused and fuzzy. The Stubbins/Kalmus design incorporates two holes, one acting as a register key, the other as a tone hole, to produce a clearer, more in-tune B^b. Unfortunately, this ingenious mechanism has not been widely used because of the difficulty in its manufacture.

The following bibliography includes literature on the clarinet, adjustment of reeds, playing techniques, biographies of outstanding players, and more detailed information on history and development of the clarinet. ■

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