

1a and 1b. Thirteen key clarinet from a fingering chart and Clarinet with movable rings (clarinette à anneaux mobiles) in H. KLOSÉ, *Méthode pour servir à l'enseignement de la clarinette à anneaux mobiles, et de celle à 13 clés*. Paris, Meissonnier, 1843, private collection.

# *The early history of the nineteenth century Boehm-system clarinet<sup>1</sup>*

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Much has been written about the Boehm-system clarinet. The purpose of this study is to add to the literature from little known material, newly published sources, and unpublished documents, specifically to define briefly the Boehm-system clarinet; discuss the construction of early ring key clarinets by Louis-Auguste Buffet; examine Buffet's 1843 clarinet patent; review Hyacinthe Klosé's 1843 letter to the Académie des Beaux-Arts of the Institut de France and the Académie's response in 1844; discuss Klosé's 1843 clarinet *Méthode* written for the Boehm-system clarinet; and list and describe early extant L. A. Buffet Boehm-system clarinets.<sup>2</sup>

## *Louis-Auguste Buffet's ring key clarinet*

What is a Boehm-system clarinet? It is a clarinet that uses large tone holes and ring keys initially designed by Theobald Boehm of Munich in 1831 for the flute providing better intonation and technical fluency in fingering. In Paris, this flute was made during the 1830s by the makers Louis Lot, Vincent Godfroy, and L. A. Buffet.<sup>3</sup>

Here are two engravings in Hyacinthe Klosé's clarinet *Méthode* (1843) from two fingering charts for a thirteen-key clarinet, a typical clarinet of the time, and a more advanced ring key clarinet (fig. 1a and 1b). A clarinet with ring keys could not be made simply by copying Boehm's key arrangement for the flute because of the different acoustical requirements of the clarinet. The instrument in figure 1a has six open holes on the front for the first three fingers of each hand, a thumb hole on the back, and a total of fourteen keys, actually thirteen keys with a duplicate key for f'/c". The instrument in figure 1b has one open hole for the left hand finger 3 (L3), two rings for the left hand, and three rings for the right hand. The ring keys are attached to a rod and pillar mechanism that close attached key heads on additional holes. In total, there are seventeen keys and six rings operated by L1, L2, R1, R2, R3, and a ring key for the thumb.

Comparing both clarinets, the ring key clarinet has a G# key placed at a position and angle that allows finger L1 to shift easily between the A and the register keys, one of the most awkward fingerings of the clarinet's compass (the shape and length of this key varies somewhat in the examples photographed). On the ring key clarinet, there are four keys on the right side (from the player's viewpoint) operated by R1; the thirteen-key clarinet has two keys operated by the same finger. A more important addition to the ring key clarinet is the use of duplicate keys for the notes operated by the little fingers of the left or right hands, or by alternating from one hand to

1. The author acknowledges and appreciates the corrections and suggestions from Denis Watel, Jean Jeltsch, William McBride, and Nophachai Chollhitchanta.

2. Recently, Eric Hoepflich wrote concisely and informatively on the Boehm clarinet and its history and development in an article and in his book. See Eric HOEPFLICH, "The origin of the Boehm-system clarinet," *The Clarinet*, 35/1 (Dec. 2007), p. 59-61; E. HOEPFLICH, *The Clarinet*, New Haven, Yale University Press, p. 171-175.

3. See Ardal POWELL, *The Flute*, New Haven, Yale University Press, 2002, p. 172-174; Tula GIANNINI, *Great Flute Makers*

*of France: The Lot and Godfroy Families, 1650-1900*, London, T. Bingham, 1993. p. 106-110.

the other. With L4, the player may choose the key touches marked 1, 2, and C, these touches operate key heads for f#/c#, e/b', and f/c". With R4, the player may choose touches marked B, A, or 3, these touches also operate key heads for f#/c#, e/b', and f/c". These keys enable fluency in all tonalities and provide smooth slurring in passages not possible on a thirteen-key clarinet. In addition, the ring key clarinet has a bridge or correspondence lever between the two joints on the right side, closing the second ring and satellite key with any ring key of the right hand, providing a good alternate fingering for eb' or bb". As we shall see, this ring key clarinet was an enormous improvement to the ordinary clarinet and almost immediately was called a Boehm-system clarinet.

The Parisian maker, Louis-Auguste Buffet (1789-1864), also known as Buffet *jeune*, is most well-known for his work on a ring key clarinet with the clarinetist Klosé, beginning in 1839. By 1845, Buffet's son, Auguste Buffet (1816-1884), joined the firm.<sup>4</sup> Buffet's earliest ring key clarinets were shrouded in mystery until recently. Important examples of early Buffet instruments are part of the 2007 Nicholas Shackleton gift to the University of Edinburgh Historic Musical Instrument Collection, and are in the collections of Denis Watel and Jean Jeltsch. They help to establish an outline of Buffet's development of clarinet ring keys, although there are only a few examples that survive from this early period.

At the 1839 Paris Exhibition, Buffet *jeune* "exhibited ordinary clarinets and flutes, a bass clarinet, Boehm flutes and piccolos, and a clarinet constructed after the same system that Mr. Boehm has not yet applied to the clarinet."<sup>5</sup> Buffet's clarinet was undoubtedly one of his earliest models based on Boehm's flutes. For his



Auguste Buffet, jeune, from a photograph taken in 1862.

2. Auguste BUFFET, jeune (1816-1884), engraving after a photograph taken in 1862, in Welch, *History of the Boehm Flute*, 2<sup>nd</sup> ed. (London, 1892; Reprint: New York, McGinnis & Marx, 1961), p. 42.

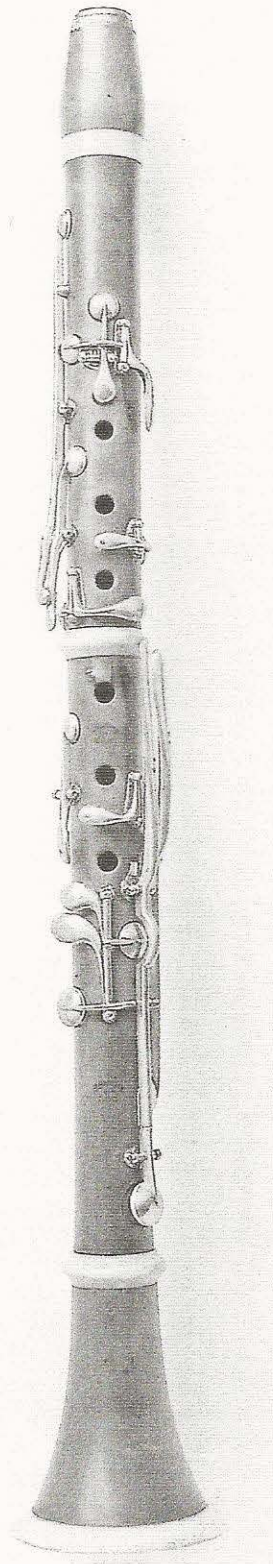
efforts, Buffet received a bronze medal; only three additional bronze medals for a variety of woodwinds were awarded to Tulou (Paris), Martin (La Couture), and Godefroy (Paris).<sup>6</sup> We don't have a depiction of L. A. Buffet but in his book, *History of the Boehm Flute*, Christopher Welch includes an engraving of a man identified as Auguste Buffet *jeune* from a photograph taken in 1862 (fig. 2). Because of the youthful appearance of this person he must have been L. A. Buffet's son, August Buffet, also called Buffet *jeune*. This Buffet *jeune* was very active in the construction of all types of woodwind instruments.<sup>7</sup>

4. Anthony BÉTHUNE and William MCBRIDE, "Buffet, Louis-August [*jeune*]," *Oxford Music Online*. See also, William MCBRIDE, *Histoire de l'entreprise Selmer, facteurs d'instruments, des origines au XX<sup>e</sup> siècle*, thèse de doctorat de l'École Pratique des Hautes Études, Paris, 2009, p. 162-163.

5. "Il expose des clarinettes et des flûtes ordinaires, une clarinette-basse, des flûtes et des petites flûtes dans le genre de celles de Boehm, et une clarinette construite d'après le même système, mais que M. Boehm n'avait pas cherché jusqu'ici à appliquer à la clarinette." Félix SAVART, "Instruments de musique," in *Rapport du jury central : Exposition des produits de l'industrie française en 1839*, Paris, L. Bouchard-Huzard, 1839, vol. 2, p. 365. Online version of this document is available: <http://cnum.cnam.fr/CGI/gpage.cgi?p1=365&p3=8XAE19.2%2F100%2F536%2F0%2F0>.

6. F. SAVART, "Instruments de musique," *op. cit.*, vol. 2, p. 364.

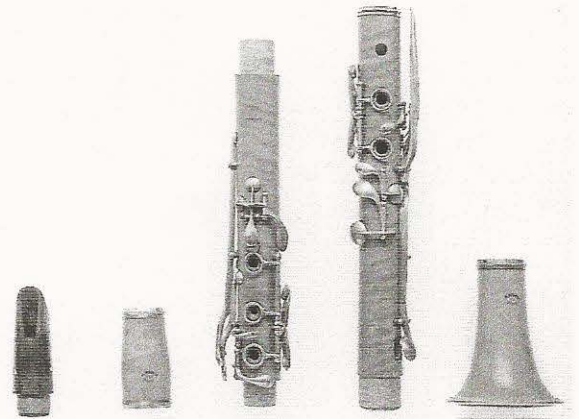
7. The engraving of Buffet's portrait appears in Christopher WELCH, *History of the Boehm Flute*, 2<sup>nd</sup> ed. (London, 1892; Reprint: New York, McGinnis & Marx, 1961, p. 42). In his search for early examples of ring key flutes, Welch wrote that he visited Louis Auguste Buffet in 1869 when he was 80 years old, although Buffet died in 1864 at the age of 65. Buffet told Welch that in 1826 he saw a clarinet with a ring key by François Lefèvre made for the clarinetist Blevé from Le Havre. Buffet



3. BUFFET jeune, clarinet in B $\flat$ , Edinburgh, University of Edinburgh, 4831.

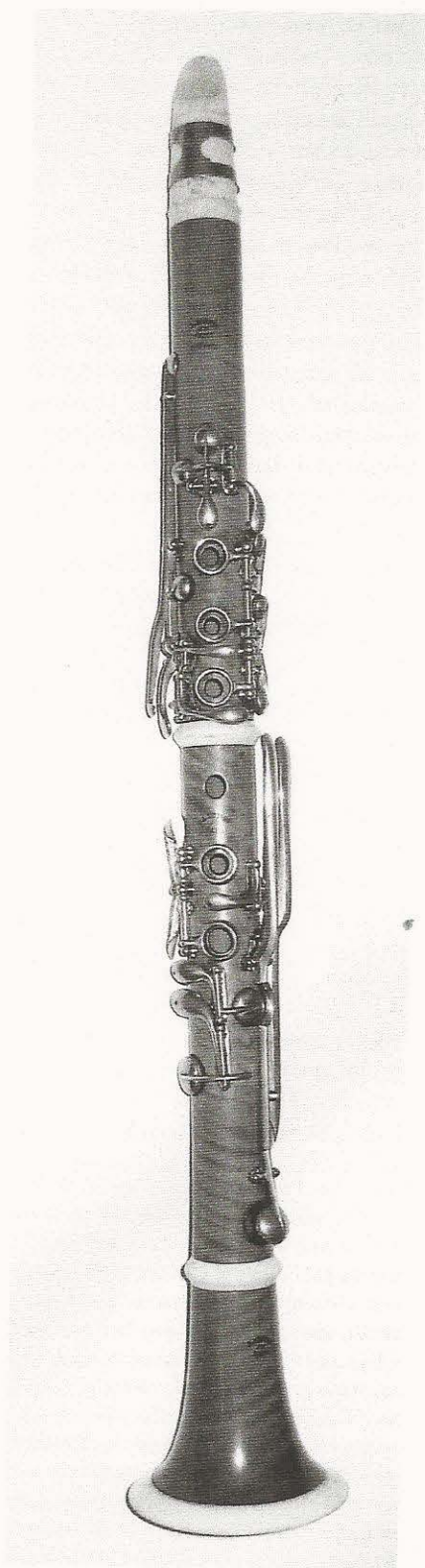
#### Early Buffet *jeune* clarinets

The first example to be discussed is an ordinary thirteen-key B $\flat$  clarinet by Buffet *jeune* (L. A. Buffet, senior) made about 1838 (fig. 3). Comparing this instrument to Klosé's thirteen-key clarinet, Buffet crosses the G $\sharp$  key over the A key rather than the A over the G $\sharp$  key as on the ordinary thirteen-key clarinet. Another unusual feature is the mounting of the ab/eb $^{\flat}$  and f/c $^{\flat}$  keys in a straight line between two pillars screwed into the body. They rotate on two rods and use needle springs to provide the proper tension on the key heads, previously used by Buffet on his Boehm-system flutes. This is an efficient and useful design for these two keys. The other keys are mounted on pillars screwed into the

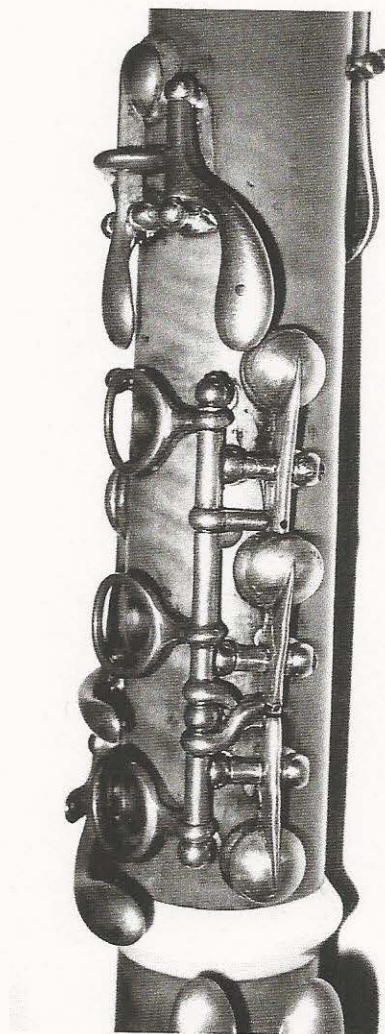


4. BUFFET jeune, clarinet in A, Edinburgh, University of Edinburgh, 4914.

was quite sure that Frédéric Berr (1794-1838) knew of this ring key since he and Berr subsequently corresponded about a clarinet with a ring key, but Berr did not adopt the instrument because he preferred the clarinet he was playing. Welch wrote to Blevé's son to find Blevé's instrument but he was unable to locate it. Unfortunately, a ring key clarinet by Lefèvre has not been found. C. WELCH, *History of the Boehm Flute*, 3<sup>rd</sup> ed., London, Rudall, Carte & Co., 1896, p. 44-45. Partially repeated by F. Geoffrey RENDALL, *The clarinet: some notes upon its history and construction*, London, E. Benn, 1971, p. 117, n. 4 and by Pamela WESTON, *Clarinet virtuosos of the past*, London, Hale, 1971, p. 65. In 1938, R. B. Charwin included Welch's information and a concise history of the clarinet, "Some notes on the history of the clarinet," *The Musical Progress and Mail*, p. 66; and "Historische Notizen über die Erfindung der Boehm-Klarinette," *Schweizerische Instrumentalmusik*, 27/16 (15 Aug. 1938).



5. BUFFET jeune, clarinet in A, Arnouville-Lès-Gonesse, Watel Collection.



6. BUFFET jeune, clarinet in A, left hand joint, Arnouville-Lès-Gonesse, Watel Collection.

body or soldered to oval plates screwed into the body.<sup>8</sup>

The second example by Buffet *jeune* is an A clarinet made of boxwood with brass keys and ferrules with a similar arrangement for the ab/eb" and f/c" keys, with two separate rods held between two pillars. It is the first ring key clarinet (fig. 4) and has twelve keys. Two pillars holding the three rings for the left hand joint are soldered to a brass strip. The rings revolve on rods and are held open with needle springs. L1 is connected to an open satellite key head under the A key and L2 and L3 have short linkages to two open cup-shaped key heads placed parallel to the rings on the left side. Two rings on the right hand joint revolve on a rod and are mounted on pillars soldered to a brass strip. They are connected to two open cup-shaped key heads on the right side.<sup>9</sup>

The third clarinet is slightly more advanced (fig. 5). It appears to date from about 1840 or perhaps was Buffet *jeune's* Boehm-system instrument exhibited in 1839. This A clarinet has a brown stained boxwood body with ivory ferrules, brass keys, and an ivory mouthpiece, a Buffet *jeune* stamp on the back of the mouthpiece, and a metal ligature. It lacks a separate barrel and has the same arrangement for the ab/eb" and f/c" keys with pillars soldered to a brass strip. The most unusual characteristics are three ring keys on the left hand joint soldered into the wood, that operate three open cup-shaped key heads mounted on the left side (fig. 6). As seen in the previous example, all three of the key heads on the left hand joint and the two on the right hand joint are approximately the same diameter. In Buffet's 1843 patent these

key heads were redesigned and mounted vertically as satellite keys attached to the rings.

### Buffet jeune's patent

On 15 December 1843, Buffet *jeune* applied for a French patent (no. 9759) approved on 19 February 1844 for five years. He describes the application of movable rings to the clarinet and oboe on six handwritten pages of explanation and a drawing of a clarinet and an oboe (fig. 7). Buffet *jeune* explains at the beginning of the text his reasons for creating these instruments and the difficulties encountered in constructing a new and accurate fingering system:

*The thirteen key clarinet first considered as perfect, was still not altogether satisfactory. Indeed, the original design of the finger holes on the clarinet, calculated according to the spaces between the fingers, used to produce defective intonation, and muffled, weak or overly loud sounds. The mechanism of the keys required sliding from one key to another in order to slur two notes. It created insufferable difficulties for fingering and impeded one from playing in all the keys easily. In short, the forked fingerings were creating a false effect because several notes had to be tuned with only one hole.*

*{Here, a paragraph is omitted concerning the oboe.} These are the difficulties that had to be surmounted, the inconveniences and defects that had to be corrected; this was my aim and it took me about five years to realize it. What sacrifices did I not make, how many experiments resulting in defective instruments did I not attempt? But, fortunately success rewarded me for my trouble, and at last I could apply movable rings to clarinets and oboes. I could apply rings to clarinets and oboes, and apply these in such a way as to produce an instrument that is in tune and more perfect than the old one; actually to recreate an instrument.*

*Indeed, the application of rings to clarinets and oboes can be seen as the final solution to a problem, the unknown factor being how to apply them to make a perfect instrument. For before making an instrument such as the ones described, I naturally applied the movable rings but I had to start over many times before finding the best way to use them. One will easily understand that since the slightest detail such as a badly placed or badly bored hole affects perfection and intonation; the goal was only reached when the instrument was judged favorably by the masters. This invention does not consist only of the addition of rings but also of the manner and orderliness of the design, since a small change is enough to create an instrument*

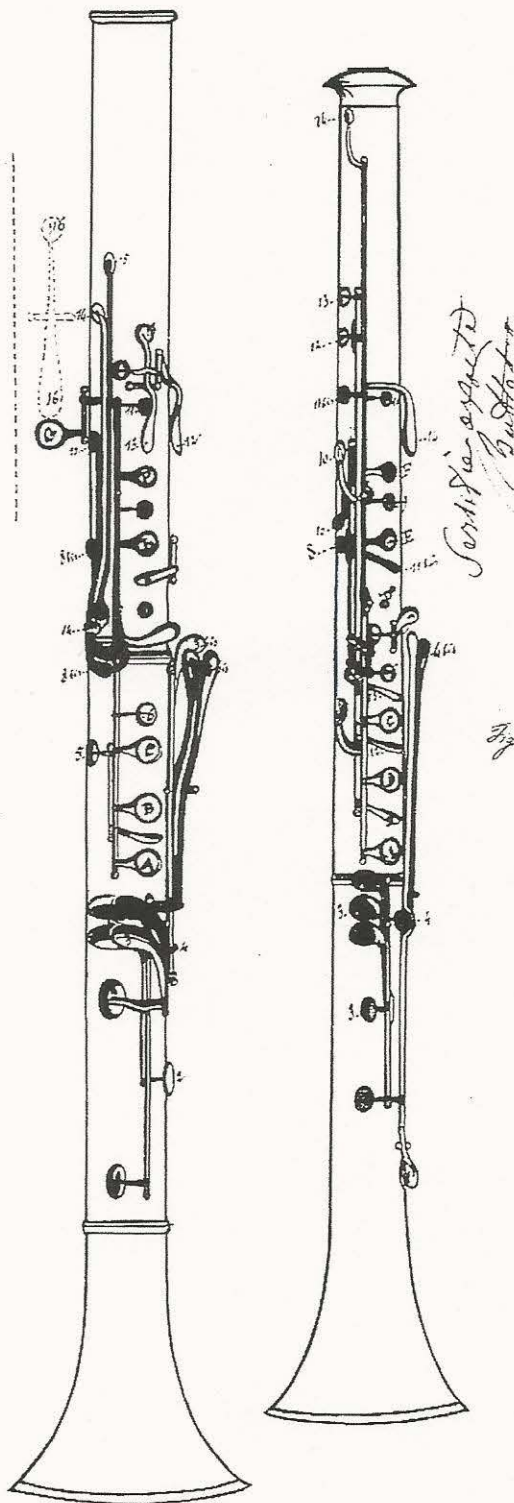
8. Heike FRICKE (ed.), *Historic Musical Instruments in the Edinburgh University Collection: catalogue of the Sir Nicholas Shackleton Collection*, Edinburgh, Edinburgh University Collection of Historic Musical Instruments, 2007, p. 284, no. 4831. A slightly later twelve-key C clarinet made of boxwood with ivory ferrules is stamped "BUFFET / A PARIS," but very likely was made about 1840 by Jean Louis Buffet before he married Zoé Crampon. It includes two rings for R2 and R3 re-using the existing thirteenth key head for B/F#. See the photo and description in H. FRICKE, *Historic Musical Instruments...*, *Shackleton Collection, op. cit.*, p. 139, no. 5008.

9. H. FRICKE, *Historic Musical Instruments...*, *Shackleton Collection, op. cit.*, p. 614, no. 4914. Fricke suggests that these innovative cups may have been the inspiration for Benedikt Pentenrieder's 1840 clarinet design with crescent keys.

*that is superior to the old one, but it would still be inferior to mine.*<sup>10</sup>

As Hoepfich notes, Buffet *jeune* made use of pillars screwed directly into the body of the clarinet and used needle springs attached under the ring keys to facilitate a smooth movement. The earliest Buffet *jeune* ring key clarinets include salt spoon key heads; later in the nineteenth century, he used key heads with angled sides and flat pads. These clarinets also have a single axle for mounting the three long keys for the left little finger, and four short finger levers for R4.<sup>11</sup> Buffet's clarinet remained almost entirely unchanged during the nineteenth and twentieth centuries.<sup>12</sup>

Hyacinthe Éléonore Klosé (1808-1880) was a clarinetist in army bands, a band master, composer, and a clarinet student of Frédéric Berr (1794-1838) at the Paris Conservatory. After Berr's death Klosé replaced him as professor of clarinet on 1 January 1839, he taught until 1868. He was known for his beautiful tone and fine phrasing, and performed as first clarinetist in the orchestra of the Gymnase Musical, and from 1841 at the Théâtre Italien.<sup>13</sup>



7. BUFFET jeune, French patent no. 9759, 2 February 1844.

10. See the Appendix 1: Auguste, jeune BUFFET, "Pour l'application des anneaux mobiles aux clarinettes et hautbois," French patent no. 9759 (2 Feb. 1844), transcription of text by Robert HOWE in "The Boehm System Oboe and its Role in the Development of the Modern Oboe," p. 54-55. Compare with the English translations by R. HOWE, *ibid.*, p. 52-53 and by E. HOEPFICH, "The origin of the Boehm-system clarinet," *op. cit.*, p. 59-60.

11. E. HOEPFICH, "The Origin of the Boehm-System Clarinet," *op. cit.*, p. 66.

12. From 1950, improvement in tone production was achieved by the introduction of a polycylindrical bore, i.e., three successively reducing cylinders in the left hand joint, by Robert Carrée of the Buffet-Crampon firm. See O. Lee GIBSON, *Clarinet Acoustics*, Bloomington, Indiana University Press, 1994, p. 36-39.

13. François Joseph FÉTIS, *Biographie Universelle des musiciens et bibliographie générale de la musique*, Paris, Firmin-Didot, 1866-1868, vol. 5., p. 59; Constant PIERRE, *Le conservatoire national de musique et de déclamation : documents historiques et administratifs*, Paris, Imprimerie Nationale, 1900, p. 447; P. WESTON, *More clarinet virtuosos of the past*, London, The Author, 1977, p. 140-141; P. WESTON, *Yesterday's Clarinetists : a sequel*, London, The Panda Group, 2002, p. 88-89; Jean-Noël CRÉOCQ, "La tradition de l'école française de clarinette," in *Le Conservatoire de Paris : deux cents ans de pédagogie. 1795-1995*, A. BONGRAIN, A. POIRIER, M.-H. COUDROY-SAGHAÏ (ed.), Paris, Buchet-Chastel, 1999, p. 155-164.

Klosé collaborated with Buffet and encouraged him over several years to produce a new ring key clarinet based on Boehm's flute designs.<sup>14</sup> Klosé wrote about why the ring key clarinet was developed and his part in its development in the introduction to his important 1843 clarinet method book.

*The {thirteen key} instrument was, however, far from having attained all the perfection of which it was susceptible, from its invention the clarinet had been pierced according to the natural separation of the fingers. This resulted in a faulty tone; the notes being frequently dull, feeble or too shrill, the mechanism of the keys caused insurmountable difficulties of fingering, making it impossible to play the clarinet in all the different keys (scales); and hence arose the necessity, as onerous as it was troublesome, for 3 clarinets, the C, Bb and A.*

*When I succeeded Berr at the Royal Conservatory of Music (being anxious to fulfill conscientiously the laborious functions confided to me, and desiring to secure for the clarinet the rank it deserved by the beauty of its tone and its two-fold value as a solo and an accompanying instrument) I endeavored to get rid entirely of the faults I have just mentioned. I labored long at this — after numerous trials the movable rings appeared to me to solve, in an efficacious manner, the problem whose solution I had searched for during many years. It is to Mr. August Buffet Jun., who seized and interpreted my ideas with a rare happiness that I owe the instrument I now present to artists and amateurs.*

*This instrument reunites with an equality as perfect as possible in all its compass, a very superior purity of tone and the facility of a more correct fingering, enabling the performer to play in all the keys indiscriminately. With very few exceptions the fingering is the same as hitherto in use; the only important changes are those for the forked notes which were always defective and which I have entirely got rid of. There is therefore no new study to undergo — a few days' practice will suffice to make one familiar with the instrument. I have had no intention of making a new instrument; I have desired, in preserving for the clarinet all its old advantages, to bring forth those of which it was capable; that is to say, the regularity of the sounds, and the faculty of playing in all the keys on one instrument.<sup>15</sup>*

14. See F. G. RENDALL, *The clarinet...*, op. cit., p. 97; E. HOEPRICH, *The Clarinet*, op. cit., p. 171-172.

15. See Appendix 2: Hyacinthe KLOSÉ, *Méthode pour servir à l'enseignement de la clarinette à anneaux mobiles, et de celle à 13 clés*,

Klosé notes on this page that those clarinetists still playing the thirteen-key clarinet could also use his method book, and that they would profit from studying it. Based on the texts of Buffet's patent and Klosé's *Méthode*, it seems certain that between 1839 and 1843 Buffet and Klosé worked together to develop a ring key clarinet. Slowly, Buffet's ring key clarinet gained in popularity at the same time as the Boehm system flute.

### *Klosé's 1843 letter and response by the Académie des Beaux-Arts*

On 6 November 1843, Hyacinthe Klosé, clarinet professor at the Conservatory in Paris, wrote to Michel Carafa, minister of the Académie des Beaux-Arts of the Institut de France: "I have adopted to a clarinet, part of the Boehm-system (of movable rings) which makes it entirely perfected in tuning, with easy fingering, and permits one to play in all tonalities. I have the honor to present to your Excellence for submission to an examination by the music section of the Institute a clarinet with movable rings that I have adopted in my classes of the Conservatory and the Gymnase musical militaire."<sup>16</sup> This letter is the earliest evidence for the term Boehm system in relation to Buffet *jeune's* clarinet and establishes the earliest date for teaching the Boehm-system clarinet.

The Académie's report dated 13 April 1844 was extremely favorable:

*Sirs, Minister of the interior; according to his letter dated 21 November the Academy examined a clarinet with movable rings perfected by Mr. Klosé. The music section has the honor to present for consideration the report that it made after having scrupulously and attentively observed the improvements made to the*

Paris, Meissonnier, 1843, Introduction, p. 1. English trans. by P. Clayton in Hyacinthe KLOSÉ, *Complete method for the clarinet as used in the Paris conservatoire adapted for the ordinary clarinet as well as those on the Albert and Boehm Principles*, trans., P. Clayton, London, Hawkes and Co., 1874, p. 1.

16. "J'ai adopté à la clarinette une partie du Système Bœhm, (ou anneaux mobiles) qui joint à d'autres perfectionnements, rend l'instrument plus juste, d'un doigté plus facile, et permet de la jouer dans tous les tons. J'ai l'honneur de prier Votre excellence de vouloir bien faire soumettre à l'examen de la section de musique de l'Institut la Clarinette à anneaux mobiles qui est déjà adoptée dans mes classes, du Conservatoire et du Gymnase musical militaire. Paris ce 6 novembre 1843 {KLOSE}." The author thanks Jean Jeltsch for a transcription of this letter.



clarinet by Mr. Klosé, professor at the Conservatory, and the *Gymnase musical militaire*, and one of their most distinguished instrumentalists. The system of movable rings applied to the clarinet by Mr. Klosé is the same as that of Mr. Buffet Jr. under the direction of Mr. Coche, Professor of flute at the Conservatory; that has adopted this instrument and on which a report was favorably reported by the Academy on 24 March 1838: {that was borrowed in part from the flute invented in 1831 by Mr. Theobald Boehm at Munich and that} Mr. Klosé has used, exhibits important improvements to the clarinet. The advantages obtained are: improved sound quality that is more in tune and more balanced; a suppression of forked fingerings providing better facility for arpeggios and repetition; and finally, ease in playing on three clarinets (C, Bb, and A) in all the sharp and flat tonalities without a loss of timbre. Composers will not be preoccupied with frequent changes of instruments that players are now obliged to make in current works. Mr. Klosé is already one of our most distinguished instrumentalists and our professor. He teaches many students of incontestable merit and is a self-made person, thanks to his constant study to make immense progress on an instrument that requires much to be desired, above all its equal production of tone, considered as progress in musical art. The music sections wishes the Academy to know it is honored to report its approval. Paris, 6 April 1844 {Michel Carafa}.<sup>17</sup>

These are persuasive arguments in support of the Boehm system clarinet.

### Klosé's clarinet Méthode

Klosé's clarinet tutor is called *Méthode pour servir à l'enseignement de la clarinette à anneaux mobiles, et de celle à 13 clés* (Method as used in the Paris Conservatoire for the clarinet with movable rings and those with thirteen keys). It has 189 pages of a carefully graded series of studies with an accompanying text including fingering charts for a thirteen-key clarinet, and for a clarinet with rings, now known as the Boehm-system clarinet. It is the most important tutor of the nineteenth century due to the immense popularity of this type of clarinet during the late nineteenth and early twentieth centuries. A copy

17. See Appendix 3: "Rapport fait par la section de musique à l'Académie des Beaux-Arts de l'Institut de France, sur la clarinette présentée par M. KLOSE," 5E32.

in the Bibliothèque nationale de France in Paris is stamped in red with the date 1843 and the copy is marked in pen "Dépôt 1843."<sup>18</sup> The earliest review is by Alexis Azevedo on 23 June 1844 in *La France Musicale* and shows how the new clarinet was accepted.<sup>19</sup>

Azevedo writes in a very supportive tone about Klosé's method and his careful approach to clarinet technique; he quotes Carafa's report by the Académie des Beaux-Arts in April. He also notes Klosé's remarks in his tutor that with rare exceptions the fingering remains the same on the ring key clarinet as on the old clarinet, the only difference being that the forked notes have been eliminated. Klosé mentions that he had no intention of making a new clarinet but only wanted to improve the existing instrument. Azevedo concludes that the method by Klosé appears to be an excellent study for its clear definitions, the order of its material, and good composition examples with many exercises of great merit. He felt that all of these characteristics assure the book's prompt and durable success.<sup>20</sup> We can conclude that both Buffet *jeune* and Klosé should be given credit for the invention of the Boehm-system clarinet, although each of them wrote as if they were solely responsible for this clarinet.

### Extant early Boehm system clarinets

The earliest Boehm system clarinets were made by Buffet *jeune* beginning in late 1843 or early 1844 without a separate barrel, as sketched in Buffet's patent. In comparison to modern instruments, they have short keys for the right hand little finger and

18. Bibliothèque nationale de France, Ch. 68; other early printings by Meissonnier in Paris are in the Albert I<sup>er</sup> Bibliothèque, Brussels, Litt. DD 9054 and The Bate collection, University of Oxford, Oba Kl. 4. English editions appeared in 1874 by E. Gérard and Co. in Paris and Hawkes and Co. in London; and in 1898 by Carl Fischer in New York. Klosé's *Méthode* was republished by numerous French publishers during the nineteenth and twentieth centuries.

19. *La France Musicale*, 23 June 1844: p. 197. The publication of Klosé's *Méthode* was also noted in Germany in the *AMZ* 46, 41 (Oct. 1844): p. 688.

20. "Au résumé, la méthode de M. Klosé nous paraît être un excellent ouvrage d'enseignement, à qui la clarté des définitions, l'ordre des matières et la bonne composition des exemples, dans lesquels nous avons remarqué des traits du plus grand mérite, assurent un succès prompt et durable." Alexis AZEVEDO, "Méthode de clarinette," *La France Musicale*, 17/25, 23 June 1844, p. 198.

salt spoon key heads that are more arched than modern key heads. The following is a brief checklist of examples known to the author.

Pitch	Body, keys and ferrules	Stamp	Museum or Collection
A♭	Cocus, German silver	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Edinburgh, University of Edinburgh, 77 <sup>22</sup>
E♭	Boxwood, Brass	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	London, Horniman Museum, 23.362/14 <sup>23</sup>
C	Boxwood, Brass	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Oxford, Bate Collection, University of Oxford, 462 <sup>24</sup>
B♭	African black wood, German silver	A. BUFFET/J <sup>ne</sup> /PARIS/BREVETÉ	Fayetteville, Arkansas, USA, Cholitchanta Collection
A	Boxwood (stained), Brass	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Munich, Stadtmuseum, 67-47 <sup>25</sup>

Table 1. Buffet clarinets according to the 1844 patent.

By the mid-1840s, Buffet *jeune* offered Boehm-system clarinets with a separate barrel, resumably for more flexible tuning. Examples include the following:

Pitch	Body, Keys, Ferrules	Stamp	Museum or Collection
E♭	African black wood, German silver (bell missing)	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Paris, musée de la Musique, E. 0643 <sup>26</sup>
C	Boxwood, Brass	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Edinburgh, University of Edinburgh, 4725 <sup>27</sup>
B♭	African black wood, German silver	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Edinburgh, University of Edinburgh, 4842 <sup>28</sup>
B♭	African black wood, German silver	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Castelnau-Montratrier, France, Bouquet-Moir Collectio <sup>29</sup>
B♭	African black wood, Brass	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Vermillion, South Dakota, USA, National Music Museum, 1853 <sup>30</sup>
B♭	African black wood, Brass	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Paris, musée de la Musique, E. 1672 <sup>31</sup>
A	African black wood, German silver	A. BUFFET/J <sup>ne</sup> /PARIS/BREVETÉ	Fayetteville, Arkansas, USA, Cholitchanta Collection (fig. 8) <sup>32</sup>
F alto	Boxwood, Brass, plateau keys R1, R2, R3, without bell ring	A. BUFFET/J <sup>ne</sup> /PARIS/BRÉVETÉ	Oxford, Pitt Rivers Museum, 1962.2.6 (fig. 9) <sup>33</sup>

Table 2. Early Buffet clarinets with a separate barrel.

A good and typical example of an A clarinet by Buffet *jeune* is in the Cholhitchanta collection (fig. 8). It is made of African black wood with German silver (maillechort) keys and ferrules and dates from the 1850s.<sup>32</sup> A rare, boxwood Buffet *jeune* alto clarinet in Oxford (Pitt Rivers Museum, fig. 9, ca. 1850) is made of boxwood, and has the usual Boehm keywork with plateau keys on the

21. I would appreciate knowing of further examples at arrice@rocketmail.com.

22. For a description, see H. FRICKE (ed.), *Historic musical instruments in the Edinburgh University Collection: Catalogue of the Edinburgh University Collection of Historic Musical Instruments, Vol. 2 Part F Fascile i: Clarinets*, 2nd ed., Edinburgh, Edinburgh University Collection of Historic Musical Instruments, 2005, p. 14; photograph in Arnold MYERS, *Catalogue of the Edinburgh University Collection of Historic Musical Instruments. Vol. 1: The illustrations*, Edinburgh, Edinburgh University Collection of Historic Instruments, 1990, p. 89.

23. For a description and photograph see E. A. K. RIDLEY, *Wind Instruments of European Art Music*, London, Horniman Museum, 1974, pl. 10, no. 50.

24. For a description see Anthony BAINES, *The Bate Collection of Historical Wind Instruments*, Oxford, The Bate Collection, 1976, p. 38; photo in Jeremy MONTAGU, *The world of romantic & modern musical instruments*, Woodstock, New York, The Overlook Press, 1981, p. 63, pl. 44 and Philipp T. YOUNG, *The Look of Music: rare musical instruments 1500-1900*, Vancouver, Vancouver museums & Planetarium association, 1980, p. 197, where the maker is incorrectly identified as Auger Buffet *jeune*.

25. For a description and photograph see Manfred Hermann SCHMID, *Theobald Boehm 1794-1881: die Revolution der Flöte: Katalog der Ausstellung zum 100. Todestag von Boehm: Musikinstrumentenmuseum im Münchner Stadtmuseum*, Tutzing, Schneider, 1981, p. 182; p. 184-185.

26. For a description and photograph see the musée de la Musique website, <http://www.cite-musique.fr/francais/accueil.html>.

27. For a description and photograph see H. FRICKE, *Historic Musical Instruments...*, *Shackleton Collection, op. cit.*, p. 177.

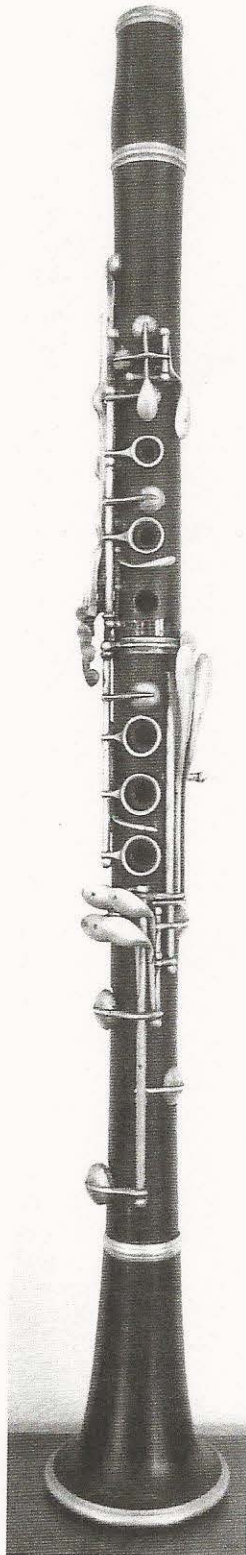
28. For a description and photograph see H. FRICKE, *ibid.*, *Shackleton Collection*, p. 462.

29. Previously this clarinet was on loan to the Kenneth G. Fiske Museum of the Claremont Colleges, California where the author was the curator.

30. The author thanks Deborah Reeves for information and a photo.

31. For a description and photograph see the musée de la Musique website <http://www.cite-musique.fr/francais/accueil.html>.

32. The author thanks Nophachai Cholhichanta for sending a photograph and information.



8. BUFFET jeune, A clarinet, Boehm-system, Fayetteville, Arkansas (USA), Cholirchanta Collection.

right hand to make it easier to cover the large tone holes. It is also lacking a brass ring at the end of the bell as found on some clarinets.

One interesting Bb clarinet by Buffet *jeune* in the Jeltsch collection is not a Boehm-system clarinet (fig. 10) but makes use of ring keys. It was made after the patent date about 1849 since it is stamped "Brevetée" on the top of the left hand joint, referring to the ring keys. It includes twelve keys and four rings on the front, two for L2 and L3 with an unusual but attractive design, and two ring keys for R1 and R2 (fig. 11). It does not have a bridge key although the brass, upper part of the right hand tenon has a wide brass ferrule and may have been rebuilt. There are two keys for R1 and two keys for L4 as found on Klosé's ordinary clarinet, and the right hand joint is similar to many mid nineteenth century thirteen- or fourteen-key clarinets with the shape and arrangement of the A $\flat$ /E $\flat$  and F/C keys for R1. It may have been experimental or made for export.

Several makers copied Buffet's design after the expiration of the patent in 1849. These include: Buffet-Crampon,<sup>33</sup> after 1853 by Gentellet-Prestreau,<sup>34</sup> after 1855 by Tournier & Goumas,<sup>35</sup> and after 1859 by Buffet-Crampon & Cie.<sup>36</sup> Its

33. An E $\flat$  clarinet by Buffet-Crampon adopts the five rings and a slightly different placement Buffet *jeune's* satellite keys, but includes the early mounting of the A $\flat$  and F/C keys in a straight line, one above the other (musée de la Musique, E. 472, see [www.citedelamusique.fr](http://www.citedelamusique.fr)). A B $\flat$  clarinet by Buffet-Crampon is in the Collection Buffet-Crampon, Mantes-la-Ville is thought to be the earliest ring key made by this firm in about 1850. See Jean-Marc FESSARD, *L'évolution de la clarinette*, Paris, Delatour, 2006, p. 50, p. 102. An A clarinet by Buffet-Crampon is in the private collection of Nophachai Cholhitchanta, see: [www.uark.edu/ua/nc/NCCollectionPage/Page/BufferStainedBoxwoodinA.htm](http://www.uark.edu/ua/nc/NCCollectionPage/Page/BufferStainedBoxwoodinA.htm)

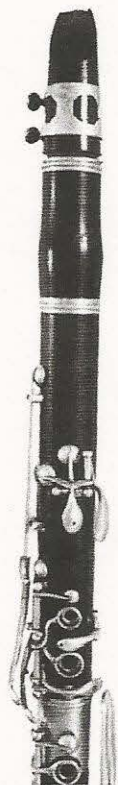
34. In C (5093), H. FRICKE, *Historic Musical Instruments...*, *Shackleton Collection*, *op. cit.*, p. 178.

35. In E $\flat$  and blackwood body, Watel Collection, Arnouville-Lès-Gonesse, France, see <http://clariboles-et-cie.blogspot.com/search/label/Brevets%2FPatents>; in E $\flat$  and stained boxwood body, Rousellet Collection, Estissac, France.

36. Examples are at the University of Edinburgh: in C (4854); in B $\flat$  (5194); and in B $\flat$  (4884); see H. FRICKE, *Historic Musical Instruments...*, *Shackleton Collection*, *op. cit.*, p. 179, p. 465, p. 466; and in C in the private collection of Xavier Sallaberry; see Georges and Xavier SALLABERRY, "Catalogue de la collection d'instruments de musique à vent," *Lavigot*, no. spécial XIV



9. BUFFET jeune, F alto clarinet, Oxford, Pitt Rivers Museum, 1963.2.6.



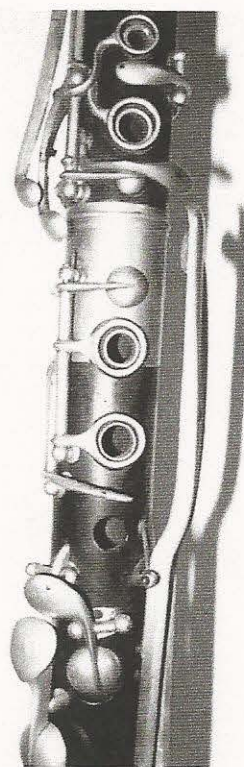
10. BUFFET jeune, B♭ clarinet, 12 keys, 4 rings, Gruson, Jeltsch Collection.

acceptance in France was initially encouraged by Klosé's teaching of the instrument at the Paris Conservatory in 1844. All the students were also engaged as clarinetists in military bands. Beginning in 1849, the first prize (premier prix) for the winners of the Conservatory competitions was a Boehm-system clarinet. The clarinet was awarded to Alfred Fidèle Honoré Lagny (1825-1870s) and he is shown in an engraving preserved in the archives of the Paris Conservatory (fig. 12).<sup>37</sup> Another famous winner of the first prize was Frédéric

(March 2003), p. 96-97; Jacques COOLS, "Essai de classification alphabétique des facteurs, ouvriers, inventeurs, marchands Belges d'instruments de musique à vent," *Larigot Spécial VIII* (December 1997).

37. Arch. nat., série AJ<sup>37</sup>. The author thanks Jean Jeltsch for sending the engraving of Lagny from the collection at the Paris Conservatory. The Boehm-system keywork can be seen. For Lagny, see, C. PIERRE, *Le conservatoire national de musique...*, *op. cit.*, p. 786.

Selmer in 1852. His Boehm-system clarinet made by Buffet *jeune* is preserved in the Selmer Archives and includes a silver oval plate marked: "1<sup>st</sup> Prize of Honor awarded to the student Frédéric Selmer of the 26<sup>th</sup> Line {band}, 1852."<sup>38</sup> Other instruments that incorporate modified ring keys similar to the Boehm-system clarinet include Buffet-Crampon and F. J. Gyssens' French patent of 1846 (no. 4429), and Simon Lefèvre's fifteen year French patent of 1846 (no. 3186).<sup>39</sup>



11. BUFFET jeune, B♭ clarinet, detail of 4 rings, Gruson, Jeltsch Collection.

38. "1<sup>er</sup> PRIX D'HONNEUR / décerné à l'Élève SELMER Frédéric / du 26<sup>e</sup> de Ligne / 1852." William MCBRIDE, *Histoire de l'entreprise Selmer...*, thèse de doctorat, *op. cit.*, p. 162-169. The author thanks William McBride for informing him of this clarinet.

39. The author thanks Denis Watel for sending photos of his Buffet-Crampon and Gyssens clarinet and a copy of the illustration from the Buffet-Crampon and Gyssens, 1846 patent, <http://clariboles-et-cie.blogspot.com/search/label/GYSSENS>; N. Noble VANCE, *Historical Development of the Clarinet*, Rock Island, Illinois, The Author, 1973, p. 44-49.



12. "[Alfred Fidèle Honoré] LAGNY. Lauréat du concours de 1849. Élève de M. Klose, professeur au Conservatoire," engraving, Paris, Archives nationales, AJ<sup>57</sup>.

The Boehm-system clarinet arrived quite early in London and was offered as "*Clarionets entirely on Boehm System, made to order*" by Rudall, Rose & Carte in their price list of 1855.<sup>40</sup> In his general book for English bandsmen published in 1857, Tamplini included two clarinet fingering charts on one page, for the "ordinary clarinet" with 12 keys and two rings on the right hand joint, and for the "new system" (Boehm-system) clarinet.<sup>41</sup> However, without a champion of the Boehm-system clarinet like Klosé, the adoption of this instrument was delayed in England. In addition,

40. Reprinted in Robert BIGIO, *Rudall, Rose & Carte: The Art of the Flute in Britain*, London, T. Bingham, 2011, p. 284.

41. Giuseppe TAMPLINI, *The Bandsman: A Course of Instruction for Military Musical Instruments*, London, Key, Rudall, Rose, Carte and Co., 1857, p. 1857.

Boehm-system clarinets cost much more than the ordinary clarinet, and the typical bandsman was warned not to use them by S. C. Griffiths, Director of Music at the Royal Military School at Kneller Hall in his well-known manual, *The Military Band* of 1893. Here he stated that "*Few bands use the latter (reed instruments made on the Boehm principle) as their delicate workmanship is a serious impediment to their being employed, because military instruments have to be used in almost all weathers and climates.*"<sup>42</sup>

In Germany, Georg Ottensteiner of Munich offered a Boehm-system clarinet in a price list of about 1854.<sup>43</sup> However, Boehm-system instruments were not generally accepted in either Germany or Austria, although by the 1930s makers offered "reform Boehm" clarinets with bores matching their instruments and some minor redesign of the key mechanism.<sup>44</sup> In Spain, the influential musician, teacher, and publisher, Antonio Romero (1815-1886), discussed the Boehm-system clarinet and included a fingering chart in his important tutors of 1846, ca. 1863, and 1886.<sup>45</sup> He encouraged the use of the Boehm-system clarinet in Spain. The earliest players in London were the Spanish clarinetists, Manuel Gomez (1859-1930) and his brother Francisco Gomez (1866-1938), who arrived in London in 1885. They both played the full-Boehm-clarinet having a mechanism to low Eb for playing Bb and A parts on the Bb clarinet. Manuel was also well-known as a concerto player and for his playing in the London Symphony Orchestra in 1904 to 1915.<sup>46</sup> In America, Gustave Langenus

42. Samuel Charles GRIFFITHS, *The Military Band: how to form, train, and arrange for reed and brass bands*, London, Rudall, Carte & Co., [1893], p. 6.

43. Erich TREMMEL, *Blasinstrumente im 19. Jahrhundert in Südbayern*, Augsburg, B. Wißner, 1993, p. 349, p. 461 (the price list is dated 1854-1860 and handwritten for the last two clarinets); E. HOEPRICH, *The Clarinet, op. cit.*, p. 177-178 (the price list is dated ca. 1860 and is a completely printed copy).

44. Makers include Louis Kolbe of Altenburg and Fritz Wurlitzer of Erlbach, see H. FRICKE, *Historic Musical Instruments...*, *Shackleton Collection, op. cit.*, p. 534-535.

45. Antonio ROMERO, *Método completo de clarinete: Adoptado para la enseñanza del Real Conservatorio de Musica de M.C. Madrid*, Romero, [1846]; *Método completo de clarinete*, 2<sup>nd</sup> ed., Madrid, Romero, ca. 1863; *Método completo de clarinete*, Madrid, Romero, 1886.

46. F. G. RENDALL, *The clarinet...*, *op. cit.*, p. 110; P. WESTON, *More Clarinet Virtuosi of the Past, op. cit.*, p. 115; P. WESTON, *Yesterday's Clarinetists: a sequel, op. cit.*, p. 75-76.

(1883-1957) played the Boehm-system clarinet in Brussels as a student of Gustave Poncelet (1844-1903). He subsequently lived and performed in England from 1902 to 1910, and came to America in 1910 to join the Symphony Society of New York. In America, Langenus was an influential soloist, chamber musician, teacher, writer, and composer.<sup>47</sup> By the mid-twentieth century, the Boehm-system clarinet became the most popularly played clarinet in the world and has changed little since its creation by L. A. Buffet.

### APPENDIX 1

Auguste, jeune BUFFET, "Pour l'application des anneaux mobiles aux clarinettes et hautbois," French patent no. 16 036 (2 February 1844).

*La clarinette à treize clefs, regardée d'abord comme parfaite, laissait pourtant beaucoup à désirer. En effet, le percement originaire des trous de la clarinette, calculé d'après l'écartement des doigts, produisait des intonations vicieuses, des notes sourdes, faibles ou trop éclatantes. Le mécanisme des clefs, obligeant à glisser d'une clef sur l'autre pour lier deux notes, entraînait des difficultés insurmontables de doigté qui empêchaient de jouer dans tous les tons indifféremment. Enfin les fourches occasionnaient un faux doigté, puisqu'on était obligé d'accorder plusieurs notes au moyen d'un seul trou. {chapter on the oboe}*

*Voilà les difficultés qu'il fallait vaincre, les inconvénients, les défauts qu'il fallait corriger, c'est là le but que je m'étais proposé et que j'ai mis près de cinq années à atteindre. Aussi quels sacrifices n'ai-je pas faits, quels essais immédiatement suivis d'instruments défectueux n'ai-je pas tentés ! Mais, heureusement, le succès est venu me récompenser de mes peines, et je suis parvenu à appliquer les anneaux mobiles aux clarinettes et aux hautbois nouveau système. Et j'entends ici par appliquer les anneaux mobiles non pas simplement mettre des anneaux mobiles, mais bien les mettre de manière à créer un instrument juste, un instrument plus parfait que l'ancien, en un mot refaire un instrument ; en effet, l'application des anneaux mobiles aux clarinettes et aux hautbois peut être regardée comme la solution d'un problème à résoudre et dont l'inconnu était de savoir comment les appliquer pour arriver à un*

*instrument parfait. Car, avant de faire un instrument semblable à ceux plus loin décrits, j'ai naturellement appliqué les anneaux mobiles ; mais, n'étant pas arrivé encore à la manière précise de les appliquer, il fallait recommencer. Et l'on comprendra aisément que, dans un instrument dont la perfection et la justesse dépendent de la moindre des choses, d'un trou mal placé ou mal percé, le but proposé n'était atteint que, de l'aveu des maîtres, l'instrument était jugé bon.*

*L'invention consiste donc non-seulement dans l'application des anneaux mobiles, mais encore dans l'application de la manière et dans l'ordre indiqués sur le dessin ci-indexé et dans la légende explicative. Car le moindre changement suffirait pour établir un instrument peut-être préférable aux anciens, mais inférieur aux miens.*

### APPENDIX 2

Hyacinthe KLOSÉ, *Méthode pour servir à l'enseignement de la clarinette à anneaux mobiles, et de celle à 13 clés*, Paris, Meissonnier, 1843, Introduction, p. 1.

*Cependant, on était encore loin d'avoir donné à l'instrument toute la perfection dont il était susceptible depuis son origine, la Clarinette avait été percée d'après l'écartement naturel des doigts : il en résultait des intonations vicieuses, des notes sourdes, faibles ou trop éclatantes. Du mécanisme des Clés, il résultait des difficultés insurmontables de doigtés, qui ne laissaient point à la Clarinette la liberté de jouer dans tous les tons indifféremment ; de là, cette nécessité, aussi onéreuse qu'importune des trois Clarinettes, Ut, Si bémol, et La.*

*Successeur de Berr au Conservatoire Royal de musique, désireux de remplir avec conscience les fonctions laborieuses qui m'étaient confiées, et, voulant assurer à la Clarinette le rang que lui assigne la beauté de ses sons, et son double emploi d'instrument chantant et accompagnateur, je dus chercher à faire disparaître complètement les défauts dont j'ai parlé ci-dessus. Je travaillai pendant long-tems ; après de nombreux essais, les anneaux mobiles me parurent résoudre d'une manière efficace, le problème dont je cherchais la solution depuis plusieurs années ; c'est à Mr. Auguste Buffet jeune, qui a saisi et interprété mes idées avec un rare bonheur, que je dois l'instrument que je présente aujourd'hui à Messieurs les Artistes et amateurs.*

*Cet Instrument réunit, à une justesse aussi parfaite que possible dans toute son étendue, une pureté de son bien supérieure, et la facilité d'un doigté plus correct,*

47. See David Ross, "A Belgian in America: The Life and Career of Gustave Langenus," *The Clarinet*, 27/4 (Sept. 2000), p. 40-49.

qui permet de jouer indistinctement dans tous les tons. A part quelques rares exceptions, l'ancien doigté est le même : il n'y a de changemens notables, que pour les notes à fourches, qui étaient toujours défectueuses et que j'ai fait disparaître. Il n'y a donc point de nouvelles études à faire, et un exercice de quelques jours suffit pour se familiariser avec l'instrument. Je n'ai point eu l'intention de faire un instrument nouveau : j'ai voulu, en conservant à la Clarinette tous ses anciens avantages, lui procurer ceux dont elle était susceptible : c'est à dire la régularité des sons, et la faculté de jouer dans tous les tons indistinctement.

### APPENDIX 3

"Rapport fait par la section de musique à l'Académie des Beaux-arts de l'Institut de France, sur la clarinette présentée par M. Klosé.", 5E32.<sup>48</sup>

Monsieur le ministre de l'intérieur a soumis, par sa lettre en date du 21 novembre dernier à l'examen de l'académie une clarinette à anneaux mobiles perfectionnée par Mr Klosé. La section de musique a l'honneur de présenter à votre approbation le rapport qu'elle a fait après avoir scrupuleusement et attentivement observé les améliorations apportées à la clarinette par M Klosé professeur au Conservatoire, au Gymnase musical militaire et un de nos instrumentistes les plus distingués.

Le système à anneaux mobiles, appliqué à la clarinette par Mr Klosé est le même que celui que le Sr Buffet Jne sous la direction de M Coche, professeur de flûte au conservatoire avait déjà adopté à cet instrument et sur lequel un rapport favorable a été fait par l'académie en date du 24 mars 1838 : {a été emprunté en partie à celui de Mr Theobald Boehm à Munich qui l'inventa en 1831 sur la flûte et dont} Mr. Klosé a par l'emploi de ce procédé, singulièrement perfectionné la clarinette ; les avantages obtenus sont : De rendre les sons meilleurs, plus justes et plus égaux ; de supprimer les doigtés à fourche et de faciliter les arpèges et les batteries ; et enfin de permettre, sauf la différence du timbre, de jouer sans difficulté avec les 3 clarinettes dans les tons diésés et bémolisés ; les compositeurs n'auront plus ainsi à se préoccuper des changemens fréquents d'instruments, que les exécutants étaient quelquefois obligés de faire dans le courant d'un même morceau. Mr Klosé était déjà un de nos instrumentistes et de nos professeurs les plus distingués ; il a formé beaucoup d'élèves d'un mérite incontestable et il est parvenu, grâce à des études persévérantes, à faire un immense progrès à un instrument qui laissait tant à désirer, surtout sous le rapport de la justesse, et qui doit être considéré comme un progrès pour l'art musical. La section de musique espère que l'académie voudra bien honorer ce rapport de son approbation. Paris, ce 6 avril 1844 {Carafa}.

48. The author thanks Jean Jeltsch for a transcription of this document.