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Müller's *Gamme De La Clarinette* (c.1812) and the Development of the Thirteen-key Clarinete

A FINGERING chart discovered at the Bibliothèque Nationale reveals important information concerning Iwan Müller's development of the thirteen-key clarinet. The chart is a single sheet entitled '*Gamme Pour la nouvelle Clarinette inventée p: Iwan Müller, sur laquelle on peut jouer dans toutes les octaves et dans tous les modes, avec une justesse et une force parfaitement égales*' (Scale for the new clarinet invented by Iwan Müller, on which one can play in all octaves and in all tonalities, with accuracy and a perfectly equal dynamic level).¹ Müller includes specific comments on fingering his new clarinet in 'Observations' and notes 'the present scale is edited by Iwan Müller, chamber musician of his Majesty the Emperor of all the Russia's'.² The publisher is 'N. Simrock à Bonn, Dept du Rhin et Moselle' at a price of 1 Franc.

The Simrock firm opened a Paris office in 1802 and printed prices on their publications in Francs from 1795 until 1814, during the Napoleonic wars.³ The date of the fingering chart may be deduced from Müller's activities. It is known that Müller arrived in Paris in 1811 and established an instrument-making shop with assistance from the clarinetist and stockbroker Marie Pierre Petit and Boscari, an

amateur musician.⁴ It is also well known that Müller presented his thirteen-key B \flat clarinet and his alto clarinet to an eight-member commission of the Paris Conservatory on 12 May 1812.⁵ The chart could date from 1811 to 1814, but 1812 is a more likely date for use in his presentation.

What exactly did Müller accomplish and when? Simiot states that he corresponded with Müller in 1803 and learned that Müller had constructed an eight-key clarinet while living in Russia.⁶ By 1808, Müller had gone to Dresden where he worked with the German maker Heinrich Grenser to construct an alto clarinet in F (called the Müllersche Bassethorn) by applying a new sixteen key system to a basset horn and removing its four lowest keys for d \sharp , d, c \sharp , and C.⁷ In 1809, the Vienna correspondent for the *Allgemeine Musikalische Zeitung* reviewed a concert where Müller played his basset horn. He quotes Müller as stating that his improvements to the basset horn could and should be applied to the clarinet. The editor of this journal J. F. Rochlitz also mentions a metal bell and leather pads under each key of Müller's basset horn to minimize the rattling when the key levers are depressed.⁸ While Müller was in Vienna, he had the instrument maker Johann

¹ Bibliothèque Nationale, Vm^o 517.

² 'La présente gamme est rédigée p: Iwan Müller, Musicien de la Chambre de sa majesté l'Empereur de toutes les Russies'.

³ Otto Erich Deutsch, *Musikverlags Nummern: Eine Auswahl von 40 datierten Listen 1710-1900* (Berlin, 1961), 26.

⁴ See Louis-Benjamin Francoeur, 'Rapport fait par M. Francoeur, au nom du Comité des arts mécaniques, sur une nouvelle clarinette,' *Bulletin de la Société d'encouragement pour l'industrie nationale* 212 (1822), 42; Joseph James Estock, 'A Biographical Dictionary of Clarinetists Born Before 1800' (Ph.D. diss., 1972), 250-54.

⁵ 'Rapport fait par la commission chargée d'examiner la nouvelle clarinette proposée par M. Müller, et la clarinette alto perfectionnée par le même artiste,' *Gazette Nationale, ou Le Moniteur Universel* 152 (1812), 593.

⁶ Jacques-François Simiot 'Correspondance,' *Revue Musicale* 6 (1830), 541.

⁷ Grenser may have begun work on this instrument by March 1808 as suggested by Michaelis in 'Ueber die Klarinette', *AMZ* 10 (1808), 389-90 n. *. 'Nachrichten', *AMZ* 11 (1808), cols. 89-91, and 'Miscellen', *AMZ* 11 (1809), cols. 798-99.

⁸ 'Nachrichten', *AMZ* 11 (1809), col. 653 and note *. Cf. F. Geoffrey Rendall, *The Clarinet* (London, 1973), 89.

Baptist Merklein make a soprano clarinet that he played at a concert on 22 October 1809 along with his Grenser alto clarinet. His alto clarinet was criticized for not having as full a sound as a basset horn but his clarinet is not described, so we can only speculate that it may have been a thirteen-key instrument.⁹ It is important to note that no instruments survive with Müller's mark, so it seems likely that he employed others to make instruments that he designed and played.

Müller's clarinet illustrated in the *Gamme* has the standard five keys plus eight keys—an A/B trill key; G# placed under the A key; a side key for f/c; cross keys for Eb/Bb, C#/G#, and Bb/F; a side key for B/F#; and an F/C key. See Figure 1. There are two additional levers, both operated by the right thumb—a shank (called a 'branch') attached to the F#/C# lever and one for the Ab/Eb key. The latter pivots at its mid-point and a piece of cord or a coiled spring at its distal end is attached to the usual Ab/Eb lever. When the touch piece of this articulated key is pressed, it acts on another lever to lower the key head. Although the F/C key was used on basset horns since the 1760s, the position of its tone hole and that of the G# key is acoustically correct, a significant improvement over the design of earlier clarinets.

The 1812 commission did not accept Müller's soprano clarinet but did approve his alto clarinet. They recognized the soprano instrument's improvement in technical capabilities and intonation but rejected it because, with its sole use, the composer would be deprived of the individual tonal characteristics of the clarinets pitched in C and A.¹⁰ According to Gottfried Weber in 1828, two years later this decision was reversed and Müller's clarinet was approved for use at the Paris conservatory.¹¹ However, a 1997 search in the Paris Conservatoire archives did not locate 1814 documents relating to the Müller clarinet. The earliest prize winner of the premier prix at the Conservatoire to receive a thirteen-key clarinet was

Pierre Hugo, a student of Louis Lefèvre, in 1825.¹² It seems likely that a few adventurous players were playing thirteen-key instruments based on Müller's design by the early 1820s.

Müller's later extensive tutor, the *Méthode pour la nouvelle clarinette & clarinette-alto* (c.1821, Paris) presents a slightly different thirteen-key clarinet.¹³ The main difference between these clarinets is the design of the important F/C key and pillar mounting. In the *Gamme* the F/C is an articulated key as used on basset horns; in the *Méthode* the F/C is end-pivoted below the tone hole so that the motion of the finger tip and touch piece is about twice the opening of the pad above the tone hole. Later makers used Müller's F/C key but mounted the lever on a pillar close to the touch piece and placed the key head at the end of the lever. The clarinet in Müller's *Gamme* has flat, round key heads. By the 1820s, Müller had introduced pads of gut or leather stuffed with wool in the shape of an 'elastic ball', as discussed in the *Méthode*. The pads required a round, hollow cup (called salt-spoon keys) soldered to the shank with the corresponding tone holes countersunk, leaving a raised rim of wood for the pad to rest on.

Müller introduced a metal ligature with two screws to hold the reed to the mouthpiece, initially shown in his *Gamme*, as preferable to twine for its ease of adjustment and better appearance.¹⁴ He constructed one-piece lower sections in order to emphasize that additional upper and lower finger hole sections (*corps de rechange*) are not needed to change tonalities. This instrument is designed to be 'omnitonic', that is, playable in any tonality. With his thirteen-key Bb clarinet, Müller increased the technical capabilities of the instrument so that the player could dispense with a whole set of clarinets and play compositions in any tonality on one instrument.¹⁵ The right hand joint and stock in one piece accommodates the thumb lever for the Ab/Eb key, positioned between the right-hand index and middle finger.¹⁶

⁹ The concert of 22 October 1809 in Vienna was reported in 'Nachrichten' AMZ 12 (1810), 298-99.

¹⁰ 'Rapport . . .', *Gazette Nationale, ou Le Moniteur Universel* 152 (1812), 593. For a section of the report, see Rendall, *The Clarinet* (London, 1973), 90; Pamela Weston, *More clarinet virtuosos of the past* (London, 1977), 159-60.

¹¹ Gottfried Weber, 'Das Clarinett', *Allgemeine Encyclopädie der Wissenschaften und Künste* eds., J. S. Ersch and J. G. Gruber (Leipzig, 1828), vol. 17, 374.

¹² Paris Conservatoire carton AJ 37 384. The author thanks Jean Jeltsch for sending a transcription of this document.

¹³ Müller dedicated his *Méthode* to the King of France and gave a copy to the Marquis de Laurisson, the 'Ministre de la Maison du Roi'. 'Maison du roi, Théâtres royaux, affaires générales, correspondance, demandes diverse, 03 1616.' The letter is dated 6 December 1821. The author thanks Jean Jeltsch for a transcription of this letter. See ill. 1 in Nicholas Shackleton and Albert R. Rice, 'César Janssen and the transmission of Müller's 13-keyed clarinet in France', *GJSJ* 52 (1999), 185.

¹⁴ Müller called his ligature an 'anneau' or ring in his *Méthode* where a mouthpiece, metal ligature, and reed are illustrated as figs. 1-5. See Müller, *Méthode pour La nouvelle Clarinette & Clarinette-Alto* (Paris, c.1821), 23.

¹⁵ Müller, *Méthode*, 5.

¹⁶ Shackleton and Rice, 187.

A rare example of an anonymous early fourteen-key B \flat clarinet (c.1810, Shackleton Collection) is identical in key layout to the clarinet in Müller's *Gamme* except that on the former, all the keys are mounted in wooden blocks rather than metal saddles. The anonymous boxwood instrument with horn ferrules has four sections, no mouthpiece, an articulated key mounted on the dorsal side for operation by right thumb to open the A \flat /E \flat key, and flat, round key heads as shown in Müller's *Gamme*.¹⁷ Shackleton suggests that this instrument was a prototype of Müller's revolutionary thirteen-key clarinet.

In 1823, Müller exhibited his new clarinet at the Paris Exhibition and received a bronze medal.¹⁸ His basic design for a thirteen-key clarinet without thumb keys was manufactured in Paris beginning in the 1820s. One of the first makers was Louis-Jacques Lefèvre whose thirteen-key instrument dated 1824 (Musée de la musique, E.475, C.537) is made of boxwood with ivory ferrules in four sections. As with Müller's instrument, the keys are pillar-mounted; there are salt-spoon key heads; the right-hand joint is joined to the stock; and there is a closed F/C key.¹⁹ Extant clarinets by French makers of the 1820s typically do not include both of Müller's thumb keys but do include his designs for the F/C key and the one-piece right hand joint and stock, a fact that suggests players found the thumb keys awkward to manipulate.

A very rare C clarinet (c.1830) by Karl Friedrich Adler (Bamberg) has all the keys depicted in Müller's 1821 *Methode*. It is boxwood with horn ferrules in five sections, a black wood mouthpiece, brass keys mounted in wooden blocks, and flat, round key heads. The only difference between this instrument and the one depicted in Müller's *Méthode* is a built-up key seat for the speaker key head.²⁰ Stengel (Bayreuth) also constructed instruments with one thumb key lever that pivots at the lower end in order to close the F \sharp /C \sharp key. An example is a thirteen-key D clarinet (c.1835, Shrine to Music Museum, Vermillion, South Dakota, 5827) with two duplicate levers—a thumb lever for F \sharp /C \sharp and a long A \flat /E \flat lever for L4—pillar-mounted keys, Müller's G \sharp crossing over the A key, and Janssen's rollers for E/B, F \sharp /C \sharp , A \flat /E \flat , and F/C.

Müller had an enormous influence on later makers particularly in the design of pillar mounting, the F/C key, salt-spoon key heads with stuffed pads, and the metal ligature. Thousands of thirteen-key clarinets made without thumb keys (subsequently known as simple-system clarinets) incorporated these improvements in France and many other countries as late as the twentieth century. Furthermore, the Müller clarinet was a model for several German and Austrian firms, such as Stengel, Mollenhauer, Kruspe, and Oehler, which developed a distinctive clarinet during the nineteenth and twentieth centuries.

¹⁷ See the photograph and description in Shackleton and Rice, 188.

¹⁸ Louis-Etienne-François Héricart de Thury, *Rapport du Jury d'admission des produits de l'industrie française* (Paris, 1824), 356.

¹⁹ Photographs of this instrument are in Pamela Weston, *Clarinet virtuosos of the past* (London, 1971), pl. 4; Günther Dullat, *Klarinetten* (Frankfurt, 2001), 34, Abb. 15; 266, Abb. 160. Similar thirteen-key clarinets by Lefèvre are dated 1825 and 1827. See Shackleton and Rice, 187.

²⁰ The author is grateful to Thomas Reil for information about and photographs of this instrument. For a photograph, see Fabrizio Meloni, *Il Clarinetto* (Varese, 2000), 48.

GAMME

Pour la nouvelle Clarinette inventée par J. Müller, laquelle on peut jouer dans toutes les octaves et dans tous les modes, avec une justesse et une force parfaitement égales

Observation

1. Vu et la clé, de Mi, Ut, de Fa, Sol, de La, Si, (avec le point d'organe de la main droite) Ut, d' Ut, Mi, de Re, d' Ut, de Fa pour les autres parties de la main gauche. (On a aussi écrit les intervalles de la main gauche, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

2. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

3. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

4. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

5. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

6. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

7. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

8. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

9. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

10. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

11. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

12. Les notes de la main gauche sont écrites sur la clef de Sol, et les notes de la main droite sur la clef de Fa. (On a aussi écrit les intervalles de la main droite, mais on ne les a pas écrits pour ne pas rendre le papier trop grand.)

La présente gamme est rédigée par J. Müller, Musicien de la Chambre de sa Majesté l'Empereur de toutes les Russies. Chez M. Simrock à BONN, Dept du Rhin et Moselle. Propriété de l'Éditeur. Déposé à la Bibliothèque Impériale. Paris 1812.

Figure 1: Müller's 'Gamme De La Clarinette' (Bonn: N. Simrock, c.1812).