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## Fétis and the “Meifred” Horn

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VALVED BRASS INSTRUMENTS first appeared in France, by way of Germany, during the third decade of the nineteenth century. Georges Kastner, in his *Manuel générale de musique militaire* of 1848, gives an account of how this happened, quoting from a letter dated April 6, 1840 (which he still had in his possession) from the composer Gaspare Spontini:

I sent from Berlin to Paris, from 1823 to 1831, a quantity of valved horns, trumpets or cornets with two or three pistons or valves (the first known in Paris), notably to Mr. Barrillon, to horn professor Mr. Dauprat, and to the director of music of the national guard, Mr. David Buhl, and it is on the basis of these examples that some Paris makers *have believed that they invented or perfected [their models], whereas they only imitated and copied, as it always was with all wind and brass instruments in use at all times in France, which all were invented and perfected in Germany.*<sup>1</sup>

The best known of the three recipients mentioned is the noted hornist and pedagogue Louis-François Dauprat, who played in the Opéra orchestra from 1802 to 1831 and taught at the Conservatoire from 1816 to 1842;<sup>2</sup> David Buhl was an important figure in the organization and evolution of military music in France, and “Mr. Barillon” has not yet been identified.

1. “J’envoyai de Berlin à Paris, de 1823 à 1831, nombre de cors à pistons, de trompettes ou cornets à deux ou trois pistons ou ventiles (les premiers connus à Paris), notamment à M. Barrillon, au professeur de cor M. Dauprat, et au chef de musique des gardes, M. David Buhl, et c’est d’après ces exemplaires que quelques fabricants de Paris ont cru avoir inventé ou perfectionné, tandis qu’ils n’ont qu’imité et copié, ainsi qu’il a toujours été de tous les instruments à vent et en cuivre de tout temps en usage en France, qui tous ont été inventés et perfectionnés en Allemagne.” Georges Kastner, *Manuel générale de musique militaire* (Paris: Didot, 1848), 192 (emphasis in original). During the 1820s and 30s Spontini served as music director to King Frederick William III of Prussia, though significant earlier and later periods of his career were spent in Paris.

2. Dauprat is generally credited with raising the level of French handhorn technique to the most sophisticated in nineteenth-century Europe, and his influence both as teacher and performer (as well as that of his student Jacques-François Gallay, who succeeded him at the Conservatoire) may be viewed as a primary reason why handhorn playing remained popular in Paris to the very end of the nineteenth century, well after valved instruments were in general use elsewhere.

Although Spontini does not specify exactly what kinds of instruments he sent to France in which year or years, the general outline of this story is corroborated by many sources contemporary with Kastner. In his 1857 treatise *Le Professeur de Musique ou L'Enseignement de cet Art*, Dauprat states that Spontini's instruments arrived in 1820, yet he makes no mention of them in his *Méthode de cor alto et cor basse* of 1824.<sup>3</sup> The most reliable report comes from Dauprat's colleague F. G. A. Dauverné, who in 1827 played one of the first valved trumpets used at the Opéra and in 1833 became the first trumpet teacher at the Conservatoire. In his *Méthode pour la trompette*, published in 1857, Dauverné describes the instruments' arrival in detail and identifies the date of their arrival as October 1826.<sup>4</sup>

Despite Spontini's claim that Germany played the leading role in the invention and early development of valved brass instruments, some significant innovations did occur in France and only later spread to Germany and other countries, as Kastner goes on to report in his *Manuel générale*.

However, an artist of Paris, Mr. Meifred, [subsequently] professor at the royal Conservatoire of music, who was the first to use the valved horn in France, had a horn with all keys constructed, but in which the tubes representing the artificial crooks could be lengthened and shortened at will, which permitted the modification of the temperament and the control of the intonation of each key. This improvement of Mr. Meifred was greatly appreciated not only by us, but also in Germany and Italy, where instruments built according to this system are generally designated by the name of *Meifred horn*.<sup>5</sup>

Joseph Émile Meifred (1791–1867) was a student of Dauprat who in 1822 joined his former teacher in the Opéra orchestra. As a low-horn

3. See Louis-François Dauprat, *Le Professeur de musique ou l'enseignement de cet art* (Paris: Quinzard, 1857), 119–20; and idem, *Méthode de cor alto et cor basse* (Paris: Schönerberger, 1824).

4. F. G. A. Dauverné, *Méthode pour la trompette* (Paris: Brandus, 1857), p. XXII.

5. "Cependant un artiste de Paris, M. Meifred, professeur au Conservatoire royal de musique, qui fut le premier à se servir du cor à pistons en France, fit construire un cor à tous tons, mais dont les tubes représentant les tons fictifs pouvaient s'allonger et se raccourcir à volonté, ce qui permettait de modifier le tempérament et de régler la justesse de chaque ton. Ce perfectionnement de M. Meifred a été fort apprécié non-seulement parmi nous, mais encore en Allemagne et en Italie, où les instruments construits d'après ce système sont généralement désignés sous le nom de *cor Meifred*." Kastner, *Manuel générale*, 192.

player he was drawn to certain capabilities the valved horn possessed and subsequently became a leading advocate of that instrument, giving the first public solo performance in France on it in 1828. After being appointed to the newly-created position of professor of valved horn at the Conservatoire, in 1833, he published a comprehensive tutor which was the first to address how valves and hand technique might be combined in performance.<sup>6</sup>

As is often the case with new technological inventions, valved brass instruments were received in France with a mixture of enthusiasm and trepidation, giving rise to much critical examination and comment. The first appraisal of a valved instrument to be published in France appeared in 1827 in the *Revue musicale*, an early French journal devoted to musical issues.<sup>7</sup> Written by François-Joseph Fétis (1784–1871), the journal’s founder and one of the most outspoken critics of his time, it reflects a curious paradox of its author’s personality. While in most of his reviews and commentaries Fétis shows a clear preference for conservative musical styles (a taste shared by the three main musical institutions in Paris, the Opéra, the Conservatoire, and the Société des Concerts), in the area of instrumental design he was a progressive who enthusiastically supported the new valve technology. After summarizing the development of the horn over the previous century and a half he gives a detailed description of Meifred’s new design, together with an appreciation of the musical advantages it offered. A translation of the article follows.<sup>8</sup>

6. A brief description of this method (Paris: Richault, 1840) and its author appears in my article, “Joseph Meifred’s *Méthode pour le Cor Chromatique ou à Pistons*,” *Historic Brass Society Journal* 4 (1992): 87–105, and a complete English translation is included on pages 140–285 of my dissertation, “Joseph Meifred’s *Méthode pour le Cor Chromatique ou à Pistons* and Early Valved Horn Performance and Pedagogy in Nineteenth-Century France” (D.M.A. dissertation, University of Wisconsin-Madison, 1991).

7. François-Joseph Fétis, “Exposition des produits de l’industrie, Instruments de Cuivre: Cors à pistons,” *Revue musicale* 2 (1827–28): 153–62. Although copies I have been able to consult lack any dated cover or title page, this article comes from the weekly journal’s issue no. 31, probably published during the month of September, 1827.

8. The original French text appears as an appendix to the present article. In my translation I have attempted to maintain the style of Fétis’s language, including his use of italics. For the sake of clarity, however, in several places I have either reordered clauses within a sentence or converted long strings of clauses into separate sentences. Finally, I have at times inserted bracketed words or phrases, or longer explanations in footnotes, in order to clarify, explain, or comment on various matters. Pitches given in musical notation in the original are here shown using the letters and prime marks of Helmholtz notation, in square brackets.

**Industrial Products Exposition**  
**Brass Instruments**  
**Valved Horns**

Every day it becomes more difficult and more uncommon to devise simple and natural melodies, whether because radical ideas are limited to a fixed number, beyond which there are only modifications of taste, arrangements, [and] disguises of familiar phrases, [or] because the *dilettantes'* ears resemble the glutton's palette, so that they become surfeited and end up taking a dislike to the most sublime emanations of genius. The farther one advances in art, [the more] simple music grows weak and allows its domain to be invaded by music of effect, even by noise. Someone who formerly could hardly tolerate a few notes on the horn today needs the whole apparatus of trumpets, trombones, and *ophicléides*; someone else, who used to be deafened by the noise of tympani, is not at all satisfied unless he hears the bass drum, cymbals, crotales, etc. Effects [and] noise have become the composer's resource, and the predominant taste of the public. It is therefore to the search for effects that each [composer] applies his faculties, and it must be admitted that people have become very skillful at this over [the past] thirty years.

But if the musician's genius is indispensable for discovering [such effects], the instrument maker's art is no less useful, because discoveries of new instruments, and improvements of old ones, have provided resources without which the modern school could not have produced such surprising effects. Brass instruments in particular have experienced considerable improvements. I propose to examine them in detail, and I shall begin with the horn, an important instrument in the current state of our orchestras.

We have seen in an article in the *Revue musicale* (no. 11, p. 270) that in the past there were no horns in the orchestra other than the *cornet à bouquin* [i.e., cornetto], which was perforated with seven holes, one of which was closed with a key, and had no other mouthpiece than that of the trumpet. The hunting horn was invented in France around 1680, but it only began to be introduced into the orchestra in 1730, at least at the Opéra.<sup>9</sup> Even then, it was only in 1757 that this instrument was used in a favorable manner by Mr. Gossec, in two airs that he composed for the debut of Miss Arnould, where two clarinets and two obbligato horns were found.<sup>10</sup>

9. [Translator's note] In mentioning the date 1680 Fétis probably had in mind the well-known story of Count Anton von Sporck's visit to France in that year, when he heard hunting horns playing short pieces of music and was inspired to include them in his court orchestra upon returning to Bohemia (see Horace Fitzpatrick, *The Horn and Horn-Playing and the Austro-Bohemian Tradition 1680–1830* [New York: Oxford University Press, 1970]). His reference to the year 1730 is less easily explained, at least in terms of a specific first performance using horns; perhaps the intended sense is "during the 1730s," since it seems to be the case that horns appeared in Opéra productions with increasing frequency by the end of that decade.

10. [Trans. note] The description of this piece probably comes from the same source as a later article by Fétis, "Notice sur l'introduction des cors, des clarinettes et des

Restricted at first to the natural notes [g, c', e', g', c'', d'', e'', g''], the horn had few resources. But around 1760 a discovery by *Hampl*, celebrated hornist at the Dresden court, all at once changed its scale and expanded its range.<sup>11</sup> Intending to create a muted effect, he thought to close the bell partway with a cotton stopper; but he was extremely surprised to notice that [the pitch of] his instrument was raised by a semitone. This was for him an illuminating idea, and immediately he tried inserting and withdrawing his stopper on all the lip positions [i.e., all natural notes], and obtained semitones for all diatonic and chromatic scales. The notes he obtained with the stopper were, in truth, more muffled than those that the open tubing provided, but they were no less valuable. Because of this [muffled sound], he gave them the name *stopped notes*. Later, he realized that the hand could replace the stopper advantageously, and [he] adopted this latter method. Rodolphe was the first to make these stopped notes known in France.<sup>12</sup>

Hampl's discovery was followed by several others no less important, which have successively carried the horn to a point where it seems very few things remain to be done. For example, it is known that all instruments rise [in pitch] with the temperature, but the material of which the horn is made is more sensitive than any other, so [the pitch of] this instrument climbs rapidly. In order to tune with the orchestra, at first no better means could be found than adding a certain number of extensions next to the mouth-piece, but these extensions had the inconvenience of distancing the bell [farther] from the body, and consequently depriving the instrument of its balance point. A builder in Hanau, near Frankfurt-am-Main, named *Haltenhoff*, applying the principle of trombone construction to the horn, created a slide that permitted the lengthening of the air column at will, and it was here [i.e., the point where the tuning slide was inserted] that the various crooks were eventually placed.<sup>13</sup>

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trombones dans les orchestres français" (*Revue musicale* 5 [1829]: 217–23), which was based on Gossec's own manuscripts of c. 1810.

11. [Trans. note] Whether or not he actually invented it, Anton Hampl is considered to be the first to codify and teach hand-stopping technique, possibly as early as the 1740s. The most current information on Hampl and other horn players at the Dresden court is found in Thomas Hiebert, "The Horn in Early Eighteenth-Century Dresden: The Players and Their Repertory" (D.M.A. dissertation, University of Wisconsin-Madison, 1989).

12. [Trans. note] Jean Joseph Rodolphe (also known as Rudolphe, 1730–1812) was an Alsatian horn player who first performed at the Concert Spirituel in Paris in 1764. He stayed on in Paris to become an accomplished performer, teacher and composer. Current scholarly consensus is that Rodolphe arrived at the idea of handstopping independently, though this issue, including possible contacts with Hampl or the Dresden court, has not received much attention. See Friderica Derra de Moroda, "Rodolphe, Jean Joseph," *The New Grove Dictionary of Music and Musicians*, edited by Stanley Sadie (London: Macmillan, 1980), 16:92.

13. [Trans. note] Johann Gottfried Haltenhof (c. 1701–1783) flourished as an instrument builder in Hanau from 1728 until his death: see William Waterhouse, *The New Langwill Index* (London: Tony Bingham, 1993), 158.

Such was the state to which, not long ago, the horn had by successive stages been brought. Various attempts had been made to give the stopped sounds a sonority similar to that of open sounds, but always in vain. Charles Clagget, an English composer, had invented, at the end of the last century, a double horn pitched in the two keys of D and E-flat, which had only a single mouthpiece.<sup>14</sup> By means of a key which opened the communication of air to one or the other horn, almost all the notes of the chromatic scale could be played as open sounds at will. But the instrument was awkward and difficult to play because of the calculation that the performer was continually obliged to make [i.e., determining which part of the horn was to be used to create the open sound desired]. This discovery therefore went no further.

Meanwhile, people were lamenting that an instrument endowed with a voice as pleasing as the horn had so few natural notes and so many artificial notes, when, all at once, a German musician, unknown until then, invented the valved horn, in 1815 or 1816.<sup>15</sup> This musician, named *Stölzel*, tired of having to carry around the various crooks of the horn when he went to accompany country dances in orchestras out in the countryside, conceived of a plan to get rid of this necessity, and to make a horn with which he could play in all keys. By dint of research and perseverance, he succeeded in what he had undertaken, and took his still imperfect invention to Berlin, where Mr. Schlot, a brass instrument builder, sought to improve it.<sup>16</sup>

This invention consisted of placing two boxes on the slide, each containing a piece of brass perforated with holes and set on a spiral spring. When the spring expanded, it pushed the brass piece up, so its holes would not meet those of the additional tubes, which were intended to lower the instrument a semitone, a tone, or one and a half tones. But when the finger was pressed onto the valve, the holes met each other, air flowed [through the additional tubes], and the effect [of lowering the pitch of the instrument] was produced.

14. [Trans. note] Fétis's description of this invention appears to have been taken from a pamphlet, *Musical Phenomena*, which Clagget (1737–c. 1796) published in 1793. It apparently consisted of two mouthpipes of different lengths, united by a switching mechanism. While the instrument did not catch on, the mechanism is significant because it is considered to be the first evidence of using the concept of changing tube lengths to effect chromaticism on a horn. A more complete description of this switching mechanism is found in Reginald Morley-Pegge, *The French Horn* (2nd ed., New York: Norton, 1973), 26–30.

15. [Trans. note] This, of course, is a reference to the oft-mentioned invention of Heinrich Stölzel (1777–1844) which first received attention in the *Allgemeine musikalische Zeitung* (17, no. 18 [May 1815], cols. 309–310). The most current description of the early valved horn in Germany is John Ericson, "The Development of Valved Horn Technique in Early Nineteenth-Century Germany: A survey of performers and works before 1850 with respect to the use of crooks, right-hand technique, transposition, and valves" (D.M. dissertation, Indiana University, 1995). Equally useful is Herbert Heyde, *Das Ventilblasinstrumente* (Wiesbaden: Breitkopf und Härtel, 1987).

16. [Trans. note] "Mr. Schlot" is probably Balthasar Melchior Schlott (1773/8–after 1841) who was a partner in the firm of Griessling & Schlott in Berlin: see Waterhouse, *The New Langwill Index*, 148 and 355.

At this time Mr. Christophe Schunke, a musician of the Prince of Baden, finding himself in Berlin, examined Stölzel's horn and immediately understood all the benefit one could derive from it; upon returning to Karlsruhe he invited Mr. Schuster, a very skillful builder, to work on perfecting the ingenious instrument.<sup>17</sup> But when he had applied the mechanism to the slide of a solo horn,<sup>18</sup> as Stölzel had done, several fairly serious inconveniences resulted. First, only four keys could be obtained, namely: first, that of the horn without valves, F; second, E, given by the valve which lowered the instrument a semitone; third, E-flat, produced by the valve of a whole tone; and finally, fourth, D, obtained by combining both valves.

The second inconvenience consisted of the fact that, not having any replaceable crooks, one could be led into difficult modulations which obliged [the player] to keep his fingers constantly pressed [down] on the valves, causing fatigue. Moreover, this need to constantly use the valves deprived the instrument of high notes on the higher crooks such as G, A, and B-flat, the kinds of sounds whose timbres are brilliant in natural horns, or rendered them very difficult to obtain. For example, on the B-flat crook, if one must play the F in unison with this one [f''], instead of playing on this crook the note G [g''] which corresponds to it, one is obliged to play high C on the F crook [c''']; this note will be infinitely less easy to produce.

The third inconvenience of Mr. Schuster's valved horn is that it obliges [the performer] to transpose almost continually and to change the [manner of] playing the valves in each key.

Finally, this continuous use of the valves changed the natural sonority of the instrument and altered it; in addition, the [physical] position of the valves changed depending on how one was obliged to pull on the tuning slide, which caused a displacement of the hand holding the instrument. Furthermore, this lengthening of the slide hurt the intonation considerably, since it was no longer in [the correct] proportion to the length of [tubing added for] the crookings produced by the valves.<sup>19</sup>

17. [Trans. note] Schunke is described in Fétis's *Biographie Universelle* (1873 ed., 7:533) as the fourth brother in a family of hornists, born in 1796, who played first horn at the court in Karlsruhe. Friedrich Wilhelm Schuster (1798–1873) was a noted maker who spent most of his professional life in Karlsruhe: see Waterhouse, *The New Langwill Index*, 367.

18. [Trans. note] A "solo" horn differs from an "orchestra" horn in its construction. Solo horns usually have internal crooks, such that the different additions of tubing are inserted into the tuning slide. Orchestra instruments have terminal crooks, where the additional tubes are inserted into the small end of the instrument. A solo horn generally allowed fewer crook changes due to the slower mechanics of changing slides, yet this type of instrument seems to have been preferred by concert soloists. The terminal crooks of the orchestra horn allow for much quicker changes, such as are needed, for example, in operas or symphonic works. (See Morley-Pegge, *The French Horn*, 20–23, for a useful survey of these developments.)

19. [Fétis's note] I owe all these details and those that follow to Mr. Dauprat and Mr. Meifred. Mr. Dauprat, who has composed a treatise for valved horn as a sequel to his excellent method for high-horn and low-horn, was kind enough to communicate his work to me, from which I have extracted the majority of information contained in this article.



Nevertheless, the advantages this instrument offers are such that the most distinguished artists have wanted its defects to be corrected in order to adopt it. One of them, Mr. Meifred, an artist at the Opéra and the royal chapel, [and a] former student at the School of Arts and Trades in Châlons, had the idea of adapting the mechanism of the improved trumpet to the horn, and adding small, special slides to the tubes that lower the instrument by a semitone or a whole tone. By this means it is easy to conform to the geometric proportion that the general lengthening of the horn demands, whether it results from changing the crook, or from pushing or pulling the tuning slide.

Mr. Meifred, instead of placing the valves on the [tuning] slide, attached them to the branches, in such a way that the slide was free [of them], and the instrument could keep its replaceable crooks. In this way the use of the valves became easier, since they did not move at all, and were no longer used only to avoid stopped notes or for incidental modulations. Thus, the composer finds inexhaustable resources in this beautiful instrument. Does he want forceful sounds on all notes? the valves provide him with them. Does he need energy in his distant modulations from the tonic? he is no longer obliged to silence the horns, as in the past. In other cases, are stopped notes needed in order to obtain melancholy effects? Mr. Meifred's horn provides him with these as well, and this is yet another one of its advantages over the one from Karlsruhe. Finally, the valved horn, as conceived by Mr. Meifred, preserves the qualities of the old instrument, and adds to it all those [qualities] it lacked.

Mr. Labbaye,<sup>20</sup> a brass instrument builder known for various inventions, built it according to his [i.e., Meifred's] designs and instructions, and entered it in the Industrial Products Exposition. On the accompanying plate we give a representation of it which can be compared with the one from Karlsruhe, whose tuning slide accompanied by its valves is seen in figure 1.

#### *The Functions of the Valves*

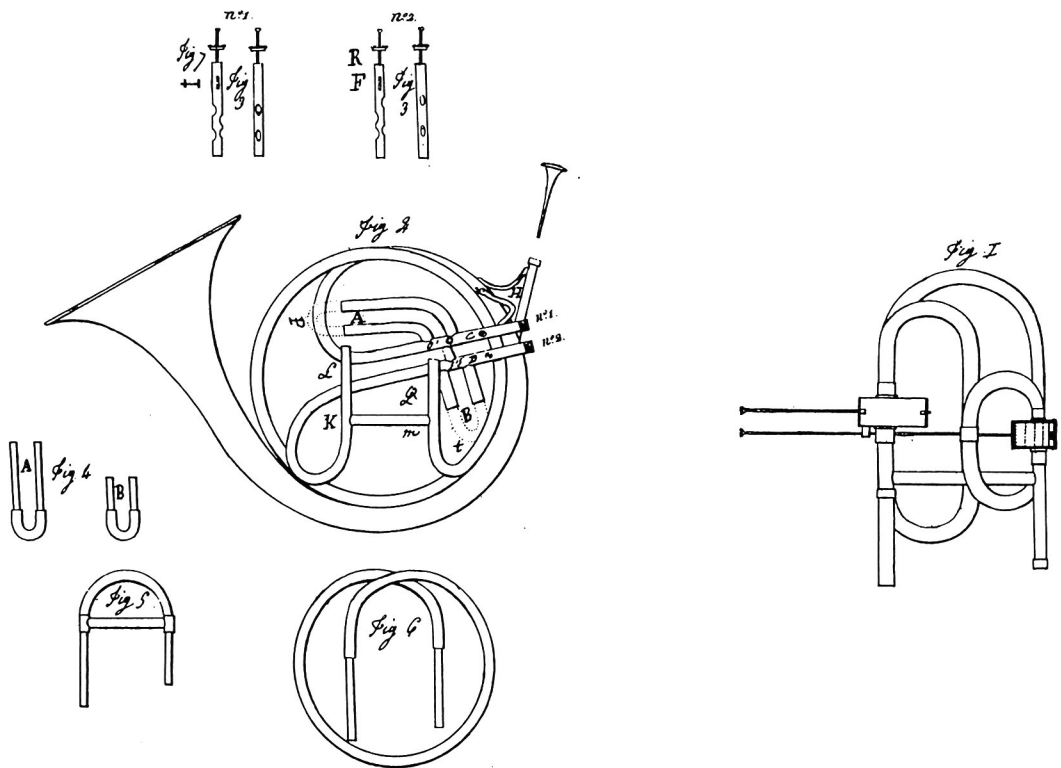
By pressing the finger onto valve no. 1 (figure 2), the horn is lowered by a whole tone, that is to say the passages *o o'* are opened to the air, which then travels through a space longer by the amount *o p o'*.

By valve no. 2, the horn is lowered a semitone; the passages *s s'* are opened, and the air circulates into a space longer by the amount *s t s'*.

Finally, by pressing on valves 1 and 2 at the same time, the horn is found to be lowered one and a half tones; the passages *o o'* and *s s'* being opened, the air circulates through all parts of the horn.

For the perforation of [i.e., pattern of the holes in] the valves, see figure 3 of the plate.

20. [Fétis's note] Mr. Labbaye lives at no. 14 rue de Chartres. [Trans. note] Jacques Charles Labbaye, a noted instrument maker in Paris between 1815 and 1848 (Waterhouse, *The New Langwill Index*, 221), won a silver medal for his valved horn and mechanical kettledrums shown at the exposition: see *Revue musicale* 2 (1827–28): 249.



*Cors à Pistons*

Plate from Fétis, "Exposition . . .," facing p. 159.

*The Pump or [Tuning] Slide L Q*

It is on this slide that crooks are placed. It serves, without touching the valves, to take the A [i.e., to tune the whole instrument], but the [valved notes of the] instrument can only be tuned by means of small slides A and B (figure 4).

*The Functions of Slides A [and] B*

These two slides serve to ensure the instrument's intonation in establishing that of the corresponding notes in each crook change, [produced] by the effect of the valves. When the horn is crooked in G (figure 5), they are completely pushed in.

But, for example, if the instrument is crooked in E (figure 6), the first valve, lowering it a whole step, puts it in D. The note C (E [in concert pitch]) is [now] therefore in unison with D, and this unison is tuned with slide A, by pulling it out or pushing it in, according to whether the note is too high or too low.

The horn being in E, if valve no. 2 is used, the [written] note B will be in unison with [concert] E-flat, and slide B will offer the means to tune the instrument perfectly. These examples show that these small slides adapted to the valve tubes give the means to obtain the best possible intonation.

Screws C and D, as [shown] in figure 7, serve as supports for the spring contained in each of tubes 1 and 2, as is shown on valve F, and their function is to return the valve quickly to its original state.

Each valve is arrayed with a cap or hat (see R on valve F). This cap is knurled and threaded, in order to facilitate the cleaning of the mechanism.

The brace H serves as a balance point for the thumb of the hand which holds the horn.

The other brace K m supports the two branches L Q of the slide on which the crooks are placed.

In general, the valves adapted to the horn change nothing of its range, resources, or manner of playing. Their use is optional, and artists who only wish to get accustomed to them by degrees will be able to continue to play the instrument by the old method until they have acquired the habit of using them. Imperceptibly, the ease of obtaining full and in-tune sounds, instead of stopped and dubious notes, will cause those who will at first be least disposed to make use of them, whether by laziness or prejudice, to do so. The new method for valved horn that Mr. Dauprat is going to publish, and in which all the scales will be found, will facilitate the use of so useful an instrument. One must therefore wait awhile, and not rush to write orchestra horn parts with all the modifications of the valves, as if they had been generally adopted. Presumably, in ten years the old horns will no longer be used.

It would be unfortunate if composers were to consider the improvements about which I have just spoken as ways to make the horns in their orchestras play continuously. Beyond [the fact] that such a tiring instrument demands that some rests be left for the performers, the resources of opposing effects,

so necessary in music, would be lost through too-frequent use, and one would fall into monotony. Therefore, the multiplied resources of the valved horn do not excuse [them] from using it with discretion. I insist on this point, because the new school is only too inclined to abuse noisy instruments.

We notice two sorts of valved horns at the Industrial Products Exposition: one, constructed by Mr. Labbaye, upon the designs of Mr. Meifred, and of which we have just spoken; the other built by Mr. Antoine, successor to Mr. Halary.<sup>21</sup> The latter instrument has three valves, in imitation of so-called Berlin trumpets, which have been played by Messrs. Dauverné, Legros, and Bénard with great effect in the opera *Macbeth* by Mr. Chelard.

But that which is very good on the trumpet, which is held with one hand while the other plays the valves, ceases to be so on the horn, where both hands are used to hold the instrument. The need to devote three fingers to playing the valves leaves only the thumb and first [i.e., little] finger to support the horn, which is very tiring. Besides, the third valve is absolutely useless, since everything can be done with two.<sup>22</sup>

Mr. Labbaye is to be commended for several inventions and important improvements in the construction of brass instruments. It is to him that is owed the process of bending tubes for horns, trumpets, etc., without using lead casting, whose adhesion is harmful to the sound. We also owe to him the [invention of the] bass of the wind band. The Society for the Encouragement of National Industry gave a favorable report on these two innovations in 1821, by their agent Mr. Francoeur.<sup>23</sup> Noteworthy among the instruments that he exhibited this year is a *mechanical kettledrum* that tunes in a single stroke, by means of a controller or regulator which indicates the necessary degree of tension. This very interesting discovery cannot fail to obtain much success, and I do not doubt that Mr. Labbaye's timpani will soon replace others, because of the facility of modulating this instrument at will: these timpani are moreover of a very small size, sonorous and easy to handle.

FÉTIS.

21. [Trans. note] Halary was the professional name adopted by Jean-Hilaire Asté (1775–1840), a Parisian maker of wind and brass instruments; after his retirement in 1825 the business was continued by Jean-Louis Antoine (1788–1861).

22. [Trans. note] From the standpoint of producing open notes throughout the range this is not exactly true, but it does reflect the opinions and later teachings of Joseph Meifred.

23. [Trans. note] See Louis-Benjamin Francoeur, “Rapport fait par M. Francoeur, au nom du Comité des arts mécaniques, sur les instrumens de musique de M. Labbaye fils, facteur d'instrumens, rue de Chartres, no. 14, à Paris,” *Bulletin de la société d'encouragement pour l'industrie nationale* 20 (1821): 144–46. I am grateful to Dr. Thomas MacCracken for his help in locating this article and identifying its author. Francoeur here describes a brass instrument he calls a “*basse d'harmonie ou ophicléide*,” first seen in France in foreign military bands “during the unhappy events of recent years,” which Labbaye is credited with improving through the addition of new keys.

### *Meifred's Valve Mechanism and its Applications*

Several important points arise from this detailed description. First, Fétis clearly considers the Labbaye/Meifred design to be an improvement over Schuster's valved horn. Second, the new instrument offers two especially significant features, each apparently for the first time: tuning slides on the valve tubes, and a valve cluster permanently attached to the body of the instrument. While detachable valve clusters continued to be used in France until the turn of the twentieth century, Meifred's design marks a new approach to the instrument, both practically and philosophically. As Fétis remarks, the hand holding the horn would no longer be forced to adapt to varying positions of the valve cluster on the main tuning slide, which would inevitably change as the player made adjustments to the instrument's intonation. Even more importantly, however, this development symbolizes a different conception of the role of valves, which are now an integral part of the instrument's construction and technique rather than an optional accessory. This new view would be promoted most actively by Meifred in the following decades.

It is also worth noting that for Fétis a horn with two valves was more desirable than one with three. In this opinion he was presumably influenced by Meifred, who in his *Méthode* of 1840 spells out the practical issues favoring the choice of a two-valved instrument. Meifred's rationale (presumably based on experience) was that a two-valved instrument offered the best compromise between the desirable playing characteristics of the natural horn and what the new technology had to offer. While he reluctantly admitted that some players preferred a horn with three valves, the only advantage he could find in this arrangement was that it made three additional notes available in the low range without lipping or hand-stopping, and in his view this was not enough to compensate for undesirable changes in sound and technique resulting from the use of this extra technology.<sup>24</sup>

The first public solo performance on a valved horn in France was given on March 9, 1828, at the inaugural concert of the Société des

24. Meifred, *Méthode*, 80–82. However, Meifred does describe how a person might apply his techniques to a three-valved instrument, and includes a fingering and hand-position chart that explains all possible options (see my dissertation [cited above in note 6], pp. 113–14 and 252–53).

Concerts du Conservatoire in Paris.<sup>25</sup> The varied program included, as the third of eight numbers, a "*Solo for valved horn*, composed and performed by Mr. Meifred." In reviewing the concert Fétis responded quite positively to it and Meifred's demonstration of the instrument's resources:

A solo for the valved horn, performed by Mr. Meifred, to whom is owed its improvements, gave an advanced idea of all the resources one can find on this instrument. Difficult passages unperformable on the ordinary [i.e., natural] horn and multiple modulations were played by Mr. Meifred with a facility that demonstrated [even] to the least well-informed listeners the advantages of the new procedures. I do not doubt that the valved horn will be generally adopted, as soon as a skilled maker replicates them, and Mr. Dauprat publishes the excellent method he has composed for the use of this innovation.<sup>26</sup>

Despite enthusiastic support from Meifred and Fétis, however, valved horns did not appear at the Opéra until 1835,<sup>27</sup> when a pair of them

25. Albert Vernaelde, "La Société des Concerts," *Encyclopédie de la Musique et Dictionnaire du Conservatoire*, ed. Albert Lavignac and Lionel de La Laurencie (Paris: Delagrave, 1931), Part 2, vol. 6, p. 3689. See also Antoine Aimable Élie Elwart, *Histoire de la Société des Concerts du Conservatoire* (2nd ed., Paris, 1864), 130–31.

26. "Un solo pour le cor à pistons, exécuté par M. Meyfred, à qui l'on doit ses perfectionnements, a donné une haute idée de toutes les ressources qu'on peut trouver dans cet instrument. Des difficultés, inexécutables sur le cor ordinaire, et des modulations multipliées ont été jouées par M. Meyfred avec une facilité qui a démontré aux auditeurs les moins éclairés les avantages des nouveaux procédés. Je ne doute pas que le cor à pistons ne soit généralement adopté, aussitôt qu'un facteur habile les aura multipliés, et que M. Dauprat aura publié l'excellente méthode qu'il a composée pour l'usage de cette innovation." François-Joseph Fétis, "Société des Concerts," *Revue musicale* 3 (1828): 148. The method by Dauprat is his *Traité pour le cor à pistons*, of which only an excerpt was published (Paris: Schönenberger, 1828); see Dauprat, *Le Professeur de musique*, 120.

27. As Fétis notes in his article translated in full above, the use of valved instruments in the Opéra orchestra began with the appearance of three, three-valved trumpets in *Macbeth* by Hippolyte-André-Baptiste Chelard, premiered on June 29, 1827. This, however, was not the first use of "chromatic" brass instruments in the orchestra, since composers such as Rossini and Meyerbeer made frequent use of keyed instruments, primarily trumpets and ophicleides, both before and after this date. (Two important sources for information on keyed instruments are Ralph Dudgeon, *The Keyed Bugle* [Metuchen, NJ: Scarecrow Press, 1993], and Clifford Bevan, *The Tuba Family* [New York: Scribner's, 1978], but very little research has been done regarding how these instruments were integrated into orchestral forces.) Moreover, it appears that Berlioz may have written for a pair of valved trumpets as early as 1826, in his *Grand Ouverture des Francs-juges*, though further study is needed to confirm this use.

was used, together with two natural horns, in Jules Halévy's *La Juive*.<sup>28</sup> In a review of the first performance published in the *Revue musicale*, Edouard Fétis (the eldest son of the journal's founder, who by this time had succeeded his father as editor) was generally complimentary, if rather lukewarm.<sup>29</sup> Somewhat surprisingly, he made no special mention of the valved horns, and subsequent Opéra productions show little change in composers' desires to include valved instruments.

Even after these initial appearances in concert and opera performances, however, the valved horn was slow to gain widespread acceptance in France. Since by this time hand-stopping technique had advanced to a point where the natural horn was perceived as a fully chromatic instrument, many musicians continued to prefer it, owing to the broad palette of timbres obtainable by means of various hand manipulations and shadings of pitches. At both the Conservatoire and the Opéra the acceptance of valves may have been delayed by the presence of Dauprat and Jacques-François Gallay, Dauprat's pupil and successor at the Conservatoire after 1842, both of whom favored the natural horn. The conservative nature of Parisian concert repertoire may also have played a role: programs of the Société des Concerts at this time generally reflect no clear need for valves either in practice or in principle. Though Meifred occasionally appeared as a soloist or chamber musician on later programs, and though his performances were always well-received, it still took a long time for the valved horn to be fully accepted due to the slow change in attitudes toward the new instrument.

Although Dauprat himself remained loyal to the natural horn, he was apparently the first in France to produce written instructions for playing the valved instrument, in the form of his 1828 *Traité pour le Cor à Pistons*.<sup>30</sup> The following year Meifred published a short treatise of his own, intended mainly for the guidance of young composers but effec-

28. For a more complete description of the horn parts in *La Juive*, see my dissertation, 73–75, or my recent article "Early Valved Horn Proponents in Paris 1826–1840," *The Horn Call Annual* 6 (1994): 10–12, with additions and clarifications in "Correspondence," *ibid.*, 7 (1995): 14–15. It should be noted that valved horns are not used throughout *La Juive*; in fact, the third and fourth players spend the majority of their time playing natural horns.

29. "Nouvelles de Paris: Académie Royale de Musique, Première Représentation de *La Juive*," *Revue musicale* 15 (1835): 72.

30. See note 26 above.

tively also a predecessor to his comprehensive *Méthode* of 1840. Its full title was *On the range, the use and the resources of the Horn in general, and of its crooks in particular, with some considerations on the valved horn*.<sup>31</sup> The section on valved horns is quite short (pp. 30–31), and addresses how the valves might be used by performers and composers. At this stage the primary focus was on using them as means of effecting immediate crook changes (as indicated by appropriate written indications in the score), after which hand technique was to be employed.<sup>32</sup> This is in marked contrast to contemporary practice in Germany, where it appears that once valves were added to the horn, the expectation was that all notes would be played open.<sup>33</sup>

Meifred's ideas, however, were based on using the best that the natural and valved instruments could offer, along the lines suggested by Fétis's encouragement to composers to make full use of the horn's newly-expanded capabilities. Already in his 1829 treatise Meifred says that composers can take advantage of open and stopped notes throughout the range, and during the following decades he developed a creative and sophisticated approach to the valved horn combining hand technique and valve technology, which was looked upon very favorably by his more conservative colleagues. Even Dauprat saw the combination of hand and valve as having expressive potential, and eventually resigned himself to inevitable progress while still hoping the color palette of stopped notes would not be lost. After explaining Meifred's inventions and contributions in his *Le Professeur de musique* of 1857, Dauprat wrote that while the natural horn still offered the most to composers, the valved horn could be used effectively:

31. *De l'étendu, de l'emploi et des ressources du Cor en général, et de ses corps de rechange en particulier, avec quelques considérations sur le cor à pistons* (Paris: Richault, 1829). Fétis advertised it in "Prospectus: *De l'étendu, de l'emploi et des ressources du Cor . . .*," *Revue musicale* 4 (1828–29): 609–11, and reviewed it in "Publications Classiques: *De l'étendu, de l'emploi et des ressources du Cor . . .*," *ibid.* 6 (1829–30): 189–90. Special thanks to John Ericson for providing me with a copy of this method.

32. While horns with removable valve clusters were available in Paris, Meifred's permanently-attached valves allowed players to make necessary changes to the (internally located) crooks while leaving the valves unused until such time as they were needed. Alternatively, his design also allowed for terminal crooks, in which case the tuning slide remained in place and was used only for adjusting intonation.

33. This is reinforced in a number of reports and articles, both celebrating and lamenting, that appeared in various places; see my dissertation, 53–59 and 84–88.



Finally, in the works that he [Meifred] has written for *valved horn* study, the same professor has revived the recommendations that we made previously [Dauprat's footnote: in the *Extract of an unpublished Treatise for valved Horn*, which we published in 1828 with Schönerberger, in Paris], not to use the valves in a *solo* except for the most dull artificial [i.e., stopped] notes, and for those which are lacking in the first [i.e., lower] octave of the range used in the orchestra, so as to taint such a beautiful instrument as little as possible. . . .

Since the important modification Mr. Meifred made to the mechanism applied to the horn (dating from 1827)—whose aim was to give as much as possible to the instrument what it was missing, without removing its special physiognomy, by the intelligent mixture of *natural* sounds and *artificial* sounds, without depriving it of any of its advantages—new improvements have been successively realized. These improvements, and some others still in the process of being executed—the fruits of time and laborious attempts on the part of mechanics, of French and foreign builders, aided by the counsel of many practicing artists, and particularly of Mr. Meifred—have admittedly already diminished our concerns related to the future of this noble instrument, because the last word has not yet been spoken, as we will soon see.

Finally, the horn, by the means of ascending and descending valves, and by the help of the hand placed in the bell, has henceforth the possibility to render, in four or five ways, all notes, *natural* or *artificial*, making up its diatonic, chromatic and enharmonic range. If these brilliant conquests are not obtained at the expense of its basic qualities, this wind instrument, one of the most beautiful among all, will be hereafter the most complete.<sup>34</sup>

34. "Enfin, dans les ouvrages qu'il a écrites pour l'étude du *cor à pistons*, le même professeur a bien voulu renouveler les recommandations que nous avions faites antérieurement [Dans l'*Extrait d'un Traité inédit du Cor à pistons*, publié par nous en 1828 (chez Schönerberger, à Paris)], de ne se servir des pistons, dans le *solo*, que pour les notes factices les plus ternes, et pour celles qui font lacune dans la première octave de l'étendue usitée à l'orchestre, afin de ne dénaturer que le moins possible un si bel instrument. . . .

Depuis l'importante modification apportée par M. Meifred au mécanisme appliqué au cor (elle date de 1827), et dont le but a été de donner autant que possible à l'instrument ce qui lui manquait, sans lui enlever sa physionomie spéciale, due au mélange intelligent des sons *naturels* et des sons *factices*; sans priver d'aucun de ses avantages, de nouveaux perfectionnements se sont successivement réalisés. Ces améliorations, et quelques autres encore en voie d'exécution, fruits du temps et de laborieux essais de la part des mécaniciens, des facteurs français et étrangers, aidés par les conseils de plusieurs artistes praticiens, et particulièrement de M. Meifred, ont déjà diminué, nous l'avouons, nos inquiétudes, relativement à l'avenir du noble instrument; car le dernier mot n'est pas dit encore, comme on le verra bientôt.

Le cor enfin, par le moyen de pistons ascendants et descendants, et par le secours de la main placée dans le pavillon, a désormais la possibilité de rendre, de quatre ou cinq manières, tous les sons, *naturels* ou *factices*, compris dans son étendue diatonique, chromatique et enharmonique. Si ces brillantes conquêtes ne sont pas obtenues aux dépens

### *Aftermath*

Fétis continued to advocate the use of valved instruments to the end of his life. As late as 1865 he was still trying to rally support for what he saw as a useful musical resource, asserting that valves were among the most important discoveries ever offered to composers.<sup>35</sup> By this time valved instruments had been received with enthusiasm in Germany and Belgium, which along with other countries had moved forward by adopting valved horns, trumpets, and trombones, and by substituting bass and contrabass saxhorns for ophicleides. In France, however ("toujours en retard" in adopting new things, according to Fétis), only the cornet had achieved widespread use, thanks largely to the accomplishments of the virtuoso Jean Baptiste Arban. Fétis goes on to say that

The prejudice against valved horns is so deeply-rooted that the most skillful artists disdain them. They persuade themselves that the sound of the valved horn is inferior to that of the natural horn. But if talented men such as Messrs. Mohr, Paquis, and Baneux would apply themselves to the study of this instrument, they would soon have proof that their quality of sound would lose none of its purity. On top of that, it would suffice for them to hear the four valved horns of the orchestra at the Brussels Conservatory to acquire the conviction that in no place does the horn's tone have more brilliance and purity. Finally, anyone knows that it is not possible to have a true low horn without valves, because it is by their combinations that the instrument has gained a complete low octave.<sup>36</sup>

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de ses qualités primitives, cet instrument à vent, l'un des plus beaux parmi tous, sera désormais le plus complet." Dauprat, *Le Professeur de musique*, 120.

35. François-Joseph Fétis, "De la nécessité de substituer les nouveaux instruments d'Adolphe Sax aux anciens dans les orchestres," *Revue et Gazette Musicale* 32, no. 27 (2 July 1865): 215–16.

36. "Le préjugé contre les cors à pistons y est si bien enraciné, que les artistes les plus habiles les dédaignent. Ils se persuadent que le son du cor à pistons est inférieur à celui du cor ordinaire; mais, si des hommes de talent tels que MM. Mohr, Paquis et Baneux se livraient à l'étude de cet instrument, ils auraient bientôt la preuve que leur qualité de son n'aurait rien perdu de sa pureté. Au surplus, il leur suffirait d'aller entendre les quatre cors à pistons de l'orchestre du Conservatoire de Bruxelles pour acquérir la conviction qu'en aucun lieu la sonorité du cor n'a plus d'éclat et de pureté. Enfin, il n'est personne qui ne sache qu'il ne peut y avoir de cor basse véritable sans les pistons, car c'est par leurs combinaisons que l'instrument a gagné une octave complète au grave." *Ibid.*, 215. The three players Fétis mentions are Jean-Baptiste Mohr (1823–1891), who was Gallay's successor as professor of [natural] horn at the Conservatoire (1864–1891); Antoine Victor Paquis (1812–?); and Mathieu Gustave Baneux (1825–1878), all of whom were influential and active in important Parisian musical circles. See Birchard Coar, *A Critical Study of the 19th Century Horn Virtuosi in France* (Dekalb, Illinois: The Author, 1952), 151–52, 157–58.

Fétis further observes that the argument given by adherents of the old (i.e., natural) horn was that its stopped notes created a mysterious quality that was very useful for expression. In defense of valves, he renewed the argument that the same effects can be obtained with valves over a wider range.

Further evidence of the enduring prejudice against valved instruments in France throughout the nineteenth century is that upon Meifred's retirement from the Conservatoire, in 1864, the valved horn class he had inaugurated three decades earlier was discontinued. The professorship for natural horn, a separate position, passed from Dauprat (1816–1842) to Gallay (1842–1864) and then to Mohr (1864–1891), who, as reported by Fétis above, was not sympathetic to the valved instrument. The issue, however, seems to have been one for brass instruments in general, not necessarily directed only toward the horn. For example, even though Arban had established himself by the 1850s as one of Europe's foremost virtuosos on the valved cornet, his 1861 petition to begin a class for this instrument at the Conservatoire was not granted until 1869, when Dauverné retired as professor of trumpet and Arban was selected to succeed him.

Almost twenty years later, an article published by Camille Saint-Saëns showed the problem facing composers who wanted to write for the valved horn, due to the continuing use of crooked instruments.

Nowadays chromaticism is used much more often than in the past, which means that sudden modulations cannot always be executed by the horn. To do so they would have to change the crook, which again means that the orchestra has to do for a few bars without the horns, since replacing a crook on the instrument by another one—of a different temperature and consequently too low—takes time. Some will say that there is always hand-stopping that allows a chromatic scale equal to any other instrument, but even so, if the modulation or the note to be sustained happen to be like: [c<sup>♯</sup>–d–e<sup>b</sup>–e–f–a–b<sup>b</sup>–d'–f'–a<sup>b</sup>'] the effect is as if the horns did not play at all.

And that is where the valve horn comes in: it can play all these notes. But even with the valve horn, there will always be a moment when one is obliged to change the crook, because this system does not comprise the range of all the extra crooks. . . .<sup>37</sup>

37. Camille Saint-Saëns, "La suppression des transpositeurs dans les instruments à vent de l'orchestre," *Le Ménestrel*, November 21, 1886, quoted and translated by Jean-Pierre Mathez in "Jean Baptiste Arban (1825–1889)," *Brass Bulletin* 14 (1976): 3–4. The sequence of ten pitches is given in musical notation in the original.

It was not until the closing years of the nineteenth century that valved horns were brought back into the curriculum of the Conservatoire. In a letter of 1922 to Reginald Morley-Pegge, François Brémont, Mohr's successor as horn teacher at the Conservatoire, revealed how the valved horn class at the Conservatoire was reinstated:

The valve-horn class had not been held since 1863, and it was I who asked Mr. Ambroise Thomas to allow me to hold one valve-horn class every week.

I then got permission for the sight-reading test at the annual public examination to be played on the valve horn (for this the student fitted a detachable set of valves to his instrument in public), and finally for both the set piece and the sight-reading test to be played on the valve horn, hand technique being retained for specifically hand-horn phrases. From then on (1897) the valve-horn class was virtually, if not officially, reinstated by me. Hand horn until 1896—hand and valve horn from 1897 to 1902—valve horn since 1903.<sup>38</sup>

### *Conclusion*

In mid-nineteenth-century France, due to the high level of technical capability and musical status of the natural horn and its advocates, the valved horn encountered much more resistance on the way to acceptance by players and composers than did the valved trumpet. Particularly in its initial stages, that acceptance was due to the efforts of Fétis and Meifred, who agreed that the valved instrument could combine the best that both hand technique and valve technology had to offer. The invention of the “Meifred horn,” as Kastner called it, had a significant impact on brass instrument construction throughout Europe, as evidenced by the number of instrument makers who subsequently added tuning slides to their valve tubes. There is also no doubt that the permanent attachment of valves to the body of the instrument contributed to a reevaluation of its available resources and how they might be applied to musical expression.

Interestingly, no further references to a “Meifred horn” have been found, despite Kastner's claims for the use of this term in Germany and

38. Morley-Pegge, *The French Horn*, 5–6 (Morley-Pegge's translation; original French text on pp. 3–4). Although Brémont states that “the valve horn class had not been held since 1863,” Meifred was not pensioned until October 1, 1864, when both he and Gallay were replaced by Mohr. See Constant Pierre, *Le Conservatoire National de Musique et de Déclamation* (Paris: Imprimerie Nationale, 1900), 451.

Italy. Meifred's name was known in Germany, notably in two cases where he is described as an important inventor; however, neither reference identifies a "Meifred horn" or accurately represents either his technological innovations or his approach to playing technique.<sup>39</sup>

Fétis continued to support technological progress in all instruments, becoming an outspoken ally of Adolphe Sax among other innovators in this field. At the same time, however, Fétis continued to prefer conservative musical styles, as evidenced by his critical comments in Parisian periodicals, and he even occasionally criticized composers (such as Berlioz) who did use modern technological developments in progressive musical contexts, though usually this criticism had to do with musical rather than technological issues. His constant encouragement for using valved brass instruments seems to have been well received outside the Conservatoire and Opéra, but those with more conservative preferences for the use of technology resisted or ignored his enthusiastic diatribes. In the end, while their efforts can be seen as important steps forward in the evolution and acceptance of valved instruments, the influence which Meifred and Fétis exerted on established Parisian musical circles was not as profound or extensive as they might have hoped.

Clearly, resistance to the valved horn lasted much longer in France than elsewhere—in some circles, such as the Conservatoire, even until the turn of the twentieth century. Inevitably, however, the new instrument eventually took hold there as it had some fifty years earlier in the rest of Europe. Yet we must realize that the first valved horns in France were treated in a manner different not only from their modern descendants but also from contemporary usage in other countries. A knowledge of the ways in which, from its introduction in the 1820s to the middle of the nineteenth century, early valve technology was developed and applied to the performance and interpretation of French music is therefore of fundamental importance to the historically appropriate and effective performance of that music today.

39. See the *Allgemeine musikalische Zeitung* 35, no. 30 (July 1833), col. 490, for an account of an "omnitonic horn" inaccurately attributed to a supposed collaboration between Meifred and Adolphe Sax; and "Musik-Aufführungen in Paris," *ibid.* 47, no. 19 (May 1845), cols. 327–28, for a mention of Meifred as a progressive pedagogue.

## Appendix: Original French Text of Fétis's Article

### EXPOSITION DES PRODUITS DE L'INDUSTRIE. INSTRUMENS DE CUIVRE. CORS A PISTONS.

Inventer des chants simples et naturels devient chaque jour plus difficile et plus rare, soit que les idées radicales soient bornées à un nombre déterminé, au-delà duquel il n'y ait que des modifications de goût, des arrangemens, des déguisemens de phrases connues, soit que l'oreille des *dilettanti* ressemble au palais des gourmands, qu'elle se blase et finisse par se dégoûter des émanations les plus sublimes du génie. A mesure qu'on avance dans l'art, la musique simple s'affaiblit et laisse envahir son domaine par la musique d'effet, par le bruit même. Tel qui supportait à peine quelques notes de cor autrefois, a besoin aujourd'hui de tout l'attirail des trompettes, des trombones et des *ophicléïdes*; tel autre, que le bruit des timbales assourdissait, n'est point satisfait s'il n'entend la grosse caisse, les cymbales, les crotales, etc. Les effets, le bruit sont devenus la ressource du compositeur, et le goût dominant du public; c'est donc à la recherche des effets que chacun applique ses facultés, et l'on doit convenir qu'on s'y est rendu fort habile depuis trente ans.

Mais si le génie du musicien est indispensable pour les découvrir, l'art des luthiers n'est pas moins utile; car les découvertes d'instrumens nouveaux, et les perfectionnemens des anciens, ont fourni des ressources sans lesquelles l'école moderne n'aurait pu produire des effets si surprenans. Les instrumens de cuivre ont particulièrement éprouvé des améliorations considérables. Je me propose de les examiner en détail, et je commencerai par le cor, instrument important dans l'état actuel de nos orchestres.

On a vu dans un article de la *Revue musicale* (n° 11, p. 270), qu'il n'y avait autrefois d'autres cors dans l'orchestre que le *cornet à bouquin*, qui était percé de sept trous dont l'un se bouchait avec une clef, et qui n'avait d'autre embouchure que celle de la trompette. Le cor-de-chasse fut inventé en France vers 1680; mais il ne commença à s'introduire dans l'orchestre qu'en 1730, du moins pour l'usage de l'Opéra. Ce n'est même qu'en 1757 que cet instrument y fut employé d'une manière avantageuse par M. Gossec, dans deux airs qu'il composa pour les débuts de M<sup>lle</sup> Arnould, et où l'on trouvait deux clarinettes et deux cors obligés.

Borné d'abord aux notes naturelles, [g, c', e', g', c'', d'', e'', g''] le cor était de peu de ressource. Mais une découverte de *Hampl*, célèbre corniste de la cour de Dresde, vers 1760, changea tout à coup son échelle et agrandit son domaine. Dans la vue de faire un effet de sourdine, il imagina de boucher en partie le pavillon avec un tampon de coton; mais sa surprise fut extrême de s'apercevoir que son instrument était haussé d'un demi-ton. Ce fut pour lui un trait de lumière, et sur-le-champ il essaya de présenter et de retirer son tampon sur toutes les positions des lèvres, et il obtint des demi-tons de toutes les gammes diatoniques et chromatiques. Les sons qu'il obtenait avec le tampon étaient à la vérité plus sourds que ceux que lui fournissait la colonne entièrement libre; mais ils n'étaient pas moins précieux. Il leur

donna, à cause de cela, le nom de *sons-bouchés*. Dans la suite, il s'aperçut que la main pouvait remplacer le tampon avec avantage, et adopta ce dernier procédé. Rodolphe est le premier qui ait fait connaître en France ces notes bouchées.

La découverte de Hampl fut suivie de plusieurs autres non moins importantes, qui, successivement, ont porté le cor à un point où il semble qu'il reste peu de choses à faire. Par exemple, on sait que tous les instrumens s'élevèrent avec la température; mais la matière dont le cor est formé est plus impressionnable qu'aucune autre; aussi cet instrument monte-t-il rapidement. Pour l'accorder avec l'orchestre, on n'avait point trouvé d'abord de meilleur expédient que d'ajouter un certain nombre d'allonges auprès de l'embouchure; mais ces allonges avaient l'inconvénient d'éloigner le pavillon du corps, et conséquemment de priver l'instrument de son point d'appui. Un facteur de Hanau, près de Francfort-sur-le-Mein, nommé *Haltenhoff*, appliquant au cor le principe de la construction du trombone, imagina la coulisse qui permet d'allonger à volonté la colonne d'air, et sur laquelle on a fini par poser les différens tons de l'instrument.

Tel était naguère l'état où le cor avait été amené successivement. Divers essais avaient été faits pour donner aux sons bouchés une sonorité analogue à celle des sons ouverts, mais toujours infructueusement. Charles Clagget, compositeur anglais, avait inventé, à la fin du siècle dernier, un cor double composé des deux tons de *ré* et de *mi*<sup>b</sup>, et qui n'avait qu'une seule embouchure. Au moyen d'une clef qui ouvrait la communication de l'air avec l'un ou l'autre cor, on pouvait donner à volonté, en sons ouverts, à peu près toutes les notes de la gamme chromatique; mais l'instrument était lourd et difficile à jouer à cause du calcul que l'exécutant était continuellement obligé de faire. Cette découverte n'eut donc point de suite.

On regrettaient cependant qu'un instrument doué d'une voix aussi flatteuse que le cor eût si peu de notes naturelles, et tant de sons factices, quand, tout à coup, un musicien allemand, inconnu jusque-là, inventa le *cor à pistons*, en 1815 ou 1816. Ce musicien, nommé *Stoelzel*, fatigué d'être obligé de porter partout les divers tons du cor, lorsqu'il allait accompagner les danses du pays, dans les orchestres de campagne, conçut le dessein de se débarrasser de cette obligation, et de faire un cor avec lequel il pût jouer dans tous les tons. A force de recherches et de persévérance, il vint à bout de ce qu'il avait entrepris, et porta son invention encore informe à Berlin, où M. Schlot, fabriquant d'instrumens de cuivre, chercha à la perfectionner.

Cette invention consistait à placer sur la coulisse deux boîtes qui contenaient chacune une pièce de cuivre percée de trous et posée sur un ressort à spirale. Lorsque le ressort était dilaté, il poussait en haut la pièce de cuivre, dont les trous ne rencontraient pas alors ceux des tuyaux additionnels qui étaient destinés à baisser l'instrument d'un demi-ton, d'un ton, ou d'un ton et demi. Mais lorsque le doigt était appuyé sur le piston, les trous se rencontraient, l'air circulait et l'effet était produit.

A cette époque, M. Christophe Schuncke, musicien du prince de Bade, se trouvant à Berlin, conçut, au premier examen du cor de Stoelzel, tout le

parti qu'on pouvait en tirer, et, de retour à Carlsruhe, il invita M. Schuster, facteur fort habile, à travailler au perfectionnement de l'ingénieux instrument. Mais le mécanisme ayant été appliqué par lui à la coulisse d'un cor *solo*, comme l'avait fait Stoelzel, divers inconvéniens assez graves en résultaient. D'abord on ne pouvait obtenir que quatre tons, savoir: 1° celui du cor sans piston *fa*; 2° celui de *mi*<sup>b</sup>, donné par le piston qui baissait l'instrument d'un demi-ton; 3° celui de *mi*<sup>b</sup>, produit par le piston du ton; et enfin 4°, celui de *ré*, qu'on obtenait en réunissant les deux pistons.

Le second inconvénient consistait en ce que n'ayant point de corps de rechange, on pouvait être conduit dans des modulations difficiles, qui obligeaient à tenir constamment les doigts appuyés sur les pistons, ce qui causait de la fatigue. En outre, cette obligation d'employer constamment les pistons, privait l'instrument des sons aigus dans les tons élevés tels que *sol*, *la*, et *si*<sup>b</sup>, sorte de sons dont les timbres sont brillans dans les cors ordinaires, ou les rendait très difficiles à obtenir. Par exemple, si, dans le ton de *si*<sup>b</sup>, on doit faire *fa* à l'unisson de celui-ci [*f*"], au lieu de jouer dans ce ton le note *sol* [*g*"] qui y correspond, est obligé de prendre *ut* aigu du ton de *fa* [*c*"] cette note sera infiniment moins aisée à faire.

Le troisième inconvénient du cor à pistons de M. Schuster est d'obliger à transposer presque continuellement, et de changer dans chaque ton le jeu des pistons.

Enfin, ce continuel emploi des pistons changeait la sonorité naturelle de l'instrument et l'altérait; outre cela, la place des pistons changeait à mesure qu'on était obligé de tirer la pompe, ce qui occasionnait un déplacement de la main qui tenait l'instrument. Cet allongement de la pompe ne se trouvant plus proportionné avec l'étendue des tons produits par les pistons, nuisait d'ailleurs considérablement à la justesse.<sup>1</sup>

Néanmoins les avantages qu'offre cet instrument sont tels, que les artistes les plus distingués désiraient qu'on pût corriger ses défauts, afin de l'adopter. L'un d'eux, M. Meifred, artiste de l'Opéra et de la chapelle du roi, ancien élève de l'école des arts et métiers de Châlons, imagina d'adapter au cor le mécanisme de la trompette perfectionnée, et d'ajouter de petites pompes particulières aux tubes qui baissent l'instrument d'un ton ou d'un demi-ton; au moyen de quoi il est facile de suivre la proportion géométrique que commande l'augmentation générale du cor, soit qu'elle résulte du changement de corps de rechange, soit que l'on tire ou baisse la pompe d'accord.

M. Meifred, au lieu de placer les pistons sur la pompe, les a appliqués aux branches; en sorte que la pompe étant devenue libre, il a pu conserver à l'instrument ses corps de rechange. De cette manière, le jeu des pistons est devenu plus facile, ne variant point de place, et ne servant plus qu'à éviter

1. Je dois à MM. Dauprat et Meifred tous ces détails et ceux qui suivent. M. Dauprat, qui a composé un traité de cor à pistons pour faire suite à son excellente *Méthode de cor-alto et de cor-basse*, a bien voulu me communiquer son travail, d'où j'ai extrait la plupart des renseignemens que contient cet article.



les sons bouchés ou à des modulations incidentes. Le compositeur trouve ainsi des ressources inépuisables dans ce bel instrument. Veut-il des sons vigoureux sur toutes les notes? les pistons les lui fournissent. A-t-il besoin d'énergie dans ses modulations éloignées du ton primitif? il n'est plus obligé de faire taire ses cors, comme par le passé. Dans d'autres cas, les sons bouchés lui sont-ils nécessaires pour obtenir des effets mélancoliques? le cor de M. Meifred les lui fournit également, et c'est encore un des ses avantages sur celui de Carlsruhe. Enfin, le cor à pistons, tel que l'a conçu M. Meifred, conserve les qualités de l'ancien instrument, et lui ajoute toutes celles qui lui manquaient.

M. Labbaye, facteur d'instruments de cuivre,<sup>2</sup> connu par diverses inventions, l'a exécuté d'après ses dessins et ses instructions, et l'a mis à l'exposition des produits de l'industrie. Nous en donnons la représentation dans la planche ci-jointe, et l'on pourra facilement le comparer avec celui de Carlsruhe, dont on voit la pompe accompagnée de ses pistons, fig. 1.

#### *Des fonctions des pistons.*

En appuyant le doigt sur le piston n° 1 (fig. 2), on baisse le cor d'un ton, c'est-à-dire qu'on livre les passages *o o'* à l'air, qui parcourt alors un espace plus grand de la quantité *o p o'*.

Par le piston n° 2, le cor est baissé d'un demi-ton; les passages *s s'* sont ouverts, et l'air circule dans un espace plus long de la quantité *s t s'*.

Enfin, en appuyant sur les pistons 1 et 2 à la fois, le cor se trouve baissé d'un ton et demi, les passages *o o'*, *s s'*, étant ouverts, l'air circule dans toutes les parties du cor.

Pour le perce des pistons, voyez la fig. 3 de la planche.

#### *De la pompe ou coulisse L Q.*

C'est sur cette pompe que se placent les corps de rechange; elle sert, sans toucher aux pistons, à prendre le *la*; mais l'instrument ne peut s'accorder que par le moyen des petites coulisses A et B (fig. 4).

#### *Des fonctions des coulisses A B.*

Ces deux coulisses servent à assurer la justesse de l'instrument, en établissant celle des sons correspondans dans chaque changement de ton, par l'effet des pistons. Lorsque le cor est avec la pompe de *sol* (fig. 5), elles sont entièrement enfoncées.

Mais, par exemple, si l'instrument est avec les corps de rechange *mi<sup>b</sup>* (fig. 6), le piston n° 1 le baissant d'un ton, le met en *re*. La note *ut* (*mi<sup>b</sup>*) est donc à l'unisson de *re*, et l'on accorde cet unisson avec la coulisse A, en la tirant ou en la poussant, suivant que la note est trop haute ou trop basse.

Le cor étant en *mi<sup>b</sup>*, si l'on se sert du piston n° 2, la note *si* sera à l'unisson de *mi<sup>b</sup>*, et la coulisse B offrira les moyens d'accorder parfaitement l'instrument. On voit par ces exemples que ces petites coulisses adaptées

2. M. Labbaye demeure rue de Chartres, n° 14.

aux tubes des pistons donnent les moyens d'obtenir la plus grande justesse possible.

Les vis *C* et *D*, ainsi que la fig. 7, servent de point d'appui au ressort à spirale qui est contenu dans chacun des tubes 1 et 2, ainsi qu'il est figuré au piston *F* et dont les fonctions sont de renvoyer promptement le piston à son état primitif.

Chaque piston est revêtu d'un couvercle ou chapeau (*V. R.* au piston *F*). Ce chapeau est à mollette et à vis, afin de faciliter le nettoyage du mécanisme.

Le tenon *H* sert de point d'appui pour le pouce de la main qui tient le cor.

L'autre tenon *K m* soutient les deux branches *L Q* de la pompe sur laquelle se placent les corps de rechange.

En général les pistons adaptés au cor ne changent rien à son étendue, à ses ressources, ni à la manière de le jouer. Leur usage est facultatif, et les artistes qui voudront ne s'y accoutumer que par degrés, pourront, jusqu'à ce qu'ils aient acquis l'habitude de s'en servir, continuer à jouer l'instrument par l'ancienne méthode. Insensiblement, la facilité d'obtenir des sons pleins et justes au lieu de sons bouchés et douteux, déterminera à s'en servir ceux qui y seront d'abord le moins disposés, soit par paresse ou par préjugé. La nouvelle méthode de cor à pistons que M. Dauprat va publier, et dans laquelle on trouvera toutes les gammes, facilitera l'usage d'un instrument si utile. On doit donc tout attendre du temps, et ne pas se presser à écrire les parties de cor d'orchestre avec toutes les modifications des pistons, comme si elles étaient généralement adoptées. Il est présumable que dans dix ans on ne se servira plus des anciens cors.

Il serait fâcheux que les compositeurs considérassent les perfectionnements dont je viens de parler comme des moyens de faire jouer sans cesse les cors dans leur orchestre. Outre qu'un instrument si fatigant exige qu'on laisse des repos aux exécutans, on perdrait, par son usage trop fréquent, les ressources des oppositions d'effets, si nécessaires en musique, et l'on tomberait dans la monotonie. Les ressources multipliées du cor à pistons ne dispensent donc pas de l'employer avec discrétion. J'insiste sur ce point, parce que la nouvelle école n'est que trop portée à abuser des instrumens bruyans.

On remarque à l'exposition des produits de l'industrie deux sortes de cors à pistons; l'une, construite par M. Labbaye, sur les dessins de M. Meifred, et dont nous venons de parler; l'autre, fabriquée par M. Antoine, successeur de M. Halary. Ce dernier instrument a trois pistons, à l'imitation des trompettes dites de Berlin, qui ont été jouées avec beaucoup d'effet dans l'opéra de *Macbeth* de M. Chelard, par MM. Dauverné, Legros et Bénéard.

Mais ce qui est très bon sur la trompette, qu'on tient d'une main pendant que l'autre fait jouer les pistons, cesse de l'être sur le cor, où les deux mains sont employées à tenir l'instrument; car l'obligation de consacrer trois doigts au jeu des pistons, fait qu'il ne reste plus que le pouce et le premier doigt

pour soutenir le cor, ce qui est très fatigant. D'ailleurs le troisième piston est absolument inutile, puisqu'on peut tout faire avec deux.

M. Labbaye s'est rendu recommandable par plusieurs inventions et perfectionnemens importans dans la construction des instruments de cuivre. C'est à lui qu'est dû le procédé pour courber les tubes des cors, trompettes, etc., sans y employer le coulage du plomb, dont l'adhérence est nuisible au son. On lui doit aussi la basse d'harmonie. La société d'encouragement pour l'industrie nationale a fait sur ces deux innovations un rapport avantageux en 1821, par l'organe de M. Francoeur. Parmi les instrumens qu'il a exposés cette année, on remarque une *timbale mécanique* qui s'accorde d'un seul coup par le moyen d'un commandeur ou régulateur, qui indique le degré de tension nécessaire. Cette découverte très intéressante ne peut manquer d'obtenir beaucoup de succès, et je ne doute pas que les timbales de M. Labbaye ne soient bientôt substituées aux autres, à cause de la facilité qu'on aura de moduler à volonté sur cet instrument: ces timbales sont d'ailleurs d'un très petit volume, sonores et faciles à manier.

FÉTIS.