

The Bass Horn and Upright Serpent in Germany

Part 3: Bombardon and Ophicleide: Sound and Musical Use of the Bass Horn, Serpent, and Ophicleide

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The bombardon and the ophicleide in German lands are historically related in a curious way: the sound of the French ophicleide was not much appreciated, though its name was welcomed. Conversely, the sound of the bombardon was widely admired, but not its name. Thus it transpired that the bombardon, specifically the type that was built in the shape of an ophicleide, was often called “ophicleide.” This ironic twist continues in the organological literature to this day to cause confusion when it comes to the question of the difference between the German ophicleide and the bombardon.

The bombardon

The bombardon was an important instrument in Germany and Austria between about 1830 and 1900. It had its roots in the continental bass horn and was conceived shortly after the invention of the chromatic bass horn (1820), but it was more successful than either of its predecessors. Its design is credited to Wenzel Riedl, of the Riedl family of Viennese instrument makers, apparently when he sojourned in Warsaw in 1823. He constructed his instrument of metal and equipped it with twelve (sometimes fewer) tone holes covered with keys. The common sizes of the early bombardon were eight-foot C and nine-foot B \flat . The only source known so far about the bombardon’s origin is an article of 1833 published by the Viennese poet Othmar Berndl in the *Allgemeine Theaterzeitung*,¹ which soon after its publication appeared in an adapted version in the *Schlesische Zeitung für Musik*:

This estimable artisan [Wenzel Riedl] invented the bombardon ten years ago in Warsaw, but at that time it had a different shape and twelve keys. Although he did not publicize his invention in print, he sold some of these instruments. They were imitated here and there, and so it happened that Herr Wenzl Riedl recognized in the ophicleide that the Gesellschaft der Musikfreunde of the Austrian Empire had ordered from Paris, his natural child that during its stay abroad however had lost three keys.²

Nothing is known about the motives that inspired Riedl to work on this invention, but they obviously included the bass horn’s often-bemoaned lack of tonal volume. Riedl may also have found Streitwolf’s chromatic bass horn of wood unsatisfactory. The use of brass was crucial to the design, as this material is easily adaptable to any bore size

and tubing; large-bore bass bombardons of wood are almost inconceivable. When around 1830 there commenced a trend toward instruments with a lower range and larger bore, makers could easily construct bombardons that met the new requirements. In 1854 Karl Emil von Schafh utl was still aware of the bombardon's descent from the bass horn and noted in his *Bericht der Beurteilungskommission* that "initially they [the bombardons] were called corno basso."³ In 1824 Eug ne Roy wrote about the sound and use of the new instrument in his *M thode de Cor de Signal a clefs*: "The name of this instrument is 'bombardon' because of its vigorous tone.... It is very appropriate for reinforcing the bass line in orchestras as well as in military bands of the cavalry and infantry."⁴ Apparently none of the early bombardons has survived; the engraving in Figure 18 is one of various fingering charts in which the instrument is called either *cor signal de basse*, *Ba fl gelhorn*, "bombardon," or "ophicleide."⁵

As the quoted report about the invention of the bombardon appears to indicate, Riedl also built the bombardon in the shape of the ophicleide (Figure 19), and thus the instrument was generally called "ophicleide." It seems that the name "bombardon" was widely used in southern Germany, Bavaria, Austria, and Lombardy, while in the north the name "ophicleide" prevailed. An early instrument of the ophicleide type is shown in Figure 20, while Figure 21 displays this type side by side with the "regular" French-style ophicleide. Joseph Felix Riedl in Vienna offered this type of ophicleide in his catalog of around 1833–35 and described it as *ophicleide, ou Basse d'Harmonie in C Ton*.⁶ It was also built in Markneukirchen, for K mpffens S hne show such an instrument in their catalog of 1830–33. The chart in Figure 22 plots the bore profiles of the early bombardon and the French-style ophicleide by way of comparison. As the chart indicates, the bombardon is much narrower over 90% of its length than the ophicleide, but its bell flare is much more extreme. Table I gives a few bore dimensions as orientation.

Table I: Bore dimensions of bass horns, bombardons, and ophicleides
(averages in millimeters)

Number of instruments	Type (in C and B�)	Minimum diameter in bocal	Bore diameter at knee	D3 (bore at the distance of D from the end of tube)	D (bell)
10	Continental bass horn	11.5	33.2	66.6	212.3
7	English bass horn	12.8	41.6	60.3	192.9
3	Bombardon	11.4	31	71.2	276
16	Ophicleide	12.1	51.9	103.8	219.2

In addition to the instruments in the table, a contrabass bombardon in F by Georg Saurle, Munich (ca. 1835) should be mentioned (Museum of Musical Instruments of Leipzig University, no. 1605, Figure 23b). It features the corresponding dimensions 12.3, 56.0, 104.0, and 349 mm. The readings up to the point D3 are similar to those of the regular ophicleide. As its tube length is $\frac{4}{3}$ of the ophicleide's, its bore consequently has a diameter $\frac{3}{4}$ that of the ophicleide; the bell diameter is significantly larger.

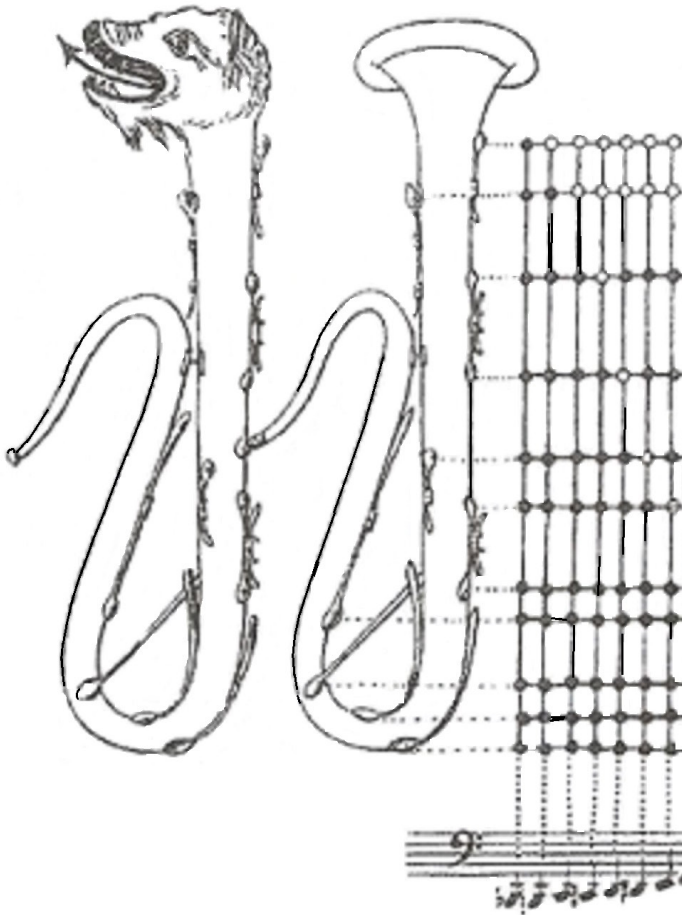


Figure 18: “Scala cromatica del ophicléide,” fingering chart for Riedl’s bombardon with 11 keys. From Bonifazio Asioli, *Trasunto dei principi elementari di musica* (Milan, 1825).

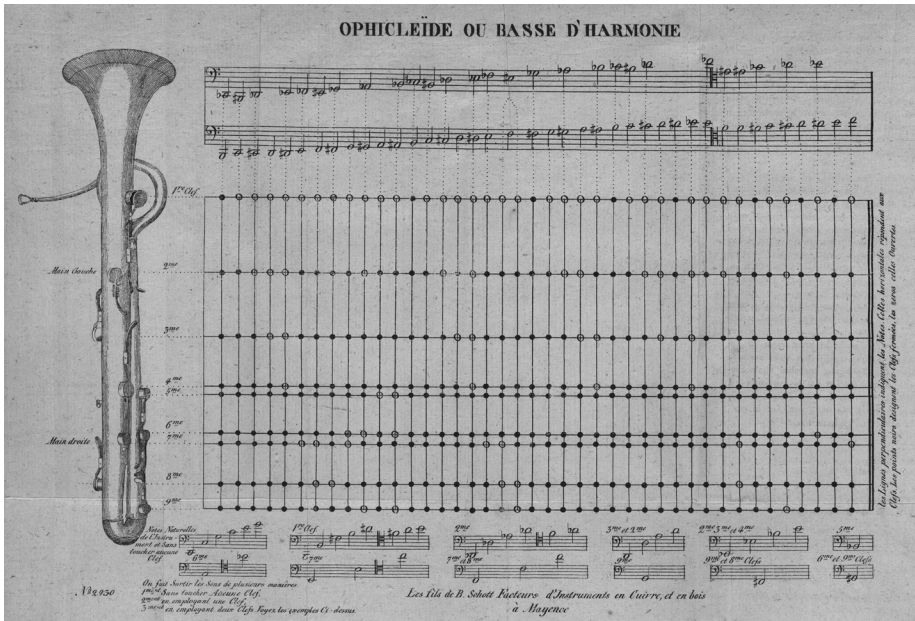


Figure 19: “Ophicleide ou Basse d’harmonie,” B. Schott’s Sohnne, Mainz, plate number 2950 (1825–26).
 Reproduction from *Caecilia* 9, no. 34 (1828). Photo: New York Public Library.



Figure 20: Bombardon, anonymous, probably Markneukirchen, ca. 1830. Brass, 10 keys.
 New York, The Metropolitan Museum of Art, The Crosby Brown Collection of Musical Instruments, 89.4.2591.
 Photo courtesy of The Metropolitan Museum of Art in New York.
 Image © The Metropolitan Museum of Art.

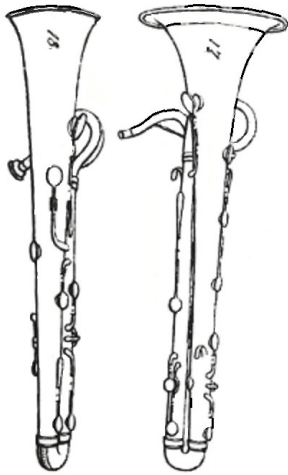


Figure 21: Ophicleide (left) and bombardon alias ophicleide (right). Detail of an ink draft for a catalog (1825–26).

Drawing by Wilhelm Petzold, Markneukirchen (ca. 1834–35). Markneukirchen, Musikinstrumenten Museum, Nachlaß Wilhelm Petzold, 3.3. Photo courtesy of Musikinstrumenten Museum Markneukirchen. Detail scanned from a photo by © Foto Stephan, Adorf.



Figure 22: Bore diameters: bombardons in ophicleide-shaped in C (average of 3 instruments) and French-style ophicleides in C and B \flat (average of 14 instruments).

Oddly enough, in Great Britain during the nineteenth century the name “bombardon” denoted all kinds of valve basses, including the tuba. Hence, Wilhelm Wieprecht, who invented the tuba in 1835, was even called the inventor of the bombardon,⁷ a misconception that survived as late as 2016.⁸ After World War I the name “bombardon” was in general replaced in Britain by the name “tuba.”⁹

In 1829 Wenzel Riedl redesigned the bombardon and added to the keyed bombardon a version with valves. To make his innovations known he placed the following advertisement in the *Wiener Zeitung* of 7 May 1829: “The signatory manufactures and sells ... the newly invented *Bassbombardone* with 12 keys, or with valves, which, due to their powerful low range and pleasant tenor range, have never been surpassed by any other instrument.”¹⁰ Not long after 1829 Riedl constructed a keyed bombardon in contra-F, which probably looked like the instrument shown in Figure 23a, though in the early 1830s it had a narrower bore. Figure 23b shows a bombardon in F with the traditional ophicleide tubing. In the 1830s and ’40s the large F-basses became standard instruments in wind bands, as can be seen in marching bands in two lithographs of 1838 in the Tirol Landesmuseum at Innsbruck, showing the Innsbruck *Schützenkorps* at the entry of Emperor Ferdinand I into the city and the *Schützenkompanie* of Stubai (Tirol). Other images show large bombardons with keys, made as late as the 1850s, as does also an 1867 photo of a Tyrolean village band.¹¹ In 1855 Welcker von Gontershausen wrote that the ophicleide (meaning the bombardon) had largely been displaced by valve basses.¹²

The valve bombardon, which Riedl announced in the *Wiener Zeitung* in 1829, originally had the form that can be seen in Figure 24. This undated drawing is part of the Austrian patent application that Riedl submitted on 24 August 1833 to the Hofkammer (court chamber) in Vienna. It is preserved with two undated descriptions of the invention, both signed by Riedl, which are kept in the archive of the Technical University at Vienna.¹³ The drawing and one of the two descriptions probably date from 1829, the other description, apparently 1833. Riedl calls the instrument in both descriptions *Baßbombardon*, while the name *Bass-Pumpathon* in the drawing is likely an error by the draftsman. The early description describes the instrument as having three valves that lower the pitch by one-half, one, and one and one-half steps (different from the drawing) and a bore not much wider than that of a large-bore trombone. In the earlier description the instrument is pitched in nine-foot *B \flat* , has three or four valves, and can descend to contra *E*, and with the fourth valve, down to about *CC*. The patent was granted on 4 September 1833 for two years within the Austrian-Hungarian monarchy and published in the official report with largely the younger description of the invention.¹⁴ Figure 25 displays the four-valve type of Riedl’s bombardon in F that was the standard form between about 1833 and 1844. All of Riedl’s bombardons and those that followed them, whether with keys or with valves, featured a particular tubing with a lateral bulge in the lower section. Joseph Felix Riedl, who may have been related to Wenzel Riedl, built the bombardon with a drawn-in looped body and described it



Figure 23a: Contrabass bombardon in F, Andreas Barth, Munich (ca. 1845). Bell diameter $D = 360$ mm. Munich, Deutsches Museum, no. 46304. Photo: Deutsches Museum.



Figure 23b: Contrabass bombardon in F, Georg Saurle, Munich (ca. 1835–40). Leipzig, Musikinstrumenten Museum, no. 1605. Photo courtesy of Grassi Museum für Musikinstrumente der Universität Leipzig. Photo: Wieland Hecht.

in his pricelist of ca. 1833–35 in this way: “The bass bombardon or *Harmonie-Bass*, the most powerful bass-instrument after improvement by J. F. Riedl, can be used in all keys with a tuning slide.”¹⁵



Figure 24: “Bass-Pumpathon mit einer Maschine.” Drawing in patent application by Wenzel Riedl, “Beschreibung eines verbesserten Instrumentes Bombardon genannt” (Vienna, 1829). Vienna, Archiv der Technischen Universität, Privilegien Register Nr. 1558. Photo: Technische Universität.

A few years after the contra-F bombardon had appeared on the market, at the latest around 1838–40, Andreas Barth in Munich built a so-called *Contradon* in C (16-foot), a name contracted from *Contra-bombardon*.¹⁶ Leopold Uhlmann also built such low-pitched versions but called them *Contrabass*.¹⁷ Figure 26 shows another sixteen-foot *Contradon* or *Contra-bombardon*, built by Michael Saurle in Munich.

Valve bombardons caught on immediately in military, dance, and opera music. As Othmar Berndl wrote in the article of 1833 cited above, one of the first valve bombardons was bought by the art-loving Prince Gyulay, the commander of the infantry regiment Prinz Hessen-Homburg, stationed in Vienna.¹⁸ A review of a garden concert in August 1833, performed by the same regimental band in the Gasthaus zum Sperl

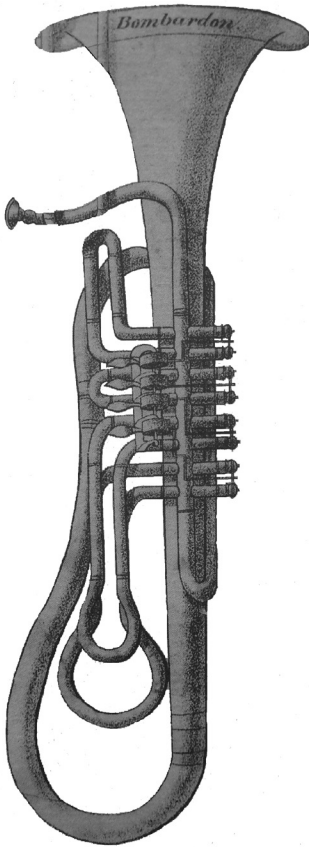


Figure 25: Fragment of unidentified trade catalog, probably Markneukirchen (ca. 1836–40). New York, private collection.



Figure 26: Contrabass bombardon (*Contradon*) in CC, Michael Saurle, Munich (ca. 1840). Built for the regiment of the territorial force of Munich (Landwehr Regiment München). Leipzig, Musikinstrumenten Museum der Universität, no. 1767)
Photo courtesy of Grassi Museum für Musikinstrumente der Universität Leipzig.
Photo: Karin Kranich.

in Vienna-Leopoldstadt, with Andreas Nemetz conducting, reads: “The bombardon ... caused a particular sensation because of its tremendously powerful tone ... and provoked so much curiosity that people went closer to inspect the source of those majestic tones. Herr Nemetz is to be greatly praised, as one can always first hear in his band the newly invented or improved brass instruments.”¹⁹ It was not the keyed but

the valved bombardon, for as Berndl confirms, “the bombardon in its current condition has no keys but three slides with three touch pieces.”²⁰ Johann Strauss and apparently Joseph Lanner also used the bombardon in their dance bands.²¹ In 1834 the Viennese Court Opera hired bombardon player Franz Fretzer, who thus became the first player of a valve bass to hold a regular position in an opera house.²²

The earliest known use of the valve bombardon outside Vienna and Austria was in 1831, when band director Gottfried Rode in Potsdam (Prussia) introduced it into the band of the Garde-Jäger-Battalion no. 5.²³ We know that from 1836 the bombardon was more regularly used in Prussia.²⁴ After the regional bands outside the Austrian heartland had taken up the bombardon—in Bohemia, Moravia, Lombardy, Hungary, etc.—makers in Prague, Budapest, Milan, and Mantua manufactured it as well. In Markneukirchen (Saxony) bombardons were generally destined for the national clientele. Some makers developed new variants, among them Giuseppe Pelitti in Milan, who in 1835 brought out a successful valve *bombardino* in E \flat , which was used as an alternative for the valved trombone obbligato, as Giuseppe Fahrbach reported in 1846,²⁵ stating that a large infantry *banda* of fifty-two players should carry as basses two *façotti*, two *façottoni*, three *bombardonni* (usually in F), and one *bombardino*. This orchestration seems to be straightforward regarding the names, but it may be misleading because there was no standardized association between name and the specific type of instrument. These instruments could likewise be called “ophicleides.” The same is true of the instruments that Ferdinand Schlotthauer, bandmaster in Passau (Bavaria), lists in his orchestration manual of 1843: *Corno basso ou Bombardone FF-f¹*, *Ophicleide AA-g¹*, and *Harmonie Bass DD-f¹*.²⁶ We can be sure only that the first instrument among the three, the *corno basso*, had the narrowest bore, while the third, the *harmony bass*, had the widest. Going by the name, Uhlmann’s *Basshorn in F mit Maschin u. e, es, dann d Bögen* (“bass horn in F with valves and crooks for E, E \flat , and D”), as listed in his pricelist of 1845, was likewise a narrow-bore instrument. The forms of the following instruments, ordered from Prague and Vienna by the dealer Francesco Gardelli of Ferrara and recorded in his 1847 pricelist, are likewise unclear: *Ophicleides tenores a 9 o 10 Chiavi* [in C, B \flat], *Ophicleides bassi a 9 o 10 Chiavi* [in C, B \flat], *Ophicleides tenori a 3 o 4 pistonni* [in C, B \flat with 3 or 4 valves], *Ophicleides bassi a 4 pistonni* [in C, B \flat with valves], and *Ophicleides (Bombardonni) bassi d’armonia* [in E \flat with 3 or 4 valves].²⁷ They could surely also pass for *bombardonni*. In 1851 the Dresden trombonist Julius Rühlmann stated in an article about brass instruments that “in recent times” musicians do not distinguish between bombardon and ophicleide (see the following paragraph).

At the end of this section a few other aspects of the bombardon’s pedigree will be considered. The bombardon with its full-conical bore was a baritone-bass instrument as late as about 1840. Starting as early as the 1830s wider bores were built, which led to a multitude of new models in the 1830s and ’40s. They can be classed roughly in three main bore widths: 1) narrow-bore bombardons in C, B \flat and contra-F, 2) large-bore bombardons in C and B \flat , which came to be called baritones and euphoniums in the 1840s (Figure 29), 3) large-bore contrabass bombardons in F, E \flat , or D, as well as the

valve ophicleide in F. Though the latter group represented real basses, the continuous trend toward larger bands and orchestras demanded an even more powerful and darker sound. With the tuba, Wieprecht developed such an instrument in 1835, using an extremely wide cylindrical lead pipe with a bore diameter of 14.7 mm that extended over one-fourth of the tube length, and a bell close to that of the French ophicleide with an end diameter of only about 195 mm. The resulting sound had an extremely strong volume and a dark quality that corresponds to the German vocal register of a *schwarzer Bass* (“black bass”). But it sounded coarse and brutish when played loudly and lacked the lush and majestic luster of the bombardon. As a result, tuba and bombardon assimilated and moved toward what became the modern tuba. The surviving instruments of the merging period give evidence that the tuba gradually adopted the bombardon’s narrow conical lead pipe and a wide flaring bell; conversely, the bombardon gradually adopted its generally wide bore from the tuba. The convergence started in the 1840s and extended to about 1880–90 when with Červený’s *Kaiserbass* the trend toward wide mensuration gradually came to an end. Figure 27 shows the extent of this assimilation by the 1850s, though the drawings may not be entirely to scale. In 1875 a decisive terminological switch began to take hold when the Vienna Court Opera hired the tuba player Otto Waldemar Brucks (1858–1914), who introduced the Berlin tuba (an instrument by Paulus & Lembke, Berlin, 1875), whereby the helicon-shaped bombardon was displaced.²⁸ This was the birth year of the *Wiener Basstuba*, although the instrument was in reality a Prussian tuba; hence the traditional bombardon was relinquished, as was its name. Military bands held on to the traditional terminology, while the symphonic and opera orchestras in the Austrian provinces followed the precedent of the capital. The *Encyclopedia Britannica* of 1911 accurately reflects the abandonment of the name “bombardon” when it describes the situation at the turn of the century: “Bombardon, or Bass Tuba, the name given to the bass and contrabass of the brass wind in military bands, called in the orchestra bass tuba.”²⁹ Thus 1875 and subsequent years marked the second time in the history of the bombardon that it surrendered its name; the first time was in about 1825 when the type with ophicleide tubing was called “ophicleide.” The modern tuba shares characteristics of Wieprecht’s tuba (the generally wide bore) and the bombardon (conical bore, wide flaring bell), but the sound qualities follow more the line of the bombardon. It remains the task of organology to fill the history of both instruments with measurements and bore profiles, to reject or verify this hypothesis.

The ophicleide in Germany

The ophicleide, invented in 1817 in Paris by Halary, was predominantly an instrument of the French and the British. Although attempts were made to introduce it into Germany and Austria, it did not become widely used because its sound was not much appreciated. It was considered dull and not very strong, and Schilling’s *Encyclopedie* of 1837 even called it “sluggish and often obnoxiously roaring” (“plump, ja oft widerlich

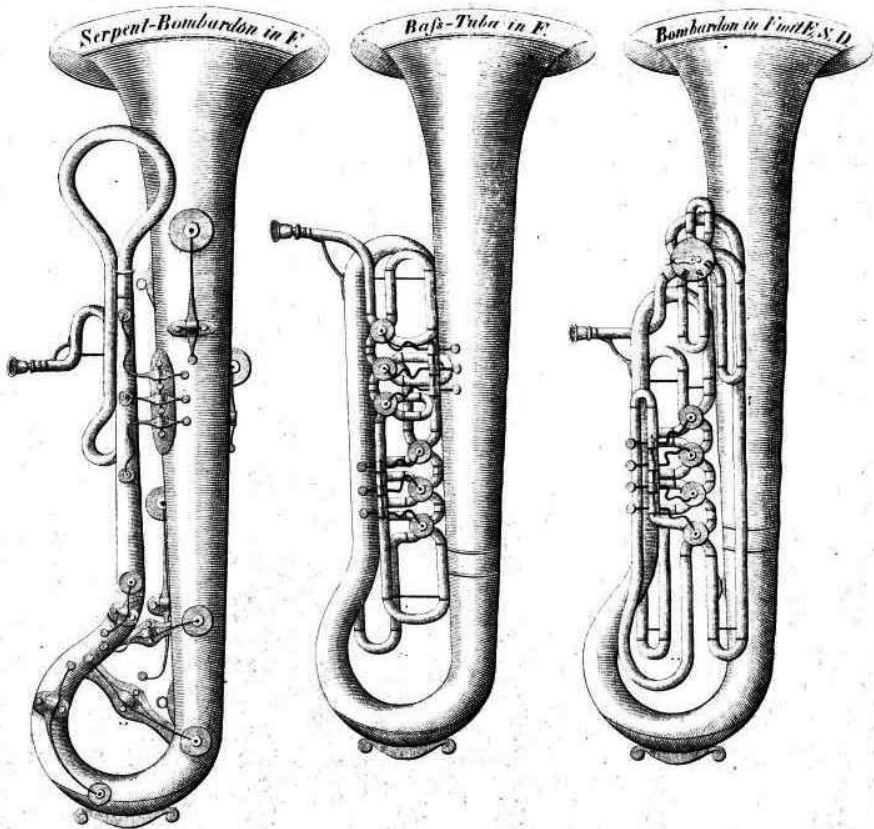


Figure 27: Three basses from a trade catalog by V. F. Červený, Königgrätz (1853): “Serpent-Bombardon in F” with 10 keys, “Baß-Tuba in F” and “Bombardon in F mit E, S, D” [...in F, E, Eb and D]. Detail from *Preis-Courant der kais. koen. allerh. priv. Musik-Instrumenten-Fabrik des V. F. Červený zu Königgrätz in Böhmen. 1853.* Munich, Bayerische Staatsbibliothek, Nachlaß Emil Schafhäutl, Schafhäuteliana 3.1.7. Photo: Bayerische Staatsbibliothek.

brüllend”).³⁰ However, the ophicleide’s tubing was transferred to one variety of the bombardons, and in this way it became the narrow-bore “German ophicleide.”

In this section we will inquire to what degree the French-style ophicleide was used in German lands. Attempts to introduce it into German-speaking lands mostly fell in the years between 1829 and 1833, as far as we know. It is true that French-style ophicleides were manufactured in Germany—by Leopold Uhlmann in Vienna (1830s

and '40s), by makers in Markneukirchen, A. L. Stegmann in Magdeburg (after the middle of the nineteenth century), and by C. W. Moritz in Berlin (around 1900), but they apparently were made, primarily at least, for export. The use of the ophicleide can be documented for 1829 when bandmaster Gottfried Rode of the Prussian Garde Jäger Battalion Nr. 5 in Potsdam began to use a *Harmoniebass* manufactured by August Heiser in Potsdam. He probably introduced this instrument after the *Ophicleide ou Basse d'harmonie* by Griessling & Schlott, in essence a large-bore English bass horn, had failed in 1828.³¹ Rode replaced Heiser's instrument, which has survived, some years later with a tuba.³²

Hector Berlioz's *Memoirs* give a vivid account of the use of the French-style ophicleide in German lands. Having traveled in central and northern Germany in 1842–43 to make his music known, he complained that he hardly could find a “real” ophicleide in the cities he visited. He mentions that there was no ophicleide available for his concerts in Berlin, Brunswick, Hannover, Mannheim, and Leipzig; only in Darmstadt did they have one.³³ It was common practice to play ophicleide parts on bass trombones, as is reported as early as 1827 from Kassel, where they used a bass trombone in performances of Rossini's *L'assedio di Corinto*.³⁴ When Berlioz prepared a concert with the Gewandhaus Orchestra in February 1843 at Leipzig, where Mendelssohn served as music director, he was offered an “ophicleide” that he described thus: “The ophicleide, or rather the slender brass instrument which they procured under this name, did not resemble the French ophicleide; it had almost no tone. It was considered as null and void, and therefore one took a fourth trombone.”³⁵ No doubt this was the narrow-bore bombardon in ophicleide shape that was sometimes called “ophicleide.” After Leipzig, Berlioz traveled to Berlin from where he reported about the Hofopfer, then under the direction of Giacomo Meyerbeer: “But, there being no ophicleide at the Berlin Opera, instead of replacing it with a bass tuba in works of French origin, which nearly all have an ophicleide part, they give the part to a second bass trombone.”³⁶ In April 1836 J. G. Moritz had delivered a tuba to Meyerbeer's predecessor, Gaspare Spontini,³⁷ who employed it as early as 1837 for the revised version of his opera *Agnes von Hohenstaufen*.³⁸ Thus Spontini became the first composer to use the tuba in an opera and may have used it in the following four years. Meyerbeer, however, did not use it in the years following Spontini's discharge in 1841. When Berlioz traveled to Weimar he found that in the court orchestra the ophicleide part was played on a “tolerably powerful bombardon.”³⁹ Available evidence indicates that by about 1843 opera and symphonic orchestras in Germany employed various substitutes for the French ophicleide: initially the bass trombone, then the bombardon, and finally the tuba. As shown in the following paragraph, the years around 1842–43 were a turning point from the narrow- to the wide-bore brass basses.

In 1832–33 there was an attempt to introduce the French ophicleide at the Vienna Court Opera. The occasion was the production of Meyerbeer's *Robert der Teufel* (*Robert le diable* in German translation), which premiered 31 August 1833 and saw numerous performances through 1853.⁴⁰ The issue of the ophicleide appeared when the bass

trombone that the orchestra routinely used to substitute for the ophicleide in French operas was no longer in workable condition. Eduard von Lannoy (1787–1853), director of the conservatory, took the matter in his hands and proposed to the Gesellschaft der Musikfreunde—the overarching institution of opera, concert, and conservatory in Vienna—to procure an ophicleide from Paris.⁴¹ Lannoy, a Belgian educated in Paris, had lived mostly in Graz and Vienna and maintained ties with Berlioz and Vieuxtemps in Paris. He was not the only high-ranking Francophile who had connections with the Court Opera. Another was the French dancer Louis Dupart, who was leaseholder of the opera from 1830 to 1835 and tried to bring as much French repertoire onto the stage in Vienna as possible. Eventually, on 27 December 1832, Lannoy proposed acquiring a French ophicleide to the board of the Gesellschaft:

In this matter [referring to the repair of trombones] the undersigned calls the laudable executive committee's attention to the new bass instrument, called *Ophycléide*, which is an improved genus of the serpent and said to be as strong as two trombones, and which is used in Cherubini's, Rossini's, and Auber's latest compositions. It could only bring honor to the Gesellschaft if, by its initiative, this instrument would become known in Germany. Therefore, the undersigned has turned to the pensionaire of the Paris conservatory, Mr. Montfort, to ask Fétis in Paris where the best *Ophykleiden* would be obtainable and for what price.⁴²

It was not long before the Gesellschaft der Musikfreunde ordered a nine-key ophicleide from Halary in Paris, which was delivered shortly before 15 June 1833, the date on which Prince Ferdinand von Lobkowitz, the president of the Gesellschaft, donated the funds for the instrument.⁴³ Shortly afterward, an anonymous article (probably written by Lannoy) appeared in the *Allgemeine Theaterzeitung*, giving credit to both the Prince and the Gesellschaft for introducing the ophicleide in Germany.⁴⁴ The article included a commendatory report by three musical luminaries of the Hofoper, who praised the sound of the ophicleide as sonorous, full, and round,⁴⁵ apparently as a favor to Lannoy. Lannoy even planned to establish an ophicleide class at the conservatory and convinced Leopold Uhlmann to include the ophicleide in his manufacturing program.⁴⁶ Thereupon he ordered from Uhlmann an ophicleide for the conservatory. He also arranged for a German translation of the ophicleide instruction method by A. Gobert.⁴⁷

After the ophicleide arrived in Vienna in June 1833, a controversy immediately arose about its sound and it was compared unfavorably with the bombardon. A few days prior to the premiere of *Robert der Teufel*, the above-mentioned Othmar Berndl published an article about the bombardon, in which he included a comparison of the sound of both instruments: “The tone of the ophicleide is *dumpher* [duller] and close to the low horn; the tone of the bombardon is brighter and more powerful, and more effective than two bass trombones played together.”⁴⁸ The controversy about the sound grew even stronger after the premiere of *Robert der Teufel*, even involving Leopold

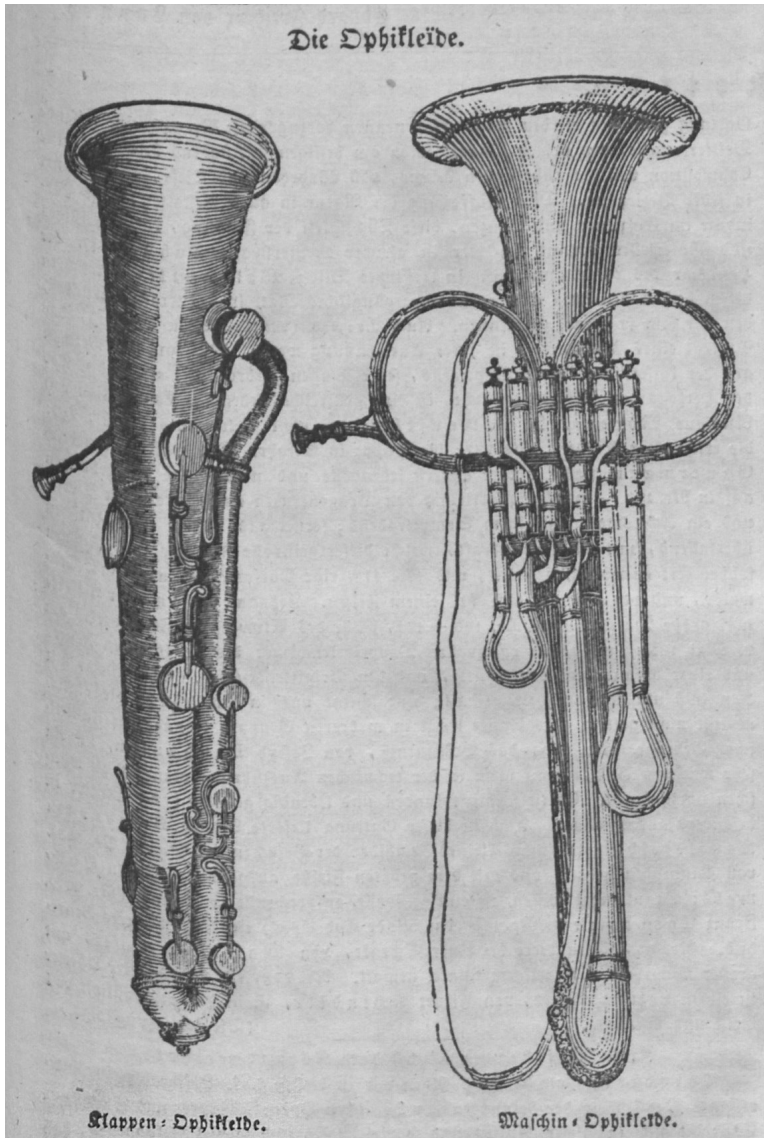


Figure 28: French-style ophicleide and *Maschin-Ophikleide* in F by Leopold Uhlmann, Vienna (1834). Labels in the photo: “Die Ophikleide,” “Klappen-Ophikleide,” “Maschin-Ophikleide.” Engraving in *Allgemeine Theaterzeitung und Originalblatt für Kunst, Literatur, Musik, Mode und geselliges Leben* 113 (Vienna, 1834). Photo: Bibliothek der Gesellschaft der Musikfreunde, Vienna.

Uhlmann, the manufacturer who also had played the ophicleide in the opera orchestra. Lannoy wrote in June of the following year that he found the sound to be very good in the performances of the opera and in some concerts, where it was also played by Uhlmann, and that it provided an outstanding bass fundament.⁴⁹ This was, however, only his personal opinion.

After Uhlmann, then twenty-seven years old, had gained experience as a player of the French ophicleide throughout the theater season, he conceived and constructed a new instrument in which he consolidated his understanding of how a brass bass should ideally sound in *Robert der Teufel*. In April 1834 he completed his instrument, which he called *Maschin-Ophikleide*, and publicized it in the *Allgemeine Theaterzeitung* (Figure 28). This new instrument was a large-bore bombardon in F with three valves and, as the engravings show, differed significantly from the French ophicleide. Uhlmann's *Maschin-Ophikleide* was essentially a bombardon that differed from Riedl's model first and foremost in the form of the tubing and in employing three rather than four valves. Uhlmann's model demonstrates that as a player he was not happy with the French ophicleide. His choice of the name *Maschin-Ophikleide* was a clever gambit to make a conciliatory compromise with Lannoy and not offend him. After Uhlmann had publicized his new instrument, Lannoy put pen to paper and argued that the French instrument was better suited for opera and symphony, while Uhlmann's *Maschin-Ophikleide* was more suited to military music:

Moreover, Herr Leopold Uhlmann has manufactured a second sort of ophicleide, namely ophicleides without keys, which like the valve trombones are furnished with a chromatic valve set, which is operated by three touch pieces. These *machine ophicleides* have great advantages for military music, where the bass is set mostly simple and needs to be played strongly.... However, in any other respect preference must be given to the keyed ophicleide, which is by far more suitable in an orchestra; indeed certain passages, for example, in *Robert der Teufel*, Act 3 of the original score, where the ophicleide accompanies Bertram in unison, could be played on the *machine ophicleide* only with difficulty.⁵⁰

Lannoy was again quite alone with his opinion and finally had to abandon his plans to introduce the French ophicleide into Vienna. He gave up his plan for an ophicleide class at the conservatory, thereby marking yet another failed attempt to introduce the ophicleide in Germany. Moreover, in 1834 the bombardon player Franz Fretzer was unexpectedly hired for the Court Opera, making it clear that the French ophicleide was out for good.⁵¹ One can assume that Fretzer played either a bass bombardon like that in Figure 25 or Uhlmann's *Maschin-Ophikleide* (Figure 28). Thus the Vienna Hofoper was the first opera house to employ a player of a valve bass.

Some years later, perhaps around 1840, Uhlmann replaced his *Maschin-Ophikleide* with a version in tuba form (Figure 29). He advertised it in his pricelist of 1845, from

which this image is taken, as *Ophicleide* (*Harmoniebass oder Bombardon*) in *f es oder d* (“in F, Eb, or D”). The differences between ophicleide and bombardon—both with valves—eventually diminished considerably, so that Julius Rühlmann, trombonist with the Dresden court orchestra, wrote in 1851:

In recent times one does not differentiate any more between *Ophycleide* and bombardon; one denotes with either the low brass instruments whose tubes and mouthpiece are only somewhat wider than those of the F bass trombone....

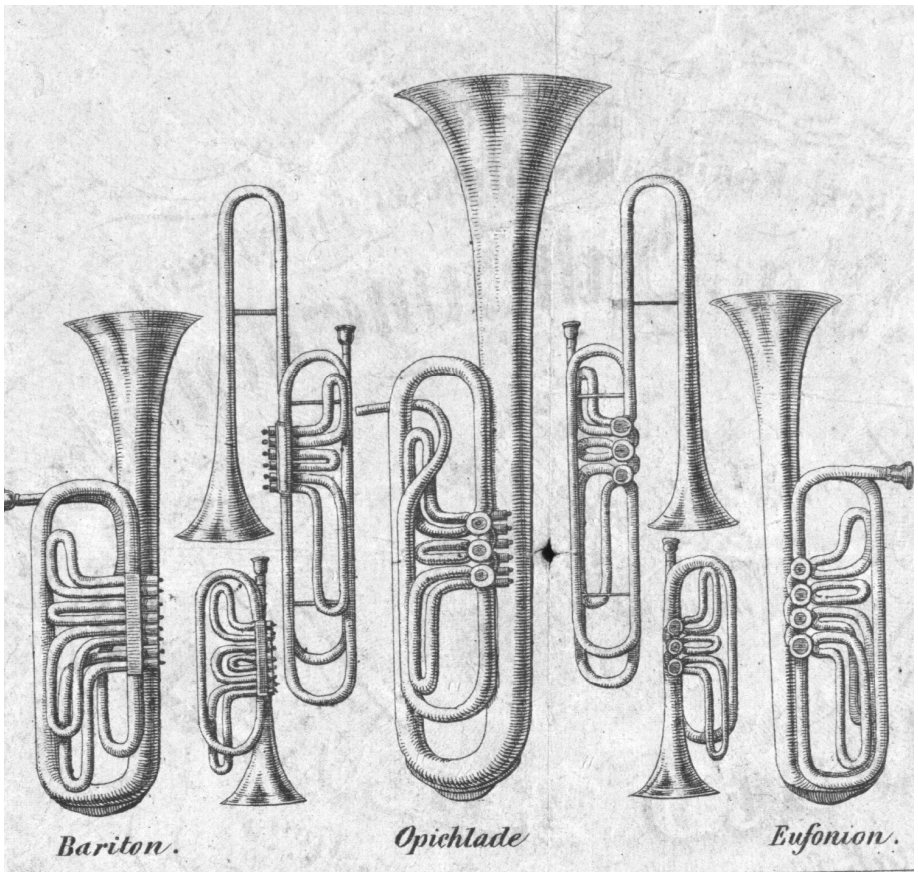


Figure 29: Valve ophicleide, image in trade catalog of Metall-Blas-Instrumentenfabrik Leopold Uhlmann (Vienna, 1845). Labels in the image: “Bariton,” “Opichlade” [misspelling for “ophicleide”], “Eufonion.” [sic]. Vienna, Österreichische Nationalbibliothek, Ms. 42. Photo: Nationalbibliothek.

The tone of the *Ophycleide* is sufficiently strong enough to have this lowest brass instrument play the fundamental bass, and it is, if used alone, more suitable, due to the lighter agility of the tones, than the bass tuba, which actually has to be considered the contrabass of the *Harmoniemusik*. It should almost not be used for anything other than the doubling of the *Ophycleide* (bombardon), but not as the sole brass bass instrument in a large orchestra, because for this purpose its sound is too compact and massive, inflexible and sluggish.⁵²

Rühlmann (1816–77) was trombonist with the Court Theater at Dresden from 1841. In 1845 he played one of the newly acquired wide-bore trombones by Sattler in the premiere of Richard Wagner's *Tannhäuser*. This is crucial to an understanding of his statement that the bore of the ophicleide/bombardon was only somewhat wider than that of the bass trombone. Rühlmann was a friend of Robert Schumann, and as one can gather from his words, he was not a friend of the tuba and thus of Wagner's orchestral sound. Rather, he was on the side of the narrow brass basses in the tradition of Mendelssohn and Schumann. Nevertheless, in the 1850s and '60s the ophicleide/bombardon converged ever more with the tuba, with the name "ophicleide" being given up first, then that of the bombardon.

On the sound and musical use of the bass horn, serpent, and ophicleide

The early bass horn and the fagott-serpent

In 1805 Prince Günther Friedrich Carl I of Schwarzburg-Sondershausen began to employ the bassoon-shaped bass horn in his twelve-piece *Harmoniemusikcorps*, doubling the second bassoon. With both instruments the volume was just sufficient to provide a proper bass line, but as bands grew larger this combination increasingly proved to be less satisfactory. As early as 1809, when Louis Spohr heard the Sondershausen ensemble, he recognized the problem and specified a contrabassoon instead of a bassoon for his *Nocturno für Harmonie und Janitscharen Musik* (1815), dedicated to the prince. He scored the bass line for *corno di basso e contra-fagotto* with the range *C* to *e'*. Much later, Spohr again wrote a part for the bass horn in his Ninth Symphony (1850), but no information is available as to what sort of instrument he had in mind and what they used for the premiere. Certainly it was not the bassoon-shaped bass horn.

As for the early continental bass horn, it can be taken for granted that the arrangements made by Simon Hermstedt and Ernst Ludwig Gerber for the *Harmoniemusikcorps* always included bass horn. At the behest of the prince, Gerber wrote eleven marches with obligato bass horn and a concertino for clarinet, bassoon, and bass horn with orchestral accompaniment.⁵³ By 1820 the military bands had grown to about twenty players, so a stronger bass fundament was needed. Thus the *Königlich Preussische Armeemarsch-Sammlung* of 1817 called for four instruments on the bass line: third

bassoon, bass horn, upright serpent, and contrabassoon. In 1828, Augustin Sundelin, clarinetist with the Berlin Hofkapelle, confirmed this practice:

These three instruments—contrabassoon, bass horn, and serpent—can properly be treated together because they play with the third bassoon from one part. As said before, all three stand an octave lower than the ordinary bassoon so that they have the tessitura from contra *D* to *d*, at the most *e* of the small octave.... In this range they have all whole- and half-steps and are able to produce trills on the simple notes....

They can easily execute fast runs and the like, but they should not be used too often for the fundamental bass. In softer sections the bass horn should occasionally pause. Very quick consecutive staccato tones are not suitable, because of the very low register they easily become blurred together; but in moderate tempo they are quite applicable.⁵⁴

The music catalog of the Sondershausen *Harmoniemusikcorps*, kept in the State Archive at Rudolstadt, mostly lists arrangements of the 1820s and '30s. If in the scores finger-hole basses are recorded, they usually are serpents, but in practice the Sondershausen band surely used the bass horn.⁵⁵ Some scores call for serpent or bass horn ad libitum.⁵⁶ Friedrich Schneider confirmed in 1827 that the serpent and bass horn were most successfully employed in *harmonie* bands, which were still around in the 1830s.⁵⁷ In 1838 the Thuringian composer Friedrich Kästner, choirmaster-organist in the small town of Kahla, wrote a hymn for chorus and thirteen-piece harmony orchestra in which he included a bass horn, but it is not clear exactly what instrument he intended nor what instrument he employed for the premiere.⁵⁸ Solo recitals for bass horn and fagott-serpent were the exception, since stripped of the masking effect of the ensemble, the shortcomings of the bass horn became all too evident. The reviewer of a recital that took place at Kassel in 1825 made the inadequacies of the instrument clear when he critiqued the presentation of variations for *Basshorn (Zinkenbass)*, which apparently was a fagott-serpent:

The bass horn with its thick tone is simply unfit for vocal passages and runs. We will do justice to Mr. Bänder's diligence but regret his lost toil and time. In military music, to which it actually belongs, it may have a good effect, but it does not belong in the concert hall.⁵⁹

Five years later a Coburg court musician by the name of Eichhorn played variations for bass horn in a concert in Stuttgart. Though the review was benevolent, citing the bass horn's tonal similarity with the trombone, the reviewer pointed out that the instrument did not do well in quick runs, difficult passages, and variations.⁶⁰ As early as 1816, during heyday of the bass horn, Gottfried Weber wrote a harsh verdict:

The much-lauded English [meaning “continental”] bass horn or *Fagottserpent* is nothing but an extremely imperfect improvement of the serpent in the shape of a bassoon; moreover with a fingering [system] just as problematic and consequently just as raw and squalid as that of the common serpent.⁶¹

A similar opinion was expressed by music director Johann Christian August Heinroth of Göttingen when he described the *Chromatische Basshorn* that Gottfried Streitwolf had invented in 1820. He remarked that no wind instrument was able to support the wind section as effectively as the double bass was able to do for the string instruments. He described the sound of the serpent and bass horn as “dull (*stumpf*), unstable (*unsicher*), uneven, and lacking in resonance.”⁶²

Serpents and ophicleides borrowed from military bands

Since opera and symphonic orchestras in Germany did not have permanent positions for serpent (fagott-serpent), bass horn, and ophicleide, they borrowed the instruments, or those that came closest to them, along with their players, from local military and municipal bands. This practice was common by the middle of the nineteenth century and was employed even by the leading orchestras, such as that of the Dresden court.⁶³ In 1839 the Dresden ensemble had fifty-one musicians on its payroll: twenty-seven players of string instruments (among them four double basses), sixteen woodwinds (four flutes, four oboes, four clarinets, four bassoons), four horns, three trumpets, and one timpani—but no trombones, serpents, or ophicleides, all of which had to be borrowed.⁶⁴ It was only in 1844 that Wagner initiated the purchase of a set of trombones (one alto, two tenors, one bass) from C. F. Sattler in Leipzig and, in the same year, also a tuba of an unknown maker.⁶⁵

It goes without saying that it was also necessary to borrow the instruments for the stage music, which amounted for Wagner’s *Rienzi* (1842) to twelve trumpets, six trombones, four ophicleides, and fourteen drums, including their players. To make sure that his demands for the premiere of *Rienzi* in October 1842 would be met, Wagner wrote in a letter of 14 October 1841 from Meudon (France) to Carl Gottlob Reissiger in Dresden to alert him that it would probably be necessary to borrow the instruments from two different cavalry bands.⁶⁶ For *Tannhäuser*, in addition to the instruments in the orchestra pit, forty-three more were needed, and for *Lohengrin*, thirty-two.

Mendelssohn’s brass basses

Mendelssohn was one of the few major German composers who included the bass horn in his orchestral works. In 1824, at the age of fifteen, he heard the V-shaped English bass horn playing in the *Harmoniemusikcorps* at Doberan and was intrigued by its beautiful sound.⁶⁷ This is surprising, given the inherent imperfections of the instrument. He may have heard only a few unaccompanied notes produced by a good player. Since Mendelssohn’s use of the bass horn has already attracted the attention of several researchers, only a few additional remarks will suffice.⁶⁸ Mendelssohn called

for the *corno inglese di basso* twice, in 1824 in his *Notturmo* for wind band and in 1826 in the overture to *Midsummer Night's Dream*, op. 21.⁶⁹ In the 1838 printed version of the former work, in the *Ouverture für Harmoniemusik* (op. 24), it is called *Englisches Basshorn*, retaining the original terminology.⁷⁰ When the overture of *Midsummer Night's Dream* was premiered in Stettin on 20 February 1827, the reviewer criticized “the coarse English bass horn” (*das grobe englische Basshorn*),⁷¹ and when it was played for the first time in England, Mendelssohn reminded the player that the tone ought to be *schön* (beautiful).⁷² In 1827 Mendelssohn gave up using the bass horn, resorting to the serpent and finally to the ophicleide—no doubt due to their somewhat stronger sounds.

Mendelssohn used the serpent in three large orchestral works, the overture *Meeresstille und glückliche Fahrt*, op. 27 (1828), the *Reformations-Symphonie* (1830), and the oratorio *St. Paulus* (1836), paired in all three works with the contrabassoon. As the S-shaped serpent had already disappeared by that time in Germany, it seems that Mendelssohn envisaged and used the *fagott-serpent*.⁷³ In later performances all kinds of other instruments may have been used, such as the bombardon or low versions of the bass fluegelhorn. Joseph Felix Riedl offered the latter in figure-of-eight shape in about 1835 as *Serpent in A mit G F E Bogen* (with G, F, E crooks).⁷⁴

Mendelssohn called for the ophicleide in the years between 1832 and 1847, initially as a replacement for the bass horn. This change took place when Breitkopf & Härtel printed the overture of *Midsummer Night's Dream* (premiered in 1826) in 1832 in parts and in 1835 in full score. He also included a part for ophicleide in 1843 in the incidental music to *Midsummer Night's Dream*, op. 61.⁷⁵ When Mendelssohn performed the piece on 30 December 1843 in Leipzig, the instrument employed was obviously the same kind of narrow-bore bombardon, alias *ophicleide*, that they offered Berlioz in February of that year and which he had rejected. The same instrument was probably also used when on 4 December 1843 the Gewandhaus Orchestra premiered *Das Paradies und die Peri*, in which Schumann also called for an ophicleide, played in unison with bass trombone (*Baßposaune und Ophikleide*). Mendelssohn was obviously a proponent of the narrow-bore basses, even avoiding valve horns at this time. He apparently opened his heart to the large-bore brass only in response to Wagner's use of these instruments in Dresden. For the premiere of the oratorio *Elijah* in Birmingham in 1847, the situation was different and Mendelssohn used the French-style ophicleide, following the British tradition. When Mendelssohn called for *ophicleid e tuba* in the fourteen-piece brass ensemble for the accompaniment of the *Festgesang: An die Künstler* (1846), performed at the song festival in Cologne, they seemed to have used bombardon (ophicleide) and tuba together, a combination that Julius Rühlmann defended (see below).

Wagner's use of the serpent and ophicleide

Wagner wrote parts for serpent between 1835 and 1844 in the following works:

- *Columbus* Overture (Magdeburg, 1835): serpent or contrabassoon

- Overture *Rule Britannia* (Königsberg, 1836–37): 2 bassoons, serpent, and contrabassoon
- Opera *Rienzi* (Riga, Paris, 1838–40): 3 bassoons, 1 serpent
- *Das Liebesmahl der Apostel* (Dresden, 1843): 4 bassoons, 1 serpent
- *Faust-Ouverture* (1st version, Dresden 1844): 4 bassoons, 1 serpent

The bass line of the *Columbus* overture, written in 1835 in Magdeburg at the beginning of Wagner's career as a conductor, is designated for *Serpent oder* [or] *Kontrafagott ad libitum*, that of the overture *Rule Britannia* for both instruments together. It is possible that the military bands in Magdeburg and Königsberg still employed fagott-serpents, if they had not yet been replaced by bombardons with keys or valves.

In *Rienzi*, Wagner's serpent was a contrabass in F (twelve-foot). Neither S-shaped serpents nor fagott-serpents of this size are known to have survived, but of course the serpentine type had not been in use for a long time and the *fagott-serpent* was in steep decline. Wagner used "serpent" as a generic term and obviously was open to different varieties of instruments as long as they were strong and powerful enough in tone. It has been argued that Wagner wrote *Rienzi* for Paris, and thus the part was intended for the S-shaped serpent.⁷⁶ Wagner actually completed Acts 1 and 2 with full orchestration as early as February 1839, in Riga,⁷⁷ finishing the rest of the opera in Paris by November 1840.⁷⁸ After his hopes for a performance in Paris quickly vanished, Wagner made plans for a production at the Dresden Hoftheater, which took place on 20 October 1842.

Wagner called the instrument "Serpent" (overture, Acts 1, 3, 4, and 5) or "Serpentin" (Act 2) and notated it below the bassoons as the bass of the woodwinds.⁷⁹ The range of the serpent part extends from *FF* to *c'*, with the preferred tones between *AA* and *a*. A more extensive use of the lowest notes can be seen in Act 2, "Festlicher Tanz" (*GG-c'*) and in Act 3, "Finale" (*FF-c'*). The serpent is always paired with other instruments, such as double bass and cello, bassoon, or ophicleide. Occasionally there are chromatic runs that extend over an octave or even more (Act 1); such passages are never exposed as solos but are always performed together with other instruments. There is not a single note or bar in which the serpent's individual voice can be heard. It is employed exclusively to add volume and strength and is always used in loud passages with the dynamic markings *f*, *ff*, or *fff*. It often plays an octave below the ophicleide, thus having the function of a contrabass. It was definitively not used to produce a particular sound quality. Wagner surely did not have a specific instrument in mind, as the court theater depended on the instruments the military bands had available. The instruments that were likely used in the Dresden military bands as replacements for serpents are shown in Figures 23a, 23b, and 26–28. They are narrow-bore basses, in comparison to the tuba, that Wagner obviously used to substitute for the ophicleide. The use of a narrow-bore bass (bombardon) and wide-bore bass (tuba) in *Rienzi* makes sense in light of what Julius Rühlmann said in 1851 in his retrospective report concerning performance practices in Dresden. He pointed out that the tuba, as a wide-bore contrabass, should always be used in connection with the bombardon/valve ophicleide

as narrow-bore basses.⁸⁰ Having worked as a trombonist with the court orchestra since 1841, Rühlmann had firsthand knowledge of Wagner's performances.

The same combination of serpent and ophicleide can be seen in Wagner's *Das Liebesmahl der Apostel* (1843), whereas the first version of the *Faust* overture (1844) specifies "Serpent" only. It was obviously played on a bombardon, while in the revised version of 1855 Wagner changed the designation from "Serpent" to "Basstuba." Starting with *Der fliegende Holländer* (1843) and *Tannhäuser* (1845) Wagner gave up the use of the serpent altogether. From then on he restructured the score and nested the woodwinds and brasses into each other—flutes, oboes, clarinets, horns, bassoons, trumpets, trombones, tuba—and employed the tuba as the bass of both. The printed scores of *Rienzi* published by C. F. Meser (ca. 1860) and Adolph Fürstner (1896) retain the label "Serpent," thus adhering to the original score in a purely historical sense.

As for the ophicleide, Wagner designated parts for this instrument in *Das Liebesverbot* (Magdeburg 1834/36), in the overtures *Polonia* and *Rule Britannia* (both 1837), in the Hymn *Nicolai* (1837), and finally in *Rienzi* (1838–40) and *Der fliegende Holländer* (1843).⁸¹ Following tradition, Wagner treated the ophicleide as bass of the brasses and notated it below the trombones. In the early works written before 1837, he employed the instruments of the military bands in Magdeburg and Königsberg, which may have had the narrow-bore German ophicleides or bombardons of different widths, with keys or valves.

As for the premieres at the Dresden Hoftheater of *Rienzi* in October 1842 and *Der fliegende Holländer* on 2 January 1843, we have clear indications, although no firm proof, that Wagner used tubas for the ophicleide parts.⁸² One indication is what Gaspare Spontini remarked to Wagner after attending the twentieth performance on 2 September 1844,⁸³ "I have heard in your *Rienzi* an instrument that you call *Basse-tuba*; I do not want to banish this instrument from the orchestra: Make a part for it for *La Vestale*."⁸⁴ Wagner fulfilled Spontini's wish and added a tuba part to the triumphal march in the first act of *La Vestale* (1805–07) when he subsequently staged it in Dresden. Another indication for Wagner's use of the tuba at both premieres is the fact that he scored for the "Basstuba" in *Das Liebesmahl der Apostel* and also in *Der Tag erscheint*, which he composed shortly afterwards.⁸⁵ He began work on the former in April 1843, finishing it in June of that year; the latter, a festive song for men's chorus and brass instruments, he probably composed in May 1843.⁸⁶

From then on Wagner scored for the tuba regularly while giving up the ophicleide—that is, in the *Trauermusik* in honor of Carl Maria von Weber in November 1844, in which he used four tubas, and again in *Tannhäuser* (1845). Before the Dresden Hoftheater acquired its own tuba in 1844, Wagner borrowed the instrument from the *Jäger und Schützen Battalion* stationed in Dresden, which apparently had obtained a tuba shortly after 1837.⁸⁷ Another indicator for Wagner's use of the tuba as a replacement for the ophicleide is his tendency to equate the two instruments. This is apparent in his supplication of 1846 to King Friedrich August II of Saxony, *Die Königliche Kapelle*

betreffend (concerning the royal chapel), to fund a permanent post for a tuba player in the court orchestra:

In larger operas, especially in recent times, an instrument has been introduced almost regularly, called *Baßtuba* or *Ophycleide*. As it was used only rarely in earlier years, it was played, whenever it was needed in the orchestra, by a musician of one of the military bands stationed in Dresden. After some time it became apparent, however, that this imposing and ever more important orchestral instrument should no longer be left in the hands of a musician not part of the orchestra and thus not to a proper degree responsible for his own mastery of it. Therefore, some time ago the Kapellmeister recommended hiring a musician for the orchestra who is able to play both the *Baßtuba* and, if needed, also the double bass.⁸⁸

Wagner's equation of ophicleide and tuba probably came about during the preparation of the premieres of *Rienzi* in October 1842 and *Der fliegende Holländer* in January 1843. This step broke the mold of tradition, not only regarding Wagner's own work but also in respect of the performance practice of the Dresden Hoftheater, which apparently had used valve ophicleides/bombardons for the ophicleide parts in French operas in previous years. These operas included *La Juive* by Fromental Halévy (1837), *Les Huguenots* by Meyerbeer (1838), *Guido et Ginevra* by Halévy (1840), *Le Guitarro* by Halévy (1842), as well as some smaller works.⁸⁹ Julius Rühlmann, the trombonist with the court orchestra mentioned previously, was happy with this practice but unhappy with the compact and massive sound of the tuba that Wagner had introduced. Rühlmann preferred the more slender sound of the valve ophicleide/bombardon, whose tone "is sufficiently strong enough to have this lowest brass instrument play the fundamental bass, and it is, if used alone, more suitable, due to the lighter agility of the tones, than the bass tuba"⁹⁰ The conflict between narrow- and wide-bore brasses reverberates in Wagner's decision and Rühlmann's words. Rühlmann favored the narrow-bore brasses, but Wagner preferred the wide-bore instruments, at least from 1842–43 onward. It is confusing that the name "ophicleide" has a double meaning, standing for both the narrower-bore bombardon and, in Wagner's usage, the tuba.

With *Rienzi* and *Der fliegende Holländer* the full and voluminous sound of Wagner's music came into its own. It was, however, only in *Tannhäuser* that the large-bore trombone and tuba sound came fully to the fore.

Conclusion

Organologists have approached the history of the serpent and the ophicleide largely from French and British sources, assuming that the conditions in Germany were similar to those in France and Britain. In reality, the situation in German-speaking lands was quite different. The dichotomy between the French/British and German/Austrian tradi-

tions was exacerbated by the appearance of the bassoon-shaped bass horn, which was conceived in 1805 by Prince Günter Friedrich Carl I of Schwarzburg-Sondershausen and was soon introduced into *Harmoniemusik* and military bands. The upsurge of two hostile, warring camps—France with the Rhenish Confederation and the anti-Napoleonic coalitions of Prussia, Austria, and Russia—facilitated the parallel existence of two similar types, the true bass horn and the fagott-serpent. The continental bass horn was used in the bands of the anti-Napoleonic coalitions, and the fagott-serpent in the bands of the Rhenish Confederation. They were similar in form as well as sound quality, but the bass horn had more of a baritone character, the fagott-serpent, more of a bass character.

The introduction of bass horn and fagott-serpent into continental military music after ca. 1810 rendered the S-shaped serpent superfluous. At the same time, a musical trend began to evolve that led to larger bands that embraced an open, strong, and homogenous sound. As the bassoon structure was largely responsible for the bass horn's weak, covered tone quality, acoustically minded instrument makers considered abandoning this form in order to allow for profound technological changes. The results of their efforts can be seen in the chromatic bass horn (Streitwolf, 1820) and the bombardon (Riedl, 1823), the latter eventually proving to be the more successful of the two. Made of brass, it was easily adaptable to larger-bore diameters to produce a more voluminous sound and to virtually any configuration of tubing. Since the shape of the ophicleide was ergonomically favorable, it was also applied to the bombardon, thus the bombardon also came to be called "ophicleide."

The bombardon's homogeneous sound was fully attained in 1829 with the application of valves. With the enlargement of the wind bands, important changes followed, including enlargement of the bore and the development of larger sizes. In this respect, the four-valve bass bombardon in F (W. Riedl, 1833) was particularly successful, as was the three-valve ophicleide (Uhlmann, 1834). Both had strong bass-baritone voices that functioned as a bass. Soon after the appearance of the bass bombardon in F, other low sizes were introduced in military and civil bands. The bombardon also began to enter the opera orchestra, first in 1834 in the Viennese Court Opera. The difference between bombardon and valve ophicleide was not significant, which was the reason both names were used synonymously with increasing frequency.

The trend of Romanticism toward greater expressiveness led to the development of an even more voluminous and darker voice in the form of the tuba (Wieprecht/Moritz, 1835). Successful from the start in large military and civil bands, it began to be adopted at a somewhat slower pace in opera orchestras, beginning in 1837. The bass bombardon (ophicleide) began to merge with the tuba, a process that accelerated in the 1850s and '60s. Between about 1875 and 1910 the name "bombardon" was gradually dropped in favor of the name "tuba." It was also at this time that the trend toward ever wider bores came gradually to an end.

The relinquishment of the S-shaped serpent and the rise of the bombardon in Germany/Austria had endowed the brass bass sound with inflections different from

those in France, where the ophicleide was the standard brass bass by the middle of the nineteenth century. Starting in the 1840s, the saxhorns contributed to these regional differences.

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Notes

¹ Othmar Berndl, "Das Bombardon," *Allgemeine Theaterzeitung und Originalblatt für Kunst, Literatur, Musik, Mode und geselliges Leben* 172 (27 August 1833).

² Othmar Berndl, "Das Bombardon," *Schlesische Zeitung für Musik* 40 (4 October 1833): 318–20, here 320: "Dieser schätzbare Kunstwerker [Wenzl Riedl] hat das Bombardon schon vor 10 Jahren in Warschau erfunden, es hatte aber damals noch eine andere Form und 12 Klappen. Obschon er seine Erfindung in öffentlichen Blättern nicht bekannt machte, so verkaufte er doch einige Exemplare. Diese wurden hie und da nachgemacht, und so geschah es denn, daß Herr Wenzl Riedl, in der von der Gesellschaft der Musikfreunde des österreichischen Kaiserstaates von Paris verschriebenen Ophicleide, seine leibliches Kind erkannte, welches während seines Aufenthaltes in der Fremde, nur um 3 Klappen geringer geworden war."

³ Karl Emil von Schafhüütl, *Bericht der Beurteilungskommission bei der allgemeinen deutschen Industrieausstellung zu München 1854. IV Über musikalische Instrumente* (Munich, 1854), 199: "Sie hießen zuerst Corno basso."

⁴ C. Eugène Roy, *Méthode de Cor de Signal à clefs ... Supplement Gamme de Signal de Basse, nommé Bombardone* (Mainz: Schott, [1824; date based on the plate number 2214]). This is a French-language method for keyed bugle with German translation (copy owned by Gunther Joppig, Munich). Quotation on page 26: "Der Name dieses Instruments ist hinsichtlich seines kraftvollen Tons, und seines Umfangs wegen Bombardone [*sic*] ... Bey Orchestern sowohl als bey vollständigen Militaire Chören, der Cavalerie als Infanterie ist es zur Verstärkung der Bassparthien sehr zweck gemäs." Roy considered the bombardon to be the bass of the keyed bugle, a derivation that is obviously not correct.

⁵ *Caecilia* 3 (1825, *Intelligenzblatt* 58): "Bassflügelhörner, genannt Bombardone mit 8 Klappen." The trade catalog of I. Kämpffens Söhne, *Musik Instrumente* (Markneukirchen, 1830–33), advertised "Bombardone mit 12 Klappen mit Schallbecher."

⁶ The chart and price list are reproduced in Renato Meucci, "Brass Bands and Brass Instrument Industry in 19th century Milan," *Wissenschaftliches Jahrbuch der Tiroler Landesmuseen* (2010): 101–13, in particular 104.

⁷ Henry George Farmer, *Military Music and its Story: Rise & Development of Military Music* (London: Wm. Reeves, 1912), 103.

⁸ Bruce Gleason, “The Nineteenth Century and the Birth of the Mounted Band,” *Kongressbericht Hammelburg, Deutschland 2014*. Proceedings of the Internationale Gesellschaft zur Erforschung und Förderung der Blasmusik, Kongreß 21, ed. Bernhard Habla (Weikersheim: Margraf Publishers, 2016), 87.

⁹ Clifford Bevan, *The Tuba Family*, 2nd edn. (Winchester: Piccolo, 2000). Adam Carse, *Musical Wind Instruments: A History of Wind Instruments Used in European Orchestras and Wind Bands* (London: McMillan & Co., 1939; rpt., New York: Da Capo, 1965), 302, still speaks of “Tuba or Bombardon.”

¹⁰ *Oesterreichisch-Kaiserlich privilegierte Zeitung*, Vienna (7 May 1829): 718 “Unterzeichneter verfertigt und verkauft ... die neu erfundenen Baßbombardone mit 12 Klappen, oder auch mit der Maschine, welche ihrer kräftigen Tiefe und der angenehmen Tenorhöhe wegen, noch nie ein Instrument übertroffen hat.” The form *Bombardone* stands for the German plural, and not for the Italian singular, of the large bombardon.

¹¹ *Ibid.*, 83, 88.

¹² Heinrich Welcker von Gontershausen, *Neu-eröffnetes Magazin musikalischer Tonwerkzeuge* (Frankfurt: Selbstverlag, 1855), 303–05.

¹³ Vienna, Technische Universität, Archiv, *Privilegien Register Nr. 1558* “Beschreibung eines verbesserten Instrumentes Bombardon genannt.”

¹⁴ Description of the patent: “On this instrument the valve set was expanded and furnished with three to four touch pieces with three to four slides, whereby the tone became incomparably more powerful than on previous bass instruments.” (“An diesen Blasinstrumenten wurde die chromatische Maschine erweitert, mit 3 bis 4 Drückern und mit 3 bis 4 Zügen versehen, wodurch der Ton ungleich kraftvoller als bei den bisherigen Baß-Instrumenten werden soll.”) *Beschreibung der Erfindungen und Verbesserungen, für welche in den kaiserlich-königlich österreichischen Staaten Patente erteilt wurden, und deren Privilegiums-Dauer nun erloschen ist. Erster Band, welcher die Privilegien vom Jahre 1821–1835 enthält* (Vienna, 1841), 282.

¹⁵ *Fabriks-Preis-Courant des Jos. Felix Riedl in Wien*, ca. 1832–35 (Bergamo, Istituto Musicale Donizetti in Bergamo). “Das Bombardon oder Harmonie-Bass, das stärkste Bass-Instrument nach der Verbesserung des C. F. Riedl mit Stimmzug durch alle Tonarten zu gebrauchen.”

¹⁶ Ferdinand Schlotthauer, *Kurze Andeutungen die Instrumente des Orchesters und der Militärmusik mit Effekt zu verwenden* (Passau: Ambrosius Ambrosi, 1843), 13: “Auch gibt es noch einen Contra-Bombardon, von dem Instrumentenmacher Barth in München erfunden; welcher noch um eine Octave tiefer als der gewöhnliche Bombardon steht und ohne großen Luftaufwand äußerst kraftvoll im 16füßigen Baß sich bewegt.” (“There is also a contra bombardon, invented by the instrument maker Barth in Munich; it descends an octave lower than the regular bombardon and moves powerfully in the sixteen-foot range without much breathing effort.”). In 2013 Sebastian Krause discovered a contra bombardon (contradon) with four valves in the municipal museum at Heilsbronn near Ansbach (Germany). The Heilsbronn Heimatverein published documentation about the instrument in *Das Heilsbronner Contradon*, ed. Heimatverein Heilsbronn e. V. (Heilsbronn: Verlagsdruckerei Schmidt, 2014).

¹⁷ *Musik-Instrumenten-Fabrik Leopold Uhlmann in Wien*, price list 1845 (Vienna, Österreichische Nationalbibliothek, Misc. 42).

¹⁸ Berndt, “Das Bombardon” (*Schlesische Zeitung*), 319.

¹⁹ *Allgemeine Theaterzeitung und Originalblatt* 175 (Vienna, 31 August, 1833): 704. “Besonderes Aufsehen machte das ... Bombardon, welches durch den unerhört kraftvollen Ton der vortheilhaften Schilderung vollkommen entsprach, und bei Vielen die Neugierde so regte machte, daß sie kamen, die Quelle dieser majestätischen Töne in näheren Augenschein zu nehmen. Hrn.

Nemetz gebührt das Lob, daß man die neu erfundenen oder verbesserten Blech-Instrumente immer zuerst bei seiner Bande zu hören bekommt.”

²⁰ Othmar Berndt, “Das Bombardon” (*Schlesische Zeitung*), 318.

²¹ Noticed by a London observer; see *The Musical World* (London, 19 August, 1838): 264.

²² Gerhard Zechmeister, “Die Stellung der (Contra) Bassposaune im Wiener Klangstil,” *Brass Bulletin* 102 (1998): 20.

²³ Theodor Rode, *Zur Geschichte der Königl. Preußischen Infanterie- und Jäger-Musik: Ein Sendschreiben an den Kammermusikus und Direktor der Musik des Garde-Corps Herrn W. Wieprecht* (Leipzig: C. F. Kahnt, 1858), 24–25.

²⁴ Bernhard Habla, *Besetzung und Instrumentation des Blasorchesters seit der Erfindung der Ventile für Blechblasinstrumente bis zum Zweiten Weltkrieg in Österreich und Deutschland*, vol. 1 (Tutzing: Schneider, 1990), 103.

²⁵ Giuseppe Fahrbach, “Organizzazione della musica militare austriaca,” *Gazzetta Musicale di Milano* 5, no. 33 (1846): 259. Renato Meucci, “The Pelitti Firm: Makers of Brass Instruments in Nineteenth-Century Milan,” *Historic Brass Society Journal* 6 (1994): 304–33.

²⁶ Schlotthauer, *Kurze Andeutungen*, 13.

²⁷ *Prezzi correnti degli strumenti musicali d'ogni genere. Deposito di Francesco Gardelli in Ferrara*, 1847. Price list in private ownership. Image published in Meucci, “Brass Bands,” 107.

²⁸ Gerhard Zechmeister, “Vom Bombardon zur Wiener Konzerttuba,” *Brass Bulletin* 98 (1997), 46–55.

²⁹ *Encyclopedia Britannica*, 11th edn. (1911), s.v. “Bombardon.”

³⁰ Gustav Schilling, *Encyclopädie der gesamten musikalischen Wissenschaften, oder Universal-Lexicon der Tontkunst*, vol. 5 (Stuttgart: Köhler, 1837), 258.

³¹ About this instrument, see C. F. J. Girschner, “Bemerkungen über Musik-Instrumenten-Bau,” *Berliner Allgemeine Musikalische Zeitung* 6, no. 2 (1829): 13–15 (with illustration); and Ernst Ludwig Schubarth in *Verhandlungen des Vereins zu Beförderung des Gewerbfließes in Preußen* 7 (1828): 71.

³² Theodor Rode, *Zur Geschichte*, 24–25. The ophicleide, kept in the Viadrina Museum in Frankfurt (Oder) (no. 236), displays the inscription “Garde Jäger Bat: No. 5.”

³³ Hector Berlioz, *The Memoirs of Hector Berlioz: The Complete Work Newly Translated*, ed. David Cairns (New York: Norton Libraries, 1975), 348.

³⁴ Citation after Bevan, *The Tuba Family*, 2nd edn., 154.

³⁵ [Hector Berlioz], *Mémoires de Hector Berlioz comprenant ses voyages en Italie, en Allemagne, en Russie et en Angleterre*. Seconde série (Paris: Calmann Lévy, 1878), 55. “L’ophicleide, ou du moins le mince instrument de cuivre qu’on présentait ce nom, ne remplaçait point aux ophicleides français; il n’avait presque point de son. Il fut donc considéré comme non avenue; on le remplaça taut bien que mal par un quatrième trombone.”

³⁶ Berlioz, *Memoirs*, 1975 edn., 319. It is noteworthy that they had a tuba from 1836.

³⁷ J. G. Moritz’s receipt ledger for tubas records under 15 April 1836 the delivery of a tuba “für Generalmusikdirektor Spontini.” See Herbert Heyde, *Das Ventilblasinstrument: seine Entwicklung im deutschsprachigen Raum von den Anfängen bis zur Gegenwart* (Wiesbaden: Breitkopf & Härtel, 1987), 256.

³⁸ J. P. Schmidt, “Raupach und Spontini, Ueber die neu bearbeitete Oper Agnes von Hohenstaufen,” *Allgemeine Musikalische Zeitung* (Leipzig) 40 (1838): 25–30, here 29: The reviewer mentions the orchestra “in welchem auch die mächtig durchtönende, nur fast zu häufig benutzte Bass-Tuba nicht fehlte.” (“in which also the powerfully resounding, almost too frequently used bass tuba was not lacking”).

³⁹ Berlioz, *Memoirs*, 289.

⁴⁰ Franz Hadamowsky, *Wien, Theater Geschichte: Von den Anfängen bis zum Ende des Ersten Weltkrieges* (Vienna: Jugend und Welt, 1988), 380.

⁴¹ This episode is reported in the minutes of meetings of the board of governors of the Gesellschaft der Musikfreunde in Vienna (Vienna, Archiv der Gesellschaft der Musikfreunde, Akten der Gesellschaft der Musikfreunde, Sitzungsprotokolle und Exhibiten, 1832–34). I am most grateful to Otto Biba, director of the Archiv und Sammlungen der Gesellschaft der Musikfreunde for information and assistance.

⁴² *Ibid.*, 1833, 1–20, document no. 4. “Bei dieser Gelegenheit macht Unterzeichneter dem löblichen leitenden Ausschuss auf das neue Baßinstrument aufmerksam, welches Ophycléide genannt wird, in Cherubini’s, Rossini’s, Auber’s neuesten Compositionen vorkommt, eine vervollkommte Gattung Serpent ist, und so stark als zwey Posaunen seyn solle. Es könnte der Gesellschaft nur Ehre bringen, wenn dieses Instrument durch sie in Deutschland bekannt würde. Daher hat sich Unterzeichneter an den Pensionaire des Pariser Conservatoriums Herrn Montfort gewendet, und ihn gebeten, sich [*sic*] in Paris bei Fétis anzufragen, wo und zu welchen Preise man die besten Ophykleiden bekommt.”

⁴³ Prince Ferdinand von Lobkowitz was president of the Gesellschaft der Musikfreunde until October 1833, when Prince August Longin von Lobkowitz was elected to this office. I am grateful to Otto Biba, director of the Gesellschaft der Musikfreunde, for pointing out this fact (personal communication, 23 September 2015).

⁴⁴ Anon. [probably Eduard von Lannoy], “Die Ophikleide,” *Allgemeine Theaterzeitung*, no. 129 (27 June 1833): 518; and no. 113 (7 June 1834): 451–52.

⁴⁵ *Ibid.* The report about the ophicleide was compiled by the former Hofkapellmeister and director of the court opera, Josef Weigel, and two other conductors, Adam Gyrowetz and Ignaz von Seyfried.

⁴⁶ Lannoy’s plans for the ophicleide are in the archival records of the Gesellschaft der Musikfreunde in Vienna, actually in the same bundle of Sitzungsprotokolle cited above (n. 41), as well as in the cited articles from the *Allgemeine Theaterzeitung* 113, 129, and 172 (1833) (nos. 44 and 48; for full title, see n. 1).

⁴⁷ Both the French ophicleide and Uhlmann’s copy have survived in Vienna, Gesellschaft der Musikfreunde, Sammlungen, nos. 203 and 204.

⁴⁸ Berndl, “Das Bombardon” (*Allgemeine Theaterzeitung*), 547. “Der Ton der Ophycléide ist dumpfer und dem tiefen Horne näher; der Ton des Bombardons ist heller und kraftvoller, und macht mehr Effect, als zwei Baßposaunen, zugleich geblasen.”

⁴⁹ Eduard von Lannoy, “Die Ophikleide,” 451. “[K]ann ich nur berichten, daß ich dieses Instrument in den wiederholten Aufführungen der Oper: ‘Robert der Teufel’ von Mayerbeer [*sic*], welche im Laufe dieses Winters im Hofoperntheater Statt fanden, und wo dieses Instrument von Leopold Uhlmann geblasen wurde, so wie in mehreren großen Concerten, als ein vorzügliches Baßinstrument bewährt befunden, und es jederzeit eine bedeutende Wirkung hervorgebracht hat.”

⁵⁰ *Ibid.*, 451–52: “Uiberdies [*sic*] hat Herr Leopold Uhlmann eine zweite Gattung von Ophikleiden verfertigt, nämlich: Ophikleiden ohne Klappen, welche wie die Maschinposaunen, mit einer chromatischen Maschine versehen sind, die vermittelt dreier Drücker in Bewegung gesetzt wird. Diese Maschin-Ophikleiden haben große Vorzüge für Militär-Musiken, wo der Baß meistens einfach gesetzt ist, und kräftig geblasen werden muß.... Uibrigens [*sic*] aber ist in jeder andern Beziehung die Klappen-Ophikleide vorzuziehen, und in einem Orchester weit brauchbarer, ja gewisse Stellen, z. B. in ‘Robert der Teufel,’ 3. Act nach der Originalpartitur

[sic], wo die Ophikleide den Bertram im Einklange begleitet, könnten nur mit Mühe auf einer Maschin-Ophikleide gespielt werden.”

⁵¹ Zechmeister, “Die Stellung der (Contra) Bassposaune,” 20.

⁵² Julius Rühlmann, “Ueber Messinginstrumente mit Ventilen,” *Neue Zeitschrift für Musik* 35 (1851): 10. “Zwischen Ophycleide und Bombardon macht man in neuester Zeit gar keinen Unterschied mehr; man bezeichnet nur damit das tiefe Messinginstrument, dessen Röhren und Mundstück um etwas Weniges weiter sind als bei der Quartposaune.... Der Ton der Ophycleiden ist hinreichend stark, um dieses tiefste Messinginstrument den Grundbaß bilden zu lassen und allein angewendet weit brauchbarer, durch die leichtere Beweglichkeit der Töne, als die der Baß-Tuba, die eigentlich als Contrabaß der Harmoniemusik zu betrachten ist. Sie sollte fast nicht anders, als nur zur Verdoppelung der Ophycleiden (Bombardons) benutzt werden, nicht aber als Baß-Messinginstrument allein im großen Orchester, denn dazu ist ihr Ton zu compact und massenhaft, unbeweglich und schwerfällig.”

⁵³ According to Friedrich Wilhelm Beinroth, *Musikgeschichte der Stadt Sondershausen von ihren Anfängen bis zum Ende des 19. Jahrhunderts* (Innsbruck: Universitäts Verlag Wagner, 1943), 60.

⁵⁴ Augustin Sundelin, *Die Instrumentierung für sämtliche Militär=Musik=Chöre* (Berlin: Wagnenführ, 1828), 15. “Diese drei Instrumente können füglich zusammen abgehandelt werden, da dieselbe [sic] vereinigt mit dem dritten Fagott aus einer Stimme spielen, es ist aber früher schon gesagt, daß sie alle drei um eine Oktave tiefer stehen als der gewöhnliche Fagott, daher haben sie auch den Umfang von Kontra D bis zum d, höchstens e der kleinen Oktave.... In diesem Raum haben sie alle ganzen und halben Töne und vermögen auch die Triller auf den einfachsten Tönen anzugeben.... Ziemlich schnelle Läufe und dergleichen können sie recht gut ausführen, nur müssen sie beim Grundbaß überhaupt nicht zu häufig vorkommen. Bei sanfteren Stellen läßt man zuweilen das Baßhorn pausiren. Sehr schnell hintereinander gestoßene Töne sind für diese Instrumente nicht zweckmäßig, weil sie der großen Tiefe wegen, leicht unendlich ineinander fließen; im mäßigen Tempo sind sie aber recht gut anwendbar.” The assumption that the serpent (and thus the bass horn) stands an octave below the bassoon is a mistake that can be found repeatedly.

⁵⁵ ThStA Rudolstadt, 14.2. Schwarzburg-Sondershausen, 15-99-1320 “Hofkapelle Sondershausen und Harmoniemusikcorps.“ The catalog lists, for example, Rossini, *Il Barbiere* (1816), arranged by Friedrich Müller for *Harmoniemusik* with the bass for 2 bassoons, 3 trombones and bass horn (inv. R 29 S); likewise Boildieu, *La dame blanche* (1825), same instrumentation. Further: “*Pièces d’Harmonie pour 1 Flûte, deux Clarinettes, 2 Hautbois, 2 Cors, 2 Trompettes, 2 Bassons & Serpent, composé par Fr. Müller, Breitkopf & Härtel 4417*” (printed 1827/28); and “13 Piecen [sic] von verschiedenen Meisters. In Harmonie blasender Instrumente arangirt [sic] für Oboe et Flauto traverso, 2. Clarinetten, 2 Horne [sic], 1. Trompette, Fagotto & Serpent von C: A: Göpfert.” (inv. Sa 18 S).

⁵⁶ Ibid. For example, *Die Stumme von Portici* (1828) by Daniel Auber for 3 clarinets, 2 flutes, 2 oboes, 2 horns, 2 trumpets, 3 trombones, and 2 “Fagotts und Serpent oder Baßhorn geingerichtet von F. Müller” (inv. A 23 S). Most arrangements for harmony music by Friedrich Müller call for serpent rather than bass horn, for example *Fra Diavolo* (1830) by Auber, “für Serpent u. türkische Musik” (inv. A 22 S); and *Stücke für Harmoniemusik* (inv. M 45 S/ SH 335), arranged with the bass for 2 bassoons and serpent.

⁵⁷ Friedrich Schneider, *Elementarbuch der Harmonie und Tonkunst*, 2nd edn. (Leipzig: C. F. Peters, 1827), 161.

⁵⁸ *Allgemeine Musikalische Zeitung* 40 (1838): 463.

⁵⁹ Anon., “Sechstes Abonnements-Concert“ [Kassel],” *Allgemeine Musikalische Zeitung* 27 (1825): 363: “Das Basshorn ist durch seinen dicken Ton zu cantablen Stellen und zu Passagen schlechterdings untüchtig. Wir lassen Hrn. Bänders Fleiss alle Gerechtigkeit wiederfahren; bedauern jedoch sine an dieses Instrument verlorene Mühe und Zeit. In Militär-Musik, wohin das Instrument gehören mag, kann es von Wirkung seyn; in den Concert-Saal aber gehört es nicht.“

⁶⁰ Anon., “Korrespondenz Stuttgart,” *Allgemeine Musikalische Zeitung* 33 (1831): 553.

⁶¹ Gottfried Weber, “Über Instrumentalbässen bey vollstimmigen Tonstücken,” *Allgemeine Musikalische Zeitung* 18 (1816): 701. “Das vielgerühmte englische Basshorn – oder Fagottserpent ist nichts weiter, als eine höchst unvollkommene Verbesserung des Serpents in fagottähnlicher Gestalt, übrigens von eben so unvollkommener Applicatur und folglich im wesentlichen eben so roh und verwahrloset, wie das gemeine Serpent.”

⁶² Heinroth, “Beschreibung und Empfehlung eines von G. Streitwolf in Göttingen verfertigen chromatischen Basshorn,” *Allgemeine Musikalische Zeitung* 22 (1820), 688–89, here 688: “Serpent, englisches Basshorn, Contrefagott, welche die Stelle eines Conraviolon bei den Blasinstrumenten vertreten sollen, sind Surrogate.... Ihre Bauart ist gewöhnlich zweckwidrig, so dass theils dem Bläser die Behandlung des Instruments erschwert wird, theils der Ton an seinem Werthe in vieler Hinsicht verliert. Er ist gewöhnlich stumpf, unsicher, ungleich und nicht klingend genug.”

⁶³ Ottmar Schreiber, “Orchester und Orchesterpraxis in Deutschland zwischen 1780 und 1850” (diss., Friedrich-Wilhelm Universität, Berlin, 1938), 36–50, 147–200. Richard Wagner mentions this practice also for the years 1835–36 when he was conductor at the Theater at Magdeburg. See Richard Wagner, *My Life* (anonymous authorized translation from the German (New York: Dodd, Mead and Co., 1911), 1:119, 135.

⁶⁴ Regarding instruments of the Dresden opera orchestra in 1839, see *Neue Zeitschrift für Musik* 13, no. 40 (1840): 158.

⁶⁵ Regarding Wagner’s acquisitions report, see Dresden, Sächsisches Staatsarchiv, Ministerium für Volksbildung 14483/1 “Verzeichniss der musikalischen Instrumente, welche von der Königl. Musikalischen Kapelle sowohl zum Dienst in der Kirche und im Theater gebraucht als auch in der Instrumenten-Kammer aufbewahrt werden. 1854 ff.” No page numbers. As for the tuba: “Die Baßtuba ist 1844 für 50 rth. angekauft worden.” In 1861 the royal chapel acquired an F-Tuba from C. A. Eschenbach in Dresden. In 1863 the tuba bought in 1844 was retired from use and sold for six *taler*: “1 alte Baßtuba ausrangirt und für 6 rth. verkft. i. J. 1863.”

⁶⁶ Richard Wagner, *Sämtliche Werke*, gen. ed. Carl Dahlhaus in Verbindung mit Bayerische Akademie der Wissenschaften (Mainz: Schott, 1970–), vol. 23 (1976), 43.

⁶⁷ See part 2 of my essay in *Historical Brass Society Journal* 28 (2016), 187.

⁶⁸ David F. Reed, “The Original Version of the Overture for Wind Band of Felix Mendelssohn Bartholdy,” *Journal of Band Research* 18 (Fall 1982): 3–10; David J. Rhodes, “Harmonie Musik at the Mecklenburg-Schwerin Court in the 18th–19th Centuries,” *Journal of the International Double Reed Society* 23 (1995): 21–34; Bevan, *The Tuba Family*, 480–86; Richard Sanaborn Morgan, “The Serpent and Ophicleide as Instruments of Romantic Color in Selected Works by Mendelssohn, Berlioz and Wagner,” D.M.A. diss., University of North Texas, 2006; Kevin M. Galdi, “Felix Mendelssohn’s Nocturno/Overture, Op. 24: A Study in Context, Composition and Performance,” *Journal of Band Research* 44 (Spring 2009): 13–44.

⁶⁹ *Leipziger Ausgabe der Werke von Felix Mendelssohn Bartholdy*, series 1, *Orchesterwerke*, Bd. 8, Overtüren 1, *Konzert-Ouvertüre Nr. 1 zu Shakespeares Sommernachstraum*, op. 21, ed. Christian Martin Schmidt (Wiesbaden and Leipzig: Breitkopf & Härtel, 2006), 1–60.

⁷⁰ Reed, “The Original Version,” 1982, 9; Galdi, “Felix Mendelssohn’s Nocturno,” 41.

⁷¹ *Berliner Allgemeine Musikalische Zeitung* 4 (1827): 95. See also Clifford Bevan/Craig Kridel, eds., “What Do You Play in A Midsummer Night’s Dream Overture?,” *Tuba Journal* (Winter 1999): 61–62.

⁷² Bevan, *The Tuba Family*, 484.

⁷³ Tradition holds that Mendelssohn used the French-style serpent. See Thomas Gebhardt, “Es gibt Schlimmeres als Serpente.” Ein nahezu vergessenes Instrument in Mendelssohns Orchester,” *Blickpunkt Felix Mendelssohn Bartholdy. Programmbuch Drei Tage für Felix, vom 30. 10. bis 1. 11. 1994*, ed. Bernhard Heyder und Christoph Spering (Cologne: Dohr, 1994), 89–96, esp. 95.

⁷⁴ *Fabriks-Preis-Courant des Jos. Felix Riedl in Wien*, preserved in Bergamo, Istituto Musicale Donizetti. Image published by Renato Meucci, *Brass Bands*, 104.

⁷⁵ *Leipziger Ausgabe der Werke von Felix Mendelssohn Bartholdy*, ed. Sächsische Akademie der Wissenschaften, series V, *Bühnenwerke*, vol. 8, *Musik zu Ein Sommernachtstraum von Shakespeare*, op. 61, ed. Christian Martin Schmidt (Wiesbaden and Leipzig: Breitkopf & Härtel, 2006).

⁷⁶ This was suggested, among others, in *The Grove Dictionary of Musical Instruments*, ed. Laurence Libin (New York: Oxford University Press, 2014), s.v. “Serpent,” by Reginald Morley-Pegge, Philip Bate, Stephen J. Weston, and Douglas Yeo. Similar statements can be found in Christian Ahrens, “Zu Gotha ist eine gute Kapelle...” *Aus dem Innenleben einer thüringischen Hofkapelle des 18. Jahrhunderts* (Stuttgart: Franz Steiner, 2009), 194; Friend R. Overton, “Historische Perspektiven und Einflüsse des Wagnerschen Serpent-Parts in ‘Rienzi,’ in *Bläserklang und Blasinstrumente im Schaffen Richard Wagners*, Kongreßbericht Seggau/Österreich, 1983, ed. W. Suppan (Tutzing: H. Schneider, 1985), 44; and Morgan, “The Serpent and Ophicleide,” to name just a few. I repeat here an earlier statement, made in part 2 of the present study, *Historic Brass Society Journal* 28 (2016): 118, regarding the alleged S-shaped serpents at Dresden in 1840. The information found in Konrad Neefe, “Die historische Entwicklung der Königlich Sächsischen Infanterie- und Jägermusik im 19. Jahrhundert,” *Neue Zeitschrift für Musik* 63, no. 31 (1896): 357, is obviously erroneous. Neefe may have found the specification “Serpent” in scores of Dresden military bands of that period or that year and interpreted it as a serpentine instrument.

⁷⁷ The collective edition is based on two manuscript copies which were completed under Wagner’s supervision at the end of 1842. The first print was made in Dresden in 1844 also under Wagner’s supervision and became the basis for all later prints, including that of the Berlin publisher A. Fürstner 1896.

⁷⁸ Richard Wagner, *Sämliche Werke*, gen. ed. Carl Dahlhaus in Verbindung mit Bayerische Akademie der Wissenschaften, vols. 3.1, 3.2, 3.3, 3.4, 3.5: *Rienzi, der Letzte der Tribunen. Große tragische Oper in 5 Akten WWV 49* (score), vol. 3.5: *Anhang und kritischer Bericht*, ed. Reinhard Strohm and Egon Voss (Mainz: Schott, 1991). Vol. 23: *Dokumente und Texte zu ‘Rienzi, der Letzte der Tribunen’*, ed. Reinhard Strohm (Mainz: Schott, 1976).

⁷⁹ The term *Serpentin* (which appears only in the print edition of 1844) is otherwise known only from the orchestration of an Austrian regimental band in 1820: “2 Fagotte, 1 Kontrafagott, 1 Baßhorn, 1 C-Serpentin, 1 Baßposaune.” Emil Rameis/ Eugen Brixel, *Die österreichische Militärmusik von ihren Anfängen bis zum Jahre 1918* (Tutzing: Schneider, 1978), 36.

⁸⁰ See the quote of Rühlmann’s text toward the end of the section “The ophicleide in Germany.”

⁸¹ John Deathridge, M. Geck, and E. Voss, *Wagner Werk Verzeichnis (WWV): Verzeichnis der musikalischen Werke Richard Wagners und ihrer Quellen* (Mainz: Schott, 1986).

⁸² In preparation of the premiere in Dresden, Wagner wrote in a letter of 14 October 1841 to Reissiger: “That the Saxon [military] music corps are outstanding is well known to me, and so there is no doubt at all about their employment on the Dresden stage for my opera.” (“Daß die sächsischen Musikcorps vortrefflich sind, ist mir bekannt, und über die Anwendung derselben auf

der Dredner Bühne auch meiner Oper somit wohl kein Zweifel.” Quote after Wagner, *Sämtliche Werke*, 23:43.

⁸³ Richard Wagner, “Erinnerungen an Spontini,” in Richard Wagner, *Sämtliche Schriften und Dichtungen*, Volksausgabe, 6th edn., vol. 5 (Leipzig: Breitkopf & Härtel, 1911), 86–104, here 94.

⁸⁴ Richard Wagner, *My Life*, 342. “J’ai entendu dans votre Rienzi un instrument, que vous appelez Basse-tuba; je ne veux pas bannir cet instrument de l’orchestre: faites n’en une partie pour la Vestale.”

⁸⁵ Deathridge et al., *Wagner Werke Verzeichnis*, 251–57.

⁸⁶ *Ibid.*, 248–50.

⁸⁷ Aneliese Zänseler, *Die Dresdner Stadtmusik, Militärmusikkorps und Zivil-Kapellen im 19. Jahrhundert* (Laaber: Laaber Verlag 1996), 134. Zänseler’s source for the introduction of the tuba is unclear. Unfortunately, there are hardly any sources about the instruments of the Dresden military bands of the years around 1840–42. The account by Konrad Neefe (“Die Entwicklung der Königlich Sächsischen Infanterie- und Jägermusik im 19. Jahrhundert,” in *Neue Zeitschrift für Musik* 63 [1896]: 365) appears not to be reliable.

⁸⁸ “In den größeren Opern zumal der neueren Zeit ist fast durchgehends ein Instrument eingeführt worden, die ‘Baßtuba’ oder ‘Ophycleide’ genannt, welches, da es sich früher nur selten vorfand, so oft es in den Aufführungen der Kapelle erfordert wurde, von einem Musiker der in Dresden befindlichen Musikkorps geblasen worden ist. Es hat sich aber mit der Zeit herausgestellt, daß dies imposante, im Orchester immer wichtiger gewordene Instrument nicht länger mehr der Verhandlung eines der Kapelle fremden und somit für seine Leistung nicht in dem gehörigen Grade verantwortlichen Musikers überlassen bleiben durfte, und es wurde daher vor einiger Zeit auf den Vorschlag des Kapellmeisters für den Gehalt eines Akzessisten ein Musiker in der Kapelle eingestellt, welcher die Baßtuba zu blasen und zugleich auch aushilfsweise Kontrabaß zu spielen fähig ist.” Wagner, *Sämtliche Schriften und Dichtungen*. Volksausgabe. 6th ed., vol. 12 (Leipzig: Breitkopf & Härtel, n.d. [1912]), 162.

⁸⁹ Michael Hochmuth, *Chronik der Dresdner Oper: Zahlen, Namen, Ereignisse*, Schriften zur Kulturwissenschaft, vol. 21 (Hamburg: Verlag Dr. Kovač, 1998), 126–31.

⁹⁰ See n. 52. Rühlmann, “Ueber die Messingblasinstrumente,” 10.

