

## The Bass Horn and Upright Serpent in Germany

### Part 1: The Continental Bass Horn<sup>1</sup>

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Until approximately ten years ago, research on the serpent focused on France and England, while Germany and other countries received little attention. At that time the very few incidental documents that had come to light merely indicated that the serpent was not unknown in German lands in the seventeenth and eighteenth centuries: in 1616 a serpent was played on the occasion of the baptism of Prince Friedrich of Württemberg in Stuttgart,<sup>2</sup> between 1711 and 1775 the Cologne cathedral employed a serpentist,<sup>3</sup> and from about 1770 on—according to Ernst Ludwig Gerber—the serpent appeared occasionally in the larger harmony and military bands.<sup>4</sup> Recently, however, Christian Ahrens and Sabine Klaus unearthed additional documents:<sup>5</sup> in 1708 a serpent was listed in an inventory of the court at Weimar, in 1730 the court of Sondershausen bought a serpent that Gottfried Heinrich Stölzel used in 1736–37 in a few church cantatas, and in 1741 the court of Gotha ordered four serpents from Paris. It should further be noted that in the castle chapel of Saalfeld (located in Thuringia, as are Weimar and Gotha) there is a fresco dated ca. 1704–14 showing an angel playing a serpent.<sup>6</sup> To be sure, further research is likely to uncover additional documents, but it seems clear that prior to ca. 1770 the serpent was only an occasional presence in Germany, apparently influenced by the French custom of playing the serpent in church. The interest in the serpent showed by some princes probably had much to do with the love of experimentation and imitation of all things French, as is illustrated by the occasional use of *verrillon* (musical glasses) at the court of Sondershausen between 1726 and 1730<sup>7</sup> and *Stocktrompeten* (cane trumpets) at the courts of Arnstadt in 1692<sup>8</sup> and Zeitz in 1693.<sup>9</sup>

The situation began to change after about 1770 when harmony and military bands began to grow in size, often using additional instruments—serpent, contrabassoon, and bass trombone—to support the bass line. The S-shaped structure of the serpent proved to be impractical for marching, so two innovative serpentists developed pioneering modifications: in 1789 J.J. Regibo, an Italian musician residing in Lille, created the *serpent droit*, and in 1799 Louis Alexandre Frichot, a French serpentist living in London, developed the bass horn. Both were not only ergonomic adjustments intended to facilitate playing while marching, they also featured a more powerful sound in two different ways: Regibo made the bore wider to increase the volume (Figure 1, no. 1), while Frichot made the bore narrower but added a flared bell to give the sound a more trombone- or horn-like character (Figure 1, no. 4). Both types, novel in structure and sound, stood at the beginning of two evolutionary lineages that brought in their wake new variants and hybrids (Figure 1, nos. 1–3 and 5). A third lineage, beginning in 1805–06, is the *serpent militaire*, characterized merely by a variant form of tubing



**Figure 1:** Descendants of the *serpent droit* by Regibo (1789) and bass horn by Frichot (1799).  
 1. Regibo (fingering chart, Musikinstrumenten Museum Markneukirchen).  
 2. Rust (Paris, ca. 1810, Musée de la musique). 3. Upright serpent (B. Asioli, *Trasunto dei principi elementari di musica*, Milan, 1825). 4. English bass horn (Pace, ca. 1830).  
 5. Bassoon-shape bass horn (Asioli, *Trasunto*). 6. Upright serpent (price list I. Kaempffens Söhne, Markneukirchen, 1830–33). 7. *Serpent droit* (France, ca. 1820, New York, Metropolitan Museum of Art, 2002.102).

from the traditional serpent, designed roughly in the shape of a tobacco pipe, by the Paris maker Piffault.<sup>10</sup> Later, different versions of the military serpent evolved, including hybrids such as the *Serpent Forveille* (1823). The three lineages formed a second evolutionary branch of the traditional serpent. These innovations notwithstanding, the entire group of serpents and bass horns endured continued criticism that reflected a growing demand for greater volume and a more open and homogenous sound. In response to this criticism, a new group of instruments with wider tone holes, operated by keys, emerged, among them the ophicleide (1817), chromatic bass horn (1820), and bombardon (1823); they formed a third evolutionary branch. Even these new instruments could not satisfy the continuously changing musical demands and finally surrendered to the valve basses by about the middle of the nineteenth century.

The present article focuses on the descendants of the serpent used in German and Austrian lands, and on the contributions to their further development that were made in those areas. These contributions comprise the bassoon-shaped bass horn (invented in 1805), which today often goes by the name “Russian bassoon” (Figure 1, no. 5; Figure 2), the chromatic bass horn (1820), and the bombardon (1823). The bassoon-shaped upright serpent, the design of which was inspired by the bass horn, most likely also emerged in Germany soon after 1805.

The years around 1805 to 1810 were innovative not only in Germany but also in France, though in different ways. After Fricot returned to Paris from London, he submitted plans for a *basse-cor* (1806), which was patented in 1810 under the name



**Figure 2:** Continental bass horn (Russian bassoon). Unmarked. Germany, ca. 1835.

Maple, brass, five keys. New York, Metropolitan Museum of Art, The Crosby Brown Collection of Musical Instruments, 89.4.2294. Photo courtesy of The Metropolitan Museum of Art. Image © The Metropolitan Museum of Art.

*basse-trompette*.<sup>11</sup> Being a loop-shape variant of the English bass horn, it was unsuccessful, whereas the long-booted, hybrid variant of Regibo's *serpent droit* (Figure 1, no. 7) was apparently the most popular form of the upright serpent in France by about 1820. At least seven instruments of this kind by Jean-Baptist Tabard in Lyon have survived, the earliest bearing the date 1812 (Paris, Musée de la musique). Unlike bassoon technology, using drill and lathe for the manufacture of the German bass horn, the French upright serpents were built with serpent technology—that is, they were composed of two carved-out wooden halves covered with leather. As bassoon technology was more economical, it finally won out also in France.

There are other striking differences between the French and German forms of these instruments. In France the serpent was deeply entrenched in culture and it was phased out much later, by and large in the 1840s. In Germany, however, it had never had a strong presence and was supplanted soon after 1815 by the bass horn and upright serpent. Both newcomers in bassoon shape had their heyday between about 1815 and 1830, gradually falling into desuetude thereafter. While the ophicleide became the prevailing brass bass throughout most of Western Europe by the middle of the nineteenth century, it was rarely heard in northern Germany because the valve basses gained a foothold in the wind bands there as early as the 1830s. In France and Great Britain the valve basses came into use only much later, from about 1845 on.<sup>12</sup>

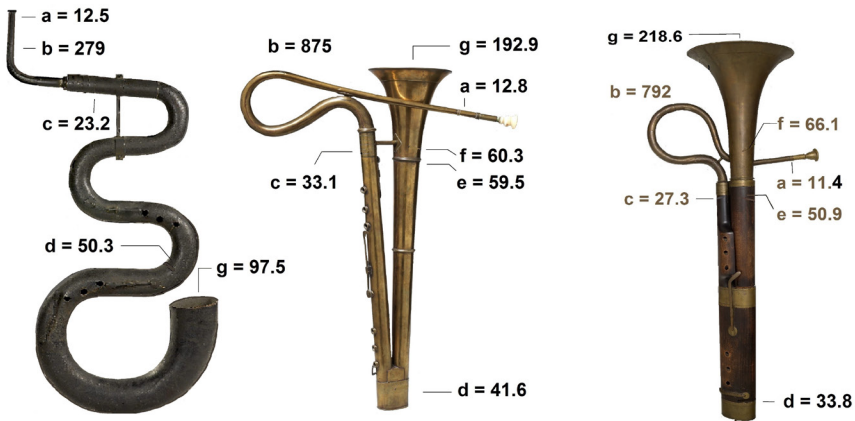
There are hardly any other musical instruments between 1790 and 1835 whose fate was so profoundly influenced by politics as the serpent and its descendants. When in the wake of the French Revolution the Assemblée Constituante initiated the *fêtes nationales* in 1791, the serpent was allotted an important role that helped to sustain its popularity for decades.<sup>13</sup> In Germany cabinet politics affected the bass horn from the beginning, as its inventor was Prince Günther Friedrich Carl I of Schwarzburg-Sondershausen. His personal connections with King Friedrich Wilhelm III of Prussia, who was an enthusiast of military music, facilitated the introduction of the bass horn into Prussian military music. The Prussian king's close friendship with Czar Alexander I was probably instrumental in the introduction of the bass horn into Russian military music. Diplomatic relationships also seemed to have smoothed the way for the adoption of the bass horn in the Austrian army. Yet another instance of political influence resulted from the fact that the rise of the bass horn and upright serpent occurred at the time of the Napoleonic wars (1799–1815). Aiming to conquer all of Europe, Napoleon imposed military reforms on all states he had made his allies. These reforms served to assimilate the German contingents into the French military system in order to streamline their coordination in battle. They included specifications for uniforms, badges, and musical instruments. In 1806 Napoleon founded the military alliance known as the Confederation of the Rhine, a conglomerate of initially sixteen, later thirty-six German states, among them Bavaria, Saxony, Westphalia, Hesse, and Württemberg. Little wonder that the serpent, which was by this time most often the bassoon-shaped upright serpent rather than the S-shaped serpent, prevailed in these regions.

Napoleon's politics affected the history of the bass horn and upright serpent in yet another way. In his struggle against Great Britain, Napoleon imposed in 1806 a trade embargo on British merchandise, known as the "Continental System" or "Continental Blockade." Effective through 1814, the blockade choked off the importation of all merchandise from England, including English bass horns. Hence the bassoon-shaped variant—which we call "continental bass horn" or "Russian bassoon"—gained footing in German lands; the English bass horn had little chance. Finally, in 1833 the Austrian Prince Friedrich von Lobkowitz, in connection with the *Gesellschaft der Musikfreunde* in Vienna, ordered an ophicleide from Paris, initiated its manufacture in Vienna, and encouraged its introduction into Austrian orchestral and band music. It was an initiative that was crowned with some success in Austria, including Lombardy and Veneto, which were under Austrian control at that time, but also in South Germany.

### The invention of the continental bass horn

The story of the development of the bassoon-shaped bass horn begins in 1801, when Prince Günther Friedrich Carl I of Schwarzburg-Sondershausen founded a twelve-piece *Harmoniemusikcorps* at his residence in Sondershausen. A critical question from the beginning concerned which instruments should be used for the bass. The ensemble tested the double bass and the serpent, the latter of which they had two painted specimens by Augustin or Heinrich Grenser. Ernst Ludwig Gerber, who was an ear- and eyewitness to these events, praised the serpent in an article published in October 1803 as an instrument that would lend power and substance to the band's sound.<sup>14</sup> The prince kept searching for the best possible bass, and in 1803 he ordered an English bass horn from London in order to test its suitability. After hearing this instrument, Gerber sent an addendum to the publisher just before the article was printed, saying that while the tonal volume of the English bass horn is somewhat smaller in the low range, it gives in the one-line octave a "beautifully rounded, full flutelike sound that hardly can be produced on the serpent."<sup>15</sup>

The prince preferred the bass horn to the serpent. Although he was not happy with the instrument he got from London, he recognized its potential and began devising an improved version. He gave the instrument the structure of the bassoon, modified the bore, and enlarged the bell almost to the size of a French horn bell. Figure 3 displays the results of the prince's developing work in comparison with the English bass horn and the serpent. The numbers represent the arithmetic means of the bore dimensions for three groups of instruments: twenty-six serpents, nine English bass horns, and nine continental bass horns.<sup>16</sup> Figure 4 shows that the bore of the continental bass horn is narrower in the tubing leading up to the bell than that of the English bass horn, starting from the minimum diameter in the bocal and throughout the body, including the knee.<sup>17</sup> Only from point D3 in the bell does the continental bass horn develop a stronger flare, ending in a wider diameter at the bell's end.<sup>18</sup> Except for the bell diameter, the amount of dispersion of the measurements is rather small.<sup>19</sup> The length



**Figure. 3:** Bore characteristics: 26 serpents, 9 English bass horns, 9 Continental bass horns. The figures are arithmetic means in millimeters. a = minimum diameter in bocal, b = length of the bocal without tenon, c = minimum diameter of the body, d = diameter at  $\frac{1}{2}$  body length (serpents) or of knee (bass horns), e = end of body/ beginning of bell, f = diameter at the point D3 in the bell (at a distance from the bell end that equals the bell diameter), g = end diameter in serpents, bell diameter in bass horns.

of the bocal amounts to about three-eighths of the overall tube length of an English bass horn, whereas in the bassoon-shaped bass horn it is approximately one-third. The prince obviously wanted to increase the power of the sound by giving it a more trombone- or hornlike character, thereby avoiding the typical dullness of the serpent's sound. Although the acoustical function of the bell is compromised by the tone holes, it is, as practice shows, still effective to some degree. As the name "bass horn," coined by Frichot and retained by the prince, suggests, both inventors had a particular sound in mind, different from that of the serpent. Though the bores of the two types of bass horn clearly differ, the difference is small when these two instruments are compared to the serpent. To facilitate the comparison between the bass horns and the serpent, the bore diameters of both types of bass horn have been averaged; see Figure 5. The graph shows that bass horns and serpents start from approximately the same minimum diameter in the bocal, but shortly thereafter the bores of the bass horns develop in a narrower mode up to the beginning of the bell.

After two years of development, the prince completed the prototype of his design in 1805 and deployed it in his *Harmoniemusikcorps*, where it played the same part as the second bassoon. The positive results encouraged the prince to propose the instrument for wider use in German military bands. Pursuing this plan, he used his personal connections with the Prussian court to introduce his instrument into the Berlin Conservatorium der Blasinstrumente and finally into Prussian military music.

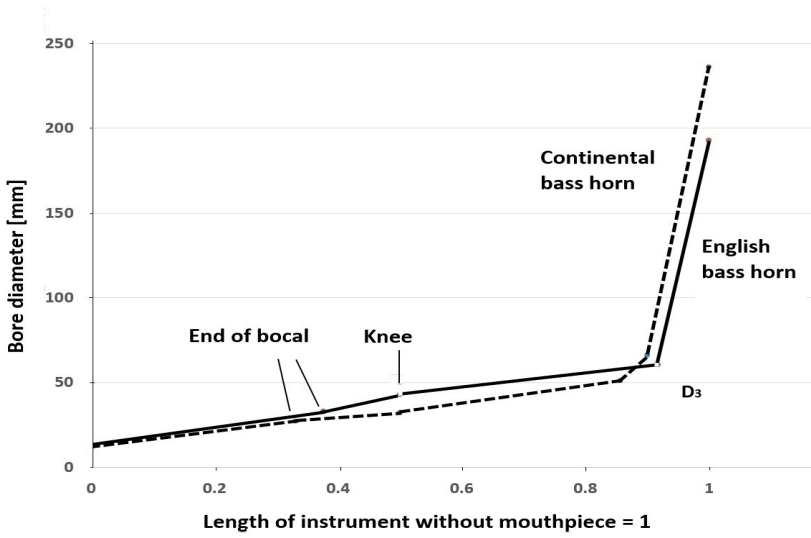


Figure 4: Bore diameter: 9 English and 9 Continental bass horns. Numbers based on Figure 3.

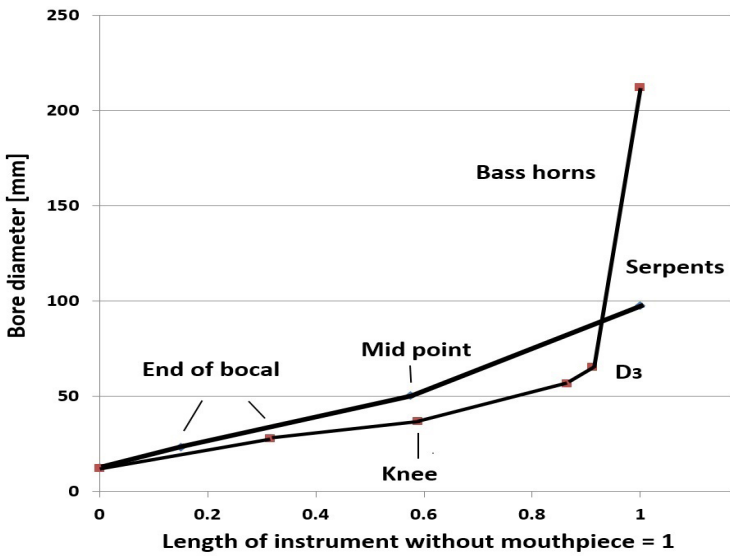


Figure 5: Bore diameter: 26 serpents and 18 English and Continental bass horns. Numbers based on Figure 3.

He eventually succeeded with his plan, and his instrument soon spread to Austria, Italy, Russia, and later also to Western Europe.

The conclusion that Prince Günther Friedrich Carl I invented the continental bass horn or Russian bassoon in 1805 is based on three different types of sources: 1) the prince's correspondence,<sup>20</sup> 2) several independent accounts concerning the prince's invention, and 3) various iconographic representations. According to independent sources, it was the prince himself who developed the design and oversaw the building of the first instruments. It therefore seems useful to delve more deeply into the prince's biography.

Prince Günther Friedrich Carl I (1760–1837) was the sovereign of the small principality Schwarzburg-Sondershausen, which had a population of about 60,000 during the period in question (Figure 6). Though the residence city, Sondershausen, was small, with a population of about 3,000 in 1800, it had been a highly regarded music center since the seventeenth century. The music-loving Günther Friedrich Carl I, who acceded to the throne in 1794, was well liked by his subjects. He played clarinet and bass horn, and founded in 1801 the aforementioned *Harmoniemusikcorps*, extracted from the court orchestra, whose history dates from 1637.<sup>21</sup> Some of the prince's contemporaries considered his command of the clarinet to be above the amateur level.<sup>22</sup> In 1802 Johann Simon Hermstedt, the distinguished clarinet virtuoso, joined the ensemble as first clarinetist, later serving as its music director.<sup>23</sup> In addition to Hermstedt, another musical luminary at the court was the music lexicographer Ernst Ludwig Gerber (1746–1819). He served as court secretary, court organist, and for some time as music teacher to the prince's two children.<sup>24</sup> In 1815 the prince founded a theater for plays and opera; during its first five years, 295 operas were performed.<sup>25</sup> The prince ruled in a conservative style and opposed the bourgeois trends that gained ground after the French July Revolution of 1830. When he suppressed agitation for a parliamentary constitution, the ensuing palace revolt forced the prince to abdicate in 1835; he spent the last two years of his life at his hunting castle, Zum Possen.

Regarding the bass horn, Gerber reported in 1809:

In quiet periods and from time to time, the prince has this corps [i.e., the *Harmoniemusikcorps*] perform some larger compositions in his parlor, where he himself sometimes enjoys taking the bass horn part himself, regardless of the difficulties.<sup>26</sup>

The prince dedicated himself to improving wind instruments, achieving tangible results in three cases: a clarinet mouthpiece, a bassoon bell, and the bass horn. His mouthpiece for the clarinet was made of metal and had a tuning mechanism within the barrel to lengthen or shorten the effective length of the wind channel. From 1821 Hermstedt used this device, which he apparently assisted in designing.<sup>27</sup> The prince's bassoon bell, as reported in the *Allgemeine Musikalische Zeitung* of 1817, aimed at improving the bassoon's acoustics.<sup>28</sup> A bassoon apparently with this type of bell survives in the





**Figure 6:** Prince Günther Friedrich Carl I von Schwarzburg-Sondershausen (1760–1837). Anonymous lithograph, ca. 1795. Schloßmuseum Sondershausen. Photo permission of Schloßmuseum Sondershausen. Image © Schloßmuseum Sondershausen.

musical instrument collection at the University of Göttingen.<sup>29</sup> Of the prince's three inventions, the bass horn was the only one that came into widespread use.

The earliest evidence of the prince's efforts to introduce his bass horn into Prussian military bands comes from his correspondence, beginning 6 March 1805 with a letter to Count Maltzan in Berlin. Burchard Friedrich von Maltzan (1773–1837) was chamberlain to King Friedrich Wilhelm III of Prussia and president of the Conservatorium der Blasinstrumente.<sup>30</sup> He expressed interest in the prince's bass horn for use at the conservatory, an institution newly founded to train military musicians.<sup>31</sup> Its founder and director, Franz Tausch (1762–1817), was a clarinetist and composer, and after hearing about the efforts made in Sondershausen, he became interested in

the bass horn. He was looking for a substitute for the double bass, which was used at the conservatory for lack of a proper bass wind instrument.<sup>32</sup> Count Maltzan, who also played clarinet in the orchestra of the conservatory, brought the issue before the king, who thereupon expressed interest in the instrument. Friedrich Wilhelm III (r. 1797–1840) was an aficionado of military music and a talented musician himself.<sup>33</sup> He is credited with the composition of what later became known as the *Präsentiermarsch*, a popular march that is still today the official inspection march of the German Armed Forces, played at all official receptions for foreign heads of state. Friedrich Wilhelm III supported modern trends in the arts, collected paintings by Caspar David Friedrich, and was a patron of the architect Carl Friedrich Schinkel. In 1826 Beethoven dedicated the first printed edition of his Symphony No. 9 to him.

The prince's correspondence concerning the bass horn began shortly after he had successfully completed the prototype of the instrument. In a letter he informed Count Maltzan that he would command a young musician to convey the instrument to Berlin and assist the future teacher of bass horn at the conservatory:

Highborn, highly honored Count!

I am very much obliged to Your Highborn for your letter, by which I am put in the position to evince my pleasure of accommodating you. In this respect, the desired instrument shall be readily at your command, and I will give the order to complete it. But before this happens, it may not be unserviceable if Your Highborn would kindly send me a tuning fork from there which is tuned to A, thereby when manufacturing [the instrument] the correct pitch can be taken into consideration so that it properly harmonizes with the instruments there and keeps the right tone.

As soon the horn is finished, I will have it conveyed to its destination by a young person whom I have taught to play it. I leave it to Your Highborn's discretion as to how far you are inclined—perhaps by this courier—to reward the person who will be sent there to play the instrument. This instrument has caused me much labor, but I would feel sufficiently rewarded if it would meet with applause from the connoisseurs of music.

Incidentally, I am very grateful for your kind offer of accommodating me in Berlin on occasion. I will avail myself of upcoming opportunities, with your permission.

I remain with perfect deference,  
Your Highborn's

...

Sondershausen 6th March, 1805<sup>34</sup>

The young man mentioned in the letter was Johann Heinrich Wilhelm Herrmann Jr., the bass horn player of the prince's *Harmoniemusikcorps*. On 17 April 1805 the prince revised his request, asking for a tuning fork in C instead of A, but Tausch sent him a

Ich bin sehr erfreut, dass Sie mir  
 Ihren Brief vom 2. März 1805  
 in Berlin  
 erhalten haben  
 und hoffe, dass Sie  
 sich sehr wohl befinden.

Ich habe die Ehre, Ihnen  
 hiermit zu schreiben, dass  
 ich die Ehre habe, Sie  
 zu empfangen.

Ich bin sehr erfreut, dass Sie  
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 zu empfangen.

**Figure 7:** Letter of Prince Günther Friedrich Carl I to Count Maltzan in Berlin, 6 March 1805. Thüringisches Staatsarchiv Rudolstadt, Geheimes Consilium Sondershausen, no. 1026, 1. Photo permission of Thüringisches Staatsarchiv Rudolstadt.

tuning pipe instead, since he was not able to procure a tuning fork. On 1 June 1805 the prince welcomed the Prussian royal family to his estate, an event that was commemorated by planting a beech tree (which still stands). This visit of Friedrich Wilhelm III, Queen consort Louise, and their son, Prince Wilhelm, occurred on a stopover on their journey to Erfurt and the county of Honstein. On that day the prince set up a tent on the Schernberg Lehde, a scenic location before the gates of Sondershausen, and entertained the royal family with refreshments and music played by the *Harmonie-*

*musikcorps*. The prince's particular concern was to demonstrate his bass horn to the king. On 3 June he wrote to Count Maltzan about this event:<sup>35</sup>

The day before yesterday I had the great pleasure that Their Royal Majesties the King and the Queen of Prussia along with His Royal Highness Prince Wilhelm passed through my territory and on that occasion I took the great pleasure in being able to humbly attend upon the highborn travelers. Their Royal Majesties and His Royal Highness Prince Wilhelm deigned to examine the aforementioned bass horn, and it appeared to me that I could flatter myself that it elicited some gracious applause. This made me so daring that I decided to have two more of the same bass instruments manufactured, in order to send them to Your Highborn with the request to make use of them for a good end and in a good way, which I leave to your discretion.<sup>36</sup>

Later Prince Günther Friedrich Carl mentioned that the royal majesties “showed much favor in it [i.e., the basshorn].”<sup>37</sup> Encouraged by the king's response, he ordered two additional bass horns from his makers as presents for the king and the queen. After the bass horn for the conservatory was finished, he informed Count Maltzan on 13 June 1805 that his first clarinetist Hermstedt and his bass horn player Hermann would convey the instrument to Berlin.<sup>38</sup> On 15 June he wrote to Franz Tausch:

The inducement for this invention was given to me by an English bass instrument, which however differs from this one significantly. Since I am very much devoted to music, it gives me great pleasure to have earned a small credit in [the field of] music by inventing this instrument, whose construction and study has caused me endless effort. It can be played in all keys, but it requires that the player have a very good ear, since, due to the instrument's wide compass, some of the tones are not stable.<sup>39</sup>

Fully aware of the limitations of the bass horn's volume, Prince Günther Friedrich Carl anticipated that the tests at the Conservatory, with its large wind band, might fail. In an attempt to forestall negative reactions, he offered the conservatory a second bass horn for doubling. On 7 July he wrote a letter to three *Vorgesetzte* (superiors) of the conservatory, Lieutenant Colonel von Krusemark, Count von Brühl, and Herr von Bredow, in which he explicitly addressed the issue of tonal strength:<sup>40</sup>

Should this bass instrument, in light of the large number of your wind instruments, not be able to penetrate sufficiently, and should you therefore wish to receive another, I should be honored to provide another as soon I have procured the necessary dried wood. As you are already familiar with the fingering and treatment of the instrument, it will not be necessary to have one of my subjects convey it to you. I note here only that this instrument

does not bear the name “English bass horn” because it is completely different from that [instrument].<sup>41</sup>

The prince called the instrument *Baßhorn* (frequently also spelled *Basshorn*) and was annoyed by those who insisted on calling it *Englisches Baßhorn*. This confusion persisted not only in Germany, but also in Lombardy and France.

The correspondence was interrupted in July 1805 but resumed at the end of February 1806. As the prince had anticipated, the results of the bass horn test at the conservatory were disappointing. Meanwhile, in December 1805 Director Tausch published an article about the instrument in the *Berlinische Musikalische Zeitung*, in which we learn for the first time about the structure of the bass horn. Writing about the Conservatorium and the prince’s donation of the bass horn, he continued,

The [bass horn] is structurally very similar to the bassoon, but differs from it externally by the fact that it terminates laterally at the top in a hornlike bell, and is also not played with a reed, but rather with a mouthpiece shaped like that of a trombone, as a result of which it has been given the name “bass horn.”<sup>42</sup>

In the same article Tausch expressed his gratitude, not only to the prince as inventor, but also to Count Maltzan and in particular to King Friedrich Wilhelm III, who provided space in the Academy of the Arts for the meetings of the members of the conservatory on Saturdays. When they tested the bass horn in the ensemble setting, it proved to be rather weak, so they continued to use the double bass to support the bass line.<sup>43</sup> The question as to whether a serpent would be more suitable was apparently not raised. The avoidance of this question was also a matter of decorum, because of the prince’s authority and also because the invention was backed by the king. The prince reacted to the disappointing results in a positive way and wrote to Tausch and Count Maltzan, informing them that he would dispatch a second instrument to the conservatory, and two more for the king and the queen. On February 26, we read in a letter to Count Maltzan and in another to Tausch,

Your Highborn, I give myself the honor to bestow the intended bass horn to the excellent Conservatory of Music [which is] under your authority. I add to that two more of the same kind in accordance with my previous promise, which I most humbly present to the sovereign disposition of their Majesties the King and the Queen....

I should like to point out that in the presented instruments, the fingerings in the upper octave have been improved.<sup>44</sup>

At this point the correspondence terminates, leaving unanswered the question as to who made the four instruments and also whether the maker or anyone else had a share

in their design. In 1809 E.L. Gerber addressed the question of structure, which had previously been reported by Tausch in his article, and the issue of the maker as follows:

As has been mentioned elsewhere in this journal,<sup>45</sup> this new instrument was built under the supervision of our prince by a pair of mechanical artists in his service in greatest perfection with regard to the purity of the scales and in its intonation, of maple, mahogany, and ebony, in a shape similar to that of the bassoon, with an S-shaped bocal of brass into which is placed a large mouthpiece similar to that of a trumpet, and at the top there is a brass bell, like that of a horn. In the lowest octaves it does not quite have the poignancy of the trombone, but incomparably more fullness, more power, and more compactness of sound. In the one-line octave, one imagines that one hears the combined sound of several bassoons and flutes.<sup>46</sup>

The question of the maker(s) remains open despite intensive research in the Thüringische Staatsarchiv at Rudolstadt.<sup>47</sup> Somewhat later, in 1817, the court carpenter Martini is mentioned as maker of a bassoon or bassoon bell devised by the prince,<sup>48</sup> and after 1820 Gottlieb Streitwolf in Göttingen is documented as an instrument maker for the prince and Hermstedt. Further research is needed to ascertain if Streitwolf worked for the court earlier. The assumption that Streitwolf began working as a maker only in 1809 is a conjecture based on the fact that he is documented in earlier years only as a musician, but this does not necessarily mean that he was not making instruments before 1809.<sup>49</sup>

*To be continued in the next volume of this Journal.*

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### Notes

<sup>1</sup> Parts 2 and 3 of this study, which will follow in the next issues of the *Historic Brass Society Journal*, deal with the proliferation of the bass horn, the upright serpent, bombardon, ophicleide, and chromatic bass horn, and with the question of what types of serpents and ophicleides such composers as Mendelssohn and Wagner used.

<sup>2</sup> Edmund A. Bowles, *Musical Ensembles in Festival Books, 1500–1800: An Iconographical & Documentary Survey* (Ann Arbor / London: UMI Research Press, 1989), 199.

<sup>3</sup> Klaus Wolfgang Niemöller, *Kirchenmusik und reichsstädtische Musikpflege in Köln des 18. Jahrhunderts* (Cologne: Arno Volk, 1960), 3, 12.

<sup>4</sup> Ernst Ludwig Gerber, "Versuch einer näheren Beleuchtung des Serpents," *Allgemeine Musikalische Zeitung* 2 (12 October 1803): 17–25. See also David Gasche, "L'utilisation du serpent dans la Harmoniemusik viennoise," *Musique, Images, Instruments* 14 (2012): 239–50.

<sup>5</sup> Christian Ahrens, "Zu Gotha ist eine gute Kapelle"—*Aus dem Innenleben einer thüringischen Hofkapelle im 18. Jahrhundert* (Stuttgart: Franz Steiner, 2009): 193–201; Sabine Klaus, "Serpent Precursors in Italy and Elsewhere: The Serpent in the Netherlands and Germany," *Musique, Images, Instruments* 14 (2012): 143–64, in particular 157–63.

<sup>6</sup> For a reference to this image, see Will Kimball, "Serpent and Ophicleide: History and Images," <http://kimballtrombone.com/2010/ophicleide-history-and-images/>

<sup>7</sup> Thüringisches Staatsarchiv (hereafter ThStA), Rudolstadt, Rentei-Kassenrechnung Sondershausen, "Vor die Hoff Capelle," years 1727, 1729/30, and 1730/31.

<sup>8</sup> ThStA, Rudolstadt, Rentkammer Arnstadt, Rechnungen 1686–1692. Sub 1692: "20 fl 16 gg Vor 4. Trompeten Stöcke."

<sup>9</sup> Arno Werner, *Städtische und fürstliche Musikpflege in Zeit bis zum Anfang des 19. Jahrhunderts* (Bückerburg / Leipzig: C.F.W. Siegel, 1922), 88–89.

<sup>10</sup> No first name is known. On Piffault's serpent, see Thierry Maniguet, "Les formes dérivées du serpent dans la première moitié du XIX<sup>e</sup> siècle," *Musique, Images, Instruments* 14 (2012): 93–112, here 97–100.

<sup>11</sup> *The New Grove Dictionary of Music and Musicians*, 2nd edn., ed. Stanley Sadie and John Tyrrell, s.v. "Basse-trompette" by Philip Bate and Stephen Weston.

<sup>12</sup> Berlioz wrote in 1843, "In France we still have practically no chromatic or rotary-valve trumpets.... Our military bands are still without either rotary-valve trumpets or bass tubas." Hector Berlioz, *The Memoirs of Hector Berlioz Member of the French Institute including his Travels in Italy, Germany, Russia and England*, transl. and ed. David Cairns (New York: W.W. Norton, 1969; corrected edn., 1975), 319.

<sup>13</sup> Thierry Maniguet, "L'usage du serpent à l'époque révolutionnaire," *Musique, Images, Instruments* 14 (2012): 87–90.

<sup>14</sup> Gerber, "Versuch," 17–25.

<sup>15</sup> *Ibid.*, 25. The supplement (*Nachtrag*) concerning the English bass horn was added to the article on the serpent shortly before its publication in October 1803.

<sup>16</sup> The measurements were taken by the author in the following museums and collections: The Metropolitan Museum of Art in New York, The Museum of Fine Arts in Boston, the Casadesus collection at Symphony Hall in Boston, Le Musée des instruments de musique in Brussels, the Musical Instrument Museums of the University of Edinburgh, the Grassi Museum für Musikinstrumente der Universität Leipzig, the Germanisches Nationalmuseum in Nuremberg, the Stadtmuseum and the Deutsches Museum in Munich, and the Marlowe Sigal collection in Newton, MA. The author would like to thank the curators and directors of the aforementioned museums and collections for permission to examine and measure the instruments.

<sup>17</sup> The bore diameter of the knee is calculated for a single instrument as the average of the end diameter of the descending branch and the beginning diameter of the ascending branch of the tube.

<sup>18</sup> The bore diameter D3 is located at the distance from the bell end equivalent to the diameter of the bell. It is approximately the point where the bore changes from the conical to the flaring mode.

<sup>19</sup> The average dispersion or variance of measurements is usually measured by the standard deviation. In the continental bass horns with the average minimum diameter of 11.4 mm the single

measurements disperse with a standard deviation of the sample of 0.4 mm. In the English bass horn with the average minimum diameter of 12.8 mm the standard deviation of the sample amounts to 0.6 mm. There are virtually no overlapping measurements between both types of bass horn. Though the samples are small, the standard deviations of the other measured parameters likewise suggest that the continental bass horns in general had a narrower bore up to D3 in comparison to the English bass horn. The bell diameters of both bass horn types vary more strongly and overlap. In the continental bass horn the bell diameter varies between 195 and 225 mm, in the English bass horns between 178 and 206 mm.

<sup>20</sup> ThStA, Rudolstadt, Geheimes Consilium Sondershausen, Nr. 1026, “Briefwechsel Serenissm. Regent. mit dem Herrn Grafen von Malzan und dem Musikdirektor Tausch in Berlin über die denselben überlassenen Baßhörner betr. 1805.” This correspondence was examined in 1940 by Hans Eberhardt (see n. 23), in 1960–62 by Günter Hart (see n. 29), and in 1994 by the present author (Herbert Heyde, *Musikinstrumentenbau in Preussen* [Tutzing: H. Schneider, 1994], 541–42). None of the three authors recognized the nature of the prince’s bass horn, as no other sources were consulted to elucidate and understand the correspondence.

<sup>21</sup> Friedrich Wilhelm Beinroth, *Musikgeschichte der Stadt Sondershausen von ihren Anfängen bis zum Ende des 19. Jahrhunderts* (Innsbruck: Wagner, 1943), 98.

<sup>22</sup> Heinrich Friedrich Theodor Apfelstedt, *Heimatkunde für die Bewohner des Fürstenthums Schwarzburg-Sondershausen*, Heft 3 (Sondershausen: F.A. Eupel 1856), 109. Regarding the prince’s clarinet playing, Apfelstedt wrote, “Yet in his later years he felt himself driven to musical exercises and even made it to virtuosity.” “[J]a er selbst fühlte sich noch in seinen spätern Lebensjahren zu eignen musikalischen Uebungen angetrieben und brachte es sogar bis zur Virtuosität.”

<sup>23</sup> Hans Eberhardt, “Johann Simon Hermstedt (1778–1846). Seine Bedeutung als Klarinettenvirtuose,” in *Musikerleben: gesammelte Aufsätze zur thüringischen Musik- und Musikergeschichte*, ed. Volker Wahl (Rudolstadt: Hain 2000), 55–92. The article originally appeared in *Mitteilungen des Vereins für deutsche Geschichte und Altertumskunde in Sondershausen*, 10 (Sondershausen: Eupel, 1940).

<sup>24</sup> Gustav Lutze, *Die Fürstliche Hofkapelle zu Sondershausen von 1801–1901: Festschrift zur Hundertjahrfeier der Lohkonzerte 1901* (Sondershausen: Fr. Aug. Eupel, 1901).

<sup>25</sup> Beinroth, *Musikgeschichte*, 153.

<sup>26</sup> “[B]ey ruhigen Zeiten, dann und wann [unser Fürst lässt] auf seinem Zimmer mehrere grosse Partien aufführen, wobey er sich manchmal das Vergnügen macht, die Basshorn-Stimme, ohne Rücksicht auf Schwierigkeiten, selbst zu übernehmen.” Ernst Ludwig Gerber, “Nachrichten: Sondershausen,” *Allgemeine Musikalische Zeitung* 11 (1809): 427.

<sup>27</sup> Anonym, “Nachrichten, Leipzig,” *Allgemeine Musikalische Zeitung* 34 (1832): 870–71. Hermstedt himself devised technical improvements for the clarinet. Louis Spohr described them in the “Vorerinnerung” of the first edition of his C-Minor concerto, printed in 1810 by Kühnel in Leipzig; reprinted in Eberhardt, *Musikerleben*, 92.

<sup>28</sup> “Notizen: Aus Privatbriefen,” unsigned article in *Allgemeine Musikalische Zeitung* 19 (1817): 689. “Once again, the perfection of a musical instrument by His Serene Highness, the reigning Prince of Schwarzburg-Sondershausen, from whom the bass horn formerly received a significantly improved configuration, deserves the attention of the musical public. By reshaping the upper [part of the] bell of the bassoon, this instrument had greatly gained in strength and purity of the tones without any loss in the high and low registers. For further information about the mechanical setup and fabrication of the improved bassoon, one should contact Mr. Martini, court carpenter in Sondershausen, who built the first improved bassoon according to the ideas of His Serene Highness.” [“Eine abermalige Vervollkommung eines musikal. Instruments durch



Sr. Durchlaucht, dem regierenden Fürsten von Schwarzburg-Sondershausen, von welchem früher das Basshorn eine bedeutend bessere Einrichtung erhielt, verdient die Aufmerksamkeit des musikal. Publikums. Durch eine Umformung des obern Sturzes des Fagotts, hat dieses Instrument an Stärke und Reinheit der Töne sehr gewonnen, ohne irgend einen Verlust für die Höhe und Tiefe. Um nähere Nachrichten über die mechanische Einrichtung und Anfertigung dieses verbesserten Fagotts zu erhalten, hätte man sich wol an Hrn. Martini, Hoftischler in Sondershausen, zu wenden, der das erst verbesserte Fagott nach den Ideen und Angaben Sr. Durchlaucht gefertigt hat.”]

<sup>29</sup> This interpretation was suggested in Günter Hart, “Musikinstrumentenmacher in Göttingen bis zur Mitte des 19. Jahrhunderts,” unpublished ms, 1960–62, Stadtarchiv Göttingen, no. B 498, p. 97. Hart’s conjecture needs further evaluation.

<sup>30</sup> Later, Count Maltzan was appointed *Hofmarschall* and *Intendant* of the royal castles.

<sup>31</sup> The conservatory existed for only one year and collapsed in the aftermath of the defeat of Prussia in October 1806. At its inception the conservatory had fifty members of which seventeen were noblemen who covered the operating costs. About the conservatory, see Franz Tausch, “Nachricht von der Entstehung und Einrichtung des Berlinischen Conservatoriums durch den Königl. Cammermusicus und Clarinetisten Herrn Tausch,” *Berlinische Musikalische Zeitung* 1, no. 101 (1805): 399–402; no. 102 (1805): 403–04.

<sup>32</sup> Tausch, “Nachricht,” no.101, p. 400.

<sup>33</sup> August Kalkbrenner, *Wilhelm Wieprecht. Director der sämmtlichen Musikchöre des Garde-Corps. Sein Leben und Wirken nebst einem Auszug seiner Schriften* (Berlin: Emil Prager, 1882), 30–31.

<sup>34</sup> ThStA, Rudolstadt, Geheimes Consilium 1026, ff. 1–3.

“Hochgebohrer

Hochgeehrter Herr Graf!

Ew. Hochgebohr bin ich für Dero gütige Zuschrift recht sehr verpflichtet, indem ich durch dieselbe im Standt gesetzt werde, mein Vergnügen Ihnen gefällig seyn zu können am Tag zulegen. In dieser Hinsicht soll Ihnen das gewünschte Instrument auch recht gern zu Diensten stehen und ich werde deßen Fertigung befehlen, ehe dieses aber geschieht, mögte wohl nicht undienlich seyn, wenn Ew. Hochgebohr mir von dort her eine Stimmgabel, die a gestimmt angeibt, gefälligst übermachen wollten, damit bey Verfertigung deßelben darauf Rücksicht genommen werden kann, es daher mit den dortigen Instrumenten gehörig harmoniret und den richtigen Ton erhält. Sobald das Horn fertig ist, werde ich selbiges durch einen jungen Menschen, den ich solches zu blasen gelehret habe, an den Ort der Bestimmung beförden laßen, wo ich es dann Ew. Hochgebohr Ermeßen anheim gebe in wiefern Dieselben vielleicht durch diesen Abgeschickten demjenigen, der dort dieses Instrument zu blasen bestimmt ist, einige Vortheile dabey zeigen laßen wollen. Es hat mir dieses Instrument wirklich sehr viel Mühe gemacht, doch fühle ich mich dafür hinreichend belohnet, wenn es bey Musikkennern Beyfall findet.

Uebrigens bin ich Ew. Hochgebohr. für die freundschaftl. Offerten, mir in Berlin bey vorkommenden Gelegenheiten gefällig zu seyn, recht sehr dankbar, ich werde bey sich ereignenden Fällen davon Gebrauch zu machen, mir gewiß die Erlaubniß nehmen.

Ich bleibe mit vollkommener Hochachtung,

Ew. Hochgebohrn.

....

Sondershausen am 6 t. Maerz 1805”

<sup>35</sup> In 1877 this encounter was described in detail, however without reference to the bass horn, by Friedrich Beisker, “Aus früher Zeit,” *Regierungs- und Nachrichtenblatt für das Fürstenthum Schwarzburg-Sondershausen 1877* (Sondershausen: Eupel, 1877): 219.

<sup>36</sup> ThStA, Rudolstadt, Geheimes Consilium 1026, f. 4b, 5a. “Vorgestern hatte ich das große Glück, daß Ihre Königl. Majestäten der König und die Königin von Preußen nebst Sr. Königl. Hoheit dem Prinzen Wilhelm mein Teritorium passirten und mir bey dieser Gelegenheit zugleich die hohe Gnade zu Theil wurde, den höchsten Reisenden meine ganz unterthänige Aufwartung machen zu können. Ihre Königl. Majestäten sowohl als Sr. Königl. Hoheit der Prinz Wilhelm geruheten das vorerwähnte Basshorn in Augenschein zu nehmen und es schien mir, als dürfe ich mir schmeicheln, es habe selbiges einigen gnädigen Beifall gefunden. Dieses machte mich so dreiest, daß ich den Entschluß faßte, noch zwey dergleichen Baß=Instrumente verfertigen zu laßen, um solche an Ew. Hochgeb. mit der Bitte mit zu übersenden, solche geneigtest auf eine gute Art, die ich dero Ermessen anheimstelle, zu employiren.”

<sup>37</sup> ThStA, Rudolstadt, Geheimes Consilium 1026, 9a.

<sup>38</sup> This episode in Hermstedt’s career is described in greater detail in Eberhardt, “Hermstedt,” 55–92.

<sup>39</sup> ThStA, Rudolstadt, Geheimes Consilium 1026, 11a, b: “Die Veranlassung zu dieser Erfindung gab mir ein englisches Bass-Instrument, welches aber ganz von diesem abweicht. Da ich der Musik sehr zugethan bin, so macht mir es wirklich viel Freude, durch die Erfindung dieses Instruments, dessen Bau und Erlernung mir unendliche Mühe gemacht hat, mir vielleicht ein kleines Verdienst um die Musik erworben zu haben. Es kann selbiges aus allen Tönen geblasen werden, es setzt aber voraus, daß der Bläser ein sehr gutes Gehör habe, weil verschiedene Töne wegen des weiten Umfangs des Instruments nicht fest stehen.”

<sup>40</sup> Each played an instrument in the orchestra of the conservatory: Krusemark, flute; Brühl, horn; Bredow, bassoon. Carl von Brühl (1772–1837), at that time chamberlain at the Berlin court, joined the Singakademie in 1809 and was appointed *Intendant-general* of the Prussian royal theaters in 1815 and of the royal museums in 1830.

<sup>41</sup> ThStA, Rudolstadt, Geheimes Consilium, 1026, without page number. “Sollte dieses Baß Instrument allein bey der Menge Ihrer Baß=Instrumente nicht gehörig durchdringen können u. sollten Sie daher vielleicht noch eins zu erhalten wünschen, so werde ich mir die Ehre geben, Ihnen sobald ich mit dem hiezu nöthigen trocknenen Holze versehen worden bin, damit aufzuwarten. Da Ihnen bereits die Applicatur und die ganzze [*sic*] Behandlung des Instruments bekannt ist, so wird es dann nicht nöthig seyn, dass ich es durch jemanden von meinen Leuten überbringen laße. Hierbei bemerke ich nur noch, daß dieses Instrument nicht den Nahmen englisches Baßhorn führet, indem es von diesem gänzlich abweicht.”

<sup>42</sup> Tausch, “Nachricht,” no. 101, p. 400. “Dasselbe hat in seiner Bauart viel Ähnlichkeit mit dem Fagott, unterscheidet sich aber schon durch das Äußere von demselben dadurch, daß es sich oben seitwärts in eine hornförmige Sterze [*sic*] endigt, und auch nicht mit einem Rohr, sondern mit einen posauenförmigen Mundstück geblasen wird, woher dasselbe denn auch den Namen eines Baßhorns erhalten hat.”

<sup>43</sup> The orchestra of the conservatory consisted in December 1805 of 12 flutes, 14 clarinets, 7 oboes, 6 bassoons, 10 horns, 2 trumpets, 2 trombones, 2 kettledrums, 1 double bass, and 1 bass horn (played by a Mr. Zschische). See Tausch, “Nachricht,” no. 102, p. 404.

<sup>44</sup> ThStA, Rudolstadt, Geheimes Consilium, 1026, without page numbers: “Ew. Hochgeb. gebe ich mir die Ehre, das dem unter dero Leitung stehendenden vortrefflichen Musik Conservatoir [*sic*] zugedachte Baßhorn zu übermachen. Ich füge demselben noch zwei dergleichen meiner vorigen Zusicherung gemäß bey, welche ich der Allerhöchsten Disposition Ihrer Majestäten des Königs und er Königin unterthänigst überlasse. ... Ich erlaube mir noch die Bemerkung, daß bey den übermachten Instrumenten in der hohen Octave die Applikatur verbessert worden ist.”

<sup>45</sup> This statement refers to Gerber’s report in the previous number of the periodical.

<sup>46</sup> Gerber, "Nachrichten," 426–27. "Dass dies neue Instrument, durch die Aufmerksamkeit unseres Fürsten, von einem Paar in seinem Dienste befindlichen mechanischen Künstlern in Ansehung der Reinigkeit seiner Skalen und überhaupt in der Intonation, in höchster Vollkommenheit von Ehern, Mahagoni-, auch Ebenholz, in einer dem Fagotte sich nähernden Figur, mit einer Art messingnen S, worein ein grosses trompetenarties Mundstück gesteckt wird, und oben am Ausgange mit einem messingnen Schallkegel, gleich am Horne, verfertigt wird, ist schon an einem andern Orte dieser Zeit. bemerkt worden. In den Kontratönen und der grossen Oktave hat es zwar nicht ganz die Schärfe der Posaune, aber ungleich mehr Fülle, mehr Nachdruck und mehr Massives im Tone. In der eingestrichenen Oktave hingegen glaubt man den vereinten Ton mehrerer Fagotte und Flöten zu hören."

<sup>47</sup> Many records from the prince's period have not survived. Engelhardt's article of 1940 (see n. 23) was used by Pastor Günther Hart, who again took up the search in the course of his research on Gottlieb Streitwolf. See n. 29. Hart suggested two names by way of conjecture, Martini and Böttger, both of whom were court carpenters in Sondershausen.

<sup>48</sup> "Aus Privatbriefen" (see n. 28).

<sup>49</sup> Beisker, "Aus früher Zeit," 430–31; Hart, "Musikinstrumentenmacher," 97; Engelhardt, *Musikerleben*, 86–87. See also William Waterhouse, *The New Langwill Index: A Dictionary of Musical Wind-Instrument Makers and Inventors* (London: Tony Bingham, 1993), 150.

