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The Trombone in Germany in the Nineteenth Century. Contexts, Idioms and Legacies

The paper provides an overview of the use of trombones in German-speaking countries between the late eighteenth century and the end of the first decade of the twentieth century. It also discusses the factors that created continuities in the period and interruptions to those continuities. It provides a broad background of the context in which trombone players worked, before discussing the supply of, and demand for instruments; the way players entered the profession and learned their trade, and the infrastructure of the music profession as it impacted on trombone players. The overall aim is to provide an understanding of matters that impinged on the working lives of players, and the idiom of the instrument in the long nineteenth century. Three short appendices are attached to the paper. The first two are extracts of primary source texts, the third is an analysis of the size of trombone sections in the orchestras of German speaking countries between 1787 and 1890.

My title needs two important caveats that concern time, place and methodology. I am extending the nineteenth century at both ends to the period the Marxist historian Eric Hobsbawm called “the long nineteenth century”. Hobsbawm’s periodisation was framed by the idea that while a chronological century is usually meaningless as an expression of an era, a period defined by events such as the revolutions of the late eighteenth century at one end and the fracturing effects that occurred in 1914 at the other, provides a more intelligent framework.¹ The long nineteenth century is also a useful concept for this paper because it allows me to briefly mention the eighteenth-century precedents as well as the emergence of sound recordings. Another caveat is that while my title refers to “the trombone in Germany in the nineteenth century”, I am side-stepping the geopolitical complexities of the period by focusing on German-speaking countries rather than the area contained by the borders of modern Germany. This, too, is pragmatic because there are valid cultural reasons for embracing countries such as Austria and Switzerland.

There are always dangers in adopting a strictly linear approach to history with the inherent assumption that common practices can be reliably assumed at each historical stage. The reality in music history is that differences have occurred with greater frequency than consistencies. Stylistic and cultural trends have seldom developed with uniform speed across different countries and regions, and there have been important, sometimes isolated, idiosyncrasies

¹ The phrase was popularised by Hobsbawm from the time of the publication of his 1962 book *The Age of Revolution*, the first of a trilogy that defined the long nineteenth century.

and contradictions that disturb what are often regarded as common trends. The truth of this is evidenced in the way understandings of historical performance practices have been moderated by the systematic study of sound recordings as sources for performance history. For the first time, this allowed parallel comparisons of the performance preferences of different countries.² The story it tells is primarily one of diversity. It was not until the later and wider social and cultural circumstances that led to what became known as globalisation that difference gave way to sameness. In modern times we can speak with some confidence about common practices in musical performance; such was not the case in the nineteenth century, neither in Germany nor elsewhere.

The study of individual musical instruments and their use presents additional challenges, even when it is confined to a country or region and a period. Each of the standard approaches has vulnerabilities as well as positive values. A study focused on instruments themselves, of the type used conventionally in organology, provides a profile of their development and, implicitly, information about relationships between makers, performers and the networks in which they operated. Information of greater value is revealed by patterns of supply and demand in the different market segments where instruments were distributed.

Contemporary repertoire has traditionally been regarded as the prime evidential source for instrumental idioms, especially when it is supplemented by data that allows the mapping of performances to places, times and performers, but even this route can create inconsistencies and contradictions. The writings of Hector Berlioz reveal some of the uncertainties that conductors experienced when confronted with incomplete or inconsistent performance standards. The instrumental line-up of many orchestras had a fluidity that was born of expediency. For example, in his encounter with the Leipzig orchestra in 1843, Berlioz discovered an ophicleide “or rather the meagre brass object masquerading under that name [that] bore no resemblance to the French variety” and had “practically no tone”, which led him to declare it “null and void” and arrange for it to be “replaced, after a fashion, by a fourth trombone”.³ Such adjustments were not unusual and prevailed into the early twentieth century. Even the fidelity of composers to their own scores was not inviolate: for example, the famous duet for double bass and trombone in Stravinsky’s *Pulcinella*, in which the melodic and programmatic interest is based on the interplay of natural glissandos between the two solo instruments, could, according to the composer, be played with equal effect on a valve trombone.⁴

It follows that my approach is multifaceted and takes account of broad cultural and aesthetic trends. I am primarily interested in the issues that impacted on the experience of being a trombone player in nineteenth-century Germany-speaking countries, with an emphasis on two themes: the factors that determined the supply and demand for the services of trombone players, and the issues that influenced the sound worlds in which they lived and worked. Four topics provide the structure of the paper

1. The broad musical, cultural and historical context.
2. The patterns of supply and demand for instruments.
3. The way players learned and conducted their trade.
4. The infrastructures within which players worked: by “infrastructures” I mean the agencies and institutions that most affected their working lives – the church, the military and the orchestras.

² See for example Philip 1992.

³ Berlioz 2002, p. 300.

⁴ Herbert 2010, p. 13.

Cultural context

The cultural and musical context in Germany at the start of the nineteenth century was emphatically different from that experienced in other European countries. Even as late as the 1770s there were more than 60 German courts that maintained orchestras of at least 20 players,⁵ The courts were one of the two main eighteenth-century agencies that created a widely distributed network of musical centres. This network ensured that the music was less centralised than elsewhere. Not every court employed trombone players, so, for example, there are many references to the “Tuba Mirum” trombone solo in Mozart’s *Requiem* being performed on the bassoon or (as in Berlin in 1805) the horn, because a trombone player of adequate skills was not available.⁶

The other significant contribution to the network was provided by civic musical patronage. This had sustained trombone players through the eighteenth century, particularly for their role in *Abblasen*: the morning and evening performances of *Stadtppfeifer*. It is to the town bands that courts and churches often looked for the supply of trombone players, before transformations in the structure of the music profession occurred in the nineteenth century.

Fractured though it was, trombone playing in German-speaking countries in the late eighteenth century could claim a continuity that was almost unique, especially in Austria. In England, the trombone, and words meaning “trombone”, were almost lost for most of the eighteenth century. Trombones were used in London in 1738 and 1739 for performances of George Frideric Handel’s dramatic oratorios *Israel in Egypt* and *Saul*, but at each of these events the players were visiting Germans. What appears to have been a more permanently settled group of players (again with German names) were in London by 1784 when the large-scale Handel Commemorations took place at Westminster Abbey.⁷ This latter group initiated the re-establishment of the trombone in England, and it was again German players who were critically important in setting up British military music in the nineteenth century.⁸ This point is evidenced not just by the career profiles of individual German musicians working in Britain, but also by the existence of flourishing agencies that acted as conduits for immigrant German performers.⁹ Early influences of German trombonists can also be seen in other countries: for example, in Paris where several players with German names were in circulation, including Jean Frédéric Braun, who had apparently been working in Paris from at least 1774, and was the author of *Gamme et Méthode pour les Trombones* (ca 1796),¹⁰ the first modern treatise for the trombone. Other trombone players working in Paris at that time were Moser, Sieber and Nau, and in 1786 a functionary of the Paris Opéra was instructed to buy German trombones for use in its orchestra.¹¹

The main aesthetic movement of the period was the transition from what became known as Classical to Romantic styles, but there were other important, and more local trends, most notably a shift from the dominance of Italian operatic style in the early decades of the century to the German operatic models that were to reach fulfilment in the works of Richard Wagner. Romanticism, with its emphasis on expression, harmonic and timbral contrasts, exploration, colour and referentialism, can be regarded as a major cause of the increased use of the trombone in the nineteenth century, especially in the Romantic orchestra. From about 1820, in both

5 Spitzer/Zaslaw 2004.

6 Carse 1948, p. 40.

7 Burney 1785, p. 7.

8 Herbert/Barlow 2013, pp. 82–103.

9 George Astor was one of the major agents. He advertised his services regularly in London newspapers. See *ibid.*, p. 101.

10 See Weiner 2019b. For further information on Braun’s method see Weiner 1993; Weiner 1999; Guilloux 2016.

11 Carse 1948, p. 41.

their concert and operatic form, German orchestras included a three-part trombone section voiced in the alto, tenor and bass registers as standard components. A parallel development was the emergence of the baton-waving conductor. This aspect of performance history has received relatively little attention in respect of the idioms of individual orchestral instruments. Composers such as Franz Schubert, Carl Maria von Weber, Felix Mendelssohn, Gaspare Spontini, Johannes Brahms, Robert Schumann and Wagner were also conductors of their own works. According to Berlioz, in Germany there was great respect for “the maestro” (the professional conductor or *Kapellmeister*), but “the composer [...] nearly always directs both rehearsals and performance of his work, without the conductor’s pride being in the least offended”.¹² The direct interplay between the creators and the executants of repertoire strengthens the idea that German repertoire in this period can be genuinely regarded as a reflection of instrumental idioms.

Instruments, supply and demand

The robust and long-standing tradition of trombone-making that prevailed in Germany at the start of the nineteenth century was set to develop, embrace new modes of production, and respond to increased demand. Early nineteenth-century manufacturing and production systems were based on technologies and skills that had been in use for centuries, but Germany was uniquely placed for the introduction of manufacturing methods that were prescient. The trombone also benefited from new production processes and modes of distribution that emerged in the light of the development of innovative valve instrument designs and the massively increased demand caused by the expansion of military music. There were about forty places in German-speaking countries where trombones were designed and manufactured in the nineteenth century.¹³ That so many manufacturers were in existence is, of course, an indicator of demand as well as supply, but while the distribution of manufacturers may reflect regional or more local demographics, there were other factors at play. Some manufacturers targeted market segments by type. For example, the firm of August Clemens Glier of Markneukirchen and, a little later, Ernst David of Bielefeld, were particularly known as suppliers of instruments to the *Posaunenchor* movement, while Griessling & Schlott, who flourished in Berlin between 1801 and 1835, were prominent suppliers to military bands in the first half of the century. In the second half of the century, Červený of Königgrätz was a major supplier to military bands, and from 1867 it was responsible for the production of the family of upward-bell valve trombones known as *Armee-Posaune*. In 1895, the same firm supplied 6,000 brass instruments to the Russian army. By the end of my period about a quarter of this cohort of German trombone makers had extended their businesses to other countries.

The *Armee-Posaune* was an important introduction because of its utility in the military bands for which it was designed, especially those of mounted regiments, but there were other yet more important innovations. Of these, the most notable and lasting was the wide-bore tenor/bass trombone developed by Christian Friedrich Sattler in Leipzig in 1838/39, which was the prototype for all subsequent thumb-attachment trombones. Equally far-reaching was the development of the valve trombone. It is generally believed to have first appeared in Vienna in the late 1820s or early 1830s. This invention has been credited to Joseph Riedl, but the claim that this was the first valve trombone has been contested. An alternative, and credible claim

¹² Berlioz 2002, p. 260.

¹³ This figure is based on data included in Waterhouse 1993; and on Herbert et al. 2019b.

cites another German maker, Joseph Caspar Gabler, who is said to have applied a box valve mechanism to a trombone as early as 1818.¹⁴

Learning the trombone

Changes in the way professional musicians learned their trade are evident from the start of the nineteenth century. The decline of civic and aristocratic patronage and the ubiquitous rise of military bands prompted a commensurate decline in the power and influence of protective agencies such as guilds and the other licensing agencies that had ensured the passing of performance skills from fathers to male offspring within narrow dynastic channels. The modes of patronage that had sustained family dynasties in Germany weakened but did not disappear. The trombone virtuosos Friedrich August Belcke (1795–1874) and Carl Traugott Queisser (1800–1846) were both alumni of the *Stadtmusiker*, and there is evidence of male members of families working in proximity or simultaneously in different centres: some continued to be recipients of nepotistic advantage.¹⁵ For example, Queisser, who was described by Schumann as “the God of the trombone”, joined the Leipzig orchestra in 1825, and was the brother of both Friedrich Benjamin Queisser (1817–1893), who played the trumpet at Dresden, and Johann Gottlieb Queisser (1807–1874), also a trombonist, who played with the Dresden Orchestra under Wagner.¹⁶

The device that was to cause the greatest and most enduring change to processes of learning across Europe was the advent of a new type of specialist institution for musical tuition. These institutions, variously called (in English) “school”, “college”, “academy” or “conservatoire”, were initiated by state, civic or military agencies. Though the impact of such institutions on the trombone specifically was relatively slight in most places, the transition from traditional to modern modes of learning is important for two reasons: firstly, and especially in respect of military schools of music, it introduced recruits to the music profession from an entirely new demographic – usually the lower social classes; and secondly, it encouraged new, and robust performance orthodoxies centred on the preferences of exemplary performer-teachers. In France, this acted powerfully at a national level, and eventually elsewhere it served to create dynasties defined not by familial relationships but by teacher/pupil associations.

In Germany it was different because professional music was less centralised and consequently more fractured aesthetically. A conservatoire was established in Bohemia early in the century and more followed, but there are grounds for scepticism about the extent to which trombonists were taught in them. The Paris Conservatoire was exceptional in that it had a trombone class almost from its foundation and maintained specialist teaching for trombonists through the new century. Most early German conservatoires were dedicated mainly or exclusively to training soloists and chamber music performers. For example, the Leipzig Conservatoire, founded by Mendelssohn in 1843, was directed at composers, singers and pianists, and this type of focus was not unusual. The way that the conservatoires presented themselves was often misleading. For example, the Royal College of Music, founded in London in 1882, advertised a full range of professors from the day it opened, but the total number of orchestral instrumentalists admitted in the forty years between 1882 and 1922 was very small.¹⁷ Performing in the

¹⁴ Herbert 2008, p. 185.

¹⁵ For biographical information on both players, see Weiner 2019a and Weiner 2019c respectively.

¹⁶ See Carse 1948, pp. 121 and 134.

¹⁷ I am grateful to David Wright, author of the history of the Royal College of Music, who has completed painstaking work on the personnel of the College since its foundation, for sharing this information, see Wright 2022.

College's concerts seems to have been the main role of many of the wind music professors, but there were some important exceptions.

Though formal processes for the training of trombone players were no more developed in Germany than in other parts of Europe, it does not follow that learning of any systematic nature was absent, and it is likely that alternative, more organic processes compensated with equal effect. Early in the century, the dynastic legacy produced a new generation of virtuoso players, in Germany to form what was effectively a widely dispersed network of mentors. Friedrich August Belcke and Carl Traugott Queisser are cited as the major virtuosos of the period, but there were more. For example, Berlioz praised Schrade (recte: Johann August Schrader), the principal trombone player in the Stuttgart orchestra, whom he regarded as

a most gifted player, a complete master of his instrument who makes light of the most formidable difficulties and produces a magnificent tone from the tenor trombone – I should rather say tones, for by some process not yet explained he can play three or four notes at the same time [...].¹⁸

Many players attached to German, Swiss and Austrian orchestras earned praise. In a letter to Liszt, Wagner recommended “the ‘trombone genius’ Thiele of Bern for a vacant post at Weimar”:

At my famous Zurich concerts he truly won my heart. By his side we had two most feeble players, yet he managed so to infect them with his energy that at their entry in the Wedding-music one might fancy oneself listening to a whole army of trombonists.¹⁹

There were also some who made their names as international soloists. Herr Nabich, a German trombone player, accompanied by William Mason, an American pianist, was a regular on the international concert circuit. After a performance at the Harmonic Union in London in 1853 he was declared “a wonder” by the *Morning Post*.²⁰

While there is abundant evidence that such players were influential, the absence of a process of learning based formally at an institution (as was the case in Paris) may well account for the relatively small quantity of didactic literature for the trombone published in Germany in the period. The small solo repertoire for trombone evidences the existence of players with the skills to execute it, but, as in other countries, the solo repertoire provides a less reliable indicator of the idiom of the instrument than does the orchestral repertoire.

Military

As was the case elsewhere in Europe, the unprecedented expansion of demand for brass instruments in Germany was a direct result of the exponential growth in the number of military bands that emerged in the first half of the century. Even early in the century, some orchestras relied on military players. In 1827, for example, the English traveller Edward Holmes remarked that the orchestra at Kassel was “half-filled with officers”.²¹ A similar impression is gained from the diaries of the English conductor Sir George Smart, who reported that the Elector of Kassel had the best military band in Germany and that its players also filled many places in the court orchestra.²²

¹⁸ Berlioz 2002, p. 276 f.

¹⁹ Ellis 1904, p. 106.

²⁰ *MP* 1853, p. 5.

²¹ Carse 1948, p. 151.

²² Cox/Cox 1907, p. 209.

The importance of military music projects to the wider infrastructure of musical life and its associated commerce was immense, and has been largely overlooked in mainstream musicology. In 1889, Jacob Kappey, a German bandmaster working in London, made the conservative estimate that there were in excess of 51,000 military band players in Western Europe.²³ In 1825 Sir George Smart, travelling in Germany, witnessed impressive performances of bands of military musicians made up of “trumpets, bugles and tromboni” which sometimes numbered 150 players.²⁴

Trombones were used in German military bands through the century, both before and after Wieprecht’s famous reconfiguration of them for the Prussian authorities. Wieprecht’s 1838 formations included two tenor and two bass trombones for infantry bands in a total of 47 players, but none were included in the smaller combination (21 players) he devised for cavalry bands. This undoubtedly reflected the practical problem faced by trombone players performing when mounted, which was consequently addressed by the introduction of the *Armee-posaune*. Kappey believed that Prussian configurations had “spread to almost all European States, and formed the basis of our present [British late nineteenth century] military music”.²⁵ There is scope to question whether it was “the basis” of European bands, but it was undoubtedly influential. Carl Florian Mandel, whose treatise on the instrumentation of military bands, is one of the most detailed works of its type in this period does not mention Wieprecht’s model.²⁶ Mandel was born in Hamburg and worked there until 1853. He then moved to England and taught music theory and arranging at the British army’s military music class (later called the Royal Military School of Music). It was there that he wrote the treatise that became the standard text for British military bandmasters. It was premised on the idea that the role of a military band, beyond its basic functions during ceremonials and marching, was to play arrangements of existing repertoire rather than original music. He paid his greatest attention to the idiomatic nature of instruments. An extract from his comments on the use of the trombone in military bands is provided as Appendix 1. Though he was based in London when he wrote the book, his experience of military bands was gained primarily in Germany, and what he describes about the utility of trombones in the military band is distinctly different from practices in most orchestras. For example, he advocates the use of three tenor trombones, a convention widespread in France, but less so elsewhere.

The military expansion also gave issue to popular music offshoots. Many military-trained trombone players found work in theatres and pleasure gardens, and superannuated military trombone and other brass players also formed the core of one of the most widely dispersed forms of street music that were known outside Germany as “German bands”. These bands were ubiquitous and travelled internationally. In urban areas of England they were regarded as an interminable nuisance, though in rural districts their arrival was greeted with pleasure, and they occupy an important place in popular music history in the UK and in colonised countries such as Australia. Henry Mayhew, the most celebrated chronicler of street life in the Victorian period, interviewed one such player and thought fit to imitate the man’s German accent in his transcription. The interview transcript is given below as Appendix 2.

23 Kappey 1889, p. 472.

24 Cox/Cox 1907, pp. 66 and 203.

25 Kappey 1894, p. 90.

26 Mandel 1859.

The church

Sacred music was one of the strongest agencies for continuity in trombone playing in Germany, and the traditions that bound the instrument to the sacred impacted powerfully on its symphonic idiom. The *ad libitum* tradition of doubling vocal lines on trombones became formalised, then gained a greater level of independence in the oratorios of Mozart, Haydn and Schubert. But strands of the older traditions prevailed, particularly in amateur sub-cultures such as Moravian communities, the *Posaunenchor* movement and those places where choral singing maintained its traditional modes of performance. The continued inclusion of trombones in devotional settings was also significant because it engaged amateurs as well as professionals. Amateur trombone playing in the nineteenth century developed as part of the wider enfranchisement of amateur brass instrument playing: it contributed to the demand for instruments and to the supply of professional players, but in the case of sacred music it also kept alive the way the trombone was popularly understood in Germany. The modern *Posaunenchor* movement is usually traced to a particular branch of evangelical Lutheranism in the 1840s, but whether that movement alone accounts for the sustenance of traditional practices is doubtful.²⁷

Recent musicological projects on how people have listened to music in the past have cast new light on such traditions.²⁸ An eye-witness account by Amy Fay, a young American woman visiting Berlin Cathedral in April 1870, is interesting in this regard. It is found in a letter that she wrote to her family back in the United States, and it tells us much about the extent to which trombones configured sacred practices in Germany at the time:

I thought of you all on Easter Sunday, and wondered what sort of music you were having. I did not go to the English church [...] but to the Dom [...]. It is an extremely ugly church [...] but they have a superb choir of two hundred men and boys [...]. After they had finished the psalm the organ burst out with a tremendous great chord, enough to make you jump, and then played a chorale, and there were also trombones which took the melody. Then all the congregation sang the chorale, and the choir kept silence. You cannot imagine how easy it is to sing when the trombones lead, and the effect is overwhelming with the organ, especially in these grand old chorales. I could scarcely bear it, it was so very exciting.²⁹

Art music institutions – the orchestras

The number of orchestras in Germany and the spread of their distribution was not matched in any other country or region. They can be divided into two broad categories: those that were and those that were not attached to theatres. Most theatres had concert rooms in which a reduced number of players from the theatre orchestra formed a symphony or concert orchestra. Information about the sizes of orchestras in which trombones were included provides an interesting profile of the experience of playing in them and the performance idioms of the time.

Data on orchestral forces is more bountiful for Germany than most other countries: some is summarised and distilled in Appendix 3 below, but it should be read with important cautions in mind. The main primary sources, which are mostly summarised in reliable secondary

²⁷ See Klaus 2019.

²⁸ See, for example, the *Listening Experience Database* at the Open University, a major project dedicated to collecting and using primary source evidence on the impact of music on ordinary listeners. The rationale for this project, along with a description of the methods it employed and an open access database containing thousands of sources, can be found online (LED n.d.).

²⁹ Fay 1880, pp. 59–61.

sources, are inventory lists, printed programmes and other documents including eye-witness accounts.³⁰ They are varied and sometimes uncorroborated, so it is important to stress that it is presented to convey only a general impression.

By about 1820 a three-part trombone section was included in most German orchestras. Mandel drew attention to the novelty of this arrangement, pointing out that every other grouping of wind instruments in the orchestra involved two or four players. This arrangement configured the orchestral idiom of the instrument as it developed in German-speaking countries. It is important because it established what became the orthodox orchestral trombone section. This configuration took shape in vocal works by composers such as Mozart, Haydn and even Handel, but was adopted in a similar character in purely instrumental setting in works such as the C major Symphony of Schubert and the symphonic works of Brahms. The impact of this configuration should be understood in the context of the relative and proportional strength of the three-part trombone section in orchestras. Data drawn from a variety of primary and secondary sources has been used to create the outline picture given in Appendix 3. Two features emerge from this with a good degree of consistency: there was a marked difference in the size of theatre and concert/symphony orchestras, with the latter initially being significantly smaller than the former; and works conceived for the symphony orchestra were typically performed with a total strength of about 40 players including trombones, with seldom more than three or four desks of 1st violins. Orchestras became larger as the century progressed, particularly so in theatres and opera houses.

The legacy

The legacy of the trombone in Germany is significant. Though the pattern was complex in the nineteenth century because of the vastness of the musical network in German-speaking countries and the changes that were incremental throughout the century, there were important legacies that reached most countries. Trombonists were regular constituents in military bands, and it was widely believed that the Prussian model of the military band that emerged mid-century had a greater or lesser influence in most European countries. More specifically, irrespective of the place in Germany where they were first introduced, the introduction of valve trombones was important in German military bands before they were introduced elsewhere, and this had a cascading effect to musical species beyond the military. Perhaps the most important legacy came from the adoption throughout German-speaking countries of what became the standard three-part orchestral trombone section, voiced in three parts – alto, tenor and bass. Irrespective of the different configurations used elsewhere (such as France), the voicing of the parts as used in nineteenth-century German orchestras became ubiquitous. This configuration has prevailed to modern times, but what we learn from the relative proportions of trombone sections to string sections in the nineteenth century is that the sound-world for which it was introduced was radically different from that of most orchestras in modern times.

Appendix 1: Carl Florian Mandel on the trombone in military bands

“Trombones are the only instruments which, to be effective, require three parts. All other instruments, when not employed for solos, are capable of being used in two or four parts.

[...] Now-a-days, every performer wishes to be as effective as possible upon his instrument; and as the alto trombone is limited in compass, besides being little adapted for solos, it is super-

30 The sources used in this article are cited in Appendix 3.

seded by valved alt-horns, or by the tenor trombone; while, again, the bass trombone, being too troublesome, is replaced by the bass valved instruments, or the tenor trombone. As composers seldom write lower than [scored E2] or higher than [scored F4] for the three trombones, both the alto and the bass may easily be represented by the tenor trombone. This explains the present use of three tenor trombones, which have a more extended compass than other trombones. Although this new plan may be inferior to the old one, which, while employing three different trombones, produced three different qualities of tone, it is better than replacing the trombones by alto, tenor, and bass valved instruments, and more characteristic; since the trombones may themselves be employed in any key [...].

Although a tenor valved trombone strikes me as more useful and dignified than a tenor horn, and might replace the latter, it could no more form one in the simple and majestic combination of three ordinary trombones than the tenor horn itself could.

In order to obtain some slight difference of tone from the three trombones in the same key, musicians employ, in France, Italy, and sometimes England, a B flat trombone of narrow calibre, for the first, – that is to say, alto-part. The higher notes of this instrument are more certain, whilst its tone more resembles that of the alto trombone; but, for solos, it wants the strength and dignity belonging to the ordinary trombone. Another sort, known principally in Germany under the name of a tenor-bass trombone, is wider in calibre than the usual trombones, whilst it resembles in sound the bass trombone. A good performer could execute upon it even a vocal bass or baryton solo, not containing too many *legatos*.

Since we may conclude, as a general rule, that one at least of three trombones will be employed for solos, it is desirable, so as to have three effective trombones in every case, for the third to be strengthened at least by a G or F trombone.”³¹

Appendix 2: Henry Mayhew on “German bands”

“I am German, and have been six year in zis country. I was nearly fourteen when I come. I come from Oberfeld, eighteen miles from Hanover. I come because I would like to see how it was here. I heard zat London was a goot place for foreign music. London is as goot a place as I expect to find him. There was other six come over with me, boys and men. We come to Hull and play in ze country about half a year; we do middling. And zen we come to London. I didn’t make money at first when I come, I had much to learn; but ze band, oh! it did well. We was seven. I play ze clarionet, and so did two others; two play French horns, one ze trambone, and one ze saxhorn. Sometime we make 7s. or 8s. a-piece in a-day now, but the business is not so goot. I reckon 6s. a-day is goot now. We never play at fairs, nor for caravans. We play at private parties or public ball-rooms, and are paid so much a dance – sixpence a dance for ze seven of us. If zare is many dances, it is goot; if not, it is bad. We play sheaper zan ze English, and we don’t spent so much. Ze English players insult us, but we don’t care about that. Zey abuse us for playing sheap. I don’t know what zair terms for dances are. I have saved money in zis country, but very little of it. I want to save enough to take me back to Hanover. We all live togeder, ze seven of us. We have three rooms to sleep in, and one to eat in. We are all single men, but one; and his wife, a German woman, lives wis us, and cooks for us. She and her husband have a bedroom to themselves. Anysing does for us to eat. We all join in housekeeping and lodging, and pay alike. Our lodging costs 2s. a-week each; our board costs us about 15s. a-week each; sometime rather less. But zat include beer; and ze London beer is very goot, and sometime we drink

31 Mandel 1859, p. 67.

a goot deal of it. We drink very little gin, but we live very well, and have goot meals every day. We play in ze streets, and I zink most places are alike to us. Ladies and gentlemen are our best friends; ze working people give us very little. We play opera tunes chiefly. We don't associate with any Englishmen. Zare are three public-houses kept by Germans, where we Germans meet. Sugar-bakers and other trades are of ze number. There are now five German brass-bands, with thirty-seven performers in zem, reckoning our own, in London. Our band lives near Whitechapel. I sink zare is one or two more German bands in ze country. I sink my countrymen, some of them, save money; but I have not saved much yet.”³²

Appendix 3: Examples of trombone sections as a proportion of the total size of German and Austrian orchestras, 1787–1900

This data should be read with some caution for the reasons given in the main body of this article. Furthermore, numbers in most orchestras fluctuated: these are snapshots rather than indicators of permanent strengths. In each case, the third column gives the number of trombones against the total orchestra strength (including trombones).³³

1787	Orchestra of the King of Prussia	3/61
1807	Vienna Imperial Orchestra	2/29
1811	Berlin Court Opera	3/75
1817	Bremen Town Orchestra	1/28
1817	Mayence Court Theatre	3/39
1821	Frankfurt Opera	1/37
1821	Vienna Court Opera	3/45
1823	Nuremberg	3/63
1823	Darmstadt Court Opera	3/62
1825	Dresden Court Opera	3/35
1825	Berlin Opera	3/80
1825	Darmstadt Court Opera	3/66
1830	Warnsdorf Orchestra	3/46
1830	Dortmund Concert Orchestra	3/39
1832	Hamburg Opera Orchestra	3/36
1833	Leipzig Gewandhaus	3/34
1837	Dresden	3/57
1837	Stuttgart	3/57
1838	Rudolstadt	3/38
1841	Coburg	3/42
1842	Vienna Philharmonic	4/67
1843	Hechingen	1/29

³² Mayhew 1861, p. 164.

³³ Principal sources: Cox/Cox 1907; Carse 1948; Koury 1986.

1844	Cassel Court Opera	3/50
1844	Munich Court Opera	3/53
1846	Chemnitz	3/41
1849	Hanover Court Opera	3/44
1850	Brunswick	1/52
1851	Weimar	1/37
1867	Karlsruhe	3/49
1876	Bayreuth	5/102
1881	Leipzig	3/72
1890	Leipzig	3/98

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