

THE ROMANTIC TRUMPET

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INTRODUCTION

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We often read that there was not much literature written for solo trumpet between the Hummel concerto of 1803 and the Bohme concerto of 1899. While it may be true that trumpeters' main activity during this period was either in orchestras or bands and that the true soloists of the 19th century were cornetists, with all the resulting repercussions as far as the quality of their repertoire is concerned, a substantial body of works from this period is now gradually coming to light, showing that composers continued to write for the trumpet as a solo instrument. When these pieces have been fully unearthed and studied, we will be forced to revise our opinion. It is the author's hope that this study will be able to shed some light on a previously obscure area in the repertoire for solo trumpet.

To understand developments fully, we will have to proceed through a knowledge of the types of instruments involved. In the author's opinion, one of the reasons that we still have a certain knowledge of the cornet repertoire today is because of the fact that our standard modern trumpet is pitched in B⁶, the key associated with the cornet from the very beginning. However, the earlier trumpet solo repertoire (which co-existed with the cornet repertoire) was written for lower-pitched instruments no longer employed. As opposed to the orchestral repertoire, it became obsolete as soon as the B⁶ trumpet was firmly established. The methods written for lower-pitched trumpets also became obsolete. Thus both instruments and music are known today only to a handful of scholars. As we become more and more keenly interested in historical performance practice, we will have to occupy ourselves with the kinds of trumpets in *use* from the end of the Baroque era up to the Romantic period, that is, from the Baroque natural trumpet up to and including the early valved trumpet, the basic pitch of which was F or G.

In order to put these findings in their proper perspective, this study will begin with a discussion of the instruments in use just before 1800. We will go into some detail, since the most recent research work of import has not been published in English, but rather in German and Swedish. A second part, which will appear in next year's Journal, will be devoted to the first solo compositions for valved trumpet.

PART ONE

I. Natural brass instruments around 1800 (trumpet, cornet, and flugelhorn)

The period from 1800 to 1850 is a fascinating one for brass historians, for brass instruments were then built in more shapes and sizes than before or since. Furthermore, because of the spread of the conservatory system—Paris leading the way in 1795, followed by Prague in 1811, Graz in 1815, Vienna in 1817, London in 1823, and Milan in 1824—method books were written for the new instruments by the professors at these and other institutions.

Around 1800 the trumpet, cornet (posthorn), and flugelhorn—all of them instruments which we know of today with valves—existed as natural instruments, producing only the notes of the harmonic series. Already then they possessed the shape and proportions of conical to cylindrical tubing which they have today.¹

Trumpet. The trumpet was then an eight-foot instrument, high C (c") being the sixteenth partial of the harmonic series, whereas both cornet and flugelhorn were four-foot instruments as today, high C being the eighth partial. The trumpet was of two types, orchestral and military. The orchestral trumpet (*trompette d'harmonie* in France) was first pitched in G, later F,² and provided with crooks bringing it down to E, E', D, eight-foot C, B-natural, and sometimes even lower; the French military trumpet (*trompette d'ordonnance*) was in E' but was not provided with crooks. The orchestral trumpet in F or G must be seen as a shortened version of the Baroque trumpet, whose pitch was generally D or E. In this period of transition, of course, the various types of instrument existed side by side.

Since French Baroque trumpets, curiously, do not survive, we cannot speculate on the differences between them and French trumpets in use toward 1800; but surviving German and Bohemian instruments show that with changes in compositional style, concomitant changes in instrument construction took place. The instrument's bore became larger, and the proportion of conical to cylindrical tubing was increased; the bell section also became wider. Such instruments have a mellower tone than earlier ones, and they are well in tune in the register in which they are generally required to play: from low g to g" above the staff.³

Over forty methods for natural trumpet survive from the 19th century.⁴ Of these, certainly the most thorough and probably the most influential was the *Méthode pour trompette* written in 1856 by Francois Georges Auguste Dauverne (1800-1874) and published one year later.⁵ In 1833 Dauverne was appointed the first professor of trumpet at the newly founded Paris Conservatory.⁶ More than three-fourths of his 250-page method are devoted to the natural trumpet. The various exercises in the different registers of the instrument, etudes, duos, trios, and quartets show a thoroughness which was to become characteristic of methods coming from Paris?

Cornet/Posthorn. In France, the cornet (*cornet du postilion* or posthorn; *cornet simple*

or natural cornet) as a natural brass instrument was built in coiled form, and was generally pitched in B⁶ or C, with crooks bringing it down to A, A⁶, and G, sometimes as far as low D. This was the instrument from which the *cornetd pistons* was later developed. The method by one Cam (ca. 1825) for stopped trumpet, keyed bugle, and natural cornet is the first ever for the latter instrument.⁸ Later valved-cornet methods also mention the natural cornet and include exercises for it, the ones by Kresser (ca. 1850) and Koenig (1857) being particularly noteworthy.⁹ A hitherto unknown surviving instrument by the well-known maker Etienne Francois Perinet (fl. 1829-55) is in the collection of the Bad Sackingen Trumpet Museum.¹⁰

In Germany the posthorn was apparently at first a two- or even one-foot instrument pitched in B⁶ or A; from surviving signals and occasional quotes—for example, by Bach and Hande¹¹—we see that it generally sounded only two notes an octave apart, presumably the fundamental and the second partial of the natural harmonic series. Between 1750 and 1820 it was lengthened to four-foot pitch. In Saxony, triply coiled instruments in C and A were used; in Prussia, they were of higher pitch.¹² Although several composers of the Classical period—among them Leopold and Wolfgang Mozart, Michael Haydn, and Beethoven—each wrote a few bars for the posthorn in larger works, the instrument cannot be said to have gained a place in art music.¹³ The keys used by these composers were four-foot C, B⁶, A, G, and F. From 1800 until the end of the post-coach era, the pitch of F (E1) became more and more standardized in most parts of Germany (Bavaria still clinging to C and B⁶ until after 1830). In 1828 the Royal Prussian Postal Administration introduced triply folded trumpets in E1, the then standard military trumpet pitch, an example followed shortly afterwards by Saxony and Mecklenburg. The traditional coiled form was revived in 1866.¹⁴

In England, the posthorn was of two varieties, both of them straight. The first, the so-called "coach horn" made of copper, was either forty-six or thirty-six inches long (in C and high F, respectively) and was sometimes built in three telescoping sections, whereas the "post horn" or "tandem horn," made of brass, was either twenty-eight or thirty-six inches long and was sometimes bent double like a trumpet.¹⁵ The straight twenty-eight-inch instrument, made in two sections and pitched in A1, became quite popular; Koenig's *Post Boy's Return (1844)*,¹⁶ with its resounding octaves, is still occasionally played today in band concerts.

Flugelhorn. The flugelhorn's original shape was that of a semicircle or half-moon, and its name was apparently derived from the fact that it was used on the flanks (*Flugel*) of hunting parties. A very old prototype, a Lucerne *Harsthorn*, dating from 1455, survives in the Bernoulli collection.¹⁷ A similar curved instrument called Hamond ("half-moon") was used by Hanoverian regiments from 1758, reaching the English light dragoons in 1764 under the name "bugle horn."¹⁸ The first flugelhorn method is John Hyde's *New and Compkat Preceptor fir the Trumpet & Bugle Horn*, registered at Stationers' Hall on January 26, 1799,¹⁹ in which its military signals, which run from the second to the sixth partial, are also recorded. Such instruments usually stood in D, but were often crooked down to C.²⁰

Presumably because of its ungainly appearance, the semicircular flugelhorn was soon

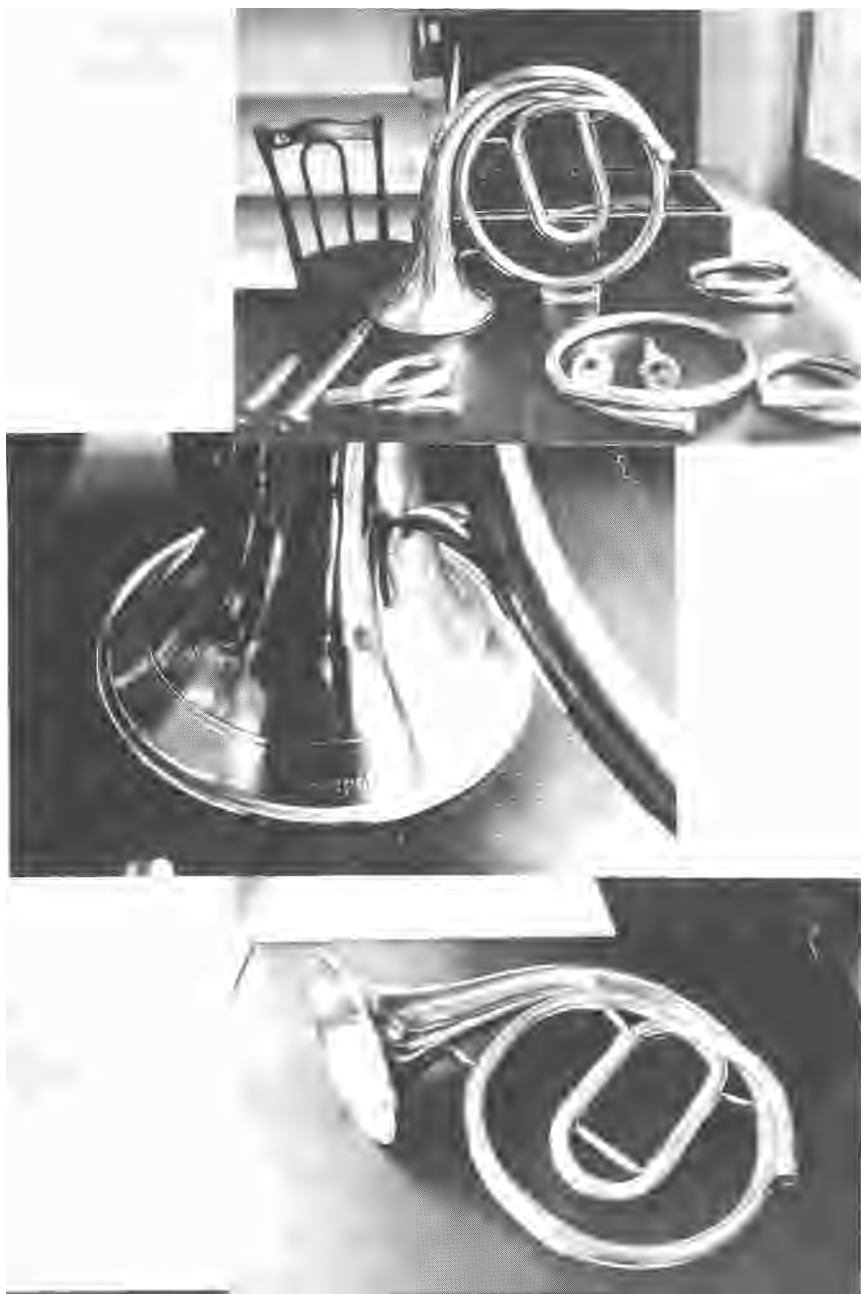


Figure 1

Posthorn (*cornet simple*) by Perinet (photo by Roland Callmar; courtesy Bad Sackingen Trumpet Museum)

built in a once-folded shape. This happened in England around 1800; such instruments were officially adopted by the army in 1812. In France, a corresponding instrument (*clairon*) was introduced to the military in 1822. In Germany, such instruments were called *Signalhorn*. All these instruments were usually pitched in B⁶ (often C on the Continent). The twice-folded regulation British bugle with its small bell, familiar today, was not introduced until 1858.²¹

The earliest French method for *clairon* is the brief *Mithode de clairon avec et sans clefs*, published around 1835 by H. Schiltz. No methods for natural flugelhorn, by whatever name it may have been called, seem to survive from Germany.²²

Use of natural trumpets. Whereas the Baroque trumpet, which had generally been employed in a trio formation, had usually been pitched in E⁶ or D (crooking down to C), toward the end of the eighteenth century the instrument began to be shortened so that higher keys could be used. The small F trumpet, which had existed much earlier and had been employed by J.S. Bach in his Second Brandenburg Concerto (1721) and referred to as *clarino piccolo* or *kurze Trompete* in certain works by Johann Samuel Endler (1694-1762) and Georg Philipp Telemann (1681-1767),²³ now became more widely used, also crooked in E, but with a different bore and bell shape. Niccolò Piccinni (1728-1800) wrote for trumpets in C, D, E¹, and F in his opera *Iphigenie* (first performed in Paris on 23 January 1781), and Andre-Ernest-Modeste Grétry (1741-1813) used the pitches C, E, F, and even G in his *Pierre le Grand* (Paris, 1790).²⁴

In orchestral music of the period around 1800, trumpets are generally employed in pairs, like the other wind instruments, and primarily to strengthen the sound of the full orchestra. Prominent parts are only rarely melodic, many finales of Classical symphonies ending instead with brilliant trumpet fanfares on broken chords. First trumpet parts hardly go above g" (their basic range starting with g', the lower notes e' and c' occasionally being used), while second trumpet parts of the entire Classical period are spiced with wide, treacherous skips and have an average range of g-e". According to what we would like to call the "octave convention" of the time, an occasional low c in second trumpet parts—for example, in the minuet of Mozart's "Jupiter" Symphony (1788)—was notated as if it were to sound an octave lower.²⁵ The out-of-tune eleventh partial (f) is only seldom employed.

This "new style" of writing for trumpets was praised by E.T.A. Hoffmann, who felt that melodic parts in the high register were not suitable for the trumpet,²⁶ but condemned by Joseph Frohlich, who lamented the loss of the singing style of the first trumpeter in the clarino register (c"-c''"). His words:

Unfortunately, in recent times the *Primarius* has been forced to practise the production of low notes, so that the...*Secundarius* likewise has to become a *Dughettist*. Thereby all the boundaries are effaced; and it is true that one can find Principalists in the widest sense of the term, but hardly any more [does one find] trumpeters who play in their assigned registers with that [high

degree of) consummation that used to be the case.²⁷

The military trumpet was used primarily for signaling purposes, this still being the instrument's major *raison d'être* on the bloody battlefields of the Napoleonic era and later, its signals usually having a range of g-c" on the E1 instrument. It was also used in ceremonial music in four-part ensembles, each part having its own particular range (first, g'-g"; second, e'-e"; third, (g-) c'-c"; and fourth, g-c'[-c"]). Most contemporary trumpet methods include sections on both uses, including the one by the already-mentioned Dauverne, methodical as he was. A chronological study of French trumpet methods starting with that of David Buhl (1781-1860), Dauverne's uncle, would reveal the various codifications over the years of the signals employed in the various branches of the military. Perhaps the most interesting collection of military signals—interesting because of its variety, since signals from different countries and different periods are included—is the one found in Jean-Georges Kastner's (1810-1867) *Manuel de musique militaire* (Paris, 1848).²⁸

II. Brass instruments made chromatic: systems preceding the invention of the valve

Already towards the end of the 19th century, instrument-makers applied certain procedures or mechanisms to these instruments, so that players could produce chromatic notes outside the harmonic series. These were hand-stopping (trumpet, cornet), a slide mechanism (English and French slide trumpets), and keys (trumpet, cornet, flugelhorn). The three systems were all made obsolete by the invention of the valve (see below), although for a time there was an overlap in the use of valved and other chromatic brass instruments. The chromatic instruments took over the shape, pitch, and crooking system of their "natural" predecessors.²⁹

1. The stopped trumpet (ca. 1775-ca. 1850) and the further development of the natural trumpet during this period

The technique of hand-stopping, first devised for the horn, was apparently first applied to the trumpet in the early 1770s by Michael Woggel, a court trumpeter in Karlsruhe and renowned international soloist, who had the trumpet bent somewhat so that he could more easily reach the bell with his hand.³⁰ Stopping was effectuated by two or three fingers of the right hand; depending on the amount the bell was closed off, any given harmonic-series partial could be lowered by a half or even a whole step. Whole-step stopping was more theoretical than practical, for stopping by a half-step already causes such a loss of volume and change of timbre that serious problems of balance within an ensemble are created. The trumpet, with its clear, far-reaching tone, does not seem to have been as predestined for the successful *use* of the hand-stopping technique as the mellower horn.

The stopped trumpet, as will be seen below, was primarily a solo instrument. Only occasionally was the technique of hand-stopping required in orchestral works. For example, Beethoven sometimes required his trumpeters to play 1' in tune (Seventh and Ninth

Symphonies, also with first and second trumpeters sustaining in unison in the *Missa Solemnis*, composed in 1811-13, 1822-24, and 1819-23, respectively), and Schubert once even required his first and second trumpeters to play octave *O's* (AP-0"): Fourth Symphony, written before 27 April 1816, first movement, measures 116-117 and 124-125).³¹ Beethoven in particular demanded physical strength from his first trumpeters in writing many long sustained passages in the register around *g*", the twelfth partial. He wrote for the trumpet in its highest crooking, *F*, in his Overture to Goethe's *Egmont*, Op. 84 (1809-10), and in his Eighth Symphony, Op. 93 (1812). Schubert, in his First Symphony (1813), wrote high *c*" into the 1st *D* trumpet part countless times, a practice which he thenceforth abandoned; we leave it to our readers' imagination as to why he gave up the notes above *g*", given the acoustical design of the instruments then in use. The highest crooking to be found with Schubert, *E*, occurs in his "Unfinished" Symphony (1822); here the composer did not require his first trumpeter to venture above *e*".³²

Shapes. Trumpets were built during this period in a variety of shapes, five in all, some of them more and others less conducive to hand-stopping." We find long trumpets (in the traditional form with only one double folding of the tubing), shorter ones (with two double folds), invention trumpets (with an additional tuning slide), curved half-moon trumpets, and even coiled ones.

a. Long trumpet. The technique of hand-stopping was probably not used, or infrequently so, on the long trumpet. Small wonder, since it is hard to reach the bell with one's hand. Nevertheless, we cannot rule this out completely, since the French *trompette d'harmonie* mentioned above seems to have been built in this shape. Merri Franquin (1848-1934), trumpet professor at the Paris Conservatory from 1894 to 1925 and an eye-witness, reminisces that the natural trumpet remained in use at the Paris Opera even until 1891, well into the valve era. According to him, the players had a box under their music stands, containing both a natural trumpet and a valved trumpet, together with crooks fitting both; the choice of instrument depended on whether the passage in question was chromatic or used natural notes only.³⁴ Such a double case, now lacking its valved trumpet but still containing its long *trompette d'harmonie* built ca. 1865 by Gautrot & Marquet of Paris, is in the author's collection. It is in *G*, has six crooks (*F*, *E*, *E1*, *D*, *C*, and *B*⁶), and possesses a tuning slide at the bend of tubing leading to the bell section.³⁵

b. Short trumpet (Ger. *Kurztrumpete*). It is likely that these instruments, built in standard trumpet shape but with one extra folding of the tubing, were designed to be played with the hand in the bell. This type of instrument goes back to a matched set of four instruments in *F* made for a church in Schweidnitz (Silesia, now Poland). Two of them were made by Johann Leonhard Ehe III (Nuremberg, ca. 1735)³⁶ and two by Heinrich Nicolaus John (Breslau, 1735).³⁷

Numerous short trumpets made in the early 19th century in the triangular area represented by Vienna, Budapest, and Prague and designed to be played with crooks are found in museums and private collections today.³⁸ Their first fold of tubing is shorter than the main one and results in a short mouthpipe. Most surviving keyed trumpets also have this

shape.

In Russia, curious *short military trumpets* have recently come to light. They closely resemble the twice-folded French E¹ military trumpet mentioned above, with some significant differences. The French instrument's tuning slide, proceeding in the direction of the blown air, is at the second bend of tubing, that of the Russian ones at the first. More significantly, the anonymous Russian instruments were made in three keys, G, D, and D basso (this instrument triply folded), and were also provided with crooks: G to F, E¹, and C; D to C and A¹; and D basso to C basso. Baines mentions an "all-silver trumpet-music outfit in the Army Museum, Brussels, made for a Cossack regiment" in 1813,³⁹ and there is a collection—or better, accumulation—of thirty-six silver instruments in the Moscow Museum of Musical Culture "M. I. Glinka," the dated ones being from 1812, 1814, 1816, and 1831.⁴⁰ The composition of such a Russian "trumpet music" consisted of six trumpets in G, fourteen in D, one in D basso, and one double-slide bass trombone in F.⁴¹ Although the music played by the Russian regimental trumpet corps has not survived, it is probable that these instruments were played with at least an occasional use of hand-stopping.⁴²

c. The invention trumpet (Ger., *Inventionstrumpete*). When this term arose in the late 18th century, it was applied to many kinds of instruments, but it now has come to mean a trumpet which is provided with an extra loop of tubing containing a U-shaped tuning slide. The tuning slide can be located at either end of the instrument, or also in the middle. In a few cases, it contains the instrument's crooks,⁴³ but with the majority of surviving instruments, the traditional system of inserting the crooks between the mouthpiece and the mouthpiece receiver is retained. Because of its short form, the invention trumpet is also a potential candidate for hand-stopping.

Woggel's stopped trumpet is said to have been an invention trumpet, although to be sure the term "invention" had various meanings at the time and thus did not with certainty refer to the instrument's shape. However this may be, the Karlsruhe composer Joseph Aloys Schmittbaur (1718-1809) wrote seven concertos for Woggel in 1773 and 1774, all of which have been lost; one of them was mentioned in a review of 9 July 1774 as a "concerto for the invention trumpet, the kind Woggel played..."⁴⁴ The earliest mention of the sale of an invention trumpet is in a catalogue of the Belgian dealer Tuerlincx from October 1784, opposing *Trompet ordinaire to Dito juvenis* (which according to Dahlqvist⁴³ must be synonymous with "invention"); the same dealer filled an order on 18 December 1785 for *Twee trompeten invention*.⁴⁶

Heyde distinguishes between an early, intermediate, and late type of invention trumpet, illustrated by exemplary instruments in the Leipzig collection. The only surviving example of the *early type*, presumably deriving from Woggel's first instrument, was made in 1793 by August Friedrich Krause of Berlin (1757-1806), who had learned his trade in Leipzig. Built in F, it is distinguished by a wide folding of the tubing (which according to Heyde is characteristic of Saxon trumpets), placement of the tuning slide in the middle of the instrument, and the presence of a curved mouthpipe facilitating the instrument's being held and stopped like a horn at the side of the player's body. It is important to note that this

was a military instrument.⁴⁷ The *intermediate type*, represented by an anonymous Saxon instrument in F made around 1825, has the standard trumpet shape with a straight mouthpipe, a tuning slide at the bell end, and a somewhat narrower folding of the tubing.⁴⁸ The *late type*, exemplified by one of the first instruments ever built by Johann Adam II Heckel (1809-1866, Dresden 1836-37), is also in F; it has both crooks and a tuning slide (at the bell end), and is built in a narrowly folded form.⁴⁹ Other makers of the later-style invention trumpet were Johann Gottlieb Roth, Sr. and Jr., of Adorf.⁵⁰

d. The *trompette demi-lune* is the stopped trumpet *par excellence*. It also originated from Woggel's model, according to Heyde.⁵¹ The connecting link is an instrument made in F or G by Carl Friedrich Eschenbach (1765-1851) of Markneukirchen and dated 1802: like the Krause instrument mentioned above, it also has a wide folding of the tubing, a tuning slide in the middle of the instrument, and a curved mouthpipe.⁵² French instruments of similar shape and generally more narrowly folded tubing, usually with a tuning slide placed in the middle, were made by Halari,⁵³ Courtois,⁵⁴ and others.

e. Circular trumpet. In the foreword to his method, Dauveme notes that a circular variety of orchestral trumpet was in use in the Paris *Opera* until the arrival of valved trumpets in 1826.⁵⁵ Trumpets coiled in a circular fashion were also used for a time in Spain, with one Jose de Juan Martinez (after 1800-after 1882) being appointed professor of this kind of instrument at the Madrid Conservatory in 1830, the year of its foundation. He has left a method from that year, greatly indebted to Buhl's, showing how this instrument was used.⁵⁶ The few stopped notes he calls for are ft, a', b', dr, and f'.⁵⁷ Martinez' circular instrument was in four-foot B1', with crooks down to A⁶ basso. This instrument and those of its kind, as Baines has already pointed out,⁵⁸ are nothing but natural comets or, as shown above, natural posthoms.

Methods for stopped trumpet. The two earliest surviving methods for stopped trumpet both come from France, and are by A. Gobert (1822 or 1823)⁵⁹ and David Buhl (1825).⁶⁰ The latter, the more thorough of the two, mentions half-step stopping from all the partials of the harmonic series from g to g" and includes, besides exercises for a single trumpet, three pieces—an Adagio, an Allegretto, and a *Priere*—for an ensemble of four trumpets in three different keys, all utilizing hand-stopping. (Buhl's nephew Dauverne, who from his key position as professor at the Paris Conservatory influenced both players of and composers for the trumpet during his lifetime, did not treat hand-stopping at all in his *Methode* of 1856.) In Germany, hand-stopping on the trumpet is briefly dealt with in Franz Joseph Frohlich's *Systematischer Unterricht* (1829).⁶¹

Virtuosos and their literature. The stopped trumpet, when its chromatic possibilities were used to the full, was primarily a solo instrument. Three well-known German virtuosos on the stopped trumpet were a certain Zenker (from Sondershausen), Johann Heinrich Krause, and Karl Bagans (from Berlin).⁶² Solo performances by Zenker are recorded from 1818, 1820-21, ca. 1830, and 1833, and his tone in the high register was compared with that of a flute.⁶³ Krause was active between 1821 and 1827. His tone in all registers, intonation, complete technique, and mastery "even of the strange half-steps" produced by

hand-stopping, were highly praised;⁴ his accurate intonation and clear tone while performing Handel's *Messiah* were singled out in a review and were long remembered.⁶⁵ In 1829 Bagans (b. 1791), Krause's successor as Royal Prussian Chamber Musician, published a short article, advising composers to write for the stopped trumpet in a compass from g to g". In three brief musical examples, he showed what sorts of passages in his opinion could be carried out on the stopped trumpet.⁶⁶

It is advisable to limit the compass of a solo, between the tones



All that lies between these two tones, whether as a simple vocal melody.—as for example

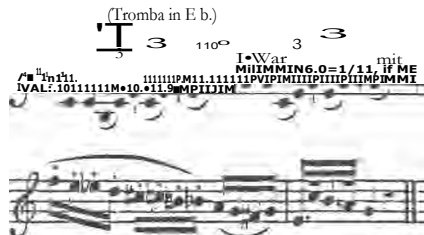
drukrite. (Tromba in E b.)



or as a melismatic passage, as



or as a Polacca



a good trumpeter should be able to blow, and the composer should have no cause to fear the correct execution of such passages.

Example 1

Bagans (from *American Music Journal* 1 [1829]: 355)

The stopped notes employed by Bagans are easy to locate: they consist of a', b', e'", and all the others with sharp signs.

It is worthy of note that the Hanover trumpeter Friedrich Sachse (1809-1893), famed as a soloist on the valved trumpet and whom Berlioz had praised during a concert tour in Germany in 1842-43,⁶⁷ played his own *Concertino für die einfache Trompete*—another name for the natural (possibly stopped) trumpet—as late as March 7, 1850 in the Leipzig Gewandhaus.⁶⁸

Another work which has recently come to light which has a part for an extremely agile chromatic trumpet in D is the *Andante and Polacca* for trumpet and orchestra by Gottfried Hermann (1808-1878).⁶⁹ It was written in 1828 while the composer was living in Hanover, but the name of the soloist, and indeed, even the type of instrument, is unknown. (Friedrich Sachse is out of the question, since he did not arrive in Hanover until 1833.)⁷⁰ Dahlqvist considers the work to be for stopped trumpet.⁷¹ Frequent lower-neighbor appoggiaturas (g# to a', dr to e", etc.) point to this type of trumpet, but certain rapid triplet configurations in measures 142-150 (c' d' c', e' f e', e' e', g' a' g', a' b' a') could make one think of the keyed trumpet (see below). The trumpet part's range, from g (once: even c) to g" (with an occasional a"), falls within that prescribed by Bagans. Within its range, the trumpet moves about in a moderately high tessitura.

la. The stopped cornet (ca. 1825-ca. 1860); hand-stopping on the military trumpet

The little method by Cam already mentioned (ca. 1825) also treats hand-stopping up to three half-steps on the cornet.⁷² In the body of surviving literature written for the Royal Prussian Wind Corps and listed in Thouret's catalogue of the Berlin Hausbibliothek, many of the trumpet parts call for occasional stopped notes.⁷³ This aspect of trumpet technique has yet to be studied in detail.⁷⁴

2. The keyed trumpet (ca. 1775-ca. 1840)

The little pamphlet by Dahlqvist written in 1975 is still the most complete source of information on the keyed trumpet.⁷⁵ It also includes photos clearly distinguishing this instrument from the keyed bugle (see below): the former instrument's keys are operated by one hand, usually the left, whereas those of the latter are so arranged that two hands are necessary to work them all. With both these instruments, the "keys cover tone-holes, and when opened they raise the pitch....The first keyed trumpets were pitched in D or E1' but later, about 1815, they were often constructed in G, A, or A1', with crooks for the lower pitches."⁷⁶ Surviving instruments are almost always in one of these three keys.⁷⁷ It is obvious that crooking down an instrument with fixed tone-holes creates intonation problems.

The first known experiment providing a brass instrument with keys dates from the 1760s: in November 1766, Ferdinand Keilbel and his son-in-law demonstrated two keyed horns called *Amor-Schall* for Tsarina Catherina II in St. Petersburg.⁷⁸ Subsequent experiments with keyed trumpets were carried out by the Weimar court trumpeter Schwanitz,

perhaps also in the 1760s, by an unnamed Dresden trumpeter before 1777, by one Ernst Kellner in Holland in 1780-85, and by the Hamburg amateur trumpeter Nessmann around 1793."

By far the most successful experiment with keys was made by the Viennese court trumpeter, Anton Weidinger (1767-1852). Haydn and Hummel wrote their immortal trumpet concertos in 1796 and 1803, respectively, for Weidinger and his instrument. However, the first work which Weidinger seems to have performed in public was not the Haydn concerto, but rather a *Concertante* by Leopold Kozeluch featuring mandolin, keyed trumpet in E \flat , double bass, pianoforte, and orchestra. The premiere performance took place on December 22, 1798.⁸⁰ In Kozeluch's trumpet part, which extends from g to e \flat , many passages are in the customary broken-chord fanfare style; the only keyed notes are d \flat , f \flat , g \flat , a \flat , and b \flat . The trumpet part of Joseph Weigl's Concerto for English horn, flauto d'amore, keyed trumpet in E \flat , viola d'amore, harpsichord, and violoncello (1799) consists primarily of harmonic-series notes between g and g \flat , but there are a few scalar passages filling in the intervals between c \flat and c \flat which show that the composer was thinking of Weidinger and his special instrument.⁸¹

It was not until March 28, 1800 that Weidinger first performed Haydn's trumpet concerto in public, as well as other works featuring the keyed trumpet—called the "organized trumpet" in the advertisement—by Sussmayer and Kauer that have not survived.⁸² Haydn's work makes full use of all the chromatic possibilities offered by the new instrument, including modulations to remote keys, although the composer also played a joke on his audience by first allowing the solo trumpeter to participate in the orchestral introduction with three small episodes confined strictly to the harmonic series; in addition, some of the passage-work in the first movement runs in the register between c \flat and g \flat in which the use of keys would not be strictly necessary.

Johann Nepomuk Hummel wrote a trio for keyed trumpet, violin, and pianoforte, a work which Weidinger performed in Leipzig on 19 December 1802 but which unfortunately has not survived.⁸³ In 1803, Weidinger made a concert tour through Germany, England, and France. Hummel's concerto, finished on December 8, 1803, was first performed by Weidinger on New Year's day 1804 at the Esterhazy court, the day on which the young composer started service as Haydn's successor. Because this composition is in E, probably a new instrument was required." It makes use of a generally lower register than that of the Haydn concerto. There are also adventurous modulations into *K*major (concert C) on the instrument. Whereas Haydn's concerto could be performed on an instrument possessing only three keys (raising the pitch by a half-step, whole-step, and a step and a half, respectively), Hummel's concerto required an instrument with at least five keys. Weidinger probably produced the single low 0 in measure 141 of the first movement by lipping down the g above, rather than by using a sixth key.⁸⁵

Among other works written for Weidinger's keyed trumpet, the interludes composed by Sigismund Neukomm specifically for "Weidinger's invention trumpet"⁸⁶ in his *Re-*

quiem, performed during the Vienna Congress of 1815, should be mentioned. Two other keyed trumpet soloists, Joseph Werner and Anton Khayll, appeared in Vienna after 1815, and in the late 1820s the Gambati brothers played on such instruments in Paris and London, one of them later emigrating to the New World.⁸⁷

An entire Divertimento for *Klappentromba concertante* and small orchestra was written for an unknown soloist by Josef Fiala (1754-1816). Fiala, born in Bohemia, was employed from 1792 until his death as a cellist in Donaueschingen, but he seems to have written this pleasant work for a Bohemian virtuoso, for the surviving material (which is now in the National Museum of Prague) came from the library of the *Schlofikapelle* of Kuks, in northern Bohemia.⁸⁸ The florid solo part, in D, has a range from g to e" (a to fl) and is fully chromatic from b to c'' . It consists of a Largo forty-seven measures long, and an Allegro 116 measures in length. In measure 42, which bridges the two sections, there is even a written-out cadenza, a rare occurrence in music of this time.

The keyed trumpet survived in the military music of Austria and northern Italy, and seems to have been used in Italian orchestras as well. Some caution must be exercised when perusing early sources, however, for Italians also used the word *chiavi* (keys) to denote valves before the terminology became stabilized. Mendelssohn seems to have unequivocally meant keys, however, writing about his impressions of Roman musicians during his stay there in 1830-31 in less than complimentary terms: "The trumpeters play all the time on the accursed keyed trumpets."⁸⁹ Vincenzo Bellini (1801-1835), in *Norma* (1831), wrote specifically for a first *tromba colle chiavi*—I suppose that because of the early date, keys, not valves, are meant—in D (sinfonia), in C (act 2), and in E⁶ (act 3), the second part (with no particular instrument designation) being in B⁶ and C. The first and second parts are coupled by pitch in the entire opera as follows: D/Bt', D/C, C/C, Eb/B⁶, C/B⁶, and E/E. The instruments had the following reservoir of tones:⁹¹

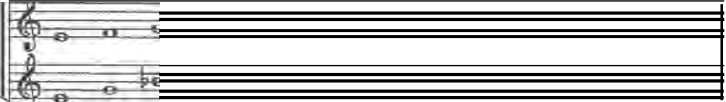
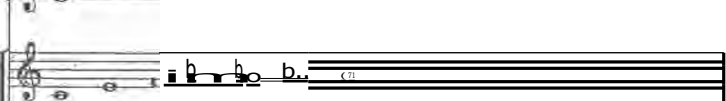

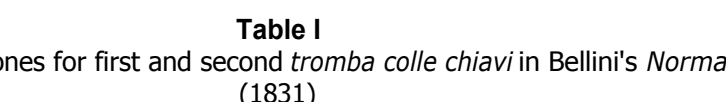
<i>le tromba in con le chitty'</i>	
<i>2° tromba in Sib</i>	
<i>1° tromba in Re</i>	
<i>2° tromba in Do</i>	

Table I

Reservoir of tones for first and second *tromba colle chiavi* in Bellini's *Norma* (1831)

Among the few methods for keyed trumpet, the two earliest should be noted: Eugene Roy's *Methode de trompette sans clef et avec clef* (Mainz, 1824), which mentions a five-keyed instrument pitched in G, with crooks for F, E⁶, D, and C, each with its own particular fingerings, and containing 15 duets for instruments pitched in E⁶ and B⁶ respectively; and Andreas Nemetz' *Allgemeine Trompeten-Schule* (Vienna 1828), which has a brief section for a trumpet with four keys.⁹² Coletti's *Metodo elementare e graduato di tromba a chiavi* (Milan, 1844) is, despite its title, a keyed-bugle method.⁹³

2a. The keyed bugle (1810-ca. 1850)

The principle of keys was also applied to the cornet and to the flugelhorn. A posthorn (= circular cornet) with four keys is in the collection of Wilhelm Bernoulli, but since it is anonymous, it is not possible to say much about its use except to remark that it is of the French type mentioned above." No methods for keyed cornet or posthorn survive.

The keyed bugle, a truly "democratic" instrument, played by people from the middle and working classes,⁹⁵ was employed strictly in bands and similar formations. Joseph Haliday (1774-1857) invented the keyed bugle by adding five keys to the common military bugle (see "bugle horn" above), patenting his invention in 1810. He probably sold his patent rights to the Dublin maker Matthew Pace, at which time a sixth key was added. Most early instruments are in C, with a B⁶ crook. In 1813 one John Bernard Logier (1777-1846) wrote his *Introduction to the Art of Playing on the Royal Kent Bugle*, dedicating it to the Duke of Kent (hence the instrument's new name) and introducing the instrument to British military bands. Thus developments were taken out of Haliday's hands.⁹⁶ By the time of the Allied occupation of Paris in 1815, such instruments were common in British bands, from whence they spread to Prussia, where they were called *Klappenhorn* or *Klappenflagelhorn*. Parts for two keyed bugles were common in the Prussian wind music repertoire already mentioned, until the Prussian bandmaster Wilhelm Wieprecht introduced valved instruments in the 1830s.⁹⁷ (See above, concerning hand-stopping on the military trumpet.)

The French maker Jean Hilaire Aste (1796-1840), owner of the firm known as Halary, patented a French version of the keyed bugle in 1821. The instruments also became extremely popular in the United States from 1815 on, where the small E⁶ variety was an American speciality. "The American names of Graves and E.G. Wright and the British firms of Percival, Pace, and Miler represent a high standard of craftsmanship."⁹⁸ While on the Continent the keyed bugle was used in the bands mainly as a tutti instrument, in the United States it also enjoyed a certain distinction in the hands of soloists. Famous American soloists were Richard Willis (born in Dublin, director of the West Point band from 1817 until his death in 1830), Francis Johnson (1792-1844 a black musician who received a silver presentation instrument in 1837 from Queen Victoria), and the most celebrated, "Ned" Kendall (1808-1861, whose duel with the cornetist-conductor Patrick Gilmore in 1856 seems to have signaled his instrument's demise).⁹⁹

Dudgeon lists 41 methods dealing with the keyed bugle between 1810 and 1861 from

the United Kingdom, France, Germany, Italy, and the United States.¹⁰⁰ In some cases it is not possible to tell from the title which instrument is intended because terminology was not yet standardized; for example, the already-mentioned *Mithode tie trompette d'harmonie, trompette a clefs, et de cornet* by Cam (Paris/Lyon, ca. 1825) actually treats not the keyed trumpet, but the keyed bugle.¹⁰¹ Other titles of keyed-bugle methods show the equation of *trompette* with "bugle": A. Brulon, *Methode pour trompette a cles ou bugle* (Paris, 1841), Coletti, *Mithode complete et graulude de trompette a clef (bugle)*(Paris, ca. 1845), Noblet's *Nouvelle methode de bugle (on trompette a clefs)* (Bonn/Paris, 1831), and Anton Scherer's *Mithode de bugle, ou trompette a pistons [sic]*(Paris, 1845).¹⁰² Of the forty-one methods, the most noteworthy are perhaps those by Harper, Sr. (1835),¹⁰³ a second one by Hyde (ca. 1819)¹⁰⁴, and by the patent usurper Logier.¹⁰⁵

An interesting solo work written for keyed bugle (*Klappen Flugel Horn*) in B[♭] is the *Polonoise pour le Cor de Signale a Clefs oblige* and orchestra, Op. 128 (1823) by Joseph Küffner of Würzburg (1777-1856), dedicated to one V. Leixner. The range of the solo part is from b to a" (generally ft-a"), and like the works by Fiala and Herrmann mentioned above, it is fully chromatic.¹⁰⁶ A curiosity, because its composer was untrained and the accompanying orchestra is unusually large, is Anthony Philip Heinrich's *Concerto for Kent Bugle or Klappenflugel* (1834).¹⁰⁷

3. The English slide trumpet (ca. 1790-ca. 1885)

The solo trumpeter Sarj ant, in a 1784 concert celebrating the 100th anniversary of Handel's birth, was harshly criticized by the historian Charles Burney for not being able to lip down the eleventh partial of the harmonic series in a rendition of the trumpet aria from *Messiah*.¹⁰⁸ Could it be that Sarj ant responded to this criticism by developing a trumpet with a U-slide, so as to be able to correct the intonation of this and other notes? At any rate, by 1790-91 he was apparently playing pieces at Vauxhall Gardens by Handel which were unplayable on the natural trumpet, but which Charles Cudworth has suggested would work well on a slide trumpet.¹⁰⁹

The earliest unequivocal reference to such an instrument is in John Hyde's *Preceptor for the Trumpet 6- Bugle Horn* from 1799, discussed above:¹¹⁰ he speaks of the "Chromatic Trumpet, Invented by J. Hyde, and made by [Richard] Woodham", who died in 1797.¹¹¹ "This instrument was essentially a folded Baroque trumpet except for an additional tube and finger cross-piece which was intended to be drawn toward the face to alter the open pitches of the natural harmonic series."¹¹² Since the double slide moves in the direction of the player's chin, the mouthpiece is angled off. A spring or elastic band within the tube returns the slide to the original position. Hyde refers specifically to Burney's 1784 criticism, justifying his desire to improve the instrument. A range table in Hyde's method, written for an instrument in D, shows that he used the slide to lower the natural harmonics by only half a step.¹¹³

The range tables and music contained in the next English methods show that the U-slide was used to lower the pitch of the natural harmonics by a whole step as well. The

methods referred to are by Thomas Harper, father and son,¹¹⁴ the most famous practitioners on the instrument. The father (1786-1853) was famous as a soloist, especially for his renditions of the well-known Handel *obligati* (with the eleventh and thirteenth partials presumably in tune, thanks to the slide mechanism); it is said that he performed "Let the Bright Seraphim" (from *Samson*) literally hundreds of times,¹¹⁵ and "upon one occasion when Mr. Harper announced a benefit concert he received upwards of a dozen offers from young ladies to sing 'Let the Bright Seraphim' to his trumpet accompaniment(,) and at the first Exeter Hall Festival 36 applications were sent to the same effect."¹¹⁶ The son (1816-98) showed true British conservatism by making "a stand in favor of the noble instrument"¹¹⁷ even after valved instruments were well established, never resorting to the use of valved trumpets, whose tone he considered inferior,¹¹⁸ and playing the cornet only for virtuoso pieces or for passages impossible to execute on the slide instrument.

Slide trumpets were usually built in F; the most famous makers came from a four-generation dynasty of the Kohler family, notably John Augustus K. (born in Germany, fl. 1834-1863, d. 1878) and his son Augustus Charles K. (fl. 1863-1881).¹¹⁹ The earlier of these instruments have a clock-spring mechanism enclosed in one or two circular encasements at the beginning of the additional tube, whereas later ones from about 1860 on have a simple elastic band inside this tube. Some instruments are labeled "T. Harper's Improved," resulting from an agreement between the elder trumpeter and the maker from 1833, but the "improvement" does not seem to have anything to do with the change from the clock spring to the elastic band; perhaps it was merely an endorsement.¹²⁰ A short-form¹²¹ double-slide instrument from 1819-20 made of silver by one James Power is a rarity.

3a. The French slide trumpet (ca. 1840-1860)

There was also a French slide trumpet, derived from the English one after the Peace of 1815. One Legram, a trumpeter and the director of the 7th guard regiment of the infantry, working with the Parisian maker Francois Riedloker (b. 1753), developed the first such trumpet, the slide of which was able to lower the notes of the harmonic series by as much as a minor third; he also wrote the first method for the instrument in 1821, a single-page "Tabulature" which is actually a glorified position chart.¹²² It is important to note that Legram modified the English system so that the slide moved away from the player like that of a trombone, and not towards him. Another slide trumpet, hitherto overlooked, made by Adolphe Sax after the English system, is preserved in the Bernoulli collection in Basel.

The only surviving method for the French slide trumpet, after Legram's, is a section twenty-four pages long in Dauvernes monumental tutor of 1857.¹²⁴ In that age of turbulence in both politics and instrument-making, Dauverne taught not only the natural instrument, but slide and valved trumpets as well, personally introducing the latter two instruments to concert life. In his preliminary remarks he claims, not too modestly and certainly incorrectly, to have been the one to modify the English model, so that the double slide moves away from the player and the instrument has a larger compass of notes, and this around 1840.¹²⁵ However, between the English model and Dauverne's admittedly perfected one there were two French models with forward-facing slide: Legram's (as we have

seen above) and another, reported on in 1833,¹²⁶ developed by Dauvernes uncle, Buhl. The 1833 report does not contain a description, but a later one explicitly refers to Legram and his invention.¹²⁷ According to the 1833 report, the earlier instrument had had some serious disadvantages, such as too long a slide and a clumsy catgut-and-reel return mechanism, which Buhl had reputedly overcome.¹²⁸ Buhl's instrument was manufactured by Courtois and Adolphe Sax.¹²⁹

None of the slide trumpets associated with Legram or Buhl seem to have survived. A steel engraving from 1849 shows Dauverne's pupil P. N. Blanckeman playing on one of his professor's perfected slide instruments, the only type of French slide trumpet found in collections today.¹³⁰



Figure 2
Blanckeman
(Bad Sackingen
Trumpet Museum)

According to Dauverne, some of his exercises for slide trumpet were also suitable for the valved trumpet. In his opinion, the advantage of the slide trumpet—which could be crooked down just like the natural trumpet—lay in the fact that the purity and clarity of its tone were comparable to that of the natural trumpet, while its slide was able to fill in the gaps between the notes available to that instrument.¹³¹ The French slide trumpet's full range, then, was in half-steps from low e to g', only a' being unobtainable.

III. Valved trumpets, comets, flugelhorns: the different types of valve first applied to these instruments

It will probably never be possible to draw an absolutely clear picture of the development of the different valve systems, which revolutionized brass playing and ushered in the modern era, since many of the patent specifications and drawings are not preserved. As with hand-stopping, the new principle was applied first to the horn, then to the trumpet. We follow Heyde's researches¹³² below unless otherwise indicated; there more complete details can be found. Of the various German states and Austria, it was apparently only in Prussia that valves were patented; in Vienna, "privileges" were granted.¹³³

Box valves, tubular valves. The first type of valve, probably a tubular or "Stoelzel" valve (Ger., *Schubventil* then also called *Rohrenschiebeventil* and *Stopferventil*), was applied to the horn as early as July 1814 by Heinrich Stoelzel (1777-1844), "Anhaltlich Fürstlicher Kammermusikus in Pless" (Silesia).¹³⁴ In a letter sent on 6 December to King Friedrich Wilhelm of Prussia, Stoelzel mentions that his invention, "which will astound the world," could also be applied to trumpets and flugelhorns.¹³⁵

His primacy was contested by Friedrich Bliihmel (fl. 1808-before 1845), who—inspired according to his own testimony by the valves in air pipes of blast furnaces in Upper Silesia—had apparently experimented with rotary valves from 1811-12 to 1816 and started work on the so-called box valve (Ger., *Kastenventil*) in 1817-18. For whatever reason, the two men joined forces and took out a joint ten-year patent in Prussia for both the tubular valve and the box valve on 12 April, 1818.¹³⁶

Bliihmel had first experimented on "a trumpet made in the old long form," and in February 1818 he had a trumpet with two box valves (and a trombone with three) under construction with the Berlin instrument-maker J.C. Gabler. The 1818 patent granted to Stoelzel and Bluhmel for tubular and box valves applied to the horn, trumpet, and trombone.¹³⁷ A trumpet with two box valves, made between 1823 and 1830 by W. Schuster of Karlsruhe, is preserved in the Nuremberg musical instrument collection;¹³⁸ another with three is in the Berlin collection.¹³⁹ One of the earliest surviving instruments with tubular valves (still called *pistons Stoeizelin* France today) is a two-valved bass trumpet in C, probably made in 1826 by Griesling & Schlott of Berlin, now in the Paris Conservatory collection.¹⁴⁰ This became a favorite type of valve for the cornet (see below), with which it was often associated as late as the early 20th century.

Piston valves. 1. Berlin valve. Up to now, historians have credited Wilhelm Wieprecht (1802-72) with the invention of the squat Berlin valve (Ger., *Berliner Pumpen*), one that is

easily recognizable because the diameter of its casing is rather large. However, Stoelzel also developed such a valve, and instruments with both types of Berlin valves survive today. Both gentlemen were unsuccessful in having their product patented, but such a fact is actually of little import since even rejected inventions can be commercially successful if they prove useful. The description that follows is indebted to unpublished findings made by Herbert Heyde, which he cordially made known to me in a recent letter.¹⁴¹

First, in 1827 Stoelzel tried unsuccessfully for a patent for his adaptation of the box valve,¹⁴² calling it a "tube valve" (Ger., *Rehrenventil*). Thus he must be credited with the invention of what is known today as the "Berlin valve," which up to now has been attributed by historians to Wieprecht, even though it is not absolutely certain if the original cross-section of Stoelzel's Berlin valve was square or round. (Later it was indeed round.) Wieprecht, who was first active in Leipzig, moved to Berlin in 1824 and became musical director of the regimental band of the Royal Life Guards in 1828, a very influential position—and all the more remarkable a fact since Wieprecht remained a civilian all his life. In 1833 he made his unsuccessful try for a patent—intended for trumpet, trombone, and horn—calling his valve a *Stecherbuchsen-Ventil*. Both Stoelzel's and Wieprecht's types of Berlin valve with their somewhat plump appearance became quite popular in military-music circles and were built in large numbers in Berlin (Wieprecht's type, by Moritz) and Markneukirchen, particularly for the lower brass instruments.

According to Heyde, Stoelzel's and Wieprecht's Berlin valves can be differentiated according to the positioning of the valve slides. With Stoelzel's, both the inlet and the outlet of the slide are on one side of the valve casing, while with Wieprecht's, one is on either side so that the slide (which is fixed and does not slide at all) forms a loop.

The reason Wieprecht has so long been incorrectly credited as the long inventor of the Berlin valve is that he made this claim in an article written two years after Stoelzel's death. Wieprecht's biographer Kalkbrenner took over this unsubstantiated assertion, and it remained unquestioned until Heyde's research.¹⁴³

An advantage of the Wieprecht type of Berlin valve may have been that all its windways are in a single plane. However, because of its clumsy action and despite its less expensive production cost as opposed to the more complicated rotary valve (see below), it never became accepted in art music.¹⁴⁴

2. Piston or Perinet valves. The slim piston valves used universally today are an adaptation of the tubular valve, developed in 1839 by the above-mentioned Perinet of Paris (and still referred to today in German-speaking countries as "Perinet valve").¹⁴⁵ The diameter of Perinet's valve is somewhat larger than that of the tubular valve but much smaller than that of the Berlin valve. Perinet eliminated the sharp angles which had been a feature of the tubular valve, whose windways pass through the bottom of the valve casings, and had all the valve slides stand at right angles to the valve casings (like Stoelzel's but unlike Wieprecht's Berlin valves). Modern piston-valved trumpets using Perinet's valve are made in France, England, the United States, and Japan.

In early French sources, one often *finds pistons* or piston valves opposed to *cylindres*, the other early type of valve used in France. However, the latter term is not to be confused with

rotary valves¹⁴⁶ (which in German are also called *Zylinderventile* besides the more common term *Drehventile*); it rather designates the kind of large-diameter piston valve derived from the Berlin valve and often applied to brass instruments by Adolphe Sax (1814-1894), who had moved from Brussels to Paris in 1842.¹⁴⁷

Vienna valves, double-piston valves (Ger., *Wiener Ventile*, *Doppelrohrschubventile*). Christian Friedrich Sattler (1778-1842) of Leipzig, after first copying horns with Stözel valves around 1819, applied his own improvement to trumpets and trombones in 1820. A description and drawing of a trumpet with his double-piston valves appeared in the *Allgemeine Musikalische Zeitung* June, 1821.¹⁴⁸ A weakness of Sattler's invention were the long push-rods running in the longitudinal direction of the instrument.

The horn-player Josef Kail and the maker Joseph Riedl of Vienna obtained a ten-year privilege for a two-valved trumpet featuring their invention of double-piston valves with valve-change heads (*Wechselköpfe*) on 1 November 1823,¹⁴⁹ a form which was eagerly imitated in south Germany, Saxony, and Mainz but had the disadvantage of allowing condensed water to squirt out, for which reason they were nicknamed *Spritzerventile*.¹⁵⁰ These were the first Vienna valves, and as such they also allowed the trumpet to be held flat. The inventors added a third valve shortly after; this was documented by an illustration in Andreas Nemetz's *Allgemeine Trompeten-Schule* (Vienna 1828).¹⁵¹

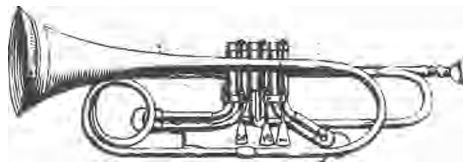


Figure 3

Trumpet with Kail's valves, from *Scala kir die chromatische Tasten-Trompete von der Erfindung des Josef Kail* (Print by Marco Berra, Prague, early 1830s; see *Brass Bulletin* 73 [1991]: 71. From the Museum of Czech Music, Prague National Museum, call no. IV B 419.)

Leopold Uhlmann, also of Vienna, made an improvement in 1830 adding cork buffers, which acted as an efficient hermetic seal as well. A far-reaching aspect of his privilege, which he obtained on 12 July, was its barrel or clock-spring action (Ger., *Trommeldruckwerk*), one of the two types of return mechanism—generally associated with rotary valves—still in use today. The other, called spiral spring action (Ger., *Spiralfederdruckwerk*), came into use in

the 1840s.¹⁵²

Outside Austria it was rather the Kail-Riedl type of valve which inspired imitation and improvement, notably by Carl August Muller (1804-1870) of Mainz. Muller was born in Adorf (Saxony) and moved to Mainz, where he worked for Schott in 1824, becoming independent in 1827. Some of his instruments have a particularly elegant design due to the long leaf springs activating the touch-pieces of the return mechanism.¹⁵³

A Bavarian variant of a return mechanism, generally associated with instruments displaying two double-piston valves and also made in Saxony and in Switzerland (by Hirsbrunner in Sumiswald and others), displays two long levers attached to powerful leaf springs. This model—with the half-step fingered "1" and the whole-step "2", just the reverse of conventional practice—was first built around 1828-40 but can be found on steel engravings of village musicians as late as the 1880s.¹⁵⁴

Another variant of the double-piston valve, called the *systeme belge*¹⁵⁵ and probably developed in the early 1840s, has a return mechanism with short pistons mounted parallel to the valve slides, requiring the instrument to be held with the slides pointing upwards.

Finally, an English variant of what at first glance seem to be Vienna valves are the double-piston valves patented on 3 April 1849 by Richard Garrett. An example of his "Registered Double Piston Cornopean" survives.¹⁵⁶ With Garrett's model, the valve slides are separate from the valve casings, and the uncomplicated push-button return mechanism is mounted directly at the casing ends; the instrument is held like a piston-valved one, with the double pistons pointing downwards.

Rotary valves. Bluhmel and Stoelzel did not apply for a Prussian patent on the rotary valve until 1828, although both of them had worked on this type of valve even before their first patent was granted ten years earlier and Bluhmel had had a trumpet fitted out with an early kind of rotary valve by 1819.¹⁵⁷ They wished to apply this third type of valve to the trumpet and trombone, reserving the tubular valve for the horn.¹⁵⁸ Their (separate) patent applications were denied, however, since their original patent was considered to have covered the invention of the valve *per se*, and not variants of the valve principle.

Independently and peripherally around 1830, two makers built rotary-valved trumpets which had no following: the American Nathan Adams (1783-1864) built a three-valved F trumpet,¹⁵⁹ and the otherwise unknown Yverdon firm of Schupbach & Guichard built a two-valved D trumpet with a primitive (and leaky) mechanism.¹⁶⁰

Riedl, again working together with Kail, received the first patent (or "privilege") for a rotary valve (called a *Rad-Maschine*) in 1835.¹⁶¹ Kail is said to have been inspired in 1827 by his observation of beer spigots.¹⁶² Riedl's rotary valve was operated by the barrel-spring return mechanism invented in 1830 by Uhlmann. The Prussian music director Wieprecht found the "Prague rotary valve" to be best for the high *brass* instruments and piston valves for the low ones; from about 1844 onwards, Prussian soprano and piccolo cornets were generally made with rotary valves.¹⁶³

Of the many adaptations of the rotary valve to the present day, one of the most interesting is the flat-windway valve (Ger. *gequetschte Maschine*,¹⁶⁴ literally "squeezed valve section") or Allen valve, first made around 1850 by J. Lathrop Allen (1815-ca. 1905) of

Boston, the rotor of which has only half the diameter but twice the length of a standard one, resulting in quicker action; its tubing has a correspondingly oval cross-section.¹⁶⁵

Disc or swivel valves. In 1838 one John Shaw (fl. 1824-38) took out a patent for what he called "patent swivel valves for brass instruments," and the London maker J. A. Kohler acquired the right to manufacture instruments with such valves for a ten-year period.¹⁶⁶ A year or two later, Kohler brought out an improved version, called "the new patent lever." However, the Parisian maker Halary had already invented such a valve in 1835, referring to *plaques tournantes* or *disques mobiles*, although he apparently did not patent his invention.¹⁶⁷ It is possible but not certain that Shaw copied the idea from Halary.¹⁶⁸ Kohler sold a number of instruments with disc valves to the British Army, and in 1854 to the band of the Crystal Palace at the time of its opening.¹⁶⁹ However, this type of valve, with one disc rotating against another fixed one containing the valve slides, generated too much friction to work rapidly enough, and it never gained acceptance. Cornets and horns with disc valves survive.¹⁷⁰ The German term is *Scheibenventil*.

IV. The Acceptance of Valved Instruments

The various systems of valves and, indeed, of instrument-making, were closely connected with political spheres of influence. According to a price list of the Schuster Co. from 1870,¹⁷¹ there were three competing systems: "1) the Prussian system, common in North Germany, Norway, Sweden, and Denmark,¹⁷² 2) the Austrian system, common in Austria, Italy, Spain, Turkey, and Russia, [and] 3) the saxhorn system and the French or U.S. system, common in France, Italy, England, USA, Central and South America, also in Russia." The most noted makers associated with the respective systems, and bitter competitors for the international market, were Moritz in Berlin (Johann Gottfried M., 1777-1840, and successors to 1955), Gerberl in Königgratz (Vicky Frantigek Ā., 1819-1896, and successors to the present day), and Sax in Paris (Adolphe S., 1814-1894, and successors to 1924).

As Ahrens has pointed out,¹⁷³ military-music circles were more ready than art-music ones to accept valved brass instruments of whatever type, presumably because bands, regardless of their various instrumentations, profited greatly from the inclusion of brass instruments no longer natural, but capable of carrying a chromatic melodic line. In addition, the advantages of valved brass instruments in the open-air situations in which bands generally performed were obvious from the start, since—as Heinrich Gottwald wrote in the *Neue Zeitschr0 fir Musik* in 1851—the subtle effects of hand-stopping are lost there.¹⁷⁴

It is extremely difficult to follow the acceptance of the valved trumpet into the orchestra, as opposed to the horn, because the former instrument, not known as a solo instrument to the same extent as the latter, consequently received less publicity.¹⁷⁵ For the same reason, it is difficult to trace the transition from the old F or G trumpet to the B♭ one, a study which will not be attempted here. Whereas the various composers' use of the valved trumpet in the orchestra—from Lanner and Johann Strauss Sr., Wagner, and Brahms, to R.

Strauss, Bruckner, Mahler, and Stravinsky—is relatively well documented,¹⁷⁶ the soloistic use of this instrument is little known. Therefore, the main part of the rest of this article will be devoted to the earliest soloistic use of valved instruments, particularly the trumpet, in Paris, Prague, Vienna, and northern Italy.

a. Dauverne and the acceptance of the valved trumpet in France; the invention of the cornet

In October 1826 the composer-conductor Gaspare Spontini (1774-1851, *Generalmusikdirektor* of the Berlin opera from 1820 to 1842), sent some early Prussian valved brass instruments to Paris, among these an F trumpet with three tubular valves and a bass trumpet with two, the latter instrument apparently still surviving today in the Paris Conservatory musical instrument collection.¹⁷⁷ The above-mentioned F.G.A. Dauverne took advantage of this novelty; not only did he convince the instrument maker Halary¹⁷⁸ to construct a French version of the new instrument and composers such as Berlioz and Rossini to write for it, he also recorded the story for posterity at first hand in the prefaces to several methods.¹⁷⁹ According to his testimony, the valved trumpet was first used in the following works: *Macbeth*, by Hippolyte-Andre-Baptiste Chelard (1789-1861), premiered at the Opera 29 June 1827; the grand overture *Waverley*, Op. 1, and the overture to *Les Francs-Juges*, Op. 2 (1828) by Hector Berlioz (1803-1869); *Guillaume Tell* by Gioacchino Rossini (1792-1868), premiered 3 August 1829; *La Juive* by Fromental Halevy (1799-1862), premiered 23 February 1835; and others.¹⁸⁰

Berlioz had originally written his overture *Waverley* between March and early June, 1827, at the age of 25, revising it later in 1829 and finally publishing it in 1839 with a reduced instrumentation.¹⁸¹ The brass instruments in both the early versions were one valved and two natural trumpets, four horns, three trombones, and one ophicleide. During the process of revision, the composer also considerably reworked the lone valved trumpet part (crooked in D), the changes involving mainly a substitution of a higher octave for the lower one, or higher notes in general for lower ones; suffice it to say that the valved trumpet part, which lies well on an eight-foot instrument with two valves, is highly chromatic but not particularly virtuosic, consisting primarily of quarter notes, the smallest note value being the eighth note. Its range extends from written bb to g" (concert c' to a)".***

The overture to Berlioz' opera *Les Francs-Juges*, even though it bears the opus number 2, was actually written before *Waverley*, in 1826. In the autograph manuscript, trumpets in C are required; the first-edition score (1836) calls for two natural trumpets in E and one valved trumpet in E^b. Finally, the valved trumpet is also required to be crooked in F in both an undated copy score and the printed parts, but in the latter, the word *trompette* is crossed out and *cornets [sic]* written over it in pencil.¹⁸⁵

In the work which he wrote for the *Prix de Rome* competition in July 1827 (and which was declared "unplayable" at the adjudication in August), Berlioz had even scored for one *cornet ordinaire* (i.e., natural posthorn) and *trompette ordinaire* (natural trumpet).¹⁸⁴

The first version of Berlioz' *Symphoniefantastique* (1830) included parts for one valved trumpet and two natural trumpets, whereas the revised version set a precedent for the years

to come in France, containing parts for two (valved) cornets and two (natural) trumpets.¹⁸⁵ The same is true for *Harold in Italy*: the autograph score from 1834 had originally contained one valved trumpet and two natural trumpets in C, but the single valved trumpet was later replaced by a pair of cornets in A. Both the eschewance of the valved trumpet in favor of the pair of cornets and the use of natural trumpets were certainly due to the influential Dauvernes personal preference for the natural (or slide) trumpet over the valved one,¹⁸⁶ and to Berlioz' opinion of the cornet as a "modern instrument."¹⁸⁷

The testimony of two prominent witnesses show that the French orchestral trumpeters of Dauvernes time, including perhaps the good professor himself, may not have been quite as proficient as their German counterparts. Felix Mendelssohn, in a letter to his teacher Zelter from 15 February 1832 (a year before Dauvernes nomination to the professorship), praises the Conservatory orchestra, composed of the teachers and their best students, saying that it gives "the most perfect performances heard anywhere" but also putting his finger on the weak spots: the double bass players, the first clarinetist, the timpanist, and the trumpeters, who "are insecure in the high register and simplify their difficult passages".¹⁸⁸ And only eleven years later, Berlioz praised German and English trumpeters and mentioned how the French would have difficulty with a simple passage ascending to high c"¹⁸⁹ on the E⁶ trumpet.

The opera *La Juive* had a profound influence on the young Richard Wagner (1813-1883) and his opera *Rienzi*, the first two acts of which he composed during his tenure as conductor at the opera house in Riga. Wagner had had his early overture *Columbus* performed there, and in a review it had been duly noted that "two keyed trumpets, whose combined parts filled fourteen and a half closely written pages, were in [furious] movement."¹⁹⁰ In leaving that city precipitously to avoid his creditors, Wagner established himself in Paris in 1839 and stayed there until 1842, where he had ample opportunity to study the new techniques of instrumentation. *Rienzi* (first performed in Dresden 20 October 1842) has parts for two valved and two natural trumpets in the orchestra, and for six valved and six natural trumpets on stage.

According to Dauverne,¹⁹¹ it was Jacques Strunz (Georg Jakob Strunz, 1781-1852) who wrote the first work for an ensemble of the new French valved instruments, a quintet for trumpet, cornet, and three horns; it was performed on 28 April 1833 in the presence of Cherubini and other authorities of the Paris Conservatory.¹⁹²

The valved cornet (Fr., *cornet k pistons*), an instrument mentioned above, attained special popularity in France. Dauverne states in his grand method that the apparition of the valved trumpet gave rise "towards 1832" to the *cornet pistons*, "a kind of small trumpet".¹⁹³ In his early cornet method he is more precise, writing that in 1831, Halary had the fortunate idea of applying Stoelzel's mechanism to the "Post-Horn (*Cornet de Poste*)," and that a young artist, [L.] Dufrene,¹⁹⁴ was in 1833 the first one to display the new instrument with success in ballrooms and in concerts,¹⁹⁵ especially the Promenade Concerts initiated in that year on the Champs-Élysées by the orchestra of Philippe Musard (1793-1859).¹⁹⁶ Dufrene played at first on a two-valved instrument and later switched to one with three valves.

Another early cornet soloist was Joseph Forestier (1815-1881), who had graduated from Dauprat's hand-horn class at the Conservatory in 1834 and wrote an important comprehensive cornet method in 1844,¹⁹⁷ as well as several other later ones. Dufrene and Forestier were the two virtuoso cornetists of the *Concerts Musard*,¹⁹⁸ and as such they most probably ranked among the performers of another early brass ensemble work featured in 1839, F6licien-C6sar David's (1810-1876) Nonet in C Minor for two comets (in low E1' and, in the last movement, F), four horns in F, two trombones, and ophicleide.¹⁹⁹ In addition, David, in collaboration with Forestier, in 1843 wrote a *Fantaisie concertant sur "Sans amour" de F. Marini* for cornet and piano;²⁰⁰ but we digress.

An early solo work for valved trumpet in E1' and piano, a Theme and Variations composed by Dauverne himself and dedicated to "Mr. Antoine-Halary-," is found at the end of his early valved trumpet method of 1834-35.²⁰¹ It is in 3/4 meter throughout and consists of a short introduction marked *Macs toso*, a theme (re-used later almost verbatim in an etude on page 196 of his method of 1856 and consisting of eight plus eight measures, each section being repeated, and a four-bar piano coda *con froco*), and three short variations. Of these, the first, entitled "Scherzendo" [*sic*], displays the same formal scheme as the theme and employs a mixture of eighths and sixteenths, with a liberal sprinkling of arpeggios mainly descending. The second, "Con Espressione," with an identical form, is actually a *polacca* with its characteristic syncopated rhythms (pick-up, then on the first beat an eighth followed by a quarter in bars 1 and 2), sixteenth-note scalar runs, and a descending appoggiatura on the final note of measure 8; the piano coda this time is not "fiery," but rather "poco Adagio." The third variation "et Finale," *Allegro, dolce*, in 6/8 time, consists of eight measures trumpet, eight measures piano, twenty-four bars trumpet, and four final bars confirming the key of the piece. It is more lilting than bravura in character. The instrument's range is g-d" (sounding G⁴ to F⁵).

A similar, longer work for cornet (crooked in low G) and piano, *Variations concertantes sur un theme original* composed by Georges Kastner, is found at the back of that author's elementary method for cornet (Paris, 1848).²⁰² It consists of an introduction, a theme, nine variations, and a finale. The difference in agility between the two instruments, trumpet and cornet, can easily be recognized by a study of just these two pieces: whereas the trumpet is required to execute a maximum number of six sixteenth notes in succession, the cornet part in the second variation has a measure with sixteen of them, and in the fourth variation there are veritable cascades of sixteenth notes, seven times twenty-four (or twenty, or twenty-two) of them; and some of them exceed the narrow range of only an octave found in the Dauverne work, display changes of direction, and so forth. The cornet's range, however, is c'-a" (sounding g-e"), not particularly high and very similar to that of the trumpet in Dauvernes work. Like most early works for valved *brass* instruments (and with the possible exception of Kastner's sixth variation), neither of these two pieces seem to require triple tonguing, an effect which was soon to become the *rigueur* for virtuoso solos. And in the light of Mendelssohn's and Berlioz' remarks quoted above, it is not surprising that the high register is avoided.

The first person to appropriate triple-tonguing technique from the flute, applying it to the cornet, seems to have been Dauverne's pupil Jean-Baptiste Arban (1825-1889), the founder of the modern school of cornet- and trumpet-playing. This happened, according to Arban's own testimony, during a rendition of a solo of his own composition, *Variations on a Swiss Air*, in 1848.²⁰³

Arban, the most important soloist of his day, established the agile cornet for once and for all as the true solo instrument, replacing the trumpet with its mellow tone but cumbersome deportment. Countless themes and variations from the milieu of the ballroom, the salon, and the outdoor pavilion, written by Arban and his followers, set the style for decades to come. These were generally written for the instrument in the "virtuoso's key" of F major, which is the easiest to finger, the accompaniment parts being in E-flat major (if the cornet is in B⁶) or D (if the cornet is in A). Arban's influence extends to the modern day, not only directly because his method of 1864 is still used as the standard instruction book (for the cornet and the trumpet), but also indirectly because the cornet pitch of B⁶ induced trumpeters to switch during the second half of the 19th century from F trumpets to ones pitched in B⁶ (or even C).²⁰⁴ Arban also firmly established the cornet's range as extending to high c''' (sounding b''').

Since our topic is the Romantic trumpet, and not the cornet, whose literature is relatively well-known, we shall forgo further reference to the development of solo cornet literature. Just a last word on cornet pitches, however. From the beginning, cornets were built in B⁶ (rarely, C) with crooks all the way down to low D.²⁰⁵ By the 1860s the very lowest crooks were eliminated, G (sometimes F) now being the lowest one, corresponding to the highest pitch in which trumpets were built; it was still later in the century that the crooking system was reduced to detachable B⁶ and A mouthpipes and sometimes an A⁶ crook.²⁰⁶ It was only in the twentieth century that the fixed mouthpipe and the single pitch of B⁶ (rarely, C) became standard, the A (and B-natural) crooking now being effectuated either by a longer tuning slide or a quick-change mechanism employing a rotary valve (Fr., *bari deg Ger.*, *Schnellwechsel*).

At the beginning, there was a certain confusion about the method of notation to employ for the cornet, low (with middle c' as the fourth partial, as with the trumpet) or high (middle c' being the second partial, more commensurate with the instrument's four-foot pitch). Whereas several authors mentioned the low notation in order to condemn it, in practice, with but a single exception, all the early valved-cornet methods employed the high system.²⁰⁷ This is the one in use today.

b. The so-called "Russian Valve or Stop Trumpet"

The method written by Thomas Harper Sr. in 1835 contained a section on the "Russian Valve or Stop Trumpet,"²⁰⁸ including an illustration of this instrument, which has two tubular valves.²⁰⁹ Pitched in F or G, it was furnished with the same crooks as the slide trumpet. Franz X. Streitwieser has offered the ingenious suggestion that the name could be

a simple misprint for "Prussian trumpet," since valved instruments originated in that part of the world.²¹⁰ However, he was later refuted by Clifford Bevan,²¹¹ who has produced several early London references to chromatic Russian trumpets from as early as 1831.

The new evidence presented by Bevan is that the 2nd Life Guards were the first in Great Britain "to adopt the valve attachment for brass instruments, which was the result of a visit to St. Petersburg by Earl Cathcart, Colonel of the Regiment, as Minister Plenipotentiary circa 1830. He was much impressed by the playing of the band of the Imperial Guards, who used a new contrivance known as the chromatic trumpet. The Emperor of Russia, hearing of the Earl's appreciation, presented a complete set for his use in his Regiment...."²¹² Bevan notes that Stoelzel and Bliihmel were active in Breslau and Silesia, "both on the eastern borders of the German States. It seems not unreasonable to suppose that this new device, first used in Prussia, may have been adopted by the Russians, while the 2nd Life Guards...had to wait for chromatic brass instruments to arrive by a more circuitous route."²¹³

It is the author's opinion that Bevan is entirely correct, since the author has recently located the missing link: a dated Russian trumpet from this period, currently on display in the State Museum of Musical Culture "M. I. Glinka", Moscow.²¹⁴ Closely resembling the "Russian trumpet" shown in Harper's method, it also has two tubular valves and seems to be pitched in F or G. It is marked I.F. Anderst, St. Petersburg, and bears the date 1825. As such it has the distinction of being the earliest-known dated Russian valved brass instrument.

TO BE CONTINUED

NOTES

1. See *The New Grove Dictionary of Musical Instruments*, s.v. "Trumpet," by the present author, Table I, in which the five principal families of brass instruments are differentiated as to size of mouthpipe, size and type of bore, size of bell throat, and size of bell flare. It must be remembered as a qualification that modern valved trumpets have a higher proportion of conical to cylindrical tubing than their ancestors of the 17th and 18th centuries.

2. Only two methods (David Buhl, *Methode de trompette* [Paris, 1825] and Franz, *Methode de trompette* [Paris, 1846]) mention the higher crookings of \mathcal{K} to B. See Friedrich Anzenberger, "Ein Überblick über die Trompeten- und Kornettschulen in Frankreich, England, Italien, Deutschland und Osterreich von ca. 188 bis ca. 1880," 2 vols. (PhD diss., University of Vienna, 1989), p. 528. The two methods in question possibly refer to circular instruments in four-foot pitch; see the relevant discussion in the main text below.

3. This is the author's opinion, after more than thirty years of practical experience in working with original instruments and copies. Herbert Heyde has formulated the matter well from the scientific point of view in *Trompeten, Posaunen, Tuben*, vol. 3 of *Musikinstrumenten-Museum der Karl-Marx-Universität Leipzig, Katalog* (Leipzig, 1980), pp. 126-127: "Woe el-Krauses, vermutlich aber schon

Woeggel-Steins Trompete steht geschichtlich gesehen am Anfang der Weitmensurierung bei Trompeten...Insgesamt ist der SchallsMickanteil grogerals bei den Langtrompeten des 18. Jh., so daS der Klang welcher ist. Der bei Es- und D-Langtrompeten ubliche Schallstuckanteil von $2/7$ 1 [= $2/7$ der Gesamtlänge, author's note] liegt her erst bei C-Stimmung vor."

4. See Anzenberger, "Überblick," p. 528. This is the most exhaustive discussion of 19th-century trumpet, cornet, and flugelhorn methods. See also his article in this Journal on natural trumpet methods of the 19th century (which is not referred to here, since Anzenberger kindly placed his dissertation, which is more complete, at the author's disposal).

5. A facsimile edition has appeared (Paris: International Music Diffusion 1991), another with a commentary by the present author is in preparation (Coburg: McNaughtan-Verlag), and an English translation (by Gaetan Chenier, Ruby Miller Orval, Rebecca Pike, and Jeffrey Snedeker) has been published in *Historic Brass Society Journal* 3 (1991): 179ff.

6. Dauverni, *Methode, Avant-propos*, vii. On the title-pages of his various methods (see below), we can see that Dauvern6 was at various times a member of the Musique des Gardes-du-Corps du Roi [band of the Royal Life Guards], first trumpeter of the AactEmie Royale de Musique, and a founder-member of the SocietE des Concerts du Conservatoire. A thorough biography of this important personage has yet to be written.

7. We mean specifically not only Joseph Jean-Baptiste Laurent Arban's *Grande methode complete tie cornet apistons et de saxhorn* (Paris, 1864), the standard work universally employed today for the valved trumpet, but also others, such as those by Forestier (1844), Kresser (c 1850), Saint-Jacome (1876), etc. Arban was a pupil of Dauvern4's. Dauvern6's exercises are used today once again at the Schola Cantorum Basiliensis for the instruction of natural trumpet. The early methods for natural trumpet coming from the German-speaking area are much *less* comprehensive. Let them at least be mentioned: Andreas Winzer, untitled method, Strehlen (Silesia), 1804, ms. (its fifty-five pages deal exclusively with Prussian military signals and their tonguings); Franz Joseph Frohlich, *Volistandige theoretisch-practische [sic] Musikschule* (Bonn, ca. 1811, revised edition after 1814; only nine pages each); idem, "Trompeten-Schule", in *Systematischer Unterricht* (Wurzburg, 1829) pp. 227-267; Andreas Nemetz, *Alkemeine Trompetenschdsde* (Vienna, 1828; only three of its nineteen pages deal with the natural trumpet) (see Eugen Brixel, "Die Trompetenschule des Andreas Nemetz als Spiegel der Bläserausbildung und Bläserpraxis im 19. Jahrhundert", *Bericht iiberdie vierte internationale Fachtagungzur Esforschung derBbismusik* [Tutzing, 1984], pp. 154-170); Nemetz, "Trompetenschule", in *AllgemeineMusikschule für MilitarMusik [sic]* (Vienna, 1844; essentially the same as the preceding). Friedrich Anzenberger's article on natural trumpet methods of the 19th century appears in the current issue of this Journal.

8. *Methode de trompettecharmonie, trompette clefi dans tous les tons, et de cornet* (Paris/Lyon, ca. 1825); see Anzenberger, "Überblick," pp. 324-325. There are only two pages of exercises for natural cornet in this twenty-eight-page method. In his preface, Cam explains (p. 5): "On appelle Cornet une trompette en forme de petit cor. Cet instrument ne s'emploie que dans les tons de La b, Si b, Ut haut et Sol. Le Cornet nous vient d'Allemagne." As far as the *trompette à clefs* mentioned on the title page is concerned, the illustration of the instrument in question, together with a fingering chart (between pp. 9 and 10), show that it is really a keyed bugle. Ralph Dudgeon regards the name Cam as a *nom de plume*: see "The Keyed Bugle, Its History, Literature and Technique" (PhD diss., University of

California at San Diego, 1980), p. 108. See also Dudgeon's recently published book, *The Keyed Bugle* (Metuchen, NJ, 1993; reviewed by Henry Meredith in this issue of *HBSJ*), which unfortunately was not available in time to be considered in preparing the present article except for verifying and adding certain dates.

9. Kresser (first name unknown), *Methode complete pour la trompette d'harmonie suivie d'une notice cur le cornet* (Paris, ca. 1850); V. Caussin, *Sollege-methode progressif pour l'enseignement du cornet a pistons, de la trompette chromatique et des clairons chromatiques* (Paris, 1854); Hermann Louis Koenig, *Koenig's Tutor for the cornet a pistons* (London, 1857; only Part I, dealing with the "cornet without pistons", survives); and Gustavo Rossari, *Metodo per cornett*, flicorno, basso flicorno... clavicorno o genic* (Milano, 1881); see Anzenberger, "Oberblick," p. 542.

10. Inventory number 31402 (acquired in 1990). For more information on Perinet, see below, in the section on the piston valve.

11. J.S. Bach, "Aria di Postiglione" from the harpsichord work, *Capriccio sopra la lontananza del suo fratello dilettissimo* (BWV 992, ca. 1705); G.F. Handel, Sinfonia ("Allegro Postillions"), No. 30, from *Belshazzar* (HWV 61, 1744).

12. Albert Hiller, *Das groffe Buch vom Posthorn* (Wilhelmshaven, 1985), pp. 16-18.

13. L. Mozart, *Cassatio ex G*, Trio of the sixth movement (Menuett): "Corno di Postiglione" in G; M. Haydn, Sinfonia in A (P. 15), Trio of the Menuett: "Como da Postiglione" in A; M. Haydn, *Menuetto di Posta* (P. deest, 1760s): "Cornu di Posta" in G; M. Haydn, *Cantata in Honor of St. Rupert (1778)*, final Marsch: "Cornetto da Postiglione" in A; W. A. Mozart, Serenade No. 9 in D ("Posthorn Serenade") (K. 320, 1779), Trio II of 6th movement (Menuetto): "Como di posts" in A; W. A. Mozart, *Deutscher Tanz* No. 3 in C (K. 605, 1791), Trio "Die Schlittenfahrt" and Coda: "Posthorn" in 3^6 and in F; Beethoven, *Deutscher Tanz* No. 12 (WoO 8, 1795): "Posthorn" in C. See Hiller, *Posthorn*, pp. 244-261, for musical examples of these and other pieces, up to Mahler's Third Symphony and H. Schaffer's "Die Post im Walde."

14. Hiller, *Posthorn*, pp. 19-24.

15. *Ibid.*, pp. 23-24.

16. Anthony Baines, *Brass Instruments, Their History a. Development* (London, 1976), p. 170.

17. III. in *Brass Bulletin* 33 (1981): 23.

18. *New Grove Dictionary of Musical Instruments* (London, 1984), s.v. "Bugle," by Anthony Baines.

19. Concerning the dating of Hyde's method, see Albert G. Rice, "A Selection of Instrumental and Vocal Tutors and Treatises Entered at Stationers' Hall from 1789 to 1818," *Galpin Society Journal* 41 (1988): 16-23, here 19. Up until then, scholars had not been absolutely certain as to the correct dating. See also Anzenberger, "Uberblick," p. 54.

20. Baines, "Bugle," p. 281.

21. Ibid.

22. Anzenberger, "Oberblick," pp. 474-75, 535. Anzenberger lists several flugelhorn methods (p. 535, "Schulen für Signalthorn [Bugle, Clairon]"). However, those by Roy (1824) and Nemetz (1828) have nothing on the flugelhorn—by any name—whatsoever; and Nemetz' second method (1844) includes a section on the keyed bugle, but not the instrument in its natural form. The method by Kling (1830) listed on both this page and the following one ("Schulen für Natur-Signalthorn") includes a section only on the posthorn, not the flugelhorn.

23. Endler, *Sinfonia a 7 (1749)* (one clarino piccolo and two horns in F), Darmstadt, Hessische Landes- und Hochschulbibliothek, Mus. ms. 1213/13; Telemann, Cantata *Auf Christenheit, begeh' ein Freudenfest* (1716) (with three clarini in D and, in two places, three clarini piccoli in F), also located in Darmstadt (modern edition in Telemann, *Musikalische Werke*); Telemann, *Die Tageszeiten* (1757) (one *kurze Trompete* in F in the aria "Der Morgen kommt").

24. Reine Dahlqvist, *Bidrag till trumpeten och trumpetspelets historiaft: In 1500-talet till mitten av 1800-talet med seirskickl hansyn till perioden 1740-1830*, 2 vols. (PhD diss., University of Göteborg, 1988) (Studies from the Gothenburg University Musicology Department, no. 17), 1: 290.

25. This and other conventions of brass notation were thoroughly explained by Murray Barbour in *Trumpets, Horns and Music* (East Lansing, MI, 1964), esp. 141-144. Don Smithers, "Mozart's orchestral brass", *Early Music* 20 (1992): 255-265, here 261-262, does not mention Barbour's work. The octave convention was already known to Lully and Lalande.

26. "Alte und neue Kirchenmusik", *Alkemeine musikalische Zeitung* 16 (1814), col. 601, cited in Dahlqvist, *Bidrag, I*: 346-347.

27. Frohlich, "Trompeten-Schule," pp. 231-232: "Leider zwingt man in neuerer Zeit den Primarius, sich auch auf das Herausbringen tiefer Töne einzutüben, so wie der Principalist oft Sekundarius, gleich darauf claim Dughettist seyn mug. Dadurch werden alle Granzen verwischt, und man findet sonach wohl Principalisten im weiteren Sinne, ... aber selten mehr Trompeter, die ihre Sphere mit der Vollendung ausfüllen, wie es ehemals gewöhnlich war." See also Dahlqvist, *Bidrag, I*: 352, who confuses this method with Frohlich's *Vollständige theoretisch-practische Musikschule* (ca. 1811). "Dughettist" comes from "Dughetto," the lowest part in a four-part trumpet ensemble, consisting primarily of the two pitches c' and g.

28. Original copy in the author's collection. It was reprinted in 1973-74.

29. A list of surviving instruments organized by shape, indicating the collections in which they are to be found, is in a paper written by Roland Callmar for his diploma in Baroque trumpet at the Schola Cantorum Basiliensis (work in progress, 1993; cited as Callmar).

30. See Heyde, *Trompeten, Posaunen, Tuben*, p. 126. The origin of this information is *Junkers Musikalisches Almanac', auf das Jahr 1782*, p. 104; and Ernst Ludwig Gerber's *Naas historisch-biographisches Lexicon der Tonkünstler* (Leipzig, 1812-1814, facsimile ed., 1966), vol. 3, col. 107. Woggel's trumpet, which has not survived, was said by Gerber to have been made by Johann Andreas

Stein (1728-1792) of Augsburg. However, Dahlqvist, *Bidrag*, 1: 38, has cast the shadow of doubt over this statement, pointing out that Stein **was** a maker of keyboard instruments; he also suggests that Woggel may have learned the technique of hand-stopping in Paris, where it had been practiced on the horn by masters such as J.J. Rodolphe as early as 1763-64.

31. Dahlqvist, *Bidrag*, 1: 355, 359.

32. *Ibid.*, p. 359.

33. Dahlqvist reduces all the shapes to two basic ones, a view which we hold to be an oversimplification; see *Bidrag*, 1: 36ff.

34. Merri Franquin, "La Trompette *et* le Cornet", in Albert Lavignac, ed., *Encyclopedic de la Musique et Dictionnaire du Conservatoire*, 3 vols. (Paris 1920-31), here vol. 2 (1927), pp. 1606-07: "Les trompettistes avaient une boîte qu'ils plaçaient devant eux aux pieds du pupitre, et qui contenait une trompette simple et une trompette à pistons avec tous les tons de rechange qui s'adaptaient indifféremment à chacune des deux trompettes, scion que c'était l'une ou l'autre qu'ils avaient en main; c'est-à-dire scion que le *passage* à jouer était chromatique ou composé seulement d'harmoniques naturelles simples."

35. III. in Tarr, *The Trumpet*, p. 162. (The imprints of the three valve tips of the missing valved trumpet can still be seen in the velvet case lining.) Callmar lists only three long natural trumpets of this type with the tuning slide, but over a dozen without. Heyde, *Trompeten, Posaunen, Tuben*, p. 113, would call this instrument the French type of invention trumpet. He has a right to do so, although the invention trumpet's tuning slide by definition is contained in a separate coil of tubing (see further below in main text).

36. Leipzig coll., no. 1822-23 (de Wit no. 538-539); see Heyde, *Trompeten, Posaunen, Tuben*, pp. 120-121 (ill., Tafel 8).

37. Leipzig coll., no 1820-21 (de Wit no. 536-537); see *Ibid.*, pp. 117-120 (ill. Tafel 8). These four instruments were hardly designed to be played with hand-stopping, however, since this technique was not called for at that time. Heyde (*Trompeten, Posaunen, Tuben*) convincingly shows that their short form (with the two folds being of equal length) must have had to do with the extremely cramped space of the musicians' gallery in the particular church in question.

38. Callmar lists several dozen.

39. Baines, *Brass Instruments*, p. 188 (but he was misinformed as to the pitch ["high 13^b (with crook for A^b) down to the thrice-looped bass trumpet in...E"] and the date ["1812-13"]); a study by the present author is in preparation for *Militärth Belgica*.

40. Edward H. Tarr, Exhibition brochure, "Die Silbertrompeten von Moskau" (Bad Sackingen, September-October 1992). The Moscow instruments were brought together from various regimental collections; others are in other Russian museums. Silver trumpets were instruments given as presents by the Tsar after decisive victories. See also Valentina M. Zarudko, "*Silver Collection*" of Musical

Instruments - Battle Decorations of the Russian Army (Moscow, 1992).

41. Tarr, "Silbertrompeten" (based on the complete, numbered set of instruments surviving in Brussels). The Moscow museum contains two such bass trombones.

42. The author bases this hypothesis on surviving contemporary Prussian and French music for "trumpet-music" ensemble (see further below in main text, and also note 74). A natural trumpet method of somewhat later date, written for Russian cavalry trumpeters (playing instruments in E) by the first professor of cornet (from 1869) at the St. Petersburg Conservatory and director of the bands of the Imperial Life Guard, Wilhelm Wurm (1826-1904), has recently come to light. (Thanks to Prof. Anatoly Selianin, who donated an original copy of this method, published by Jurgenson in Moscow, to the Bad Sackingen Trumpet Museum in May 1993.) It contains exercises and military signals, as well as duets, trios, and four-part pieces for instruments displaying the usual range. In addition, the first trumpeter is occasionally required to play a high c". Hand-stopping is not propagated in this method.

43. Such as one in A♭ made by Michael Saurle of Munich with crooks for F, D# (D), C, and B1 and now in the Deutsches Museum, Munich, no. 44957. The crooks are inserted into the middle of the instrument. See Callmar, and Heinrich Seifers, *Die & is instrimente im Dezutschen Museum: Beschreibender Katalog (Munich and Dusseldorf, 1976)* (*Deutsches Museum. Abhandlungen und Berichte*, 44. Jahrgang, Heft 1), p. 68 (ill., 106: Abb. 9).

44. Dahlqvist, *Bidrag*, I: 38 ("1 Concert fur die inventionstrompete [*sic*], so Woggel... das erste mahl geblasen"), quoting Klaus Niemoller, "J. A. Schmittbaurs Werke und seine Wurdigung," in H. Haschen (ed.), *Festschrift Karl Gustav Fearer (Regensburg 1962)*, p. 383. Woggel appeared several times as a soloist in the Concerts Spirituels in Paris, and also in 1782 in Prague; see Dahlqvist, *Bidrag*, I: 335-337.

45. Dahlqvist, *Bidrag*, I: 40, quoting van Aerde, "Les Tuerlinx," *Bulletin du cercle archeologique. de Malines* 24 (1914): 174.

46. Dahlqvist, *Bidrag*. This information predates that previously known (1787) and reported on in Baines, *Brass Instruments*, pp. 186-187, where similar information from a Schott catalogue (differentiating between *trompette d'invention*, *trompette simple*, and *trompette a clefs* is also presented.

47. No. 1829 (de Wit no. 547), see Heyde, *Trompeten, Posaunen, Tuben*, 125-127; ill. on Tafel 11. It was found on the battlefield of Jena just after Napoleon's defeat of the Prussian army, 6 October 1806.

48. No. 1830 (de Wit no. 545); *ibid.*, pp. 127-128; ill. on Tafel 16.

49. No. 4070; see *ibid.*, pp. 128-130; ill. on Tafel 11.

50. Two instruments in E1 and G, dated 1826 and 1836, respectively, are in the Bernoulli collection (Historisches Museum Basel, no. 2, ill. in Tarr, *Trumpet*, p. 154, no. 5) and in the instrument collection of the Germanisches Nationalmuseum, Nuremberg (no. MI R 124, incorrectly stated in the

catalogue as being in F). See Callmar.

51. *Ibid.*, p. 126.

52. Musik-Instrumentenmuseum Berlin, no. 3027; see Dieter Krickeberg and Wolfgang Rauch, *Katalog der Blechblasinstrumente* (Berlin, 1976) (Staatliches Institut für Musikforschung, Musikinstrumenten-Museum Berlin), p. 148 (also ill.). An exemplary illustration of the fact that these various shapes and sizes existed side by side is provided by an invention trumpet (slender late form) with the same date 1802, made by Eschenbach's brother Christian Gottlob (1767-1858); see p. 142.

53. For example, no. 3026 in the Berlin collection, built ca. 1816-1856; see *ibid.*, p. 149 (also ill.).

54. Formerly in the Leipzig collection, no. 1834, destroyed in World War II; see Heyde, *Trompeten, Posaunen, Tuben*, p. 130.

55. Baines, *Brass Instruments*, pp. 189-190. However, I cannot find the remark in my copy of Dauvernes method.

56. See Beryl Kenyon de Pascual, "Jose de Juan Martinez's tutor for the circular hand-stopped trumpet", *Brass Bulletin* 57 (1987): 50-65. The *Metodo de Clarin* by Jose de Juan Martinez (1830) discussed in the article has since been published: Edicion de Beryl Kenyon de Pascual, Real Conservatorio Superior de Musica de Madrid, Camara de Comercio y Industria de Madrid (Madrid, 1990). See my detailed review, comparing it with Buhl's method, in *Galpin Society Journal* 45 (1992): 183-184; see also B. Kenyon de Pascual's translation of this method in this Journal; and Anzenberger, "Überblick," p. 322.

57. Martinez, *Metodo de Clarin*, p. 71.

58. Baines, *Brass Instruments*, p. 190.

59. *Mithode de trompette d'ordonnance, trompette a clef, alto orphiclide [sic], et osphicleide basso* (Paris, foreword dated 7 December 1822), section "trompette bouchee," pp. 34-43.

60. David Buhl, *Mithode de trompette* (Paris, [1825]), pp. 11, 54-63.

61. Frohlich, "Trompeten-Schule." In his two earlier methods from ca. 1811 and after 1814, however, Frohlich does not mention hand-stopping. See note 7 and Anzenberger, "Überblick," pp. 384-386.

62. Dahlqvist, *Bidrag*, 1: 363-366.

63. *Allgemeine musikalische Zeitung (AMZ)* 20 (1818), col. 615, cited in Dahlqvist, *Bidrag*, 1: 363.

64. "Selbst der fremdartigsten halben Tone"; review of a concert on 16 January 1822 from *AMZ* 24 (1822), col. 118, quoted in Dahlqvist, *Bidrag*, 1: 364.

65. *Berliner Allgemeine musikalische Zeitung!* (1824): 162-163, and *Eberty, Jugenderinnerungen eines*

alten Berliners, p. 169; see Dahlqvist, *Bidrag*, 1: 364.

66. "Ober die Trompete in ihrer heutigen Anwendbarkeit im Orchester," *BerlinerAMZ6* (1829): 337. An English translation also appeared in the *American Musical Journall* (1834-35): 252-255 (from the *Harmonicon* [1830], pp. 23-25, available today in a reprint), where the author's name is misspelled as "Bargans."

67. Hector Berlioz, *Memoires de Berlioz* 2:44, 143 (cited in Dahlqvist, *Bidrag*, 1:418): there were two trumpeters named Sachse, but whether they were brothers is unknown. Berlioz did not know to whom to award the palm of victory, to Friedrich Sachse, "une excellentissime trompette," or to Ernst Sachse (from Weimar), "d'une force extraordinaire."

68. Dahlqvist, *Bidrag*, 1: 420.

69. Manuscript orchestral score dated 17 April 1828 located in the Bibliothek der Hansestadt Lubeck, call number 721. Modern edition by Anders Hemstrom (Butte: Editions Bim, 1989).

70. Dahlqvist, *Bidrag*, 1: 418.

71. *Ibid.*, pp. 366-368.

72. *Methode de trompette d'harmonie, trompette 3 clefs dans tow les tons, et de cornet* (Paris/Lyon, ca. 1825), see Anzenberger, "eberblick," pp. 324-25.

73. Georg Thouret, *Katalog der Musiksammlung auf der Kgl. Hausbibliothek im Scklosse zu Berlin* (Berlin, 1895).

74. Baines, in his usual thorough manner, seems to have been the first to have called attention to this aspect of trumpet technique. See the section entitled "Hand-stopping on trumpets" in *Brass Instruments*, pp. 184-190, especially his lucid discussion of musical example 41 (p. 189), showing how the melody is tossed from one natural instrument to another in a *Pas redouble* by J. Kiiffner (from *10 Trompeten-Auffrage* ["Fanfares"] *für MilitürMusik*, Offenbach, ca. 1815). As Baines himself points out (pp. 188-189): "The sharps written for the smaller trumpets, *ff* in the *tutti*, might just conceivably have been produced in falset by some players, but... use of the hand must... have been the composer's intention." It is the author's contention that the Russian trumpet corps mentioned in the main text above must have played music of this type. See note 42.

75. Reine Dahlqvist, *The Keyed Trumpet and Its Greatest Virtuoso, Anton Weidinger* (Nashville, 1975), Brass Research Series, no. 1.

76. *Ibid.*, p. 3.

77. Callmar lists some forty-four surviving keyed trumpets. Of these, only one (in Rome, Museo Nazionale di strumenti musicali, made by Pirozzi) is in D.

78. Dahlqvist, "Keyed Trumpet," p. 4. Kolbel's instrument, according to contemporary accounts, was

straight and had an unspecified number of keys over tone-holes close to the bell. At the bell end, according to Baines' account (*Brass Instruments*, 191), was "a bell like a bowl onto which fitted another bowl which had small holes in it and could somehow be moved to lower the pitch." In the mid 1960s, I was once offered an instrument very closely fitting this description by the owner of a Paris antique shop. Straight and made of an alloy resembling pewter, it was about 140 cm long. There were two keys of slightly different sizes close to the bell opening, and both were enormous; the larger (the one closer to the bell end) must have been about 4 cm in diameter, the smaller 3. They were operated by touch-pieces fastened close to the mouthpiece end and connected to them by long rods, and they raised the pitch by a half step and a whole step, respectively. The bell was shaped normally, not "like a bowl". At that end, covering the bell, was a sieve-like contraption which could be opened and closed via a simple string attached to the mouthpiece end. The owner of the shop called the instrument a *trompette d'église*. Unfortunately, at the time I had no notion of *the Amor-Schalk* and the instrument looked so bizarre that I passed it up. (The story of "the one that got away" is not confined to fishermen!)

79. Dahlqvist, "Keyed Trumpet," pp. 4-9, provides full details. A strange instrument off the beaten track is no. 1063 of the Berlin collection (see Krickeberg and Rauch, *Katalog* p. 150, also ill.), a trumpet in G made in the long, once-folded conventional shape in 1817 by J. Bauer of Prague. It has four keys, three of which are activated by one hand, and one by the other.

80. Dahlqvist, "Keyed Trumpet," pp. 12-13.

81. *Ibid.*, pp. 13-14.

82. *Ibid.*, p. 14. The German term was *organisirte Trompete*.

83. *Ibid.*, p. 15. In this *Eictraconcert*, Weidinger (called "Meidinger") performed the following works: Haydn's Trumpet Concerto; Hummel's Trio; and, together with the singer Mr. Werner, a scene with obligato trumpet, "Tromba to sei fra tutti gl'instrumenti," by Sussmayr. See *Das Gewandhausorchester Leipzig, 1781-1881* (Leipzig, 1881), p. 197.

84. Dahlqvist, "Keyed Trumpet," p. 15.

85. Dahlqvist, "Keyed Trumpet," pp. 12, 16.

86. "Die Weidinger'sche Inventionstropete"; see *ibid.*, pp. 17-18.

87. For details on Khayll, Werner, and works written specifically for them, see *ibid.*, pp. 380-384; and on the Gambati brothers, p. 20. See also Edward Tarr, *The Trumpet* (London and Portland, Oregon, 1988), pp. 151, 153; and the amusing and well-documented article by Cynthia Adams Hoover, "A trumpet battle at Niblo's pleasure garden," *The Musical Quarterly* 65 (1969): 384-395. The "battle" was in August 1834 between Alessandro Gambati on the keyed trumpet and John Norton on the slide trumpet; Norton won.

88. Dahlqvist, *Bidrag*, 1: 384. The call number of the original set of parts in the Museum of Czech Music of the Prague Historical Museum is XLIX.D.410. Various parts bear the date of 1831, which must refer to the date of copying, not composition, and the title page bears the name of one Mathsam,

who probably was the copyist.

89. A modern edition by John Wallace and Trevor Herbert has been published by Faber Music (London, 1989). It was probably based on a modern score made by the late Robert Minter and dated 22 September 1973, now in the Robert Minter Research Collection at the Open University in Wales, Cardiff.

90. Felix Mendelssohn-Bartholdy, letter from February 14, 1831 to the clarinetist Heinrich Barmann (1784-1847) in Munich: "I must still add that the trumpeters play all the time on the accursed keyed trumpets, which seem to me like a pretty woman with a beard or like a man with breasts—they simply do not have the chromatic notes, and now it sounds like a trumpet castrato, so dull and unnatural. But there is one here who plays variations on it!" ("Noch mug ich nachholen, clag die Trompeter durchgangig auf den verfluchten Klappentrompeten blasen, die mir vorkommen wie eine hubsche Frau mit einem Bart oder wie ein Mann mit einem Busen—sie hat eben einmal die chromatischen Tone nicht, und nun kling't wie ein Trompetenkastrat, so matt und unnatürlich. Es blast aber hier einer Variationen darauf!")

91. Information kindly supplied to me in letters from 30 Sept. 1971 and 22 Feb. 1972 by Neldo Lodi (Rome), who also examined scores by Paisiello, Boccherini, Cherubini, Spontini, Rossini, and Donizetti.

92. Anzenberger, "Oberblick," pp. 450-51, 462-63. An original copy of the Roy tutor, formerly belonging to the late Prof. Heinz Burum, is in the Bad Sackingen Trumpet Museum. Concerning the Nemetz methods, see note 7.

93. Dating after Anzenberger, "Oberblick," p. 345. The attribution of the intended instrument can readily be made on the basis of the cover engraving of a military musician playing a keyed bugle; there is also a fingering chart for a seven-keyed instrument inside.

94. Ill. in *Brass Bulletin* 33 (1981): 23. Rev. Bernoulli (1904-1980) amassed the world's largest collection of brass instruments and drums; it now forms part of the musical instrument collection of the Basel Historical Museum, where unfortunately the main body of instruments is inaccessible. See the obituary by Emilie Mende in *Brass Bulletin* 33 (1981): 22-23. The keyed posthorn mentioned here is the very first instrument Bernoulli acquired.

95. See Ralph Dudgeon, "19th-Century Keyed Bugle Performers: A Checklist," *Historic Brass Society Journal* 4 (1992): 193-205.

96. The foremost specialist on the keyed bugle today is Dudgeon. See his "Keyed Bugle" (diss.); idem, "Joseph Haliday, Inventor of the Keyed Bugle," *Journal of the American Musical Instrument Society* 9 (1983): 53ff; *The New Grove Dictionary of Musical Instruments*, s.v. "Keyed Bugle," by idem; and idem, "Keyed Bugle Method Books: Documents of Transition in 19th-Century Brass Instrument Performance Practice and Aesthetics in England," *Historic Brass Society Journal* 2(1990): 112-122. It is from the first three of these secondary sources that the above information was taken.

97. Dudgeon, "Keyed Bugle" (diss.), p. 51. (He writes "the late 1830s," but of course Wieprecht's

Berlin valve was already in use in 1833—see below.)

98. Dudgeon, "Keyed Bugle" (*New Grove*), p. 415.

99. *Ibid.* The duel ended without a clear winner, but Gilmore, with his cornet, proved capable of imitating anything which Kendall could produce on his keyed bugle. For more information on soloists, see Dudgeon, "Checklist."

100. Dudgeon, "Keyed Bugle" (diss.), pp. 100-133. These are missing from Anzenberger's dissertation, although he includes a section on *IClappen-Signalhorn* on p. 537 which contains only Schiltz' *Methode de clairon avec et sans clefs* (Paris ca. 1835), a work missing from Dudgeon's list.

101. See note 8.

102. Dudgeon, "Keyed Bugle" (diss.), pp. 105-131.

103. Mentioned above; ten of its sixty-eight pages are devoted to the keyed bugle; see Dudgeon, "Keyed Bugle" (diss.), p. 118.

104. A new and complete preceptor for the royal Kent or keyed bugle (London, stated by the author to have been written twenty years after his earlier trumpet tutor); see Dudgeon, "Keyed Bugle" (diss.), pp. 119-120.

105. *Logier's Introduction to the Art of Playing on the Royal Kent Bugle* (Dublin, 1813, followed by at least two more editions: London, 1823 and 1835); see Dudgeon, "Keyed Bugle" (diss.), pp. 121-127.

106. A discussion of this work is to be found in Dahlqvist, *Bidrag*, 1: 386-387. My orthography of the title follows the title page of this work (Mainz, B. Schott fils, publisher's number 1919), which survives in Vienna, Gesellschaft der Musikfreunde, VIII.41261 [last two numbers illegible].

107. Dudgeon, "Keyed Bugle" (diss.), pp. 148-151. The composer was born Anton Philipp Heinrich in Bohemia in 1781, inherited a large fortune from an uncle, lost it in the Napoleonic wars, and emigrated to the United States. Dudgeon writes (149): "Heinrich later became a colorful figure in New York's musical life of the 1840s and 1850s, and he died in that city in 1861." The solo part to Heinrich's concerto is on pp. 166-169 of Dudgeon's dissertation.

108. This often-told story can be found in many places, for example in Baines, *Brass Instruments*, pp. 135-6.

109. Charles Cudworth, "The Vauxhall 'Lists'," *GaOin Society Journal* 20 (1967): 24-42, here 31-32.

110. Rice, "Tutors and Treatises," p. 19 (see n. 19).

111. Hyde, p. 51; see also Anunberger, "Oberblick," p. 35.

112. Scott Sorenson, "Printed Trumpet Instruction to 1835", *Journal of the International Trumpet*

Guild 12, no. 1 (September 1987): 4-14, here 7.

113. Hyde, p. 51; Anzenberger, "Oberblick," pp. 38-39.

114. Thomas Harper [Sr.], *Instructions for the trumpet, with the use of the chromatic slide...* (London, 1835); Thomas Harper [Jr.], *Harper's school for the trumpet containing... observations on the use of the slide...* (London ca. 1875). Thomas Harper Jr. also wrote a cornet method: *Harper's School for the cornet and pistons containing in addition to complete instructions in the art of playing the instrument 100 progressive exercises* (London, ca. 1865).

115. Scott Sorenson and John Webb, "The Harpers and the Trumpet," *Galpin Society Journal* 39 (1986): 35-57, here 36.

116. *Ibid.*, p. 37.

117. *Harper's school for the trumpet*, p. 2.

118. Sorenson & Webb, "The Harpers," p. 48. This is the testimony of Thomas Harper, great-grandson of Harper, Sr., in a letter to *The Times* of January 25, 1935, stating also "that Harper, Sr., used to say of his son that he had the better tone."

119. Lyndsey G. Langwill, *An Index of Music Wind Instrument Makers*, 6th ed. (Edinburgh, 1980), p. 95. This work is invaluable in identifying and dating wind instruments of all types.

120. Sorenson & Webb, "The Harpers," p. 43.

121. Formerly in the Joseph Wheeler collection; see Anthony Baines, *European & American Musical Instruments* (London, 1966), pl. 746, text p. 137.

122. See Friedrich Anzenberger, "The Earliest French Tutor for Slide Trumpet," *Historic Brass Society Journal* 4 (1993): 106-111. Legram's name was misspelled "Legrain" by Lavoix and "Legeran" by Curt Sachs; see Anzenberger, "French Tutor," note 14. In "Oberblick," pp. 47-50, Anzenberger mentions Legram's invention only through reports in E.F.F. Chladni's article "Nachrichten von einigen... neueren Erfindungen und Verbesserungen musikalischer Instrumente" in *Alkemeine musikalische Zeitung* 23 (Leipzig, 1821), col. 396, and in H. Lavoix, *Histoire de ?instrumentation* (Paris, 1878), pp. 139-40. According to Lavoix, Legram derived his inspiration not from Hyde's model, but rather from instruments made by Johann Gottfried Haltenhof of Hanau. According to Baines, *Brass Instruments*, p. 184, there were actually two French patents awarded in 1821 for slide trumpets with forward-drawing slides, one of them being Legram's.

123. For information on the collector Wilhelm Bernoulli, see note 93.

124. Dauvernd, *Methode pour la trompette* (Paris, 1857), pp. 157-181.

125. Dauverne, *Methode*, p. 157. Here Dauverne refers specifically to Hyde.

126. Report in *the Revue Musicale* (18 May 1833), pp. 123ff. See Anzenberger, "French Tutor," p. 106.
127. Report in Lavoix, *Histoire*, p. 140. See Anzenberger, "French Tutor," note 13 (where the year is given as 1978 instead of 1878).
128. Anzenberger, "French Tutor," p. 106.
129. *Ibid.*, quoting Langwill, *Index*, p. 21, who in turn quotes the *Revue Musicale* article referred to in note 126.
130. Steel engraving by A. Collette from *Manuel elementaire de musique* (Paris, 1849), Bad Sackingen Trumpet Museum, 1519-021.
131. Dauverne, *Method*, p. 157.
132. See Herbert Heyde, "Zur Frühgeschichte der Ventile und Ventilinstrumente in Deutschland (1814-1833)," *Brass Bulletin* 24 (1978): 9ff; 25 (1979): 41ff; 26 (1979): 69ff; and 27 (1979): 51ff (also in English and French; and his book, *Das Ventilblasinstrument* (Leipzig, 1987).
133. Heyde, "Frühgeschichte," 24:11. See also Philip Bate, *The Trumpet and Trombone* (London and New York, 1966), p. 182, note 11: "The International Patents Convention, by which a number of nations agreed to respect each other's patents, was not signed until 1883. Prior to that date there was nothing to prevent an invention, fully protected in the country of its origin, being freely copied once it had crossed the frontier. Before 1870 also, the various independent German-speaking States granted their own patents or privileges, but would not necessarily recognise one another's unless specific trade agreements were in force."
134. Heyde, "Frühgeschichte," 24: 19, 30. Stölzel's name also appears as "Stolzel."
135. He speaks of "Trompeten" and "Signal-Homer", and "eine Musik... worüber die Welt erstaunen soli." *Ibid.*, p. 13.
136. *Ibid.*, pp. 21-22, 30-31.
137. *Ibid.*, pp. 22, 31.
138. Germanisches Nationalmuseum, MIR 130, ill. in *ibid.*, p. 23.
139. Musikinstrumenten-Museum des Staatlichen Instituts für Musikforschung Preussischer Kulturbesitz, No. 3104; ill. in *ibid.*, p. 79.
140. Paris, MusEe du Conservatoire National Supérieur de Musique, no. 1404. According to Heyde, this is probably one of the instruments which Spontini sent to Paris. See below, also note 177. See also Heyde, *Ventilblasinstrumenten**, p. 16; ill. there: Photos 54a and b.

141. Letter of 21 April 1993 to the author.

142. Heyde, *Ventilblasinstrument*, p. 22. His patent application was refused; for the reason, see main text below (under "Rotary valves," first paragraph).

143. This observation, too, was made by Heyde in his letter to me of 21 April 1993. The biography referred to is A. Kalkbrenner, *Wilhelm Wieprecht, Direktor: sein Leben and Wirken nebst einem Auszug seiner Schriften* (Berlin, 1882).

144. *Ibid.*, pp. 22-24. A rare E^b cornet with these valves, built around 1906 by Seeling, Dresden, is in the Bad Sackingen Trumpet Museum (no. 34601). According to the firm's price list of that date (no. 4520-002), where it is called "Cornet (piston) in Es and D," it was even the cheapest instrument of their line. On p. 23 Heyde shows mechanical drawings of the two distinct types of Berlin valve and their probable derivation from the box valve. A tenor horn in C (in trumpet shape) in the author's collection made by Ernst R. Voigt, Markneukirchen, ca. 1880, displays the characteristic valve slides of Wieprecht, most readily apparent with the second valve slide, with its inlet and outlet placed on opposite sides of the main tube and at right angles to it (ill. on p. 120, photo 13). In photo 12, an anonymous Markneukirchen alto horn in G can be seen, with its valve slide inlets and outlets on the same side of the main tube; this is the type of Berlin valve associated with Stoelzel.

145. See Reginald Morley-Pegge, *The French Horn* (London, 1960), p. 49; Bate, *Trumpet and Trombone*, pp. 159-160; Baines, *Brass Instruments*, p. 213; and Tarr, *Trumpet*, p. 161. Neill O'Loughlin (*The New Grove Dictionary of Musical Instruments*, s.v. "Perinet") gives the date 1838 instead of 1839. Regarding PErinet, see also the section on the natural posthorn above.

146. Which the translators of Dauverne's method have unfortunately have done; see note 5, concerning *HBSJ* 3 (1991).

147. Wieprecht and the Berlin maker Moritz were not happy about Sax's appropriating their Berlin valves, but what could they do? Berlin valves enjoyed no patent protection, and in copying them, Sax was perfectly within his rights. According to Wieprecht, Sax had "not only claimed [certain] German instruments, which we have been using for 15 or 20 years in our military bands, as his own invention, but had even given his own name to them." ("Weil er unsere deutschen Instrumente, deren wir uns hier schon seit 15 bis 20 Jahren bei unserer Militair Musik bedienen, nicht allein far seine Erfindung ausgegeben, sondern sic sogar mit seinem Namen belegt hat." Letter from Wieprecht to one Schneider, 16 August 1845, quoted in Kalkbrenner, *Wilhelm Wieprecht*, p. 94; thanks to Karl Ventzke, Duren, for calling my attention to this source.)

The two men, Wieprecht and Sax, even met in Koblenz, and having been introduced, brought out their respective instruments with a view to having a neutral authority come to a decision—in vain, as it turned out. In the above-mentioned letter reporting on the meeting, Wieprecht also wrote, "Mr. Sax brought with him a capable player of the Cornett() a Pistons, Mr. Arban, a pupil at the Conservatory in Paris." ("Herr Sax brachte einen tuchtigen Blaser des Cornetto a Pistons, Herrn Arban, Schiller des Conservatoirs zu Paris, mit zur Stelle.") Regarding Arban, see main text below.

148. Heyde, *Ventilbksinstrument*, p. 43, with reproduction of the original drawing and a reconstruction of the way the valve must have worked.

149. Bohuslav Cízek, "Josef Kail (1795-1871), Forgotten Brass Instrument Innovator", *Brass Bulletin* 73 (1991): 64-75; and 74 (1991): 24-29; here 73: 66. The Kail-Riedl invention was not yet known to Heyde, "Frühgeschichte" (27: 61, where only Uhlmann's improvement of 1830 is mentioned); however, it is correctly included in Heyde, *Ventilblasinstrument*, pp. 43-45.
150. Heyde, *Ventilblasinstrument*, p. 44. Photos of surviving valved trombones with Kail's valves, made by Václav Gamal (Prague) around 1840, preserved in the Musical Instrument Collection of the Historical Museum, Prague (nn. 72 and 73), are in Click, "Kail," 73: 73.
151. See Heyde, *Ventilblasinstrument*, p. 261 (ill. 2); Anzenberger, "Oberblick," pp. 450-451; and Eugen Brbcel, "Nemetz," (see note 7).
152. Heyde, *Ventilblasinstrument*, p. 56. The exact circumstances of its origin are unknown. In the older secondary literature (such as Bate, *Trumpet and Trombone*, pp. 152-153, who however already casts the shadow of doubt), Uhlmann is actually credited with the invention of the Vienna valve.
153. A trumpet in G with the "Neumainzer Maschine" by Müller, Mainz, is in the Trompetenmuseum Bad Sackingen, no. 14402; ill. in Heyde, *Ventilblasinstrument*, p. 148 (Photo 78) and in Edward H. Tarr, *Trompetenmuseum Bad Sackingen: Katalog* (Bad Sackingen, 1985), p. 37. A B' cornet is in the Bate Collection, Oxford; ill. in Heyde, *Ventilblasinstrument*, p. 158 (Photo 101). When Müller arrived in Mainz, the *Altmainzer Maschine* was in use; around 1833-34 he developed the *Neumainzer Maschine*. A transitional type was called the *Alte Neumainzer Maschine(!)*. See Heyde, *Ventilblasinstrument*, pp. 46-47, with sketches.
154. Various trumpets with this type of return mechanism (Ger., *Klinkenhebel*), including a natural trumpet built in 1806 by Anton and Ignaz Kerner (Vienna) and later (around 1830?) fitted out with two Vienna valves, are illustrated in Heyde, *Ventilblasinstrument*, pp. 145-146 (Photos 70-74). The Bad Sackingen Trumpet Museum owns one in F by D. Laicher of Augsburg (no. 14404), as well as several illustrations, for example *Der Trompeter*, lithography after a drawing by Hugo Kauffmann (d. 1915) from *A Hochzeit im Gebirg* (ca. 1883), no. 1519-007, in Tarr, *Trompetenmuseum*, pp. 110-111.
155. See Constant Pierre, *La facture instrumentale k l'exposition universelle de 1889* (Paris, 1890), pp. 260-262 (illustration of a valve trombone with four valves on p. 261). Heyde, *Ventilblasinstrument*, p. 148 (Photo 79) calls this the "Hanoverian model." An anonymous trumpet in B' survives as no. 14403 of the Bad Sackingen Trumpet Museum; also ill. in Tarr, *Trompetenmuseum*, p. 38. It has an extra-long third valve slide so that the fingering with 3 alone is half a step lower than 1+2.
156. In four-foot D, as no. 34401 of the Bad Sackingen Trumpet Museum; see Tarr, *Trompenmuseum*, p. 63 (ill. there). Concerning Garrett's invention, see John Webb, "Designs for Brass in the Public Record Office," *Galpin Society Journal* 38 (1985): 48-55.
157. Heyde, *Ventilblasinstrument*, p. 30. A horn with two valves of this kind, made in Saxony between 1828 and 1831, survives in the Markneukirchen musical instrument collection (no. 1175); ill. in Heyde, *Ventilblasinstrument*, p. 113 (Photo 1).

158. Heyde, "Frühgeschichte," 26: 41.

159. In the Don Essig collection, Warrensburg, Missouri (USA), no. 22; see Robert E. Eliason, "Early American Valves for Brass Instruments," *GaOin Society Journal* 23 (1970): 86ff, esp. 90-91; ill. on Plate XI. This may be the earliest three-valve trumpet surviving. See also *Grove's Dictionary of Musical Instruments*, s.v. "Nathan Adams," by Robert E. Eliason. Adams also "invented a valve with movable tongues or flaps within the windway. A trumpet in F by Adams with three such valves is displayed on board the USS Constitution." Ill. also in Eliason, "Valves," Plate XL It bears the inscription "Permutation Trumpet" and the date 1825. Eliason feels that Adams' rotary-valve trumpet could be earlier than the "permutation" one, perhaps from 1824-25 (op. cit., 91).

160. Bad Sackingen Trumpet Museum, no. 14104. The archives in Yverdon were unable to produce any information on these makers. A discussion of the mechanism and its disadvantages is in Heyde, *Ventilblasinstrument*, p. 30. Another latecomer was Friedrich August Wolff of Cottbus, who tried unsuccessfully to patent a rotary valve in 1843 (ibid.).

161. It was Reine Dahlqvist who first discovered the privilege, dating from 11 September; see his article, "Some Notes on the Early Valve," *Galpin Society Journal* 33 (1980): 111-124, here 118.

162. © "Kail," 74: 25. Riedl's rotary valve—as today and as opposed to Bluhmel's, which had three windways—had two windways (for a mechanical drawing of BIOhmel's rotary valve and of blast-furnace valves, see Heyde, *Ventilblasinstrument*, p. 29).

163. For mechanical drawings of the many variants of the rotary valve, by maker, see Heyde, *Ventilblasinstrument*, pp. 32-36, 39-42.

164. Ibid., p. 41; so called in Markneukirchen, where they were built, exclusively for export, around 1860-1890.

165. Described in Eliason, "Valves," pp. 93-94, and in Heyde, *Ventilblasinstrument*, p. 41; an anonymous over-the-shoulder three-valve trumpet (saxhorn) is in the author's collection.

166. Morley-Pegge, *Horn*, p. 45 (mechanical drawing on p. 46, Fig. 13).

167. Ibid., pp. 46-47 (see mechanical drawing, Fig. 14).

168. *The New Grove Dictionary of Musical Instruments* (London 1984), s.v. "John Shaw," by Niall O'Loughlin. In this article, Shaw's "transverse spring slide," patented in 1824, is also mentioned.

169. Morley-Pegge, *Horn*, p. 46.

170. A high-pitch B⁶cornet by Kohler with Shaw's disc valves is in the Bad Sackingen Trumpet Museum (no. 34501); see Tarr, *Trompetenmuseum*, p. 65 (with ill.).

171. Quoted in Christian Ahrens, *Eine Erfindung and ihre Folgen: Blechblasinstrumente mit Ventilen* (Kassel et al., 1986), p. 41.

172. To which we could add Russia, since the first Russian brass instruments were patterned after Prussian ones—see main text below (section on the "Russian Valve or Stop Trumpet").

173. Ahrens, *Erfindung* p. 107.

174. Heinrich Gottwald, "Ober das Horn": "With military bands, where the stopped tones of the natural horn would almost [completely] disappear in the mass of the other instruments and in the open air, the valved horn will be used to the greatest advantage." (Original text: "Bei Militarmusiken, wo die gestopften Tone des Naturhornes in der *Masse* anderer Instrumente und im Freien beinahe verschwinden werden, wird...das Ventilhorn mit dem paten Vortheil verwendet.") From *Neue Zeitschrift für Musik* 1 (1851): 138, cited in Ahrens, *Erfindung*, p. 24.

175. Ahrens, *Erfindung* pp. 8-9.

176. See Hermann Pietzsch, *Die Trompete als Orchester-Instrument und ihre Behandlung in den verschiedenen Epochen der Musik* (Heilbronn, 1900); Bate, *Trumpet and Trombone*; Hans Zorn, "Die Trompete in der deutschen Orchestermusik von ca. 1750 bis ins 20. Jahrhundert" (PhD diss., University of Innsbruck, 1972); Baines, *Brass Instruments*; Tarr, *Trumpet*; Richard Birkemeier, "The Orchestral Trumpet of the 19th Century: An Historical and Acoustical Survey" (DM diss., Northwestern University, 1984); idem, "The History and Music of the Orchestral Trumpet of the Nineteenth Century", *Journal of the International Trumpet Guild* 9 (February 1985): 22-39, and 9 (May 1985): 13-27; and Dahlqvist, *Bidrag*. Charles IL Gates, "A Selective Annotated Bibliography of Articles Published in English Concerning History, Development, and Use of Soprano Brass Instruments in the Nineteenth Century", *Journal of the International Trumpet Guild* 10 (December 1986):30-33, is also useful.

177. See above, under "tubul ar valve"; see also note 140. In a letter to Georges Kastner of 6 April 1840, Spontini mentions his shipments of instruments: "I sent from Berlin to Paris, between 1823 and 1831, a number of valved horns, trumpets or cornets with two or three valves (the first known in Paris), notably to M. Barrillon, to the horn professor M. Dauprat, and to the head of the Guards band M. David Buhl, and it was after these samples that several manufacturers of Paris thought to have invented or perfected, even though they didn't do anything but copy and imitate." (From Kastner, *Manuel general de musique militaire* [Paris, 1848], p.192, note) (original text: "J'envoyai de Berlin a Paris, de 1823 1831, nombre de cors a pistons, de trompettes ou cornets a deux ou trois pistons ou ventiles [sic](les premiers connus a Paris), notamment 3 M. Barrillon, au professeur de cor M. Dauprat, et au chef de musique des gardes, M. David Buhl, et c'est d'apres ces exemplaires que quelques fabricants de Paris ont cru avoir inventé ou perfectionné, tandis qu'ils n'ont qu'imité et copie") (also cited in Ahrens, *Erfindung*, p. 40).

178. After an unsuccessful attempt by Labbaye; see Heyde, *Venal. lasinstrument*, p. 76, quoting a review by Fetis of the first performance of Chelard's *Macbeth* on 29 June 1827, with the three trumpeters Dauverné, Legros, and Bernard playing on instruments by Labbaye.

179. These are: *Thlorie ou tabulature de la trompette a pistons* (Paris, ca. 1827-28), showing a trumpet with three tubular valves, the third being an ascending valve (four half-steps in E[♯], three half-steps in low C), surviving in Paris, Bibliotheque Nationale, Vm.⁸L.99; *Methode de trompette a pistons* (Paris

ca. 1834-35), showing a trumpet with two tubular valves, surviving in Paris, Bibliotheque Nationale, Vm.⁸L.91; *Mithode theorique e. pratique de cornet à pistons ou a cylindres* (Paris, ca. 1846), surviving in the author's private collection; and the above-mentioned *Mithode pour la trompette* (Paris, 1857), surviving in Paris, Bibliotheque Nationale, Vm.⁸L.93, and in other libraries in Coburg, Tours, and Washington (see Anzenberger, "Oberblick," p. 354), as well as in London and in a private collection in Burgundy. In his text, Dauverne also mentions the fact that Spontini had sent the trumpets to his uncle, David Buhl (as reported also by Spontini, see note 177), but that Buhl turned the matter over to him.

180. *Method pour la trompette*, xxi: "La Trompette à pistons qui servit de type et de point de départ à la fabrication de ces instruments ne fut connue en France que vers la fin de l'année 1826, et c'est dans les premiers jours du mois d'octobre de cette même année, que le célèbre *Spontini*, alors Directeur général de la musique de S. M. le roi de Prusse, adressa à M. Buhl, Chef de musique des Gardes du corps du Roi, ainsi qu'à moi, qui faisais aussi partie de cette musique, une Trompette de ce nouveau système, mais qui laissait à désirer sous le rapport de la sonorité et de la justesse dans le jeu des pistons. C'est alors que toute la factorerie française se mit en émoi à l'apparition de cette nouvelle et ingénieuse invention, et qu'elle parvint à en faire disparaître les inconvénients originels. Ayant été le premier, pour ainsi dire, à faire usage de cette nouvelle Trompette, j'ai été même de pouvoir en apprécier les avantages, tout en reconnaissant la nécessité impérieuse d'apporter des modifications à sa fabrication primitive. Arrivé au but désiré, j'eus l'occasion de faire entendre avec avantage ce nouvel instrument qui, en 1827, fut employé pour la première fois à l'Opéra de l'Académie royale de musique, dans l'opéra de *Macbeth*, de la composition de M. Chelard... Ce n'est que deux années plus tard, en 1829, dans l'opéra de *Guillaume Tell* que reparut de nouveau la Trompette à pistons, pour y figurer ensuite dans plusieurs autres ouvrages, notamment dans *Robert le Diable*, *la Juive*, *les Huguenots*, etc. etc."

Recently the shadow of doubt has been cast over Dauverne's assertion. In a letter of 17 March 1993 to Renato Meucci, which the latter kindly made available to me, Elizabeth C. Bartlett of Duke University states, in connection with *Guillaume Tell* and *Robert le Diable*, that she has "had the opportunity to verify that...at the premiere of both these operas keyed trumpets were used (as is specified in the scores)." She points out that Dauverne's earlier tutor from 1857 was written long after the fact, basing her argument on the term ("keyed trumpet") used in the original scores. However, she is unaware of Dauverne's earlier tutors containing his eyewitness report, as it were (see my main text below), and it is well known that the information contained in scores can often be unreliable. In my opinion based on practical experience, trumpeters do not always use the instrument composers specify if they can find another one which makes the job somehow easier. Because Dauverne has since been proven right in connection with the employment of valved trumpets in Chelard's *Macbeth* by virtue of the evidence from Fetis given above, I am inclined to believe him this time—even if in another place he was unkind to M. Legram regarding the latter's contribution to the development of the French slide trumpet (q.v.).

181. See Diana Bickley, "The Trumpet Shall Sound: Some Thoughts on the Trumpet Parts which Berlioz Wrote for His Overture *Waverley*," a chapter of a dissertation (in prep. for London University), entitled "A Critical Edition of the Concert Overtures by Hector Berlioz, with Particular Reference to their Historical and Literary Background" and kindly placed by Ms. Bickley at the author's disposal.

182. Thanks to Diana Bickley for providing me with a longish excerpt comparing the two versions of the valved trumpet part.

183. Bickley, "Trumpet."

184. *Ibid.*

185. Dahlqvist, *Bidrag*, 1: 413.

186. See *Methode pour la trompette*, p. 2.

187. Bickley, quoting from Berlioz' *Memoirs* (*The Memoirs of Hector Berlioz*, trans. and ed. David Cairns, New York 1975), p. 136, in which the composer himself refers to the full orchestra assembled for the *Prix de Rome* ceremony in 1830 (when he was awarded first prize) as follows: "a full orchestra is assembled, with nothing missing: strings, two flutes, two oboes, two clarinets,...four horns, three trombones and even cornets—modern instruments!" Nothing missing? Trumpets, of course; but cornets were apparently more "modern."

188. Rudolf Elvers, ed., *Felix Mendelssohn Bartholdy: Briefe* (Frankfurt am Main, 1984), p. 153 ("es ist... die vollkommenste Ausführung, die man irgend sonst hort") and p. 154 ("Die Schattenseiten sind die Contrabasse..., ferner die erste Clarinett... ; ferner sind die Trompeten in den hohen Temen unsicher und andern sich ihre schweren Stellen ab.").

189. Hector Berlioz, *Grand traite d'instrumentation et d'orchestration moderne*, Op. 10 (Paris, 1843), p. 281 (musical example in Tarr, *The Trumpet*, 168).

190. Heinrich Born, review in *Neue Zeitschnfi für Musik* (24 July 1838); original text: "...zwei Klappentrompeten in Bewegung sind, deren Stimmen zusammen vierzehneinhalb eng beschriebene Seiten ausfüllten." This very overture, as well as his *Rienzi* overture with its six trumpet parts, gave the French trumpeters trouble when Wagner had it performed in Paris on 4 February 1841. Wagner's very words were: "A great difficulty had to be overcome as far as the filling of my six trumpeters' [positions] is concerned, [an instrument] with which the Germans are conversant in such a virtuosic way, since good ones can only seldom be found in the Parisian orchestras." "Eine groge Schwierigkeit war in betreff der Besetzung meiner sechs Trompeter zu überwinden, da dieses Instrument, welches den Deutschen so virtuosenhaft gelaufig ist, in den Pariser Orchestern nur selten gut besetzt werden kann." (From Wagner, *Mein Leben*, pp. 229-230; see Dahlqvist, *Bidrag*, pp. 411-412, especially note 1231). Wagner had his financial problems in Paris, too. In 1840, Meyerbeer's publisher, Schlesinger, commissioned him to arrange favorite opera melodies for the cornet. However, this arrangement was stopped in October, so that Wagner was able to use the time to finish *Rienzi* by 19 November. (Wagner, *Mein Leben*, p. 224, and *Eine Mitteilung an mein Freunde*, p. 28; cited in Friend Overton, "Historische Perspektiven und Einflüsse des Wagnerschen Serpent-Parts in 'Rienzi'," *Alta Musica* 8 [Tutzing, 1985]: 31-48, here 44.) Wagner's commission consisted of fourteen suites for cornet and piano, and to that end Schlesinger lent him piano scores of sixty operas, thus giving him an unprecedented and welcome opportunity to study all these operas in detail. (He was particularly impressed by Auber's talent in writing for the trumpet.) He set the cornet solos so poorly for that instrument, however, that the cornetist J.B. Schil[tz] was called in to revise Wagner's work; he was given half of Wagner's *fee*. (See Bernard SchulE, "Richard Wagner's Einflug auf die Verwendung von Blasinstrumente bei französischen Komponisten urn die Jahrhundertwende," *Alte Musica* 8: 21-30,

here 24).

191. *Methode de trompette a pistons, p. 3.*

192. Anzenberger, "Uberblick," p. 350, writes that Strunz's piece was performed in the sixth and last concert of the Concerts Conservatoire and that a review by Fetis from 4 May 1833 in *Revue musicale*, pp. 109-111, survives. Dauverne himself played the valved trumpet, and L. Dufrene (author of the earliest cornet method, from 1834) the cornet. (For further information on Dufrene, see Anzenberger, "Uberblick.")

193. *Methode pour la trompette*, p. xxi: "L'apparition de ce nouvel instrument donna naissance, vers 1832, au *Cornet a pistons*, espece de petite Trompette." In a recent article Mechel Laplace has stated that according to the archives of the Halary-Sudre company it was actually in 1825 that Hairy invented the *cornet a pistons*, furnishing a military posthorn with valves; this model had three valves and was in C, B \flat , A \flat , and G. According to Laplace, Co urtois Freres already produced a cornet of their own towards 1830. However, Laplace does not produce documentary evidence to substantiate his statements. See M. Laplace, "Trompette our Cornet?", *La Gazette des Cuivres (Revue trimestrielle de l'Association Cuivres en France)*, no 12 (Paris, June 1922): 3-17, here 3.

194. See note 189.

195. *Methode theorique dr pratique du cornet a pistonsoucyindres [ca. 1846]*, p. 9. I quote his paragraphs in full since the method in question seems to survive only in my personal library: "En 1831, Mr. Antoine-Halary, eat l'heureuse idee d'appliquer le Principe de mecanisme imagine par Stolzel, au Post-Horn (Cornet de Poste) [...] espece de petite Trompette dont les Postillions en Al lemagne se servent pour annoncer le depart et Parrivee des voyageurs, et mis en usage depuis longtemps, dans nos musiques militaires. / Alors, l'avantage de propager le Cornet a Pistons fat reserve a un jeune Artiste, Mr. Dufrene, qui eut ('occasion de faire entendre cet instrument avec succes, dans les bals et notamment, dans les Concerts qui, en 1833, prirent naissance aux Champs-Elysees. / Plus tard, on sentit l'importance et la necessite de restituer l'Instrument, son 3e Piston, afin de pouvoir combler les lacunes qui existaient dans sa gamme, cause par son absence. /.../ Le Cornet a pistons est tellement repandu aujourd'hui, que non seulement, il est pour ainsi dire l'ame du Quadrille, mais encore, il tient une place importante dans les partitions dramatiques de nos plus celebres compositeurs."

196. See Chris Larkin, "Felicien-Cesar David [']s] *Nonetto en ut mineur*," in this Journal.

197. The author is in *possession* of the first edition of Forestier's *Methode complete, theorique et pratique pour le cornet chromatique a pistons ou tyindres...adoptee pour l'enseignement au Gymnase Musical Militaire* (Paris, s. d., but the recommendation by the Gymnase director, Michel Carafa, is dated 19 March 1844). The historical details of Forestier's "Avant-propos" (p. 1) agree substantially with those already reported by Dauverne, with the addition of the fact that the Conservatory horn professor Meifred examined an early Prussian horn, presumably at about the same time Dauverne had received a trumpet from Spontini. For details about Forestier's life and his other methods, see Anzenberger, "Uberblick," p. 374.

198. Jules Riviere, *My Musical Lifrand Recollections* (London, 1893), 38, quoted in Larkin, "Nonetto".

199. This work was recently discovered by Chris Larkin and recorded by the London Gabrieli Brass Ensemble; see note 194. Larkin referred to cornets in *high 0* in the first draft of his article, but this is not possible; see note 203.

200. See Larkin, "Nonetto."

201. *Theme varie pour trompette a pistons, avec accompagnement du piano-forte*, pp. 34-39.

202. *Méthode élémentaire pour le cornet a pistons... par Georges Kastner* (Paris, s. d., but stamped 1844 in the copy deposited in the Bibliothèque Nationale, Vm⁸.L.4.; according to Anzenberger, "Überblick," 2: 420, other datings-1840 or even 1838--could also be correct; but in my experience the rubber stamp on the books and musical scores deposited by law in the National Library generally shows the same date as that of publication, or—see Dauverne's *Méthode* of 1856-57—a mere year earlier), pp. 52-69.

203. Jean-Baptiste Laurent Arban, *Grande Méthode* (Paris, 1864), p. 1, a remark which has been removed from some recent editions. Here his original text: "En 1848, je me fis entendre a une seance de la Societe des Concerts du Conservatoire, oil je jouai[s] le fameux air de flute compose par Boehm sur un theme suisse, et dans lequel sont, comme on sait, entassees a plaisir les plus inextricables difficultes; a partir de ce jour, je puis dire que le cornet 'a pistons prit place a *dice* des instruments classiques. C'est dans ce morceau que je fis entendre le coup de langue de flute en staccato [*sic*] binaire, ainsi que le staccato ternaire, dont je suis le *premier* a avoir fait ('application au cornet a pistons.'" (Translation: "In 1848, I performed in a concert of the Concert Society of the Conservatory, playing the famous air for flute composed by Boehm on a Swiss theme and throughout which, as is well-known, the most inextricable difficulties are strewn at will; from that day on, I can say that the cornet took its place beside *the "classic"* [solo] instruments. It is in this piece which I performed the tonguings, [idiomatic] to the flute, in double staccato, as well as triple staccato, of which I am the first to have applied it to the cornet.")

Anzenberger, "Überblick," p. 297, points out that Arban must have learned triple tonguing from his teacher Dauverne, who devotes an entire section of his *Méthode pour la trompette to this technique* (here called *double coups de langue* or in today's common usage merely *coups de langue*, pp. 75-79, with a preliminary explanation on p. 40 of the basic articulation: *tu tu gu du* for a single triplet with concluding note, *tu tu gu du tu gu* for multiple triplets). However, Dauverne and other trumpeters did not employ this effect except in military signals, and on only one pitch, whereas Arban went on to utilize it in rapid melodic passages, generally in the finale of a set of variations, thus setting a pattern in such pieces for the next century.

Forestier calls in only one place, on pp. 51-52 of his cornet method of 1844 (see note 194), for the *coup de langue dans le son*, meaning that the notes involved should be led from one to the next without separation ("les sons doivent être conduites de l'un 3 l'autre *sans* separation"); the piece in question has only six bars in which eighth-note triplets could conceivably be played in this manner with triple-tonguing; and on pp. 48-49 he gives a six-line exercise containing sixteenth-note triplets which also could be performed with triple-tonguing. In neither case, however, are any tonguing syllables indicated.

With regard to triple-tonguing as a trumpeter's convention in military signals in both Germany and France during the 19th century, see Friedrich Anzenberger, "Barocke 'Zungenschlagmanieren'

in der Trompetenliteratur des 19. Jahrhunderts", *Clarino* 9 (September 1992): 13-16.

204. The switch from the F trumpet to the B trumpet is not clearly documented. As far as the introduction of the C trumpet is concerned, this is attributed to "Monsieur Teste" (Andre-Joseph Leclerc, *dit* Teste, born in 1840), first trumpeter in the Paris Opera and arguably the most influential trumpeter of his generation. For more information on Arban, see main text above, n. 144, and especially Jean-Pierre *Mathez, Jos0Jean-Baptiste Laurent Arban (1825-1889)* (Moudon, 1977); for supplementary information linking Arban with Sax, see Malou Haine, *Adolphe Sax: sa vie, son oeuvre, ses instruments de musique* (Brussels 1980).

In connection with Arban, Prof. Bengt Eklund (Goteborg) has just sent us a photocopy of a highly interesting unpublished letter (from the Oslo University library, Brevs nr. 533) documenting the passing of the generations, and concerning Arban when he was apparently past his prime. It was written from Paris by the Norwegian composer Johan Severin Svendsen (1840-1911), who lived there between 1867 and 1870 and during his lifetime exerted an important influence on Scandinavian musical life. Svendsen wrote to his father on 28 June 1868 that he had recently obtained a position playing at the fifth desk of the 1st violin section in a Parisian orchestra, together with a son of Hans Christian Lumbye (1810-1874), the Danish light-music king a /a Strauss. "In these concerts appeared the English cornetist [Jules] Levy [1838-1903], *Arbans conqueror*. He is completely the master of the entire range of his instrument from low g under the staff to the high d'" [musical illustration in source] both in ff, p, legato and staccato passages. A variation in one of his solo numbers contained the following: [musical illustration in source] What do you say?" (Original text: "Ved disse Conserter oprtzder den engelske Cornettist Levy, *Arbans Overvinder*. Han er fulstandig Herre over hele sit Instruments Omfang ligefra G under Linien til det hoic D [example] badde i ff, p, legato og Staccatopasager. En Variation i en of pans Solonumere sl utter saaledes: [example]. Hvad synes Du?") Levy later emigrated to the United States, where he was billed as "the greatest cornetist in the world". On Svendsen, see Olav Gurvin's biographical article in *Die Musik in Geschichte und Gegenwart*.

205. This is well documented in the thorough survey of methods given by Anzenberger, "Oberblick," 1: 175-178. "Nur in einigen Schulen werden such die hohen Stimmungen H und C angegeben". Thus for example the two E⁶ (and F) cornet parts in David's Nonet from 1839 cannot possibly have been meant for instruments in high E', since such did not yet exist in France. (See note 197.)

206. Anzenberger, "Oberblick," pp. 175-177.

207. Ibid., p. 186: the low notation had been used for the natural and stopped cornets. According to his researches, the high notation for the trumpet did not appear until 1881 (ibid., p. 184), whereas flugelhorn methods had used it from the start (ibid., p. 186). The single exception mentioned above is Dauverne, *Methode de trompette a pistons, "Du cornet a pistons"* (p. 8).

208. *Instructions for the trumpet* (London, 1835), pp. 39-44.

209. Ibid., p. 38.

210. *Galpin Society Journal* 39 (1986): 54, note 32.

211. Clifford Bevan, "The (P)russian Trumpet," *Galpin Society Journal* 41 (1988): 112-114.

212.Ibid., p.113, quoting Lieut. W.J. Gibson (the then regimental music director), "The Life Guards **Band**," *The Leading Note 1*, no. 6 (Twickenham, 1931): 16-23, esp. 17.

213. Bevan, "The (P)russian Trumpet," p. 114.

214. Call no. 8 in the exhibition. The author saw it during his first trip to Moscow in 1988. Thanks to Prof. Yuri Usov, Moscow, for his written confirmation of this attribution. It is also referred to (with the name being given as "A S Anderst") in Jean-Pierre Mathez, "Our journey to the USSR", *Brass Bulletin* 64 (1988): 10-29, here 23. Heyde, *Ventilbhosinstrument*, p. 11, notes further in this connection that the Russian czar made his present to the 2nd English Life Guards already in 1827, that valved instruments could have been brought to Russia before that time by the German director of the St. Petersburg Guards regiment, Dorffel, and that the earliest surviving Russian valved instruments (in the Musical Instrument Collection of the State Institute for Theater, Music, and Cinematography, St. Petersburg) also closely resemble Prussian instruments with tubular valves.