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LAßT LUSTIG DIE HÖRNER ERSCHALLEN:
RESOLUTIONS TO TWO PROBLEMS IN
HORN PERFORMANCE PRACTICE OF THE
LATE EIGHTEENTH CENTURY

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When Count Anton Sporck introduced the *cor de chasse* into his court orchestra at the end of the seventeenth century, he was unaware of the impact this instrument would have on the overall configuration of the orchestra during the following century.¹ Originally used to provide an exotic, bucolic color to complement the winds and strings of the court band, the horn soon became a permanent member of the ensemble. Its use extended beyond the simple hunting tunes and fanfares to include a harmonic function through sustained chords and, in the hands of multi-talented virtuosi like Gottfried Reiche, it was an astonishingly versatile solo instrument playing in the *clarino* register.² Indeed, it can be said that the horn's appearance as a functional orchestral instrument became so commonplace that by 1713 a critic like Johann Mattheson was able to remark upon its suitability for all types of music, both sacred and secular. In his *Neu-Eröffnete Orchestre* he noted,

The beloved, pompous *Waldhörner* . . . have now come into vogue with respect to sacred, dramatic, and chamber music, partly because they are not so rough in nature as the trumpets and partly because they are able to be played with more facility. . . . They also sound fuller and fill in better than the deafening and screaming *Clarini*.³

By the middle of the century, a symphonic work without horns was comparatively rare, and by 1800, almost unthinkable.

As well-integrated into the normal orchestral fabric as the horn had become by about 1760, however, its use and manner of playing had changed considerably from the early years. The high, technically demanding parts found in compositions by Johann Sebastian Bach, George Frederick Handel, Johann Adolph Hasse, Georg Philipp Telemann, and others had, for the most part, diminished in favor of simple chords and sustained pedal notes, and even the horn's original role as an instrument belonging *al fresco* had become less frequent. In short, the function of the horn was altered during the course of the century from that of either an obbligato instrument performed in a manner more or less coequal to that of the *clarino*—i.e., emphasizing technical skill and virtuosity in the highest register—or as an adjunct to an out-of-doors activity such as the hunt to that of a harmonic inner voice and, where solo work was indicated, as an instrument whose warm middle register began to offer more favorable possibilities than the penetrating upper and rather muddy lower registers.⁴ This evolution was, of course, also determined in part by other factors, such as

the constructional development of the horn from the single-pitched *cor de chasse* to the complex, tunable *Inventionshorn*⁵ and *Orchesterhorn*, as well as the change in performers from the clarinists to less flamboyant standard orchestral horn players.

With the revival of interest in eighteenth-century performance practice and the publication of editions that are presumed to be both practical and source-critical, the position of the horn and its use has had to be reevaluated. It is no longer acceptable to perform horn parts in works dating from this period in a manner more common to modern practices, nor can music containing the pyrotechnics of Baroque horn playing be dismissed as either impossible or impractical and consequently revised to accommodate current technique or aesthetic values. Rather, it has been necessary to study and relearn the particular methods of eighteenth-century horn performance practice in order to present a more accurate view of the music of this period and the horn's function within it. This involves the re-creation of playing techniques both for soloists and orchestral players, in addition to research into the instruments and mouthpieces of the time.

With respect to the styles and techniques of writing for and performing on the eighteenth-century horn, a number of issues have come to light, all of which have some bearing upon the timbral contribution that the instrument made to the soundscape of that time and its revival in ours. Two of the most important involve the number of horns required to circumvent the limitations of horns pitched in a single key (with or without additional crooks to change that pitch) and the designation of high- or low-pitched instruments when writing for horns in certain keys, the so-called *alto-basso* controversy. The former focuses on the limited notes available within the harmonic series and the consequent inability of such single-pitch instruments to modulate to secondary key centers such as the dominant or relative major/minor and has a direct bearing upon the degree of specialization inherent in horn-playing of that time. The latter is crucial to the soundscape of the music of the time, with particular implications for timbre and sonority.

The Four-Horn Question

Although the most common orchestra standard of the eighteenth century was to use a single pair of horns, it was not uncommon to find more than two being used to expand the range and tonal possibilities of the instrument in an attempt to avoid the limitations of the natural harmonic series by which the horn (and other brass instruments) were bound. The use of more than a single pair of horns is virtually as old as the appearance of the horn itself in more traditional music: Francesco Cavalli's putative horn fanfare, the *chiamata* [sic] *alla caccia* in his opera *Le Nozze de Teti e di Peleo* (1639), appears to be scored for five actual horn parts.⁶ Given the division of various members of the hunt into separate groups, it seems to have been a common practice to use several pairs of hunting horns, and it would be logical to assume that Sporck, or someone else at about the same time, would certainly have realized that there were wider musical possibilities with respect to pitch and range of the natural instruments if more than a single pair were used. Yet it is not until after 1770 that one finds more than one pair of horns listed with any degree of frequency in the rosters of the orchestras of the period.⁷ Thereafter the four-horn section became

almost commonplace in orchestras throughout the continent, resulting in an expanded brass section, at least in theory or on the court payrolls.

Despite the availability of four and sometimes more horns and the resultant increase in brass sonority and compositional possibilities, composers of the eighteenth century appear almost hesitant in their use of this combination. For example, few of the symphonies of Johann Stamitz or Ignaz Holzbauer employ four horns, although Peter Gradenwitz has demonstrated that the famous court orchestra at Mannheim employed five hornists as early as 1750.⁸ Even well-documented composers such as Wolfgang Amadeus Mozart and Joseph Haydn appear to have had only a cautious and brief flirtation with four-horn sonorities. For instance, of Mozart's fifty-five symphonies,⁹ only four use two pairs of horns—KV⁶ 130 (F and C *alto*), KV⁶ 132 (E_b and E_b *alto*¹⁰), KV⁶ 173dB (G and B_b), and KV⁶ 318 (G and D)—as do only two of his forty-six serenades/divertimenti (KV⁶ 131 and 370a). Of the sacred works only the Kyrie in D minor KV⁶ 368a and the oratorio *La betulia liberata* KV⁶ 74c employ them, and they appear in only three of the operas, *Mitridate*, *La finta giardiniera*, and *Idomeneo*. Much has been made of the sudden appearance of a stable of horn players (at times numbering as many as six) at Esterháza beginning in May 1765.¹¹ Works like the Cassatio in D Major (Hob. Deest), the programmatic "Hornsignal" Symphony (Hob. I:31), and the Symphony in G Minor (Hob. I:39) all demonstrate Haydn's initial interest in using four horns in his ensemble.

The use of two pairs in Haydn's works for only a brief period from about 1765-70 is particularly puzzling, especially considering that the orchestra maintained at least four horns on its roster as late as 1790. Why this happened has caused considerable speculation among scholars. The most common solution has been to suggest that the redundant horn players were also proficient on secondary instruments such as the violin, and thus they actually functioned as string players in the Esterháza ensemble, retaining their position on the salary lists as hornists for the higher remuneration that performers on that instrument afforded.¹² This comfortable solution, however, presupposes a situation that might have been unrealistic in terms of the economics of that time; namely, that Prince Esterházy would have turned a blind eye towards the payment of relatively high salaries to musicians who functioned essentially as lower-paid strings.¹³ Although there is no doubt that the third and fourth (and later fifth and sixth) horn players doubled on other instruments on occasion, it does not seem logical that this would be their main function while drawing salaries commensurate with their principal instrument, even though the musical evidence provided by the overall lack of four-horn parts might suggest such a situation.

The circumstances at Esterháza are in fact indicative of a larger problem concerning the use and employment of four horn players; i.e. given the relative infrequency of works involving four horns, why would orchestras of that period have kept four or more horn players on their rosters when it would have made more fiscal sense to make do with two; for the few times that more were needed, additional players could have been hired on a per-service basis, thus reducing the overall cost of the ensemble. In other words, the continuous employment of two pairs of horns (and occasionally more) raises questions of fiscal feasibility and deliberate redundancy that are difficult to resolve, given that the music of

the period calls for only one pair in all but a relative handful of works. Even if there were employers who were convinced that the size of their ensemble was a matter of reputation, the economics involved are too problematic for so many to have maintained a roster of four horns for as long and as frequently as they did during this time. Thus it is reasonable to assume that there was some other factor that influenced the numbers of horn players that a well-equipped ensemble should have. This can be found in the division of labor that appears to have been commonplace, wherein the pairs of horns would generally perform simultaneously, dividing the music among themselves according to keys and occasionally coming together for those rare instances where two pairs were desired.

Evidence for this practice is succinctly described in Othon Vandenbroeck's treatise on the use of wind instruments, published in 1793: "There are two horns [i.e. horn players] for the playing of the higher tonalities and two others for the playing of the lower."¹⁴ It is a known fact that eighteenth-century horn players specialized in high (first) or low (second) registers in their playing. Vandenbroeck's statement merely expands this division to include pairs of horns, the first pair of which specialized in the higher keys where the instrument sounds brighter, and the second of which concentrated on the lower where the horn is darker and more versatile, given the ease with which the upper partials can be performed in those keys. Although this statement is meant to refer principally to performance practices in Paris and Brussels, where Vandenbroeck lived and worked, as a pupil of the celebrated Bohemian horn players Thomas and Georg Hosa he was almost certainly familiar with the tradition of Bohemia and Germany, and thus it is reasonable to suggest that such a practice was more commonplace throughout Europe. Indeed, there does exist some *prima facie* evidence that supports this suggestion.

This comes from the library of the Royal Swedish Opera in Stockholm, the repository for music performed at court and in the opera houses of the Swedish capital during the Gustavian Period (1770-1809), which contains one of the largest collection of eighteenth-century scores and parts in Europe still in their original bindings and order.¹⁵ Here one finds a verification of Vandenbroeck's statement; all of the music copied after 1784, when a second pair of horns arrived in Stockholm, contains parts for the two pairs of horns; the first pair take the upper tonalities from F to B \flat (*alto*) and the second from F down to C (*basso*).¹⁶ This division places the central common key for the two pairs of players at F, which even today is considered the standard horn pitch. Figure 1 contains an example from this collection, drawn from the performing parts to the opera *Soliman II* (*Soliman den Andra*) by German-Swedish composer Joseph Martin Kraus, premiered 22 September 1789.¹⁷ The autograph score of this work calls for only two horns throughout, but the authentic parts make it clear that all four participated in the performance.¹⁸

There is also secondary musical evidence that would seem to support Vandenbroeck's statement. This comes in two forms: first, works that on the surface seem to call for only two horns, but that also require changes of key—which on the natural horn means changing the crook and retuning the instrument—within the space of only a few bars at most, a circumstance that would have caused concern on the part of the performers; and second,

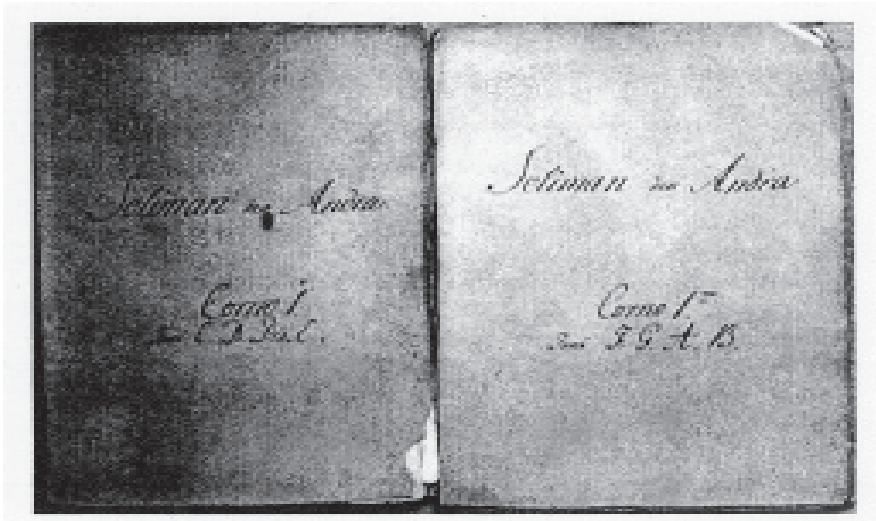


Figure 1

Horn parts for the opera *Soliman den Andra* by Joseph Martin Kraus. (Stockholm, Kungliga Operansbibliotek, operettor S 8. Reproduced by permission)

the key sequences of the music that alternate between “high” and “low” keys in those pieces using horns.

One such instance of the former occurs in the duet between Belmonte and Osmin in the first act of Mozart’s *Entführung aus dem Serail* (Example 1). At m. 73 the horns, heretofore in the key of B \flat *alto*, are asked to change to E \flat within the space of two measures. Even given the pause generated by the fermata, this is simply an inadequate interval in which to accomplish the mechanical change with any degree of accuracy on the part of the performer. If, however, one accepts that four horns divided into high and low pairs were used, then such a change is easily managed; the first pair of horns, in fact, does not even have to change crooks, for Mozart later returns to B \flat , and the second pair, already tuned and ready to go, is in place to accommodate the modulation to the sub-dominant E \flat without affecting the flow of the music. A second example comes from the first act of Joseph Haydn’s *Armide* (Hob. XXV:12) in the transition between a march and an *accompagnato* that leads into the aria “Valorosi compagni” (Example 2). Here the horns have six brief measures to change crooks from B \flat *alto* to E \flat .¹⁹ If performed by a single pair of horns, the need to change crooks quickly would certainly have been problematic and, one might surmise, not readily accomplished smoothly or accurately. If two pairs are used, the problem disappears. This sort of change occurs with some degree of frequency particularly in Haydn’s operas, as has been described elsewhere in the literature.²⁰

The image displays a handwritten musical score for Joseph Haydn's *Armide*, Act 1, No. 7, March, mm. 15-21; and No. 8a, Recitative, mm. 1-8. The score is written on multiple staves, including staves for the Flute, Oboe, Clarinet, Bassoon, Violin I, Violin II, Viola, Cello, and Double Bass. The notation includes various musical symbols such as notes, rests, and dynamic markings. The score is organized into three systems, with the first system covering measures 15-21 of the March and the second and third systems covering measures 1-8 of the Recitative. The handwriting is in ink on aged paper, and the staves are clearly labeled with the instrument names.

Example 2

Joseph Haydn, *Armide*, Act 1, No. 7, March, mm. 15-21; and No. 8a, Recitative, mm. 1-8.

Table I
High-Low Horn Pairs in Three Selected Works by Haydn and Mozart

I. Mozart, *Die Entführung aus dem Serail* KV⁶ 384, Act I.

Overture and No. 1 Arietta "Hier soll ich dich denn sehen"	C (presumably <i>basso</i>)
No. 2 Duet "Wer ein Liebchen hat gefunden"	B \flat <i>alto</i> -E \flat -B \flat <i>alto</i> -D
No. 3 Aria "Solche hergelauf'ne Laffen"	F
No. 4 Aria "O wie ängstlich"	A
No. 5 March and Chorus of Jannisaries	C (presumably <i>basso</i>)
No. 6 Recitative and Aria "Ach, ich liebe"	B \flat <i>alto</i>
No. 7 Trio "Marsch, marsch, marsch"	C (presumably <i>basso</i>)

II. Haydn, *Orlando Paladino* (Hob. XXV:11), Act I.

Overture	B \flat <i>alto</i>
No. 1 Introduzione "Il lavorar l'è pur la brutta cosa"	E \flat
No. 5 Aria "Temerario!"	B \flat <i>alto</i>
No. 8 Sinfonia ²¹	C (presumably <i>basso</i>)
No. 10 Aria "Ad un guardo"	C (presumably <i>basso</i>)
No. 12 Aria "Parto, ma, oh dio"	F
No. 16 Aria "Ho viaggiato in Francia"	G
No. 18 Aria "Non partir"	D
No. 20 Recitative and Aria "Angelica, mio ben"	E \flat
No. 23 Finale	A-B \flat <i>alto</i> -A ²²

III. Mozart, *La finta giardiniera* KV⁶ 196, Tonal Plan of Entire Opera.

Overture	D
Act I	
No. 1 Introduzione	D
No. 3 Aria "Dentro il mio petto"	D
No. 5 Aria "A forza di martelli"	G
No. 6 Aria "Che beltà"	E \flat
No. 8 Aria "Da scirocco a Tramontana"	C
No. 12 Finale	G-E \flat -D-C-A
Act II	
No. 13 Aria "Vorrei punirti indegno"	(4 horns) B \flat <i>alto</i> /G
No. 15 Aria "Care pupille"	F
No. 17 Aria "Una damina"	G
No. 19 Recitative and Aria "Ah, non partir"	E \flat
No. 21 Aria "Crudeli!"	E \flat
No. 23 Finale	E \flat -G-C
Act III	
No. 24 Aria and Duet "Mirate che contrasto"	E \flat
No. 25 Aria "Mio padrone"	C
No. 26 Aria "Va pure ad altri"	(4 horns) E \flat /C
No. 27 Recitative and Duet	E \flat -B \flat <i>alto</i>
No. 28 Finale	D

The alternation of high-low horns is readily apparent throughout *Entführung's* first act; the overture-arietta that opens the work calls for horns in C (presumably *basso*) while the first number, the duet between Osmin and Belmonte “Wer ein Liebchen hat gefunden,” has the close alternation between B \flat *alto* and E \flat noted above. The final section of this duet further underscores the point by requiring an additional change to horns in D. If only two horns are used, then the horn players are required to make no less than four changes of crooks within the space of two movements, three in this number alone. These changes necessitate removal and insertion of varying sizes of crooks, alternating long (C *basso*, E \flat , and D) and short (B \flat *alto*), which would require extra time for tuning. This difficulty disappears if two pair are used; only one pair is required to change crooks—the first horns remain in B \flat *alto*—with enough time between entrances to make all of the necessary adjustments to insure accuracy of key and pitch. With the exception of the aria “Solch hergelauf’ne Laffen,” where the horns are pitched in the “neutral” key of F, implying performance by either the first or second pair, the remainder of the act clearly alternates high and low pairs.

Orlando Paladino is constructed very much along the same lines; the first half of Act 1 alternates high and low pairs, and there is a central movement in the “neutral” key of F. The second half, however, shows more variety. The aria “Ho viaggiato in Francia” calls for the “high” horn pair (in G), followed by the “low” in the next aria, “Non partir” (in D). But then the pattern appears less clear, for the long *accompagnato*/aria that follows, “Angelica, mio ben,” would also seem to use a low pair (this time in E \flat) once again, and in the finale the horns are pitched in two “high” keys, A and B \flat *alto*. Though the pattern would seem to be broken in this example, there are intervening movements without horns; and especially in the finale, Haydn allots a large number of rests to the horns between changes of key. Moreover, key changes in the finale are restricted to neighboring crooks, thereby limiting the amount of retuning required. These factors offer a possible explanation that does not contradict the overall premise; rather, it demonstrates that, although the basic alternation of high-low horns is retained, there are instances that indicate that there is no hard-and-fast-rule in the mind of the composer.

The final example, *La finta giardiniera*, uses four horns in two of the movements, indicating that at least two pair were required to perform in the opera. As in the other two examples, Mozart mostly alternates high and low horns throughout, though not necessarily between each and every movement. The first three numbers that have horns require instruments pitched in D, which clearly could be performed by the low pair without change of crooks or with the first horn pair alternating in the Introduzione (No. 1) using a D crook.²³ The rest of the opera seems to proceed with the alternation of high and low pairs, in some instances maintaining a consistency in the use of crooks in each of the horn pairs. For instance, the second horns seem to retain the E \flat crook for most of the second and third acts.²⁴

From the standpoint of both critical and musical evidence, there is good reason to believe that the use of four horns, with one pair taking the higher keys above F and the other the lower, was a standard during the second half of the eighteenth century in those places that maintained four horns on their roster of musicians, even though most of the

music appears to be written for only one pair. While it is true that the third and fourth players may indeed have performed on secondary instruments as the occasion warranted, they were first and foremost horn players and were paid to perform as such. The use of alternating pairs of horns according to the key structure avoided the problem of overtaxing the players through more or less continuous playing, allowing quite probably a higher standard of performance throughout an entire opera or concert. Finally, this alternation also allowed for the use of horns in sequential movements without the need to halt the concert in order for the players to change crooks and retune. This practice of dividing pairs of horns according to pitch also has some tangential ramifications for the second issue, the so-called *alto-basso* controversy, as will be noted presently.

The *Alto-Basso* Controversy

Perhaps the most vexing performance practice problem confronting horn players in the music of the eighteenth century is the issue of correct pitch of the natural horn in certain keys, the so-called *alto-basso* controversy. Briefly summarized, this question principally concerns horns in the keys of C and B \flat , and revolves around the issue of whether instruments pitched or crooked in these keys ought to be performed high (*alto*)—in the case of horns in C, exactly as written, and those in B \flat , sounding a step down—or low (*basso*), with the horns in C and B \flat sounding an octave or ninth lower, respectively.

This is not so simple an issue that it can be ignored from the standpoint of performance practice. The pitch of the horns is of paramount importance in the overall tonal quality of any given work in these keys. Other practical performance factors aside, the determination of the pitch of horns designated as simply B \flat (or B, or *Sib*, or *B-fa*) or C in a composition can determine whether a work is “high, piercing, sweet, and graceful” or portrays a “somber color, [and] melancholy or religious” tone, as Heinrich Domnich poetically noted in his horn tutor of 1807.²⁵ The pitch of the horns can thus affect the fundamental soundscape of any given piece. For example, Joseph Haydn’s Symphony in G Minor (Hob. I:39) has two pairs of horns, one pitched in G, while the other is designated as B \flat (*B/fä*) without indication of *alto* or *basso*. If the latter are performed *alto*, then the result is a tension-filled, powerful sound which complements the overall *Sturm-und-Drang* character of the work. If they are performed *basso*, then the sound becomes darker, muddier, and much less tense. This same difference may be noted in Haydn’s overture to the opera *L’Infedeltà delusa*, in which the composer requires *corni in C*. Here the horns make the piece festive and brilliant if performed *alto*, but more unassuming and darker if played *basso*.²⁶ Thus the pitch of the horns is crucial to the aural effect of the work at hand. It is also clear that both readings—high and low—cannot be equally correct or determined solely by the performer on the spot, for one must assume that the composer had one or the other in mind and did not leave such matters entirely to the discretion of the players. For these two keys, accurate determination of the correct pitch is a central task that will be of significance to the performer and the critical understanding of the work.

The *alto-basso* question has unfortunately received little or no help from eighteenth-century musical sources; composers or copyists of this period rarely bothered to designate

either *alto* or *basso*, perhaps leaving the solution either to the individual performer or some as-yet-undefined “common” performance practice of the time. Modern opinion has run the gamut in favor of both high or low horns,²⁷ and in a time when studies, performances, and publication of the repertory from this period are increasing, the issue needs to be reexamined to determine if a combination of musical and contemporaneous evidence can be found that would resolve this problem.

While no hard-and-fast rule for choosing the proper crook has been discovered in eighteenth-century sources, one can approach the issue from several points of view, specifically: 1) types of instruments available; 2) evidence from treatises describing horns in these keys and their playing techniques; 3) range and tessitura of these instruments and the abilities of the performers as implied by the works written for them; and finally 4) the musical evidence, including the composer’s own designations in the autographs, if any. These, combined with such variable items as inconsistent designations and more subjective musical evidence, might offer a reasonable general solution to otherwise undesignated horn parts of this time in the keys in question.

Before examining these factors, it is first necessary to differentiate between horns in B \flat and those in C. Each of these keys has its own particular problem associated with the *alto-basso* controversy, and the evidence that provides a solution to one may not be entirely applicable to the other.

Horns in B \flat

From the standpoint of musical instruments, the earliest natural single-wound *Jagdhorn* in B \flat was an *alto* instrument, if one can draw an inference from the 1789 article in Ernst Ludwig Gerber’s *Historisch-biographisches Lexikon*.²⁸ Following the invention of the terminally crooked *Waldhorn* around the beginning of the eighteenth century, the key of B \flat *alto* was also readily available through the insertion of a short crook into the standard C *alto* instrument. This type of horn, along with the single-pitch *Jagdhorn*, served as the standard orchestral instrument until about 1750-55, when the Dresden horn-maker Johann Werner, in collaboration with second hornist Anton Hampel, constructed his tunable *Inventionshorn*. Gerber described these early instruments as follows:

The horn was still hindered in practice, however, by its limited number of notes; and even these were only available in the key of E \flat Major [*sic*]. Attempts were made to get around this difficulty by means of terminal crooks and tuning shanks, and by making separate horns in the keys of G and B \flat *alto*.²⁹

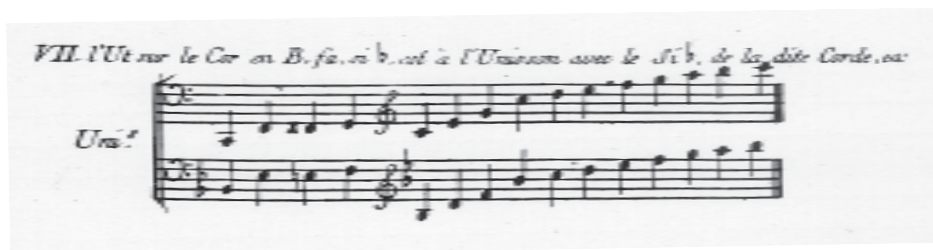
Gerber goes on to say that Werner’s *Inventionshorn* was the first instrument provided with a complete series of internal crooks allowing the instrument to be pitched in all keys between B \flat *alto* and B \flat *basso*. This reference, written thirty-five to forty years after the event, is the first mention of the B \flat *basso* horn, not as a separate instrument, but rather as a coupler attached to the C *basso* crook and inserted into the main body of the horn. This arrangement, however, ultimately proved to be inefficient—the crook plus coupler added

a great deal of weight to the instrument, not to mention bulk, making it awkward to play, and the B \flat *basso* addition was often omitted, as surviving examples of the *Inventionshorn* from this period demonstrate.³⁰ Because of the constructional limitations inherent in the *Inventionshorn*—the internal crooks were originally held together by tenon-and-socket joints rather than a slide³¹—the final version of the standard eighteenth-century horn, the *Orchesterhorn*, which had terminally attached single crooks of varying lengths with a central tuning slide, was perfected by Viennese horn-maker Anton Körner (sometimes given as Kerner), among others, about 1770.³² Early examples of these instruments usually ran the octave from C *alto* (the “natural” pitch of the horn accessible by means of a short shank for the mouthpiece) down to C *basso* and often omitted the B \flat *basso* crook altogether.³³

From the standpoint of the instruments and/or crooks themselves, therefore, the B \flat *alto* horn seems to have been readily available from early on in the horn’s history; examples of natural single-pitch *alto Jagdhörner* abound, and both the *Inventionshorn* and *Orchesterhorn* included crooks for tuning the instrument in this pitch as part of their standard equipment. The B \flat *basso* horn, on the other hand, seems not to have existed—save perhaps in isolated instances³⁴—until the invention of Werner’s *Inventionshorn* in the 1750s (or possibly later, since the only reference to it as a part of the standard set of crooks appears first in Gerber’s *Lexikon* in 1790-91), and then only as a cumbersome combination of coupler and crook off the standard C *basso* crook. This pairing continued to be the main method of achieving this key in the terminally crooked *Orchesterhorn* when it began to be produced in the early 1770s. That a separate or special B \flat *basso* crook was not considered a necessity by the makers (and, implicitly, the horn players) can be seen in their advertisements for instruments, where this crook (or coupler) is often omitted altogether.³⁵ Thus the theory that the B \flat *alto* horn was a relatively late and seldom-used invention of Anton Körner seems, on the basis of the organological evidence, to be without merit; rather it would appear that the B \flat *basso* instrument was the relative newcomer.³⁶

Information on horns in B \flat is available in several treatises and method books that describe the horn and horn-playing during this period. One of the earliest is Valentin Roeser’s *Essai d’Instruction a l’usage de ceux qui composent pour la Clarinette et le Cor* (1764).³⁷ Roeser, a friend and admirer of Johann Stamitz, who was credited with “introducing” both clarinets and horns into French orchestral music during a visit there in 1755, makes a point of addressing this treatise both to composers wishing to write for these instruments and performers.³⁸ He gives both the range (transposing and sounding) and tessitura of the various horns (or crooks). The transpositional equivalent makes it clear that Roeser equates B \flat (called B, *fa*, *si \flat* in the old hexachord system) with B \flat *alto* (Example 3).³⁹ It is significant that there is no mention of a horn in B \flat *basso* whatsoever, indicating either that Roeser had no knowledge of such an instrument (or crook), or that it did not in fact exist.

Vandenbroeck, writing in 1793, also equates “Cours en si \flat ” with B \flat *alto* horns, though he does mention *basso* instruments.⁴⁰ Heinrich Domnich also makes the same association in his *Méthode* of 1807, specifically noting with respect to horns in B \flat *basso*:



Example 3

Sounding equivalent for horns in B \flat , Valentin Roesner, *Essai d'instruction* (1764)

If, when writing in the key of B \flat , the composer wishes to lend his piece a somber, melancholic, or religious color, then he could successfully employ the horn in B \flat *basso*; but it should be restricted to simple orchestral effects.... Each time that he desires to use this key, he has to write at the beginning of the piece: *Cor en Si \flat bas*.⁴¹

Finally, as late as 1843 Hector Berlioz's well-known treatise on orchestration notes that *Cors en Si \flat* refers to *alto* horns, while composers desiring those in B \flat *basso* are cautioned by the author always to place the term *grave* following the pitch designation.⁴² Thus for almost a century, evidence provided by the treatises suggest that undesignated B \flat parts always meant *alto*, implying that high horns were considered the norm during this period, and that *basso* horns are regarded as a relatively late invention whose use is not unambiguous as late as 1843.

Distinguishing between B \flat *alto* and *basso* on the basis of range and tessitura has long been an important criterion in determining the correct pitch of the instrument. The general rule of thumb is that the higher the partial written, the lower the horn used. This formed the basic method of distinguishing between high and low during the latter half of the nineteenth century, as can be seen in the following excerpt from the *Musikalisches Conversations-Lexikon* of 1875:

The general rule is that one notates, for example, the G-, A \flat -, A-, and high B \flat [horns] only up to e", and the deeper pitches of F-, E-, E \flat -, D-, C-, and low B \flat horns usually up to g". The natural tones are best used through these notes, and one chooses the pitch of the horn through this convention.⁴³

This rule of setting the upper limit of e" for the *alto* horn appears singularly in Vandenbroeck's treatise, confirming Julius Rühlmann's observation that the tone color of the horn underwent a fundamental change from high to low in the years following Mozart's death.⁴⁴ But this range limitation may not represent an accurate view of the eighteenth-century performer, and indeed can most likely be traced to the homogeneous nineteenth-century *cor mixte* practice that replaced the earlier high-low (*premier-second*), as Vandenbroeck makes

clear was well underway by 1794.⁴⁵ To obtain information on the ranges used in the latter practice, it is instructive to note what both Roesner and Domnich have to say about the range of both *alto* and *basso* instruments.

The normal range given for first horn players on B \flat *alto* instruments in Roeser's treatise is from *c'* through *a''* (the thirteenth partial); in addition, Roeser states unequivocally that "horns in A, mi, la; B[\flat], fa, si, and haut Ut are the most sonorous and laborious to play, which is why one should not let them climb any higher than *g* or *a* in the second octave."⁴⁶ Roeser's range is mirrored over forty years later in Domnich's *Méthode*. Domnich, trained in the German-Bohemian tradition of horn playing and active in Paris as horn professor at the Conservatoire, reiterates the upper limit of the B \flat *alto* horn as written *a''* (sounding *g''*).⁴⁷ But, in keeping with emerging *mixte* style, he cautions his students not to exceed *f''* (the eleventh harmonic) for "simple accompanimental parts."⁴⁸ The range and tessitura for the B \flat *basso* horn, on the other hand, extends up to *g'''* (or *e'''* for "simple accompanimental parts"), considerably beyond what one might expect in conventional part writing. Finally, Berlioz recognizes that the normal top note of the B \flat *alto* horn is written *g''*, leading to the conclusion that even as late as 1843 performers on B \flat *alto* instruments were normally capable of ascending higher than the upper limit set some forty-three years later in the *Conversations-Lexikon*.⁴⁹ On the basis of the evidence found in treatises written according to the high/low horn-player tradition, therefore, the top notes of *g''* or *a''* (the twelfth and thirteenth partials, respectively) form an implied rule of thumb on determining whether or not a horn in B \flat is to be performed *alto* in conventional practice during the eighteenth century; if the range is higher, then *basso* is most likely meant.

This "rule" may not, however, be without exceptions. There are numerous examples in horn parts written throughout the eighteenth century of B \flat *alto* horns reaching as high as written *c'''*. An example of this can be found in Franz Anton Rössler's Symphony in B \flat Major, written in July 1782 (Example 4). Beginning in m. 189 the first horn, designated unequivocally B \flat *alto* in the autograph source, has both sustained and repeated *g''* for ten measures (if one includes the repeat), thereafter rising melodically to *b''* by way of *c'''*.⁵⁰ Thus in terms of range and tessitura, both instruments and the general horn player in the eighteenth century were usually capable of reaching the twelfth or thirteenth partial during normal performance circumstances, with occasional exceptional players able to perform further into the high clarino register (up to *c'''*). Since the B \flat *basso* horn, on the other hand, has a written range up to *g'''* according to Domnich, this means that his students would have been required to perform with some facility at and beyond the sixteenth partial. It is logical to suggest that composers would have been aware of the extended written range, using it more frequently for the *basso* instruments, unless, of course, a special "somber" mood was required by the piece (in which case the *basso* horns are to be clearly marked, according to two of the aforementioned treatises). This does in fact occur in numerous orchestral works by Beethoven and Schubert where one occasionally finds written *c'''* (and occasionally *d'''*) in the B \flat horn parts.⁵¹ This evidence makes the counting of partials to determine the pitch of the instrument dependent on the context supplied by the known

ranges, as well as other factors, such as whether the part was written with a specific virtuoso in mind, as appears to be the case with the Rössler.



Example 4

Franz Anton Rössler, Symphony in B \flat Major, mvt. 1, mm. 189-201.

There are several instances in which the use of partial-counting to determine horn pitch shows some of the difficulties in using this method without a proper context or reference. In the first of these, partial-counting appears to have been used to determine the register of the horns in the *Neue Mozart Ausgabe* critical edition of Mozart's Symphony in B \flat KV⁶ 22. The editor of this work decided that they are to be performed *basso* upon the following criteria:

In the case of the B \flat Major Symphony KV 22 (whose primary source otherwise does not give an instrumental designation) it is clear that the relatively very high notated horn parts could only be done by instruments pitched in “B \flat basso.”⁵²

These “relatively very high notated horn parts” clearly refer to the opening bars of the primary theme (mm. 1-3/5-7 as well as in the return at m. 89) in which the horns rise to *a*⁵³ and usurp the melodic line from the violins if performed *alto*. If played *basso*—the solution imposed by the editor⁵⁴—the horns are relegated to a more subservient role as melodic support (Example 5a). As far as the range and tessitura of the piece is concerned, however, the appearance of the *a* does not by itself preclude *alto* horns; as shown above, this upper note is within Roeser's normal range of the B \flat *alto* horn, and therefore, the *raison d'être* of the editorial decision to designate the horns *basso* on the basis of tessitura cannot be supported on this evidence alone. Indeed, elsewhere in the same work there is some additional internal musical evidence that offers a different solution to this question of pitch.

In m. 17 Mozart consciously avoids writing an even higher pitch, namely c'' , even though the musical context would seem to call for it. In this instance, all the instruments except the horn perform a unison descending triadic sequence down the octave from $b_b''-b_b'$ (Example 5b). From the scoring it is clear that Mozart did not think that his horns could reach the upper note (written as c'') and substituted a c'' for the first note of the sequence, which is precisely what one would do if the horns were performed *alto*. Given the ease with which the B_b *basso* horn could reach the higher pitch (and beyond), one might well ask why Mozart would not have used this upper note to give continuity to the line if the horns were *basso*. This is, of course, a rhetorical question, but there exists evidence that Mozart normally maintained the contours of this type of unison line, as can be seen in a similar passage in the Symphony in G Major KV⁶ 45a, likewise written in The Hague in 1765-66 (Example 5c). Here, the horns in G, which are relatively high-pitched, follow the unison ascent on up to the written c'' , an indication that Mozart felt this note was within the range of both the instrument and performers. Therefore, given that the tessitura of the work lies within the normal range of both instruments, there is equally as much evidence that Mozart intended for the part to be performed on the B_b *alto* horn, especially if the subjective parallel musical passages are taken into account. Moreover, given the date of the work (1765-66), and the fact that the *alto* horn was the more common instrument, its use in this symphony seems more likely. The other examples will be noted presently as they involve additional musical criteria as well.

To summarize the question of *alto* or *basso* on the basis of range and tessitura, the modern rule of thumb that anything written above e'' (or the tenth harmonic) must be an indication of *basso* is not supported by the range given in pedagogical works like Roeser and Domnich or in the musical evidence. Further, given Roeser's admonition that a composer can write for the B_b *alto* horn up through a'' with confidence, along with the fact that under some circumstances—the availability of outstanding high-horn players, for instance—the top of the register can be extended up to c'' , it is unlikely that *alto* or *basso* can be decided solely on the basis of range and tessitura if the parts remain within these limits. Only when there is extensive and repeated use of the partials above a'' can a case for the *basso* horn be made successfully, and then only if there is some evidence to suggest that the part was not written for a specific virtuoso player whose capabilities are well documented.

The musical evidence alone has often been used to solve this problem. This is a broad category that takes into account a variety of factors, including statistical evaluation, source-critical evidence, the designations for B_b horns by the composer, and musical context, often including the aforementioned non-contextual counting of partials. While there may be significant evidence found in any single element of this approach, it would be difficult to apply individual factors to the problem as a whole, even though some of the conclusions drawn could be rather convincing in specific instances.

For example, if some sort of statistical evaluation, involving the determination of how many times a given composer specifically designated his horns high or low, is used and then the data is applied as a more general rule, the final answer may be subject to a number of equally valid, perhaps contradictory interpretations. Moreover, if the study of one com-

The image displays three systems of musical notation. The first system is labeled 'Allegro' and includes parts for 'Horn in Bb' and 'Fagotto'. The second system is labeled 'Andante' and includes parts for 'Horn in Bb' and 'Fagotto'. The third system is labeled 'Allegro' and includes parts for 'Horn in Bb' and 'Fagotto'. The notation includes various musical symbols such as notes, rests, and dynamic markings.

Example 5

- a) W.A. Mozart, Symphony in B \flat KV 22, mvt. 1, mm. 1-5.
- b) mvt. 1, mm. 13-18.
- c) Symphony in G KV⁶ 45a, mm. 4-7.

poser is used to draw conclusions about the horn designations of another, the probability of ambiguity increases dramatically. The comparison between the B \flat horn parts of Mozart and Haydn will demonstrate the difficulties associated with such an approach.

It is known that Mozart began designating *alto* horns in 1769 with the Cassation (KV⁶ 9); his first designation of *basso*, however, appears in the aria “Barbaro, oh Dio” in the second act of *Il re pastore* (KV⁶ 208) some six years later. Thereafter he seems to have

alternated inconsistently between *alto*, *basso*, and a generic B \flat designation (usually written as *Corni in B/fà*).⁵⁵ This seems, however, rather more frequent than the designation for horns in B \flat among Haydn's works. Here, there is only one, the horn part in Sonata I of *The Seven Last Words*, written in 1786 for Cadiz, where the composer specifically asks for *basso*.⁵⁶ In attempting to provide a practical solution to the latter's lack of specific designations, H.C. Robbins Landon postulated that all of Haydn's horn parts in his symphonies are in B \flat *alto* (with the exception of Hob. I:98, I:102, and the Concertante I:105, where they are used in conjunction with trumpets and timpani),⁵⁷ but Paul Bryan maintained that the general preference of the time was for *basso* horns, based upon his interpretation of the comparative number of times Mozart indicated high or low:

Evidence drawn from this study of Mozart's and Haydn's horn parts makes possible a few conclusions about their use of "alto" and "basso." The sudden appearance of 'alto' with Mozart's Cassation K. 99 may indicate his awareness of a new possibility. Thereafter, he seems to have specified 'alto' or 'basso' frequently—especially with B \flat parts. The much more frequent use of 'alto' than 'basso' in his later works surely indicates that 'basso' was the performer's response to an unspecified B \flat ... part.⁵⁸

Both of these conclusions are subject to scrutiny. An overview of Mozart's horn parts in B \flat indicates that there is no real consistency in terms of this composer's designation, despite the fact that he does *occasionally* specify the pitch after KV⁶ 99 (not "frequently," as Bryan maintains). Thus the sudden designation of B \flat *alto* in KV⁶ 99 could also be interpreted to mean that the *basso* crook had recently arrived on the scene (as would be indicated by organological evidence and the treatises) and therefore he was faced with some immediate need to differentiate between the two in order to make his intentions clear to the performers. By specifying *alto* he was choosing the instrument with which he was familiar, and to avoid his performers experimenting with an instrumental pitch that did not correspond to the mood of his own vision of the work. This is an equally plausible explanation, but in truth neither one can be said to be *prima facie* evidence for or against the use of *alto* (or *basso*) horns for other undesignated parts. The situation with *Il re pastore* (KV⁶ 208), written for Salzburg in 1775, further complicates the matter, since, as noted above, this is the first time that B \flat *basso* horns are specified by the composer—for the second aria, "Barbaro, o dio" (Act II, No. 8). If one accepts Bryan's conclusion that the normal preference was for *basso* horns, one must ask why Mozart waited so long to designate them specifically. One might also interpret this as an indication that the composer, knowing that *alto* horns would be the normal choice, deliberately found it necessary to inform the horn players of his preference in this particular aria for an instrument pitched to accommodate an orchestration need. Support for this interpretation can be seen by comparing this movement with the first aria of the opera, "Aer tranquillo" (Act I, No. 3), which requires horns in generic B \flat (*Corni in B/fà*), implying that the composer took pains to differentiate between the two pitches of his instruments in this work. Using this criterion, therefore, Mozart apparently

considered horns in *B/få* to be equivalent to horns in *B♭ alto*, a plausible alternative (and perhaps more logical interpretation) that the present editors of this work in the *Neue Mozart Ausgabe* seem to have ignored.⁵⁹

To extend this ambiguity to the single Haydn designation, the reason for the specified *B♭ basso* part in the *The Seven Last Words* can also be interpreted in several ways. For instance, it could be an anomalous designation entirely in keeping with the somber mood of the commissioned work and not having the slightest thing to do with the common practice at Esterháza. Or perhaps Haydn, unfamiliar with performance practices in Cadiz, decided to specify pitch more precisely in this one instance. Or it is possible that Haydn assumed a general practice of performing such parts *alto* and wanted to insure the correct pitch for this “somber” movement. And certainly other reasons for the composer’s designation might also be postulated. With respect to the rest of Haydn’s *B♭* horn parts, generically designated by the composer as *B/få*, Landon’s original assertion is also equivocal, based as it is on his personal preference. But if one extrapolates the designations found in *Il rè pastore*, which also reappear in *Idomeneo* in the same sequence, the evidence strongly suggests that the generic designation *Corni in B/få* is indicative of *alto* horns, which in turn would mean that Haydn’s almost automatic wish was for the higher-pitched instruments, thus unintentionally supporting Landon’s opinion. This in turn suggests that the mood of the lone *basso* part played a crucial role in Haydn’s sole designation, supporting the second of the explanations above.

The question then remains as to whether or not there is additional corroborating evidence in the source material that would support this conclusion beyond central Europe. If one reexamines the many scores and parts in the Operansbibliotek (now Statens Musiksamlingar) in Stockholm mentioned earlier in conjunction with the discussion on the use of four horns, then one comes to the conclusion that the division of the horn pairs into high and low keys places unspecified horns in *B♭* among the “high” keys, thus indicating that *B♭ alto* horns are the rule, at least in this northern capital⁶⁰; *basso* horns, on the other hand, though they occur on several occasions within the music written for the low horn pair, are not listed among the commonly “available” keys, showing that they were somewhat infrequently used and therefore more specialized (see Figure 1). A more clear-cut example of this can be found in another source from the same library, the conductor’s score of Joseph Martin Kraus’ opera *Aeneas i Cartago* (Figure 2), where in the fifth act the first pair of horns are required to change from *B♭ basso* to *alto* (clearly marked) in preparation for the chorus “Må hämdens åskans far” (Act V, No. 3). At the beginning of this chorus some two pages later, the designation for the first pair of horns reads simply *Corni [in] B*, making it clear that *alto* horns and this generic designation are synonymous and confirming the evidence found in the parts. Given the above, one might draw the conclusion that, although as a general rule *alto-basso* designations by the composers themselves are sporadic and inconsistent at best, where there is no specific pitch designation, this evidence favors the equivalence of generic horns in *B♭* with *alto* instruments, which corroborates the information provided by the treatises.

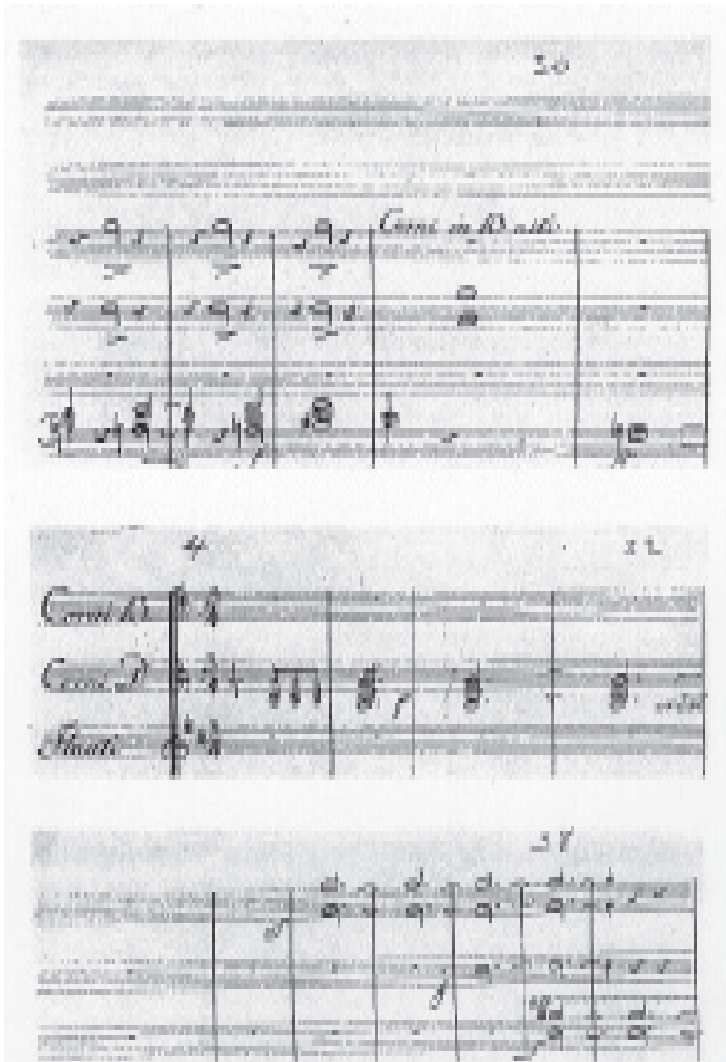


Figure 2

Joseph Martin Kraus, *Aeneas i Cartago*, Act V, transition from No. 2 to No. 3 (pp. 30, 32) and first entrance of the horns in No. 3 (p. 38).

(Stockholm, Kungliga Operansbiblioteket Operor D 1. Reproduced by permission.)

Specific designators, such as the use of specific clefs when writing for horn, are of lesser value in determining whether a horn is to be pitched high or low. Rühlmann noted more than a century ago that horns, like clarinets, were often required to read two or more different clefs due to their need to transpose.⁶¹ Murray Barbour, among others, remarked

upon this system and applied it as a rule for the indication of pitch levels; for example, horns in C use the treble clef (but down an octave), those in E \flat the bass (up an octave), those in D the alto (to be read as exact pitch), and so forth.⁶² Accordingly, horns in B \flat , which are sometimes written in the tenor clef, would automatically assumed to be *basso*. This suggestion, however, runs contrary to explanations given by Roeser, Vandenbroeck, and Domnich, all of whom are careful to note that the use of various clefs was merely a transpositional device intended to keep the written note C on the second space on the staff and had nothing whatsoever to do with the actual pitch level of the instrument.⁶³ Thus their use has no direct bearing upon the problem of *alto* or *basso* in the eighteenth century.

More difficult is the subjective evidence provided by the pairing of horns and trumpets in B \flat , particularly in symphonic works. Landon, Gerlach, and others have used this as evidence that the horns are to be performed *basso* in works such as the three London symphonic works by Haydn, an opinion based on a statement in Heinrich Koch's *Lexicon* concerning the pairing of trumpets and horns in the key of C: "The horn is an octave lower than the trumpet."⁶⁴ The reason for this is that if the horns are not *basso*, then they run the risk of "interfering" timbrally with the trumpets, i.e., their characteristic timbres would merge creating an undesirable brass sonority. If, however, they are an octave apart, the instruments would enhance and complement each other within the overall harmonic texture of a work. Bryan used this argument to defend his preference for *basso* horns, stating that the octave difference and timbres between the two instruments are "clearly exploited" in the late symphonies of Haydn.⁶⁵ Anthony Hodgson, on the other hand, remarks, "It does seem odd that No. 98 should be the first symphony of Haydn's canon where, by some unspoken consensus of opinion, all conductors decide that the B \flat horns should be low."⁶⁶ Nonetheless, the standard practice has always been to consider these parts *basso*.

This conclusion presupposes that horns and trumpets during the eighteenth century (and even today) have essentially the same timbre when doubled. This is, however, an idea that conflicts with the views of theorists as early as Mattheson; from the standpoint of timbre, horns, even in the higher registers, sound fuller and denser, while trumpets are thinner and more piercing.⁶⁷ Each has its own characteristic sound and would therefore reinforce the other rather than competing, adding missing overtones. Furthermore, there is evidence that Haydn does not always simply double the parts, and that in at least several instances, if the horns are performed *basso*, certain timbral difficulties occur. Hodgson and Robert Dearling noted with respect to Hob. I:102,

On examining the score there seem to be two pieces of evidence which stand out particularly obviously in favor of *alto* horns.... One is in the trio where every non-solo instrument is marked *p*, except the horns. Haydn must have known that the first horn could not possibly play his two pairs of falling notes quietly since on the *alto* horn they are so high, therefore he omitted the *p* direction... The other piece of evidence is in the finale: at m. 46 the brass start a melodic sequence in unison. Suddenly, in the second half of m. 48, the trumpets stop playing and the horns finish the sequence on their own.... If *basso*, the melody drops an octave halfway through.⁶⁸

While the first of these two pieces of musical evidence could be explained as perhaps a case of compositional oversight, the second results in an audible difference that a composer of Haydn's experience and skill would most likely have avoided, as it has considerable ramifications for the melodic contour of the passage (Example 6). The *de facto* octave jump if performed *basso* is far more noticeable than the emergence of the characteristic *alto* horn timbre from out of the doubling texture. Similar types of orchestration can be found in the other two works, I:98 and I:105, as well. Therefore, the argument posited by tradition that horns and trumpets are to be pitched an octave apart is hardly convincing.

A second example of the same sort appears in the *Neue Mozart Ausgabe* edition of *Lucio Silla* (KV⁶ 135), composed in 1772. In the aria "Ah, se il crudel" (Act I, No. 11), the editor bases her decision to designate Mozart's *Corni in B/fâ* as B \flat *basso* on the fact that the horn parts are "highly obbligato" in comparison with those of the trumpets, ascending above the latter frequently if performed *alto*.⁶⁹ An examination of this aria, however, shows that the horns, though brilliant and certainly independent of the accompanying trumpets, are not required to play above *g*," well within the normal orchestral range of the *alto* horn.⁷⁰ Moreover, there is a different usage of the brass; the horns function as melodic instruments throughout this aria, while the trumpets are relegated solely to harmonic support. If the horns are performed *basso*, then this situation is somewhat reversed; the trumpets with their minimal parts become predominant, while the horns have a muddier and less prominent texture.

Example 6

Joseph Haydn, Symphony in B \flat Major Hob. I: 102, mvt. 4, mm. 46-51.

However one chooses to view these particular examples, among the many others that can be found, there is really no conclusive evidence here from a musical standpoint to suggest that the horns in B \flat are always to be performed *basso* when combined with trumpets, Koch notwithstanding. Indeed, doubling at an octave lower can cause occasional orchestral anomalies, if one or the other instrument drops out, such as occurs in Hob. I:102.

The score order of the original sources is an equally tenuous criterion for determining the pitch of the B \flat horns. For example, Bryan argues for the use of B \flat *basso* horns in Johann Baptist Vanhal's Symphony in G Minor, composed ca. 1770, on the basis of their placement beneath the first pair of horns in G in most of the sources of this work that he has examined.⁷¹ This same premise has also been used in discussions of certain Mozart symphonies. This solution presupposes that composers were consistent in their placement of the horn pairs in their manuscripts, a test that, given the wide diversity of score order in the eighteenth century, any composer of that period would be unlikely to pass, particularly since the extra pair of horns is sometimes added as an afterthought on any empty staff available. As an example of this, Zaslaw states in his discussion of Mozart's Symphony in F Major KV⁶ 130, which has pairs of horns pitched in F and C *alto* in the outer movements and minuet and F and B \flat in the second, that Mozart's score order—the horns in B \flat are placed below those in F in the autograph—determines that the composer means *basso*, supporting his designation by noting that the part rises as high as the thirteenth partial (*a''*).⁷² But this may not be the only way to view the evidence. First, if one pair of horns in all of the movements of this symphony is in F, the assumption could logically be made that this pair, at least, did not change crooks for the entire work. This would automatically mean that the second pair would need to switch from C *alto* in the first movement to B \flat *basso* in the second, and back up to C *alto* in the third (where they have obbligato parts), if Zaslaw's conclusion is accepted. While this is entirely possible, of course, it would certainly have been easier (and more efficient) to use the B \flat *alto* crook (requiring only a minor adjustment of tuning) for the second movement. This would retain the apparent division among the pairs between high and low pitches, put less strain on the horn players' embouchures, and simplify the tuning if the movements were performed sequentially without much pause. Second, in terms of the use of the thirteenth partial, once again it should be noted that this is entirely within the range of both *alto* and *basso* horns, and therefore its appearance does not necessarily preclude or determine the pitch of the instruments. Finally, with respect to the autograph score, the addition of the second pair of horns in the first and second movements was made by Mozart on the unused staves.⁷³ Thus the suggestion that the composer chose his pitch by score-ranking is extremely suspect in this case.

By far the most common and perhaps least objective of the attempts to resolve this question involves reviewing the placement of the horn parts within the harmonic or melodic structure of a work, i.e., a strictly analytical approach. If the unspecified parts are found to "conflict" with the other instruments or the chordal harmony of the winds—i.e., doubling the woodwinds at the same octave, creating unresolved inversions, sustaining or frequently using high partials such as *g''*, or ascending above the strings—then the horns are usually said to be *basso* in order to avoid what is perceived as harmonic conflict. This

analytical rule of thumb has most recently become prevalent in the *Neue Mozart Ausgabe*, following precedents established by Bryan, among others.⁷⁴ But in each case where such analysis is applied, the stylistic evidence is open to interpretation, and the final conclusions often devolve to a matter of personal preference and are not based upon any specific eighteenth-century performance practice.

Several examples will serve to illustrate the pitfalls of this type of analytical approach. One of the earliest of these can be found in Bryan's attempt to show that *basso* horns are intended in the overture to Haydn's opera *Armide* Hob. XVIII:12. Following aesthetic commentary on the effect of the B \flat horn pitch in Haydn's Symphony in B \flat Major Hob. I:51 and Mozart's Symphony in G Minor (KV⁶ 173d \flat) for several other works, such as the putative "awkward balances" created by the obligato horns in the second trio of the minuet in Haydn's Symphony in B \flat Major Hob. I:51 (where the first horn which ascends to *c*⁷⁵) and the observation that certain parts of the aforementioned Symphony in G Minor (KV⁶ 173d \flat), Bryan⁷⁵ compares parallel passages in the aforementioned overture in which a melodic sequence in the first section that is performed by the oboes and bassoons (mm. 42-45) is repeated towards the end of the piece (mm. 158-61) by adding horns to the other winds (Example 7). He interprets the passages in question as follows:

The bassoons imitate the oboes and at the same time add the lower octave. As may be seen [in Bryan's example forty-two], the addition of the lower octave would not be achieved were the horns to be "alto" in the later passage.⁷⁶

The image displays two musical excerpts from Joseph Haydn's *Armide* Overture. Excerpt a) (mm. 42-45) shows the Oboe (Ob.) and Bassoon (Fag.) parts. Excerpt b) (mm. 157-60) shows the Oboe (Ob.), Bassoon (Fag.), and Cor Anglais parts. The notation illustrates the melodic sequence being compared in the two passages.

Example 7

Joseph Haydn, *Armide*, Overture.

a) mm. 42-45.

b) mm. 157-60, winds only (examples after Bryan).

But this is only one of a number of analytical conclusions that could be drawn about this passage. Another equally valid one could be to see Haydn's overall purpose as mainly imitative without respect to actual registral placement, as Gerlach has noted.⁷⁷ The first time it occurs, it is in the dominant, F Major. Since the natural horn pitched in B \flat (irrespective of whether it is *alto* or *basso*) would not have been able to play the sequence in the dominant, Haydn merely omitted it. The return in the tonic, on the other hand, would allow full participation by the horns, and Haydn uses it as he used the bassoon the first time through, as an imitative partner in the sequence without thought to the octave differential. Therefore, one might be equally correct to suggest the use of *alto* horns here.

Other similar examples can be found in the *Neue Mozart Ausgabe* editions of that composer's operas. In the preface to his edition of *Die Entführung aus dem Serail*, Gerhard Croll sees the horns as an integral harmonic entity along with the woodwinds.⁷⁸ In the aria "Ach, ich liebte" (Act I, No. 6), he remarks that the *g*" pedal point in m. 34-35 is too "extreme," while a sustained *d*" in m. 46-47 would "sound better" if placed between the two bassoons (i.e. *basso*) rather than doubling the first clarinet part (*alto*).⁷⁹ Later on, in the duet "Meinetwegen sollst du sterben" (No. 20), he notes that *basso* horns would doubtless create "harmonic difficulties" in m. 31-35 by going below the bassoons and cellos, while in mm. 26 and 29 the "extreme distance" of the bassoons (the first bassoon playing *f*', the second, *F*) would only "be filled out" if the horns were *basso*.⁸⁰ And finally, with respect to Belmonte's bravura aria "Wenn der Freude" (No. 15), he simply states without further elaboration: "With [this aria] an 'alto' reading produces a extreme horn situation that is otherwise unknown in Mozart."⁸¹ In this last example, Croll clearly refers to the frequent use of *g*" particularly in passages such as mm. 93-95 (Example 8a), a sustained pedal point *g*" in mm. 107-17, and the cadential chords in mm. 171-74 (Example 8b). These passages are hardly "extreme" under any contemporary definition, and there is nothing in any of these movements proving that any of these passages could *not* have been performed *alto*, and in at least the second of these (No. 20), Croll seems to argue for both equally. Perhaps realizing that such analysis was inconclusive, Croll chose to designate all of the appropriate parts *alto*, admitting that his arguments in favor of *basso* interpretations were once again largely a matter of personal preference.⁸²

Rudolph Angermüller and Wolfgang Rehm argue that their decision to designate as *basso* the horn part for Polidoro's aria "Cosa ha mai" (No. 7) in *La finta semplice* (KV⁶ 46a) is based on "compelling" (*zwingend*) reasons; namely, the high tessitura of mm. 2-4 (sustained *g*"), which is dropped an octave in a parallel passage (mm. 118-20), and because *alto* horns would create a second-inversion chord at this point.⁸³ This evidence is also subjective—the parallel passages are not orchestrally identical and, though the thematic structure remains the same, the melodic approaches and context differ. The first passage, a sustained pedal point, does not preclude *alto* instruments in and of itself, nor does the range or tessitura (Example 9). The fact that a second-inversion chord results in the second passage is immaterial to the harmonic context with respect to conventions of eighteenth-century orchestration.⁸⁴ Thus the stylistic evidence is equivocal if taken individually.

The image displays a musical score for Example 8, featuring wind parts for Clarinet (Cl), Bassoon (Fag), and Horn (Hr). The score is divided into two systems, labeled 'a)' and 'b)'. System 'a)' (mm. 84-96) shows the Clarinet and Bassoon parts, with the Horn part starting in the second system. System 'b)' (Mm. 166-74) shows the Horn part, with the Clarinet and Bassoon parts starting in the second system. The score includes various musical notations such as notes, rests, and dynamic markings (f, p). The lyrics 'Hörst du nicht, der Farn - ung mehr, der Farn - ung mehr' are written below the Horn part in system 'b)'.

Example 8

W.A. Mozart, *Die Entführung aus dem Serail* (KV⁶ 386), No. 15, Aria.

- a) mm. 84-96, winds only.
- b) Mm. 166-74.

Example 9

W.A. Mozart, *La finta semplice* KV⁶ 46a, I/7, mm. 1-5.

The notion of a sustained high pedal tone (*g*”) being the sole criterion for *basso* horns presupposes that performers of the time would not have been able to achieve such a prolonged pitch without difficulty. As has already been demonstrated, however, the range is clearly within that expected by eighteenth-century pedagogues, and thus it would not have presented a problem to high-horn players accustomed to this register and pitch. Indeed, in the example taken from the fifth act of *Aeneas i Cartago* above (Figure 2), the first horns change crooks to B \flat *alto* and enter several measures into the movement on an unprepared *g*” (twelfth partial), sustaining this pitch *fortissimo* for several bars, a feature even more difficult when one considers that the instruments’ previous crook was clearly marked B \flat *basso*.⁸⁵ This example, of course, may demonstrate a superior ability on the instrument by recognized virtuosos (in the case of the Kraus, members of the Steinmüller family recruited from Esterháza in 1783), but even more conventional pieces such as Mozart’s Cassation in B \flat Major (KV⁶ 99) regularly have the high horns also reaching and sustaining the twelfth partial (Example 10).⁸⁶ Therefore, it seems reasonable to conclude that this analytical criterion is not a true indicator of *alto/basso*.

In reviewing all of the various and sundry methods used at present to determine high- or low-horn pitch, it becomes apparent that, based upon the information provided by instrument treatises, and comparative designations, the most conclusive evidence favors the interpretation of undesignated B \flat horn parts in the Classical period as *alto*, not *basso*. The *alto* horn had been in existence since the earliest single-pitched instruments and was always included as a separate crook in each of the developments of the tunable orchestral instrument, while the *basso* horn cannot be proven to have existed prior to its appearance as

Example 10

W.A. Mozart, Cassation in B-flat Major KV⁶ 99, mvt. 6, mm. 35-40.

a crook in the *Inventionshorn* of 1755, or perhaps even as late as the 1760s. The evidence of the treatises and handbooks suggests overwhelmingly that generic horns in B \flat were always equal to *alto* horns, while *basso* instruments were relatively infrequent, requiring a special designation and limited use for more solemn effects. This appears to be substantiated in the works of composers such as Kraus and Mozart, both of whom seem to equate undesignated horns in B \flat with *alto* (*Aeneas i Cartago*, *Il re pastore*, etc.). The criterion of using range and tessitura to determine horn pitch (i.e., counting the partials) is valid only if the context and the overall eighteenth-century ranges are taken into account. The modern convention of assigning *basso* horns to parts going above *e*^{''} is a rule stemming from the changeover from high-low playing to the *cor mixte* that occurred beginning in the last decade of the eighteenth century and afterwards; prior to that time (and during the transition period that took place during the first three decades of the nineteenth century) *alto* horns had a normal range up to *a*^{''}, while *basso* horns were expected to be performed up to *g*^{'''}, almost an octave higher, but both had the ability to sustain high pedal points. Finally, there is the inconclusiveness of the musical-analytical approach, which nonetheless seems to favor an *alto* interpretation when used in conjunction with the other criteria and if the issue of personal preference is removed. Therefore, unless there is other conclusive proof to be found, it should be assumed on the basis of the cumulative data above that all unspecified horn parts in B \flat from the period were commonly performed as B \flat *alto*, and that this reflected a standard performance practice during the heyday of eighteenth-century natural horn playing.⁸⁷

The C *alto* Horn

The *alto-basso* controversy with respect to horns pitched in the key of C is less straightforward than we have seen in the case of those in B♭. This situation is largely due to the fact that there exists a recognized contemporaneous “standard instrument” for the key—the C *basso* horn/crook—and the alternative *alto* horn is only now beginning to be researched and understood. For the former, there is little to suggest that it would not have been considered the normal response to an otherwise unspecified part in C for most of the eighteenth century and later.⁸⁸ With respect to the latter, much of the evidence for its use is still fragmentary, ambiguous, and subject to further investigation, even given that it was possibly the original “standard” during the early part of the century and continued to be used occasionally by composers such as Haydn and Mozart towards its end.⁸⁹

The earliest reference to the horn pitched in C occurs in the description of the *Waldhorn* in Mattheson's *Neu-Eröffnete Orchestre*: “The most useful are in F and C, [the latter] having the same *ambitus* as the trumpets.”⁹⁰ This reference clearly implies that the C *alto* horn, preferred to the clarino trumpet because of its round, full-bodied timbre, was one of two “standard” horns of the Baroque period. But the organological evidence shows that C *basso* horns did exist both as single-pitch hunting instruments and as the final crook extension of the F *Waldhorn* of the Baroque period, indicating that both pitches were at least available early on, though perhaps not specified.⁹¹ This is verified in the statement of theorist Joseph C.F.B. Majer in his description of horns dating from 1732. He paraphrases Mattheson, but adds, “...and one has today C *Waldhorns* as well, which are an entire octave lower than the trumpets [e.g. *basso*].”⁹² Thereafter, use of the higher-pitched instrument seemed to wane, while the lower gained increasing acceptance, though the evidence is not completely unambiguous. The *Inventionshorn* of the 1750s, for instance, did not have a crook for C *alto*, but did for C *basso*, implying that the former was not considered a crucial pitch for the instrument during the middle of the century. The Viennese *Orchesterhorn*, however, was commonly pitched in C *alto*, the rest of the keys down to C/B♭ *basso* being achieved through the addition of crooks and tuning shanks, indicating that at least a vestige of Mattheson's “standard” remained valid throughout the entire century. Moreover, receipts for the Hoftheater in Vienna from as late as 1812 make it clear that the C *alto* shank was still an integral part of the standard complement of bits and pieces for the common horn, implying that it was both known and used into the early nineteenth century, at least in the Austrian capital.⁹³

The treatises noted earlier include information on both the C *alto* and C *basso* horns, indicating that these instruments were known and played throughout all of Europe into the nineteenth century.⁹⁴ Information provided by these treatises also includes the range and tessitura of both *alto* and *basso* instruments, their use in compositions, as well as some comments on the abilities of those performing on the instruments. Like the horns in B♭ *basso*, C *basso* instruments were capable of an extended range (normally up to written *g*”) and considerable flexibility in the upper register.⁹⁵ A huge majority of works in C Major, however, require the horns to play only up to *g*” (or occasionally *a*”), and solo playing in this key was discouraged by Domnich and others due to its unsuitably dark and muddy

timbre.⁹⁶ All of the treatises agree, however, that the C *basso* horn was a permanent, capable, and rather commonplace instrument. The C *alto* horn, on the other hand, seems to have fallen rapidly into decline, judging from the role the treatises ascribe to it. While Roeser lists it among the usual (though not predominant) keys during the middle of the century, by 1807 it was apparently restricted to special brilliant effects.⁹⁷ In his *Méthode*, Domnich writes concerning the C *alto* horn,

If, when writing in the key of C, the composer wishes to give the piece a sense of vivacity, motion, and brilliance, he can employ with success the horn in C-*alto*, but because the timbre has a very piercing tone, it is reserved for noisy effects. In is likewise necessary to write at the beginning of the piece *Horns in C-alto*. The horn in C-*alto* has the same range as that in B \flat *alto*, and relative to that range, it is divided according to the same manner for the two types.⁹⁸

Several pieces of important information on performance practice may be gleaned from this description. First, a look at Domnich's given range for the B \flat *alto* horn shows that his students were required to perform in C *alto* up to written *f*" or *g*"—down from Roeser's *a*" in the middle of the century.⁹⁹ Second, Domnich (and Roeser) state that all music written for this instrument must be clearly labeled, which implies that all otherwise undesignated parts would automatically be played C *basso*, the exact reversal of the situation with B \flat horns. Finally, the C *alto* horn is said to be used primarily in works where a composer might desire a special brilliant effect, thus precluding its use by implication from more commonplace compositions.

More important to the point, Domnich notes that C *alto* horns had, at least by the end of the eighteenth century, a more localized geographical spread: "This key is *always* used in Germany; and the options which it provides for composers makes it regrettable that it has not had *much* use in France *recently*."¹⁰⁰ The inference here is that C *alto* instruments were essentially a central European phenomenon.¹⁰¹ It is, of course, difficult to know what Domnich means by *toujours usité*, though it can be suggested that he really meant this to mean "more common" in the Bohemian tradition of his homeland. But the oblique reference to the fact that the *alto* instruments had gone out of favor in recent years in France suggests a more widespread knowledge across a larger timespan than heretofore noted, thus confirming Roeser's inclusion of the instrument in his earlier treatise written in Paris. This kernel of information is important, for it provides an answer to the question of the extent to which this high-pitched instrument was actually used. For example, Landon, although he personally found the sound of the C *alto* horn "intoxicating," noted that the early Parisian printed parts of Haydn's Symphonies in C Major Hob. I:82 and I:90 omit the *alto* indications extant in the autographs, remarking that C *alto* horns were probably unknown in both Paris and London during the period 1780-1800.¹⁰² But Domnich's reference and a subsequent mention in Berlioz' treatise shows that, contrary to Landon's assertion, this instrument was indeed known in France as late as the middle of the nineteenth century

and therefore would have been at least available.¹⁰³ Whether or not it was used, however, cannot be determined.

From the evidence provided by the surviving instruments, treatises, and documentation such as repair receipts and sales announcements, it can be concluded that both *alto* and *basso* horns in C were well known throughout Europe during the eighteenth century, although it is equally clear that the “standard” pitch changed from high to low during the course of the period. Given the change in emphasis from Mattheson to Roeser to Domnich, it is clear that the changeover occurred sometime during the 1750s or 1760s. This may not have been entirely universal, however, with the C *alto* instrument continuing, at least theoretically, to be both available and “popular” (depending upon how one reads Domnich) into the succeeding century. Most importantly, there seems to be common agreement among the later treatises up to and including Berlioz that any *alto* horn part had to be clearly labeled as such. Finally, there is no reason to doubt that by 1770 any undesignated horn part in the key of C was generally performed *basso*, and that the brilliant piercing sound of the C *alto* horn was reserved for rare special orchestrational effects. Given this evidence, it would be logical to suggest that the sources from the period would reflect this in some fashion and that supporting information on the use of the C *alto* horn can be found therein.

Corroborating evidence provided by the music itself, however, is less clear-cut than might be imagined. Haydn, currently the most studied composer who used the C *alto* horn often, is not always consistent in his designations—the earliest authentic indications for the use of C *alto* horns dates from the 1760s (Symphonies Hob. I:41 and I:48), and they appear relatively frequently thereafter in both symphonic works (Hob. I:50, I:52, I:56, I:60, I:82, I:90, and Ia:1) and operas (*L'infedeltà delusa*, *Armide*, *Orlando Paladino*, *L'isola disabitata*, among others), as well as in the oratorio *Die Jahreszeiten*, often but not necessarily in conjunction with or as substitutes for trumpets (and both with and without timpani). Moreover, it has been suggested that Haydn's confident use of these instruments implies that he was familiar with the *alto* horns even earlier, perhaps requiring them for the symphonies written for Morzin in the late 1750s (I:20, I:32, I:37).¹⁰⁴ From this evidence, it might be suggested that C *alto* was the preferred C-Major horn pitch at Esterháza and elsewhere in the region among the smaller backwater courts and musical centers. But there is no source evidence that would extend this to include other works in C Major, such as I:2, I:7, I:9, I:25, I:30, I:63, and I:69, which span the same locations and time periods. The only information that would in fact lead one to conclude that both the Morzin symphonies and I:30, the “Alleluia” symphony written during Haydn's earliest years at Esterháza, may use C *alto* horns are oblique inferences in the sources that either include timpani without trumpets or singular designations such as *Corni seu Clarini* for I:20. Thus the situation with respect to Haydn's use of the *alto* horn is hardly as clear as might be imagined; while there is abundant evidence that Haydn liked the brilliant sound and employed these instruments frequently in a wide variety of compositions, it is more difficult to determine whether this was his typical reaction to horns in C, even given that many of these undesignated parts are used in a similarly brilliant fashion as those he did designate.

Mozart's almost singular designation of C *alto* horns in his Symphony in F Major KV⁶ 130 shows that he was aware of the existence of the instruments, yet his other Salzburg works in C major using horns are, for the most part, devoid of any specific designation. His colleague Michael Haydn, however, occasionally does make the distinction of *alto* and, more frequently, *basso* in works such as the Symphonies in C Major P. 10 and P. 12, confirming that this instrument (or crook) was known and used in Salzburg with some frequency. As noted previously, the standard Viennese horn normally included a crook (or shank) for C *alto* as a normal accessory, but in Mozart's Viennese works, only one dance uses the instrument (KV 448), and among Salieri's works, only the Concerto for Flute, Oboe, and Orchestra in C major specifies horns in C *alto*. This leads to the general conclusion that C *alto* horns were relatively unusual in Vienna and its surroundings during the latter quarter of the century and that when used, they were generally so designated. This supports the requirements mentioned in the treatises that the pitch always needed to be labeled, and yet there are enough anomalies in the sources, particularly in the works of Joseph Haydn, to suggest that there may have been more exceptions to the general rule that horns in C always meant *basso* than might otherwise be considered.

The use of musical analysis to provide evidence for high or low horns in C is, for the most part, subject to numerous and often contradictory interpretations, particularly since use of partials, range, and harmonic implications are all dependent upon a certain amount of subjectivity. According to Roeser and Domnich, the ranges for horns in C are equal to those in B \flat , i.e. *alto* horns have an upper limit of g'' - a'' and *basso*, up to g'' . If, for example, a given part in C never rises above an e'' or the occasional g'' , which is common for much of the music of this period, then it lies well within the range of both *alto* and *basso* horns. If, however, the part calls for a c''' , then it is almost certainly intended for the lower-pitched horn. As a general rule, all other evidence previously presented being equal, this would seem reasonable enough. But when faced with parts from an earlier period in the century, such as can be found in Cantatas BWV 65 and BWV 16 by Johann Sebastian Bach, in which parts regularly rise above a'' , one must take into account Mattheson's description of the horns having the same range and tessitura as the clarino trumpet. This would call for the otherwise logical rule of thumb to be reversed, and given that there is no clear indication when the actual shift from high to low with subsequent lowering of the top range occurred, a composition calling for horns in C written between Majer's paraphrase of 1732 and Roeser's treatise of 1764 must require supporting evidence from another source other than musical analysis in order to determine the pitch.

The use of *Affekt*, taken in the broadest sense of that term, to make a determination is also subjective. It seems logical to accept Domnich's criterion that high C horns are used to portray liveliness and brilliance as a general rule of thumb; i.e., the brighter the *Affekt* of a work, the more likely the use of high C horns for undesignated parts. A related notion suggests itself in the use of C *alto* horns to portray tension, with their high, piercing sound underscoring the agitation present in a given work. The most immediate example of this can be found in Haydn's Symphony in C Minor Hob. I:52, in which the tension-filled *Sturm und Drang* emotions benefit from what Landon calls "the lean texture" of the C *alto*

first horn.¹⁰⁵ Expanding upon this particular work, it might be suggested that a similar example exists in Ilia's aria "Padre, germani" from Mozart's *Idomeneo* (Act 1, No. 1). In this piece, Mozart requires two horns, one in B \flat and the other in C. In mm. 14-15 the oboes, bassoons, and horns (plus voice beginning in m. 15) play a falling motive in octaves outlining the words "Grecia," an invocation of the captured Trojan princess against her captors (Example 11a). In mm. 19-20 this invocation is repeated up a step in C Minor by the other instruments (oboe and bassoon). In a parallel passage in mm. 68-72 the order is reversed, beginning in C Minor and dropping down a step to B \flat Major (Example 11b). It is clear that Mozart means for all of the wind instruments to perform the passage in unison, retaining the increased tension implied in the stepwise modulation. This can be accomplished only if both horns are in the same octave a step apart; that is, both are either *alto* or *basso*. Since Mozart's original designation for the second horn reads *Corno in B-fà*, by which is almost certainly meant B \flat *alto* according to the criteria established previously, then a disturbing contrary motion is exhibited if the first horn is performed in C *basso*, as convention would imply; the symmetry of the imitation and the "lean orchestration" of the bare octaves moving in unison is destroyed by the drop of an octave in the first passage and and rise of an octave in the second. Further, following the latter, Mozart has four bars of sustained pedal in the horns as Ilia realizes the magnitude of her dilemma ("Grecia, cagion tu sei/E un greco adorerò? [Greece, you are the cause of this, and yet I love a Greek?]"). If the first horn is *basso* and the second *alto*, then the horns are doubled for the four bars

a)

Example 11

W.A. Mozart, *Idomeneo*, Act I, No. 1.

a) mm. 10-20.

b)

The image displays two systems of musical notation. The top system, labeled 'b)', contains six staves. The first two staves are vocal parts with lyrics: 'In - ter, in ter - do - i, Qui - ra, Qui - ra,'. The next four staves are instrumental, with dynamic markings like 'p' and 'f'. The bottom system contains five staves, with the vocal line at the bottom having lyrics: 'cogno - ti - a, in - ter - do - i. Ean - go - co - do - ti - ra'. The notation includes various musical symbols such as clefs, notes, rests, and dynamic markings.

Example 11
W.A. Mozart, *Idomeneo*, Act I, No. 1.
b) mm. 63-67.

(mm. 73-76), providing a low *d'* pedal. If, however, both are *alto*, then the pedal tone is doubled at the octave, providing an increase in tension that dramatically outlines the text. Therefore, in order to maintain the tension-filled mood and texture of the aria, one might logically infer that the first horn ought to be *C alto*. As intriguing and perhaps even logical as this assumption might be, in truth there exists no concrete proof for this suggestion. Although the *Affekt* of the work does fit Domnich's criterion (in addition to tenuously linking it with the general statement of "always used in Germany"), such musical-analytical evidence is hardly convincing enough to overcome unequivocally the traditional solution of performing the horn part at the lower pitch. That is not to say that it cannot be done as proposed, but the main point of this exercise demonstrates the difficulty in making conclusive pitch determinations on this evidence alone. One more example should suffice to show this.

There is a curious anecdote related by Charles Burney during a visit to Brussels in 1772 that may show by implication the use of the *C alto* horn. At a performance of Grétry's opera *Zemire et Azor*, Burney commented upon the playing of the hornists Thomas and Georg Hosa, who apparently botched an otherwise simple horn passage: "The orchestra was admirably conducted ... but in its separate parts, the horns were bad, out of tune, which was too discoverable in the capital song of the piece."¹⁰⁶ Fitzpatrick reproduces the passage in question—an easy bit of imitation in C Major (ascending down from *g*) for the two horns (Example 12)—and dismisses Burney's criticism by explaining that even famous performers have off-nights.¹⁰⁷ Occasional glitches in performance are one thing, but this simple passage should not have caused two such celebrated performers any problems even on the worst of nights if performed in *C basso*. But if it was played in *C alto*, then these easily negotiated passages become much more difficult to keep in tune due to their being in the upper register of the instrument. Thus the poor performance noted by Burney would have been more acute if *alto* horns were used—Burney later comments upon the horns' "Eldritch shriek," though not in the same context. Despite the logic of this argument, it is nonetheless still a case of "what if," and although the particular passage that caused Burney discomfort is known, concrete evidence on the pitches of the horns is lacking.



Example 12

Horn parts in C from Grétry's *Zemire et Azor*, Act III, Scene 4, mm. 17-19, as performed by Thomas and Georg Hosa in Brussels in 1772 in the presence of Charles Burney (example after Fitzpatrick).

If much of the evidence is inconclusive or speculative, the question arises as to how one is to recognize the *C alto* horn in undesignated works of the period, especially if the prevailing tradition automatically favors the equating of horn in *C* with *C basso* on more or less the same basis that the aforementioned horns in *B \flat* are to be considered *alto*. As a tentative rule of thumb, one might suggest that prior to about 1730, any horn pitched in the key of *C* is most probably *alto*, based upon Mattheson's description of the Baroque *Waldhorn* as equal to the clarino trumpet in range and tessitura. For the next thirty years, however, the situation for undesignated parts becomes more a matter of conjecture, particularly with the rapid growth of the *C basso* convention as a standard. It would seem that both pitches coexisted and indeed it is not unreasonable to suggest that high and low horns may have alternated on occasion. Determination of high or low for undesignated parts would therefore have been a matter of local option or happenstance, save where the ranges required in the music were too extreme. By the time of Roeser's 1764 treatise, however, the transition to the lower horn was largely complete, as witnessed by the rapid spread of the *Inventionshorn* throughout much of Europe as the principal instrument. As noted earlier, this did not have a provision for *C alto* among its set of tuning crooks. But there is also good evidence that the *C alto* horn continued to be common in various ensembles such as Haydn's orchestra at Esterháza, being used for both brilliant display and in works of a more serious nature, such the Symphony in *C Minor* Hob. I:52. The Viennese version of the tunable horn, the *Orchesterhorn*, retained *C alto* as its fundamental pitch on into the nineteenth century, and there is ample evidence of its being well-known among musicians, from the regular designation in music to its acknowledgment in treatises as a normal pitch available to performers and composers. Moreover, cryptic comments like that of Domnich, which makes the claim that *C alto* horns are "always used in Germany," appear to defy detailed examination when compared with other facts; Domnich's statement can be taken to mean that this horn and pitch were widespread in Germany, that he perhaps meant a more localized area of predominance such as Bohemia, or simply that the *C alto* horn was the standard pitch of the primary instrument in use at the time, the *Orchesterhorn*, or something else entirely.

Thus the problem has no easy solution. Given this state of affairs, perhaps it would be prudent to suggest a tentative rule of thumb. For the period after about 1750, all undesignated horn parts in *C* should probably be considered *basso* automatically, with a couple of extenuating circumstances: first, if a local tradition of high-horn playing can be determined that would predispose the performers towards *C alto*; second, if there is a determination made that the composer of a work is trying to achieve the brilliant, powerful, or tension-filled effect; third, if there are ancillary reasons, such as accompanying timpani parts or substitutions for trumpets, in the source materials; and finally, if there are convincing musical reasons for higher-pitched instruments. While this is perhaps more subjective than one might wish, it nonetheless provides a foundation from which future research can build in order to find some sort of conclusive information that will make this determination as logical and accurate as that for horns in *B \flat* .

In terms of performance practice, the addition of the French horn to the orchestral fabric was one of the most important developments of eighteenth-century orchestration. From their earliest appearance, horns provided less bombastic alternatives to the high *clarini*, later forming the harmonic foundation for the Classical orchestra on a less soloistic basis. Their tone color was crucial to the overall timbre of a work, highlighting non-string sonorities as well as blending the harmony. While the *alto-basso* issue may not be the most critical concern in understanding the instrumentation of the period, it nonetheless is one of the most audible, for the pitch level of the horns has a definitive effect on any given composition in the keys of B \flat and C. In turn, this cuts to the core of the musical aesthetic of the time, its impression and fundamental emotion. Fortunately, in at least one case—horns in B \flat —a solution to the problem can be found that reflects a standard performance practice of the time. For the second key, however, there exist enough exceptions to the acknowledged general rule that require further investigation.

NOTES

¹ Information on the history of the horn and its development can be found in Fritz Piersig, *Die Einführung des Hornes in die Kunstmusik* (Halle: M. Niemeyer, 1927); Robin Gregory, *The Horn*, 2nd ed. (New York: Praeger, 1969); Reginald Morley-Pegge, *The French Horn*, 2nd ed. (New York: Norton, 1973) and Kurt Janetzky and Bernhard Brüchle, *The Horn* (Mainz: B. Schott's Söhne, 1977; English transl., Portland, OR: Amadeus Press, 1988). An iconographical study is Bernhard Brüchle and Kurt Janetzky, *Kulturgeschichte des Horns* (Tutzing: Hans Schneider, 1976). But by far the most important monograph detailing the instrument in the eighteenth century is still Horace Fitzpatrick, *The Horn and Horn-Playing 1680-1830* (Oxford: Oxford University Press, 1970).

² Gottfried Reiche (1667-1734), best known today as the trumpeter for whom Johann Sebastian Bach wrote many of his *clarino* parts, was, like many other *Stadt Pfeifer* of that time, proficient on numerous other instruments, such as the horn. For further information on Reiche as a horn player, see Fitzpatrick, *The Horn*, p. 78, and the present author's article "Some Observations on Bach's Use of the Horn," *The Horn Call Annual* 1 (1989): 60-61, 64.

³ Johann Mattheson, *Das Neu-eröffnete Orchestre* (Hamburg: Benjamin Schillers Witwe, 1713), p. 267: "Die lieblich-pompeusen Waldhörner ... sind bey itziger Zeit sehr *en vogue* kommen/so wol was Kirchen=als *Theatral* und Cammer-Musik anlangt/weil sie theils nicht so *rude* von Natur sind/als die Trompeten/theils auch/weil sie mit mehr *Facilité* können trachtirt werden... Sie klingen auch dicker/ und füllen besser aus/als die übertäubende und schreyende *Clarinen*." This passage is paraphrased almost verbatim in Johann Eisel, *Musicus Autodidacticus* (Erfurt: J. M. Funck, 1738), p. 74. There is more specific information in both Mattheson and Eisel, which will be discussed presently.

⁴ See Morley-Pegge, *The Horn*, p. 70. This change came about mainly due to the increased use of hand-stopping, which made the lower registers more available to the average player. See also Fitzpatrick, *The Horn*, pp. 182-83.

⁵ One popular version of the *Inventionshorn* invented in Paris in 1781 by Lucien-Joseph Raoux was the *cor-solo*, an instrument with crooks only in the keys of G, F, E, E \flat , and D, thus emphasizing the middle keys at the expense of the higher or lower ones. See Morley-Pegge, *The Horn*, p. 22.

⁶ See Hugo Goldschmidt, "Das Orchester der Italienischen Oper im 17. Jahrhundert," *Sammelbände der Internationalen Musikgesellschaft* 2 (1902): 40. A modern transcription of this passage is found in

Morley-Pegge, *The Horn*, p. 80. Morley-Pegge notes that the horns are pitched in B \flat *alto*, with the exception of the fifth horn, which, due to a single low *d*, he states is in B \flat *basso*. See also Fitzpatrick, *The Horn*, pp. 5, 53; Fitzpatrick disputes the fact that this passage was written for horns at all. He proposes that it may have been intended for strings in imitation of horn calls. This question must remain open at present, since contemporaneous performance details of this opera are lacking.

⁷ See Adam Carse, *The Orchestra in the Eighteenth Century* (Cambridge: Heffer, 1940), pp. 23-29; Neal Zaslaw, "Toward the Revival of the Classical Orchestra," *Proceedings of the Royal Musical Association* 104 (1977-78): 171-76. Carse notes (p. 22) that the earliest appearance of an orchestra with four horns seems to have occurred in Vienna, where both the Royal Opera and Hofkapelle had two pairs at their disposal in 1721. Bach, of course, occasionally used a trio of horns (and timpani) in imitation of his clarino writing in his cantatas, such as BWV 193, but these were in lieu of the clarino trumpets and do not represent specialized horn parts. Other cities mentioned by Carse include Hamburg (1738), Mannheim (1756), and Stuttgart (1757). Zaslaw expands this number to include Ansbach (1782), Bethlehem, PA (1790), Berlin (1787), Bonn (1782), Esterháza (1765), Gotha (1782), Kassel (1783), Koblenz (1782), London (1776), Munich (1778), Naples (1773), Paris (1779), Regensburg (1783), and Turin (1774). His dates for the appearance of four horns in Mannheim (1782), Stuttgart (1789), and Vienna (1781) are based upon extant rosters and do not seem to represent their first appearance. According to Olof Kéxel's *Theater-Almanach* (Stockholm: Kungliga Tryckeriet, 1784), Stockholm hired a second pair of hornists, the brothers Steinmüller, in 1784.

⁸ Peter Gradenwitz, *Johann Stamitz* (Wilhelmshaven: Heinrichshofen, 1984), p. 101. Gradenwitz cites the *Chur-Pfältzischen Hoff- und Staats-Calender* for 1750/51. Cf. Carse, *Orchestra*, 23. The only apparent symphony by Johann Stamitz to use four horns is a now-lost work in C major. See Eugene Wolf, *The Symphonies of Johann Stamitz: A Study in the Formation of the Classical Style* (Utrecht: Bohn, Scheltema & Holkema, 1981), pp. 65, 440. According to the list in Barry S. Brook, *Reference Volume: The Symphony 1720-1840* (New York: Garland, 1986), even second-generation Mannheim composer Christian Cannabich wrote no symphony with four horns.

⁹ The number is taken from Neal Zaslaw, *Mozart's Symphonies: Context, Performance Practice, Reception* (Oxford: Clarendon Press, 1989), pp. 545-46. It is derived from those in categories I-III; the remaining categories consisting of unaltered overtures, symphonies extracted from serenades, lost and spurious works have been omitted.

¹⁰ Changing to E \flat and B \flat , presumably *alto*, in the second movement.

¹¹ Paul Bryan, "Haydn's Hornists," *Haydn Studien* 3 (1973): 53.

¹² *Ibid.*, p. 54; H.C. Robbins Landon, *Haydn: Chronicle and Works*, 5 vols. (Bloomington, IN: Indiana University Press, 1976-80), 2: 91-92. Another frequently mentioned possibility is that the pairs of horns alternated performances, or that one set was used almost exclusively for the hunt.

¹³ See, for example, the salary list of December 1775, reproduced in H.C. Robbins Landon and David Wyn Jones, *Haydn* (Bloomington, IN: Indiana University Press, 1988), p. 97. The hornists' salaries range from 42Fl 42 $\frac{1}{2}$ Kr (for first horn Joseph Oliva) to 27Fl 30Kr (for Carl Franz), with an average of about 36 Florins. Oliva's salary was higher than that of principal violinist Luigi Tomasini (who earned 40Fl 12 $\frac{1}{2}$ Kr), and the average of the horn players as a whole was higher than that of the vocalists (about 30Fl) and strings (ca. 20Fl). This is particularly significant when considering their possible function as string players on the side.

¹⁴ Othon Vandenbroeck, *Traité général des tous les instruments a vent a l'usage des compositeurs* (Paris: Boyer, 1793; reprint ed., Geneva: Minkoff, 1974), 2: "Il y a deux cors pour jouer les tons du haut et deux autres pour jouer les tons d'en bas."

¹⁵ This library is now part of the Statens Musiksamlingar, Stockholm.

¹⁶ See Åke Edenstrand, "Die Schwedische Hofkapelle in der Zeit von Kraus," in *Kraus und das Gustavianische Stockholm*, ed. by Hans Åstrand and Gunnar Larsson (Stockholm: Kungliga Musikaliska Akademien, 1984), pp. 115-16. The new pair of horns were the brothers Steinmüller, recruited from Esterháza by Kraus in 1783. See also Landon, *Chronicle and Works*, 2: 79-80, and Fredrik Dahlgren, *Anteckningar om Stockholms Teatrar* (Stockholm: Norstedt, 1866), p. 553.

¹⁷ S St Operettor S 8. For further information on this work, see the present author's "Joseph Martin Kraus' *Soliman II*: a Gustavian Turkish opera," *Svensk Tidskrift för Musikforskning* 70 (1988): 9-29.

¹⁸ See Kraus' autograph score, S St Operettor S 8. The score makes no mention of this high-low division; the appropriate staff in the score is labeled simply "Corni."

¹⁹ Between the Aria (No. 6) and the March (No. 7) the horns have no time to change from A to B \flat *alto*. However, there is an extensive scene change ("Scoscesa montagna, sulle cime della quale scopresi il castello d'Armide"), which could have been flexible enough to allow for the necessary time to change crooks and retune the horns. See Joseph Haydn, *Armide*, ed. Wilhelm Pfannkuch, *Joseph Haydn Werke*, XXV, Bd. 12 (Munich: G. Henle, 1965), p. 69.

²⁰ See Bertil van Boer, "The Four-Horn Question: Observations on an Eighteenth-Century Horn Performance Practice," *The Horn Call Annual* (1992): 36-37. Specific examples also include the final chorus of *Die Schöpfung*.

²¹ This is a short interlude of only twenty bars.

²² There are large numbers of rests inbetween the horn entrances and crook changes; it is, however, not beyond the bounds of reason to suggest that the "low" pair of horns might have performed in B \flat *alto* on this one occasion, since their instruments were equipped with a full complement of crooks for all keys.

²³ One should not forget that virtually every professional orchestral horn player of the period had a complete set of crooks for his instrument that encompassed all keys from C (and occasionally B \flat *basso*) to C *alto*. Therefore, even "high" horn pairs would be capable on occasion of performing in the keys of F and below. In *La finta giardiniera* the finale of the first act (No. 12) seems to demand that the "high" horn pair use a D crook in order to maintain the key alternations, and in the aria "Va pure ad altri" (No. 26) the scoring clearly seems to indicate that the first horn pair is required to use the E \flat or perhaps even the C *basso* crook. Confirmation of this high-low crossing can be found in the authentic score of Joseph Martin Kraus' *Aeneas i Cartago*, S St Operor D 1, where the high pair begin the fifth act in B \flat *basso*, changing to B \flat *alto* and back again over the course of 120 bars.

²⁴ This brings up the question of whether or not the arias "Mio padrone" and "Va pure ad altri" (No. 25 and 26) might not require the first pair of horns to be pitched in C *alto*, instead of C *basso* as implied in the present scoring. From a musical standpoint a case could perhaps be made for either; the traditional association of horns in C with C *basso*, the harmonic and timbral position vis-a-vis the trumpets (in No. 25) and second pair of horns (No. 26), and the availability of the C *basso* crook to the high horn pair (see Note 20). It is doubtful, however, that a definitive answer could be found at the present time without a final solution to the *alto-basso* controversy with respect to horns in C.

²⁵ Heinrich Domnich, *Méthode de premier et second cor* (Paris: Imprimerie du Conservatoire Impérial de Musique, 1807; reprint, Geneva: Minkoff, 1974), pp. 11-13.

²⁶ Cf. Landon, *Chronicle and Works*, 2: 255. The inclusion of a timpani part to be performed alongside the horns would seem to confirm Landon's assumption that the horns should be *alto*, however. Nonetheless, this addition does not alter the fundamental question of sonority.

²⁷ See Zaslaw, *Mozart's Symphonies*, pp. 49-51; Paul Bryan, "The Horn in the Works of Mozart and Haydn: Some Observations and Comparisons," *The Haydn Yearbook* 9 (1975): 189-255; idem., "Haydn's Alto Horns: Their Effect and the Question of Authenticity," *Haydn Studies: Proceedings of the International Haydn Conference*, ed. J. P. Larsen, H. Serwer, and J. Webster (New York: Norton,

1981), pp. 190-92; Robert Dearling and Anthony Hodgson, "Joseph Haydn: The London Symphonies," *The Haydn Yearbook* 9 (1975): 177; and Sonja Gerlach, "Haydns Orchesterpartituren: Fragen der Realisierung des Textes," *Haydn Studien* 3 (1984): 180-83.

²⁸ Ernst Ludwig Gerber, *Historisch-biographisches Lexikon der Tonkünstler*, 2 vols. (Leipzig: Kühnel, 1790-91), vol. 1, col. 549. This is paraphrased in Horace Fitzpatrick, "The Valveless Horn in Modern Performances of Eighteenth-Century Music," *Proceedings of the Royal Musical Association* 91 (1964/65): 53; see also Fitzpatrick, *Horn*, pp. 222-23; in the latter's appendix can be found a translation into English of the entire Gerber article.

²⁹ Gerber, *Lexikon*, vol. 1, col. 549.

³⁰ See Janetzky and Brüchle, *Horn*, p. 56; Morley-Pegge, *Horn*, p. 21. According to Morley-Pegge, "Evolution of the French Horn," *Proceedings of the Royal Musical Association* 69 (1942/43): 45, one of the earliest examples of an *Inventionshorn* containing a separate B♭ *basso* crook not attached in coupler fashion to the C *basso* crook is an instrument by Gottfried Haltenhof now in Paris, which is dated 1776.

³¹ Haltenhof seems to have been the first to have improved upon Werner's model by making the crooks fit by means of a slide; see Domnich, *Méthode*, p. v; and Morley-Pegge, *Horn*, p. 21 and Plate IV, 1. It is interesting to note that the Haltenhof horn in this picture (Paris, Collection of the Conservatoire, #1183) has crooks for keys from B♭ *alto* down to C *basso*; there is no B♭ *basso* crook. This is not to say that one did not originally exist, but it is curious that it would be the only "missing" piece in an otherwise complete set of crooks.

³² Fitzpatrick, *Horn*, pp. 131-33; and Morley-Pegge, "Evolution of the Horn," p. 46. The earliest instrument of this type is dated 1769, according to Fitzpatrick.

³³ Morley-Pegge, *Horn*, p. 22. Normally, B♭ *basso* could be reached by a combination of C *basso* crook and coupler, rather than a separate crook, though this rendered the instrument more cumbersome than usual.

³⁴ Morley-Pegge (*Horn*, p. 14) reports the existence of a "single-coiled *grosses Jagdhorn*" by an anonymous maker, dating from 1689, which one might infer means B♭ *basso* from his next reference to a "single-coiled *Waldhorn* in B♭ *alto*" constructed almost a decade later. This author's reference seems to be to an instrument in the collection of businessman Georg Heyer, formerly in Cologne and now in the musical instrument museum in Leipzig, which appears in a catalogue published by Georg Kinsky in 1911. The term *grosses Jagdhorn* refers in this instance to size, large enough to fit around a man with an oversized bell for extended sound projection, rather than pitch; the instrument in question appears to be in B♭ *alto*. Similarly, Morley-Pegge's mention (p. 13) of the five horns in Jean-Baptiste Lully's ballet de cour *La Princesse d'Elide* (1664), four in B♭ *alto* and one in B♭ *basso*, is not *prima facie* evidence for a *basso* horn. Lully's score actually shows nothing more than a general reference to the instrumentation, noting only that the horns, without specific numbers of instruments, ought to accompany the violins in the movement. Further, it is clear from the score that the "fifth horn in B♭ *basso*" is in reality only a *fondamento* part performed by the *basso continuo* in imitation of and to support the upper lines; there is no indication whatsoever that this part is to be played by a horn at all. See Barry Tuckwell, *Horn* (New York: Schirmer Books, 1983), pp. 14-15, for a score to this movement; the critical edition is found in Jean-Baptiste Lully, *Oeuvres Complètes, Comédie-Ballets* II (Paris: Éditions de la Revue musicale, 1930-39), pp. 14-22. In conclusion, there is no source-critical evidence to support a *basso* "fifth horn" here or anywhere else during this early period.

³⁵ See Anthony Baines, *Brass Instruments* (London: Faber and Faber, 1976), p. 164. Baines notes in a table that B♭ *basso* crooks are rare items (though couplers to lower the pitch from the C *basso* crook are not). Moreover, he lists instruments on sale from Malines in Tuerlinckx (both *cors à coulisse B haut à B bas* and *Cors à coulisse B haut, F et C*) and Schott in Mainz that both include and exclude

B \flat *basso*. See also Heinrich Christoph Koch, *Musikalisches Lexikon* (Frankfurt am Main: A Hermann dem Jüngern, 1802; facsimile reprint, Hildesheim: Georg Olms, 1964), col. 762, which mentions that a set of crooks normally ranges from C *basso* to B \flat *alto*.

³⁶ Bryan, "The Horn in the Works of Haydn and Mozart," p. 226, reiterated in "Haydn's Alto Horns," p. 190. Bryan states that "Körner, a Viennese artisan, raised Hampel's horn to high B \flat ." His source for this assertion is Birchard Coar, *A Critical Study of the Nineteenth Century Horn Virtuosi in France* (DeKalb, IL: the author, 1952), p. 5, which he says is based upon Fétis' article in the *Biographie Universelle* (Paris: Didot frères, 1889), which in turn is said to have been derived from Domnich. Domnich's *Méthode*, however, contains no such statement about Körner; indeed, the Viennese horn-maker is not mentioned by him at all. Moreover, such a conclusion would obviously be at variance with both the organological evidence and the description by Gerber, who states definitively that the original *Inventionshorn* was equipped with a B \flat *alto* crook with its own mouthpipe.

³⁷ Valentin Roeser, *Essai d'instruction à l'usage de ceux qui composent pour la Clarinette et le Cor* (Paris: Amand van der Hagen, 1764; 2nd ed., 1798; facsimile reprint, Geneva: Minkoff, 1972).

³⁸ Roeser, *Essai*, p. 13. He states specifically: "Je crois devoir avertir le Lecteur, que l'expérience et le grand usage que j'ai de composer pour cet Instrument, me permettent de faire les observations suivantes."

³⁹ Roeser, *Essai d'Instruction*, p. 16.

⁴⁰ Vandenbroeck, *Traité général*, p. 17. In his notational explication of the transposing versus the sounding pitch, he conflates both *alto* and *basso*, however. His example of written versus sounding notes is placed among the various keys in the expected position of the *alto* horn, but the musical example seems to indicate the *basso* instrument. This conflation is a good example of a certain confusion that accompanied the transition from high to low horn in common practice. See Julius Rühlmann, "Das Waldhorn," *Neue Zeitschrift für Musik* 68 (1872): 521.

⁴¹ Domnich, *Méthode*, p. 13: "Si, écrivant dans le ton de *si*, le compositeur veut donner à son morceau une couleur sombre, mélancolique ou religieuse, il emploiera avec succès le Cor en *si* bas; mais il doit le restreindre à de simples effets d'orchestre... Toutes les fois qu'il fera usage de ce ton, il aura soin d'écrire au commencement du morceau: *Cor en Si bas*."

⁴² Hector Berlioz, *Traité d'Instrumentation et d'Orchestration* (Paris: Henry Lemoine, 1843), p. 170. Landon (*Chronicle and Works*, 3: 531) uses an explanation by Joseph Haydn's friend William Shield to support the tradition that the composer's London symphonies were intended for B \flat *basso* horns. Shield states in his *Introduction to Harmony* (London: For the Author, 1800), "Corni in B.... The length of a B \flat horn renders the tone very dead, in consequence of which compositions in this key are often accompanied with E \flat horns" (p. 95). Shield then presents an example that differentiates written notes from their sounding pitches, from which, as Landon notes, "it is abundantly clear that *basso* is meant." This explanation has been accepted by Gerlach ("Haydn's Orchesterpartien," pp. 181-82), among others. A closer inspection of this treatise, however, reveals some problems with accepting Shield's statement at face value. First, Shield makes it clear that he is writing mainly for the amateur musician/composer at a time when the tonal preference was shifting from high to low horns, and therefore his comments cannot be taken as any sort of "tradition" that applied to professional performers or composers, especially prior to 1800. Second, the recommended replacement of the seemingly low B \flat horns with those in E \flat (or Dis) is simply a misreading of a commonplace custom that substitutes the latter for B \flat *alto*, as Domnich explains (*Méthode*, p. 12): "Il est cependant un moyen de rendre les *solos* de Cor exécutables sur ces deux tons (La et Si); ce moyen, analogue à celui qui a été employé pour le ton d'*ut*, consiste à les noter de manière que les morceaux en *si* [puissent être exécutés] sur le Cor en *mi* bemol." For example, a sinfonia associated with C.W. Gluck's

L'ivrogne corrigé (1760) clearly demonstrates this substitution principle through which the horns are more playable while retaining a semblance of the higher tone quality of the *alto* instrument. Finally, Shield's musical example is a gloss on Vandenbroeck, which, as has already been noted, demonstrates the ambiguous status of the B♭ horn during this transitionary period late in the century. It indicates that, far from decisively describing some sort of tradition, Shield simply passes on (and misreads) earlier and contemporaneous information. It would therefore be a grave mistake to cite this treatise as positive proof for a British B♭ *basso* tradition without any corroborative evidence.

⁴³ *Musikalisches Conversations-Lexikon* (1875), s.v. "Horn," p. 302.

⁴⁴ Vandenbroeck, *Traité générale*, p. 17; Rühlmann, "Das Waldhorn," p. 521. Vandenbroeck notes specifically that horns in B♭ *alto* should not rise above *e*", or *d*" if playing *forte*. But this comment must be taken with caution since he also states (p. 10) that no horn in *any* key should rise above *g*". This upper limit conflicts with the high-low horn ranges espoused by Domnich a decade or so later.

⁴⁵ See Vandenbroeck, *Traité générale*, pp. 17-18.

⁴⁶ E.g. *g*" or *a*". Roeser, *Essai d'Instruction*, pp. 13, 18: "Les cors ... sont les plus sonores et les plus pénibles à jouer, c'est pourquoi on ne les fait guère monter plus haut qu'au Sol ou au La de la deuxième octave." Since Roeser's treatise is a general orchestration textbook, it means that these pitches are the *normal* range of the *alto* horn, implying that higher pitches might have been written. Since Roeser does not mention the *basso* horn, no equivalent range can be given.

⁴⁷ Domnich, *Méthode*, p. 9.

⁴⁸ *Ibid.*, p. 9. He states specifically, "S'il est jaloux d'entendre exprimer tous les effets qu'il a eu intention de produire, il doit se renfermer, pour les simple parties d'accompagnement, dans les limites assignées ci-après." It must be noted that Domnich is writing a tutor mainly for professional students; it may be assumed that fully trained professionals would be able to exceed the eleventh partial limit set upon "simple parts."

⁴⁹ Berlioz, *Traité d'Instrumentation*, p. 170. Berlioz does call the use of the *g*" "rare," implying that in the nineteenth century, at least, such high writing would have been unusual, though not impossible.

⁵⁰ See Franz Anton Rössler, Symphony in B♭ Major, Kaul I/19, in *The Oettingen Wallerstein Court*, ed. by Sterling Murray, *The Symphony 1720-1840*, Vol. C VI (New York: Garland, 1981), pp. 82-83.

⁵¹ Specifically, *Fidelio*, Act I, No. 10 Finale, marked *B basso*. See also Johann Christoph Friedrich Bach, Symphony in B♭ Major HW I/20 (1794), ed. Edward Nolte (Madison, WI: A-R Editions, 1988), pp. 50ff. In this work the two horns "in B♭" are required to play sustained *c*" and *d*" in mm. 5-6, and frequently rise above *a*" throughout the entire work.

⁵² Gerhard Allrogen, Preface to *Sinfonien, Neue Mozart Ausgabe*, Serie IV, Werkgruppe 11, Band 1 (Kassel: Bärenreiter, 1984), p. xiii: "Im Falle der B-dur Sinfonie KV 22 (deren Primärquelle übrigens keinen Instrumentenvorsatz aufweist) ist es klar, daß die relativ sehr hoch notierten Hornpartien nur mit Instrumenten der Stimmung "B tief" besetzt werden können."

⁵³ Additionally, the *a*" also appears in the third movement several times.

⁵⁴ See also Zaslaw, *Mozart's Symphonies*, pp. 51-52. Zaslaw supports this editorial designation, arguing that this work must be *basso* since Mozart generally only writes *alto* horns up to the eleventh partial (*f*""). This argument is less convincing when one takes into account that this composer regularly uses the twelfth partial for B♭ *alto* horns in such pieces as the Symphony in G Minor KV⁶ 173dB, Symphony in B♭ KV⁶ 319, and the Cassation in B♭ KV⁶ 99, all of which lie within the range designated as "normal" for the orchestral players of the period by Roesner and Domnich.

⁵⁵ Bryan, "The Horn in the Works of Haydn and Mozart," p. 225.

⁵⁶ See Landon, *Chronicle and Works*, 3: 619; Gerlach, "Haydn's Orchesterpartituren," p. 181. Landon, further asserts that "Here we have sure proof that these high C and B♭ horn parts were Esterházy

specialties that Haydn never expected 'foreign' orchestras to duplicate." This summation, however, reads far too much into the anomalous designation, as will be shown presently.

⁵⁷ H.C. Robbins Landon, *The Symphonies of Joseph Haydn* (Vienna: Universal, 1957), pp. 124, 340; see also Gerlach, "Orchesterpartituren," pp. 181-82. Bryan ("The Horn in the Works of Haydn and Mozart," p. 224) states: "The B \flat alto theory stems from the fact that Haydn never bothered to designate 'alto' or 'basso'."

⁵⁸ Bryan, "The Horn in Haydn and Mozart," p. 224.

⁵⁹ Pierluigi Petrobelli and Wolfgang Rehm, Preface to *Il re pastore, Neue Mozart Ausgabe*, Serie II, Werkgruppe 5, Band 9 (Kassel: Bärenreiter, 1985), p. xvi. The editors claim that the use of *basso* for No. 3 is *zwingend*. They provide no other remark to support this assertion, however. Such a definitive statement without evidence to support it makes it unconvincing and without believability, given that it seems to ignore Mozart's own designation. The same sort of division occurs in *Idomeneo*: the arias "Padre Germani" (No. 1) and "Non ho colpa" (No. 2) are designated *Corni in B-fa* by Mozart, while the scena and rondo "Non temer" (No. 10) is clearly marked *B-fa bassi*.

⁶⁰ And elsewhere, if the overall division of the horn pairs into high and low is accepted as a general practice throughout Europe, as the first part of this essay has attempted to demonstrate.

⁶¹ Rühlmann, "Waldhorn," p. 496.

⁶² Murray Barbour, *Trumpets, Horns, and Music* (East Lansing: Michigan State University Press, 1964), p. 3. The examples of *chiavette* cleffing used by Barbour to indicate *basso* horns come from Lampugnani's *L'amor contadino* (1766) and Galuppi's *Ifigenia in Tauride* (1768); both of these works, however, merely state that the horns are in "B-fa" or "Si," with no other indications whatsoever of actual pitch level. Given the present arguments in this study, both must be in B \flat *alto*, with the tenor clef being "read" similarly to the bass clef used for E \flat horns; i.e. an octave higher.

⁶³ Roeser, *Essai d'Instruction*, pp. 14-17; Vandenbroeck, *Traité général*, p. 20; Domnich, *Méthode*, p. 6.

⁶⁴ Koch, *Musikalisches Lexikon*, p. 761: "Das Horn stehet um eine Oktave tiefer als die Trompete." As Gerlach ("Haydn's Orchesterpartien," p. 182) notes, the B \flat *basso* horn is *not* mentioned in Koch, though the B \flat *alto* horn is. Since, as will be shown, the C *basso* crook/horn, like that in B \flat *alto*, was considered a sort of standard, there is no reason to imply such an analogy.

⁶⁵ Bryan, "The Horn in Haydn and Mozart," p. 226.

⁶⁶ Anthony Hodgson and Robert Dearling, "Joseph Haydn—The London Symphonies," *Haydn Yearbook* 9 (1975): 157.

⁶⁷ Mattheson, *Neu-eröffnete Orchester*, p. 267.

⁶⁸ Hodgson and Dearling, "The London Symphonies," p. 177.

⁶⁹ Kathleen Hansell, Preface to *Lucio Silla, Neue Mozart Ausgabe*, Serie II, Werkgruppe 5, Band 7 (Kassel: Bärenreiter, 1986), p. xxxvi. She also notes that her decision to designate B \flat *basso* horns in Nos. 1, 18, and 19 are based upon her premise of "die Trompeten im Einklang" used for No. 11.

⁷⁰ Moreover, in at least one passage (m. 153), Mozart avoids a triadic sequence that would normally ascend up to *c*"', a note reached with some facility and frequency on the B \flat *basso* horn but extremely rare an octave higher. This is, of course, exactly the same sort of situation that exists in KV 22. Though this is of course circumstantial—as a creative composer Mozart did not absolutely have to use the upper note—the *c*"' would certainly have completed the triadic sequence more appropriately from an orchestrational point of view. This, however, really is no "proof" either for or against the pitch of the horns. In the remaining movements in B \flat , the horns and trumpets have the same ranges. One final question which the editor seems to have ignored is whether or not the Italian horn players for whom these parts were written were aware of or used the *Inventionshorn*, a German invention that had not yet become common throughout the rest of Europe by this time. If the old, cumbersome,

terminally-crooked *Waldhorn* was still in use in Italy, then the parts could only have been B \flat *alto*, since B \flat *basso* was unknown on this instrument.

⁷¹ Bryan, "The Horn in the Works of Mozart and Haydn," p. 225.

⁷² Zaslaw, *Mozart's Symphonies*, p. 51. Zaslaw states that Mozart's horns in B \flat "must be *basso* because Mozart placed them below a pair of horns in F."

⁷³ Deutsche Staatsbibliothek, I Abteilung, Preussischer Kulturbesitz Mus. Ms. Autogr. W. A. Mozart 130. See Zaslaw, *Mozart's Symphonies*, p. 226. Both pairs of horns were written into the third and fourth movement from the start, implying that between composing the beginning and end of the symphony Mozart must have become aware of the availability of an additional pair of horns and added the requisite parts retroactively to the missing movements.

⁷⁴ See Bryan, "The Horn in Mozart and Haydn," pp. 225-26; Gerhard Croll, Preface to *Die Entführung aus dem Serail, Neue Mozart Ausgabe* Serie II, Werkgruppe 5, Band 12 (Kassel: Bärenreiter, 1982), p. xxxiii; Rudolph Angermüller and Wolfgang Rehm, Preface to *La finta semplice, Neue Mozart Ausgabe*, Serie II, Werkgruppe 5, Band 2 (Kassel: Bärenreiter, 1983), p. xxi; Zaslaw, *Mozart's Symphonies*, p. 52.

⁷⁵ Bryan, "The Horn in Mozart and Haydn," p. 225. This author does, however, note (p. 227): "In spite of the logicity of the evidence presented ... a few unsettling observations remain; what about ... K. 183 where interlocking B \flat and G parts reinforce the melodic line only if performed as B \flat *alto*?" This is a reference to the clear-cut fact that Mozart's horn parts for this symphony have a melodic function and using B \flat *basso* horns would completely destroy the melodic line.

⁷⁶ Bryan, "The Horn in Mozart and Haydn," p. 224.

⁷⁷ Gerlach, "Haydn's Orchesterpartien," p. 181, n. 49.

⁷⁸ Croll, Preface, p. xxxii. In n. 128 he states that it is his editorial preference for *basso* horns in "Wer ein Liebchen" (Act I No. 2) even though he has followed the "tradition" of the early 1980s by placing the horns in *alto* in the edition.

⁷⁹ Ibid., p. xxxiii.

⁸⁰ Ibid.

⁸¹ Ibid: "Bei Nr. 15 ergibt sich bei 'alto'-Lesung eine bei Mozart sonst unbekannte und extreme Horn-Situation."

⁸² Ibid. He excuses his inability to decide the issue by stating, "Endgültige Lösungen für die besonders heikle Frage 'basso' oder 'alto' bei den B-Hörnern können schon deshalb nicht erwartet oder gegeben werden, weil uns praktische Erfahrungen mit B-alt-Naturhörnern so gut wie ganz fehlen." This excuse, of course, presupposes that B \flat *alto* horns are rare and little-used instruments, which, as has been demonstrated, is hardly the case. His practical solution to present the B \flat horns in *Die Entführung* as *alto* is thus a correct one.

⁸³ Angermüller and Rehm, Preface to *La finta semplice*, p. xxi. This statement has been accepted as "proof" without question by Zaslaw, *Mozart's Symphonies*, p. 51. Zaslaw attempts to reinforce this designation by postulating a difference between this aria and No. 20, which the editors have designated *alto*, on the basis that the former ascends up to the twelfth harmonic (*g*) while the latter only goes up to the "ninth" (*d*); in actuality the part goes up to *e*, the tenth harmonic). Such reasoning begs the question of whether Mozart always had to use *basso* for horns that rise to *g*, a conclusion that is in no way provable, especially given *alto* horn parts by this composer that regularly ascend to this harmonic (KV⁶ 99, 173dB, 319, and others). Since the *g* is well within the range of the eighteenth century B \flat *alto* horn, as has been demonstrated *infra*, the fact that the twelfth partial is used is no evidence whatsoever for the pitch of the horns.

⁸⁴ See James Webster, "The Bass Part in Haydn's Early String Quartets," *Musical Quarterly* 63 (1977): 402-16. One must remember that *La finta semplice* was written when Mozart was twelve and is the product of a not-yet mature, though ingenious composer; one simply cannot expect to evaluate the orchestration in this and other early works critically as if his mastery of the instrumentation of his time were absolute.

⁸⁵ Authentic score, Stockholm, Kungliga Operansbiblioteket, Operor D 1. It is also important to note in this triptych that Kraus also equates horns in B \flat (*Corni B*) with the change to B \flat *alto*, while he is always careful to use *basso* wherever he wants the low horns.

⁸⁶ This work is the first in which Mozart actually specifies the B \flat *alto* horn. See Bryan, "The Horn in Haydn and Mozart," p. 224.

⁸⁷ This evidence should put to rest once and for all the assertions that continually arise that the B \flat *alto* horn was a rare and little used instrument; see Croll, Preface, p. xxxii.

⁸⁸ Gerlach, "Haydn's Orchesterpartien," p. 181.

⁸⁹ While some evidence that C *alto* horns may have been more common than heretofore noted is beginning to emerge, it is clear that these instruments underwent a decline in usage relatively rapidly during the second half of the eighteenth century. They appear principally in a number of works by Joseph Haydn (symphonies, operas, *Die Jahreszeiten*), as well as in two works by Mozart, the Symphony in F Major KV⁶ 130 and a Contredance KV⁶ 448a.

⁹⁰ Mattheson, *Neu-eröffnete Orchestre*, p. 267: "Die brauchbarsten haben F. und mit den Trompeten aus dem C. gleichen *Ambitum*." This description is paraphrased almost exactly in Eisel, *Musicus Autodidacticus*, p. 74.

⁹¹ For a *Waldhorn*, C *basso* could be reached by adding all of the crooks and couplers together, a most cumbersome method which would have discouraged this pitch from a logistical standpoint alone.

⁹² Joseph C. F. B. Majer, *Museum musicum* (Schwäbisch Hall: Georg Michael Majer, 1732), 41: "... wie wohl man heutigs Tags auch C Wald-Hörner hat, welche eine vollig Octav tiefer sind als die Trompeten."

⁹³ See Roger Hellyer, "Some Documents Relating to Viennese Wind-Instrument Purchases 1779-1837," *Galpin Society Journal* 28 (1975): 51, 55. The documents regarding the purchase of *Orchesterhorns* from Ignaz and Anton Kerner (Körner) read in part: "A pair of Inventionhorns [sic] of the best type with all keys from high C to low B \flat ...Vienna the 9th of November 1807.... Specification: a pair of Inventionhorns [sic] able to be tuned naturally in every key, namely Waldhorns in high C, B \flat , A, G, F, D-sharp, E, D, C, [low] B \flat ... Hofmusikkapelle Act 1812." The reply to these orders indicates that the Kerners would manufacture the requested horns within five weeks.

⁹⁴ Roeser, *Essai d'Instruction*, p. 18; Vandenbroeck, *Traité général*, p. 4; Domnich, *Méthode*, p. 13; Berlioz, *Traité d'Instrumentation*, p. 171. Both Roeser and Domnich have extended explanations of this instrument and its uses (usually in conjunction with the B \flat *alto* horn). Vandenbroeck notates the horn and violin at the same pitch in his description of the ranges of horns, thus implying *alto*, while Berlioz, calling the instrument "Cor en Ut aigu," says that the upper limit is *e*".

⁹⁵ This is confirmed in a number of works, such as, for instance, Adam Vechter's Symphony in C Major dating from ca. 1760, in which the first horn ascends up to *a*" and remains for an extended period of time above *c*". See Barbour, *Trumpets*, pp. 111-12.

⁹⁶ Domnich, *Méthode*, p. 10: "Le Cor en *ut* est celui de tous qui exige le plus de vigueur ... un chant léger ou gracieux ne sera jamais bien rendu sur ce ton."

⁹⁷ Roeser, *Essai d'Instruction*, pp. 17-18.

⁹⁸ Domnich, *Méthode*, p. 13: "Si, écrivant dans le ton d'*ut*, le compositeur veut donner à son morceau de la vivacité, du mouvement et de l'éclat, il emploiera avec succès le Cor en *ut* à l'octave, mais comme le timbre propre à ce ton est très-perçant, on doit le réserver pour les effets bruyans.

Il est également nécessaire d'écrire en tête du morceau *Cor en Ut à l'octave*. Le cor en *ut* à l'octave a la même étendue que le Cor en *Si* haut, et relativement à cette étendue, il est divisé de la même manière pour les deux genres."

⁹⁹ Domnich *Méthode*, p. 13; Roeser, *Essai d'Instruction*, p. 17.

¹⁰⁰ Domnich, *Méthode*, p. 13, n. 1: "Ce ton est toujours usité en Allemagne; et le parti qu'en peuvent tirer les compositeurs donne lieu de regretter qui depuis long-tem[p]s on n'en fasse plus usage en France" (*Italics added*). "Germany" presumably can be interpreted to mean "German-speaking," since Domnich himself was German but trained in the Bohemian tradition.

¹⁰¹ Bryan, ("The Horn in Haydn and Mozart," p. 227) concurs in this assertion.

¹⁰² Landon, *Chronicle and Works*, 2: 631.

¹⁰³ See n. 100.

¹⁰⁴ See Hodgson, *The Music of Joseph Haydn: The Symphonies* (London: Tantivy, 1976), pp. 56-59. But see also Sonja Gerlach and Ullrich Scheideler, Preface to Joseph Haydn, *Sinfonien um 1757-1760/61, Joseph Haydn Werke I/1* (Munich: G. Henle, 1998), p. x and n. 39.

¹⁰⁵ Landon, *Chronicle and Works*, 2: 299.

¹⁰⁶ Charles Burney, *The Present State of Music in Germany, the Netherlands, and the United Provinces*, 2 vols. (London: self-publication, 1775), 1: 26.

¹⁰⁷ Fitzpatrick, *Horn*, p. 114.

APPENDIX I

Addenda to Selected Editions Concerning the B \flat Horn

A survey of published editions containing horns in B \flat is beyond the scope of this study, given that it would encompass many thousands of works. It is possible, however, to present a selection in order to demonstrate how the issue should be clarified given the evidence presented in this study. The edition chosen is *Neue Mozart Ausgabe*, primarily because it is now complete, and the other large alternative, the *Joseph Haydn Werke*, has all parts of the older volumes designated simply “B/f \sharp ”, which is the equivalent to B \flat *alto*. This table is not exhaustive; those undesignated parts in B \flat that have been correctly assigned by the editors, such as *Mithridate* and *Die Entführung aus dem Serail*, have been omitted to save space. It is hoped that the editors of the editions below will issue the appropriate corrigenda to their work.

Work	Vol.	Mvt.	Composer	Editor	Actual
Die Schuldigkeit des ersten Gebotes KV 35	I/4/1	No. 7 Aria	B/f \sharp	S \flat	B \flat alto
La Bethulia Liberata KV 74c	I/4/2	No. 1 Aria	B/f \sharp	S \flat	B \flat alto
		No. 11 Aria	B/f \sharp	S \flat	B \flat alto
La finta semplice KV 46a	II/5/2	No. 7 Aria	B/f \sharp	S \flat basso	B \flat alto
Ascanio in Alba KV 111	II/5/5	No. 5 Aria	B/f \sharp	S \flat	B \flat alto
		No. 12 Aria	B/f \sharp	S \flat	B \flat alto
		No. 21 Aria	B/f \sharp	S \flat	B \flat alto
		No. 31/32 Trio	B/f \sharp	S \flat	B \flat alto
Lucio Silla KV 135	II/5/7	No. 1 Aria	B/f \sharp	S \flat basso	B \flat alto
		No. 11 Aria	B/f \sharp	S \flat Basso	B \flat alto
		No. 18 Aria	B/f \sharp	S \flat basso	B \flat alto
		No. 19 Cavatina	B/f \sharp	S \flat basso	B \flat alto
La finta giardiniera KV 196	II/5/8	No. 27 Duet	B/f \sharp	S \flat	B \flat alto
Il re pastore KV 208	II/5/9	No. 3 Aria	B/f \sharp	S \flat basso	B \flat alto
		No. 8 Aria	B/f \sharp bassi	S \flat basso	B \flat basso
Der Schauspieldirektor KV 486	II/5/15	No. 3 Trio	B/f \sharp	S \flat	B \flat alto
Aria Per quel paterno KV 73d	II/7/1		Corni	S \flat basso	B \flat alto
Symphony KV 22	IV/11/1		B/f \sharp	S \flat basso	B \flat alto

Symphony KV 45b	IV/11/1	B/f♯	Si♭	B♭ alto
Symphony KV 130	IV/11/3 Mvt. 2	B/f♯	Si♭	B♭ alto
Symphony KV 132	IV/11/3 Mvt. 2+	B/f♯	Si♭	B♭ alto
Symphony KV 166c	IV/11/4	B	Si♭	B♭ alto
Symphony KV 173dB	IV/11/4	B	Si♭	B♭ alto
Contradance KV 73g	IV/13/1	B/f♯	Si♭	B♭ alto
Minuets KV 176	IV/13/1 Mvts. 4, 10	B/f♯	Si♭	B♭ alto
German Dance KV 586	IV/13/2 Mvt. 9	B	Si♭	B♭ alto
Dances KV 448b	IV/13/2 Mvts. 3, 22	B	in B	B♭ alto
Rondo KV 261a	V/14/1	B/f♯	Si♭	B♭ alto
Serenade KV 370a	VII/17/2	B	Si♭ basso	B♭ alto

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