

EARLY EXAMPLES OF MIXED-KEYED HORNS AND TRUMPETS IN WORKS OF C. GRAUPNER¹

Thomas Hiebert

As interest in the horn as an art instrument broadened during the 18th century, composers sought ways to include it more regularly in orchestral music. One of the ways they did this was to write for horns or horn(s) and trumpet(s) pitched in different keys at the same time (hereafter, mixed-keyed horns or brass), thereby combining the resources of more than one harmonic series and increasing the number of open notes available to them. Though writing for mixed-keyed horns or horns and trumpets became commonplace in the latter part of the 18th century, it is unusual in works from the early 18th century.² G.F. Handel, N. Porpora (1686-1768), and J.I. Linek (1725-91) were among those in the early 18th century who were aware of the technique, though they made little use of it.³ One who exploited mixed-keyed brass more fully was Christoph Graupner (1683-1760), the principal court composer in Darmstadt during the first half of the 18th century.⁴ Graupner is unique among his contemporaries in developing this technique systematically in his compositions.⁵ Since Graupner anticipated the mixed-keyed brass orchestration procedures that became so important in works of late-18th- and 19th-century composers, his own work merits examination.

An extremely prolific composer, Graupner wrote for horn in 153 of his at least 1,442 cantatas, and also in eight overtures, three sonatas, two concertos, one opera and 99 out of 113 symphonies.⁶ Not clear from these raw figures is the increasing interest that Graupner showed in the horn as his career proceeded. His early cantatas require the horn only sporadically – the instances sometimes separated by several years – but by the mid-18th century they appear with increasing frequency. When one also takes into consideration the instrumental works – especially the symphonies, which date from late in his life – one observes in Graupner's works as a whole a rapid increase in use of the horn at mid-century.⁷ Eventually the horn was used so frequently that it became a standard and integral part of the Darmstadt orchestra and an important tone color in Graupner's orchestral palette.⁸

Graupner's increasing use of the horn indicates that he must have found it to be more versatile and effective in the musical texture as time went on. Adding much to its versatility was the greater availability of horns pitched in many keys, though the different keys were at first not combined. The frequency with which Graupner used horns rose commensurately with the number of keys in which they could be crooked since they could continue to play when there was a change of key between movements or pieces. Extant manuscript literature in Darmstadt shows that F was Graupner's key of choice for horn from the initial occurrence in 1712 until the eighth in 1722.⁹ In the latter year horn in D is required for the first time.¹⁰ Graupner soon pressed the advantage of this new horn key, for the same year marks the first appearance in his works of horns in two different keys, D and F, in separate movements in the secular cantata *Jauchze, Darmstadt, sei voll Wonne!* (That is, there is a change of key

between movements.)¹¹ Moreover, in *Jauchze* one also finds the first instance of horns and trumpets playing together, in the key of D.¹² Horn parts in G show up soon after those in D, in 1724; C, E \flat and A appear later.¹³

While changing horn keys between movements allowed Graupner to employ horns more frequently, his use of mixed-keyed brass allowed still wider applications. Although mixed-keyed brass procedures would have been possible as early as the 1710s had he *combined* the variously keyed brass instruments scored in his early cantatas (horns in F, trumpets in C or D), Graupner appears not to have become aware of or interested in combining brass instruments in various keys simultaneously until 1728, with the sacred cantata *Nun danket alle Gott*.¹⁴ As can be seen in Table I, Graupner employed mixed-keyed horns and trumpets in eighteen works during the period 1728 to 1753. Since he wrote for horn in at least 266 compositions, this represents a small though significant fraction of the total.

With the resources of two, and eventually three different harmonic series, Graupner was free to employ his brass instruments in novel ways. As Table I reveals, Graupner sometimes combined a single horn in F with one in G. A simplified way of illustrating the advantages of this set-up can be found in Figure 1. Here open notes of the F and G harmonic series on horn have been transposed to concert pitch. This yields a virtual scale, Graupner's characteristically conservative use of the fourth through sixth and eighth through twelfth harmonics notwithstanding.¹⁵ By writing for horns a step apart Graupner has effectively filled in the gaps in the middle register of the horns' scale and is thus able to expand the gamut of pitches available in the middle to low register.

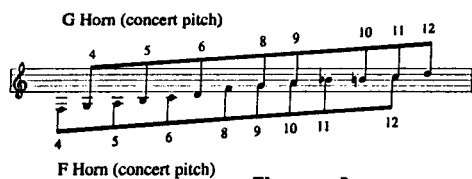


Figure 1

Combined concert-pitch note-gamut for horns in F and G—harmonics 4-6 and 8-12

Graupner often scored together brass instruments keyed a fourth—or more frequently, a fifth—apart. There were specific reasons for choosing these relationships, the most obvious being that with them, brass instruments could participate in the subdominant or dominant key areas more easily. As can be seen from Table I Graupner at times went so far as to combine horns in two different keys with trumpet(s) in yet a third key, the trumpet's open notes adding to those of the horns. By contrast, the few examples of mixed-keyed brass by other composers in the early- and mid-18th century are confined to instruments in two keys a fourth or fifth apart.¹⁶ Table I also demonstrates that Graupner adhered to no rigid formula, but experimented continually with mixed-keyed brass combinations. His innovative procedures of scoring instruments pitched a step apart and with *three* keys in a variety of combinations set him apart from his contemporaries.

The increase in possibilities for open notes resulting from mixed-keyed brass technique allowed Graupner to write for horns and trumpets in two novel ways, which I shall call the “chordal” and “imitative” approaches. The chordal approach simply combines notes from more than one harmonic series to produce intervals or chords, many of which are otherwise not possible on brass instruments confined to the normal series tones, especially in the middle register. A good illustration of this is seen in Example 1, the opening chorus from Graupner’s cantata *Wie ungleich ist der Menschen Leben* (1732).¹⁷ Here Graupner calls for *clarino* or trumpet in D, and two horns, a *corn di selv* in G and one in F.¹⁸ As is common in Graupner’s scores, the trumpet part is notated at concert pitch while the horn parts are written an octave below concert pitch (see explanation below). In the second measure the trumpet and horns combine to produce a tonic *minor* chord in the mid-range, a chord not common in natural brass writing.¹⁹ On the second beat of measure 3, Graupner abruptly shifts to a tonic *major* chord with an \natural sounded in both trumpet and chorus, thereby providing a most effective setting of the lines “Wie ungleich ist der Menschen Leben” (“How uneven is man’s life”), the juxtaposition of minor and major chords representing the uneven nature of life.

The image shows a page of a musical score for the opening chorus of C. Graupner's cantata *Wie ungleich ist der Menschen Leben*. The score is arranged in a system of ten staves. From top to bottom, the staves are: Clarino (trumpet in D), Corno di Selv. G. (horn in G), Corno di Selv. F. (horn in F), Violino I & II (Violino I and Violino II), Viola, Canto (Soprano), Alto, Tenore (Tenor), Basso (Bass), and Basso continuo. The vocal parts (Canto, Alto, Tenore, Basso) have the lyrics "Wie ungleich ist der Menschen Leben" written below them. The instrumental parts are written in a key signature of one flat (B-flat major/D minor) and a common time signature. The Clarino part is written in a higher register than the other instruments. The Corno di Selv. G. and Corno di Selv. F. parts are written an octave below concert pitch. The Violino I and II parts are written in a higher register than the Viola, Canto, Alto, Tenore, Basso, and Basso continuo parts.

Example 1

C. Graupner: *Wie ungleich ist der Menschen Leben* (1732), opening chorus, mm. 1-5 (see explanation of horn notation in text)

Graupner's notation for horn requires explanation here as it is confusing, though not particularly unusual in 18th-century manuscripts.²⁰ His notational practices can be divided into two periods. Early scores and scribes' parts from 1712 until 1721 employ what might be called normal horn notation for the time, that is, using treble clef and transposing to C. Later, from 1721 until 1754, Graupner and his scribes use a variety of notational practices. In scores Graupner often uses the bass clef an octave below concert pitch, as seen in Example 1; the individual horn parts, however, are usually written in C in the treble clef, regardless of how they are notated in the score. (Compare the gamut of pitches for F horn in *Wie ungleich* as given in Graupner's score and in the horn part – Figures 2a, and 2b.) No reason for the variety of notational forms is evident, other than that Graupner appears to have



Figure 2a

Pitch-gamut for F horn in Graupner's score for *Wie ungleich ist der Menschen Leben* (numbers refer to harmonics)



Figure 2b

Pitch-gamut for horn in F as notated in part for Graupner's *Wie ungleich ist der Menschen Leben* (numbers refer to harmonics)

preferred to compose his scores at concert pitch and players preferred to read from parts written consistently in C in the treble clef.

Example 2 illustrates Graupner's second approach, using mixed-keyed brass imitatively, in an overture from ca. 1741-43.²¹ Here a statement by two trumpets in the tonic key is echoed by two horns in the dominant in concertante style (again, the horn parts are shown as Graupner notated them, in the bass clef one octave below sounding pitch). The procedure is straightforward: by employing the same harmonics on differently-pitched instruments one effects a restatement in a new key, or emphasizes a new harmony – something not as easily done with horns and/or trumpets in the same key. Variants of the imitative approach also occur, for example when instruments respond to each others' lines but do not repeat them exactly. In addition, the imitative approach highlights timbral differences between shorter and longer instruments, whereas the chordal approach emphasizes a blend of

instruments' timbres. It should be mentioned that in practice, aspects of the two approaches are often combined; the examples presented here were chosen to illustrate each of the approaches in isolation.

The musical score for Example 2 consists of five staves. The top staff is for Clarino 1 [in C], followed by Clarino 2 [in C], Corno 1 [G Horn], Corno 2 [G Horn], and Violini unisoni. The music is in 3/4 time. The Clarino parts feature a rhythmic pattern of eighth notes with triplets, and the Corno parts feature a similar pattern with triplets. The Violini unisoni part features a simple rhythmic pattern of eighth notes. Harmonics are indicated by numbers in brackets above the notes: [12 13 12 11 12 11 etc.] for the Clarino parts and [12 13 12 11 12 11 etc.] for the Corno parts.

Example 2

C. Graupner: *Ouverture a 2 Clarin, 2 Corn di Selv, 2 Violin, Viola e Cembalo* (c. 1743), *Chaconne*
(numbers in brackets refer to harmonics)

Another way in which some 18th-century composers increased the horn's repertoire of notes was to require tones outside the harmonic series (non-series tones) that required lipping or hand-stopping. The examples from Graupner's music presented here, however, include no non-series tones, and this is essentially representative of his writing for horn. There is even a certain avoidance of the 11th harmonic, a tone Graupner's contemporaries routinely used for a written f' or f'' . Most importantly, I found no examples of non-series tones used in a solo context. When non-series tones are called for (and they are quite rare) they usually are a result of doubling the soprano line in a chorale at the end of a cantata. Based on an examination of Graupner's horn writing, then, the Darmstadt hornists appear not to have engaged in extensive lipping or hand-stopping of tones.

Works by other composers in the Hessische Landes- und Hochschulbibliothek in Darmstadt indicate that Graupner knew of certain advanced horn-playing techniques, but for some reason he did not adopt them. For example, copies in Graupner's own hand of

works by Telemann, J.F. Fasch, and the Graun brothers show that he was aware of a very virtuosic style of horn writing using the highest portion of the instrument's compass, as well as many non-series tones – including notes in the extreme low register.²² Graupner's reluctance to use these styles may have had to do with the abilities of his horn players or perhaps to aesthetic preferences on his or his horn players' parts.

As we have seen, Graupner's solutions to the limitations of the natural horn (and trumpet) were mixed-keyed brass procedures utilizing two and three keys and instruments pitched a step apart. These were his most innovative brass devices. Because Graupner's cantatas and orchestral works were not published in his lifetime and their dissemination was slow, direct influence on other composers is not clear.²³ Nevertheless, Graupner's various uses of mixed-keyed brass during the period 1728 to 1753 clearly foreshadow the eventual widespread adoption of this important technique: many late-18th- and 19th-century composers use both the chordal and imitative mixed-keyed brass approaches employed by Graupner. Among composers at mid-century who employed the technique briefly were J.F. Fasch (1688-1758), N. Jomelli (1714-1774), and Leopold Mozart;²⁴ soon other composers began to use it on a more regular basis. For example, F.J. Haydn first used mixed-keyed horns in 1765 in his Symphony in D Hob. I:35, the "Hornsignal," with pairs of horns in G and D, and later in other works. Leopold Mozart's use of the technique in the 1750s and 60s may well have inspired his son to use it.²⁵ W.A. Mozart first employed mixed-keyed horn writing at the tender age of fourteen, in *Mitridate*, K. 87 (1770): here there are four horns, two in A and two in E. He continued this practice in such mature works as his Symphony No. 40, K. 550 in G minor (1788) with single horns in B \flat alto and G.²⁶

Mixed-keyed horn (and brass) procedures survived in various guises well into the valve era. This is clear in the scores of many 19th-century composers in which horn parts are written in two or more keys. In some of these works a combination of valve and hand-stopping technique was likely used – for example, employing the valves to effect a quick crook change.²⁷

Given the advantages of mixed-keyed brass as employed in works of Graupner and latter-18th- and 19th-century composers, why did early-18th-century composers not employ the technique more often? As is evident from the works of Handel and others cited earlier, a number of composers writing in the early 18th century knew of this possibility, but showed little interest in it. Severable plausible explanations come to mind. One is that early 18th-century composers simply did not have the requisite number of players or instruments at hand to employ mixed-keyed brass, especially where hornist and trumpeter were one and the same. But as we have seen in Graupner's works, the technique was possible even with as few as two players playing in some of the most common keys for brass instruments of the time – for example, horn in F or G with trumpet in C or D, or one horn in G with one horn in F. Moreover, any of a number of early-18th-century composers who wrote for pairs of horns and trumpets together could have scored for mixed-keyed brass.²⁸ They did not, however.

Since lack of instrument or player did not necessarily hinder early-18th-century composers from using mixed-keyed horns (or trumpets), there must have been other

reasons. One may have had to do with traditional horn writing practice. Given that a pair of horns (and hornists) was the norm, composers would have been forced to use individual horns in different keys to employ mixed-key procedure, and this presented certain problems. For example, when single horns are pitched in different keys they cannot as readily play hallmark figures such as “horn fifths” or conjunct melodies in thirds that were the stock-in-trade of traditional horn writing. Moreover, individual horns in different keys could not as effectively reinforce the tonic key in ritornellos due to one horn “laying out” on many pitches. Also, with horns playing in more key areas and thus more continuously in a composition, the usual timbral contrast between brass-dominated tonic and brass-tacet non-tonic sections that had become standard treatment for horns and trumpets was lost. Finally, crooked in different keys, horns and trumpets could not double each other’s lines or echo each other as easily in the same key as was common in early-18th-century practice. Therefore, though using horns in more than one key made the horn more flexible in terms of the keys it could play in, it also undermined many traditional horn-writing procedures. One might say that horns, or horns and trumpets, in the same key are in a sense naturally more harmonious or consonant with each other than those in different keys; mixed-keyed horns or trumpets were not “matched.” Very likely mixing timbres of instruments – especially with single instruments – of different length did not suit early-18th-century composers’ sensibilities nor the aesthetic of the period.

Because of these strong early-18th-century brass-writing traditions, the emergence of mixed-keyed horns and trumpets signifies a departure from then-current orchestration practice. In other words, instead of writing idiomatically using the limited open-note possibilities on horn or trumpet in a single key, composers employing mixed-keyed brass could more easily *orchestrate* their music selecting open pitches available from a combination of instruments. This new orientation became more common as the 18th century progressed. As Bryan has noted, W.A. Mozart appears to have sought a “much fuller harmonic sound” with the combination of horns and trumpets in different keys with oboes in his *Litaniae de venerabili* of 1772.²⁹ Composers were especially attracted to mixed-key horns because it increased their options in writing for the horn and offered a “greater depth of expression” in using the instrument more frequently.³⁰ This was doubtless a factor in Graupner’s interest in mixed-keyed brass.

The many keys in which the horn was crooked by the middle of the 18th century naturally made it better suited to a wider variety of mixed-keyed applications than the trumpet, and this eventually had a direct impact on orchestration and even on the constitution of the orchestra. In contrast to the common practice of using double winds in trumpet and woodwind sections in the 18th and early 19th centuries, use of four horns in the orchestra – often in mixed-keyed pairs – was already prevalent in the latter part of the 18th century.³¹ By the early 19th century this became even more common.³² Though it is clear that at times composers employed four similarly crooked horns purely for the sonic effect of full-voiced (usually tonic) chords, grounds for the eventual standardization of four horns in the orchestra in the 19th century can also be found in the procedure of crooking pairs of horns in two or more keys simultaneously. With two mixed-keyed horn pairs, as

opposed to horns in the same key or single horns in different keys, composers had the advantage of using horns in the progressive way, combining open tones from different harmonic series, while at the same time preserving their traditional role as pairs playing horn fifths and the like in matched timbre. Interestingly, the dearth of non-series tones for horn in late-18th-century orchestral scores, combined with the increasing use of mixed-keyed brass, illustrate that composers of orchestral works often preferred mixed-brass procedures to hand-stopping as a means of expanding the gamut of horn pitches available to them.³³ This was already true for Graupner.

In conclusion, we have seen how Graupner's interest in the horn led him to use it with increasing frequency and in novel ways as his career proceeded. Prime among his accomplishments was the combining two or more horns, or horns and trumpets, in mixed keys to achieve new brass effects and sonorities. What is remarkable is that Graupner used these procedures in a systematic fashion thirty-five years before they were employed with any frequency by the principal composers of the late 18th century.

TABLE I

**C. Graupner's Works That Utilize Mixed-Keyed
Horns and Trumpets Simultaneously**

<u>Trumpet(s)</u>	<u>Horn</u>	
C (2)	G (2)	1728, <i>Nun danket alle Gott</i> ; DS 436/1
C (1)	G (1)	1733, <i>Gott der Herr, der Mächtige</i> ; DS 441/28
C (1)	F (2)	1739, <i>Gott, deine Gerechtigkeit ist hoch</i> ; DS 447/25
D (2)	G (2)	1745, <i>Danket dem Herrn</i> ; DS 453/7
D (1)	G (2)	1746, <i>Es jauchzet alle Kreis der Erden</i> ; DS 454/39
D (2)	G (2)	1747, <i>Dies ist der Tag</i> ; DS 455/13
D (2)	G (2)	1748, <i>Bey Pauken und Trompeten</i> ; DS 416/9
D (1)	G (2)	1750, <i>Frolocket, ihr Himmel</i> ; DS 458/23
D (2)	G (2)	1753, <i>Der Herr erhöre dich</i> ; DS 461/6

<u>Horn I</u>	<u>Horn II</u>	
G	F	1730, <i>Erwach, mein Gemüthe</i> ; DS 416/12
G	F	1747, <i>Was sagt ihr den Lebendigen</i> ; DS 455/9
G	D	1748, <i>Jesus ist bereit zu retten</i> ; DS 456/2

<u>Trumpet(s)</u>	<u>Horn I</u>	<u>Horn II</u>	
D (1)	G	F	1732, <i>Wie ungleich ist der Menschen Leben</i> ; DS 440/18
C (1)	G	F	1732, <i>Das Ende kommt, der Tod</i> ; ³⁴ DS 440/30
C (2)	G	F	1732, <i>Ich Weisheit wohne bei der Witze</i> ; DS 440/33

<u>Trumpets</u>	<u>Horn I</u>	<u>Horn II</u>	
D (2)	G	F	c. 1742, Overture; DS 464/77
D (2)	G	G	c. 1741-43, Overture; DS 464/37
D (2)	G	G	c. 1746-47, Sinfonia; ³⁵ DS 470/11

NOTES

1. This article is a revised version of a paper presented at the Eighth Early Brass Festival, Amherst, Massachusetts, August 1992. I would like to thank the German Academic Exchange Service (DAAD) for a research grant that allowed me to visit Darmstadt for an extended study visit during the summer of 1990. I would also like to thank Dr. Oswald Bill, director of the Musikabteilung at the Hessische Landes- und Hochschulbibliothek (hereafter DS), for help in many matters relating to the manuscript collection and history of music in Darmstadt.

2. Since the focus here is on writing for *horn*—and horn and trumpet—in mixed keys, works for two or more trumpets in different keys are not considered in this study, though there are examples from the 18th century. For example, W.A. Mozart used trumpets in C and D in his Divertimento in C Major, K. 188/240b. The Divertimento in C Major, K. 187/159c = Anh. C 17.12 formerly attributed to Mozart, but composed largely by Joseph Starzer and Christoph Willibald Gluck, also employs trumpets in C and D.

3. Handel used mixed-keyed horns in *Giulio Cesare* (1723), Act I, “Viva il nostro Alcide,” with horn pairs in A and D, and from Act III, Sinfonia and chorus “Ritorni ormai nel nostro core,” both with horn pairs in G and D; *Händels Werke*, ed. F.W. Chrysander, vol. lxxviii (Leipzig, 1875). Helmut Hell indicates that in the sinfonia to Porpora’s *Adelaide* (1723) trumpets in D and horns in G are used together; see *Die Neapolitanische Opernsinfonie in der ersten Hälfte des 18. Jahrhunderts*, Münchner Veröffentlichungen zur Musikgeschichte, no. 19 (Tutzing, 1971), pp. 53-4. Handel’s and Porpora’s examples antedate Graupner’s use of mixed-keyed brass by five years. Interesting examples of mixed-keyed brass are found in a collection of 12 *Korunováčntí Intrády* (Coronation Intradas) performed at the coronation of Maria Teresa in Prague in 1743; in *Staré České Fanfáry*, ed. Jarmil Burghauser (Prague: Státní Hudební Vydavatelství, 1961), 24-36. The intradas, thought to have been written by Jiří Ignác Linek, employ four trumpets in D with two horns in A, and timpani. Works for a single hornist who changes between differently pitched horns are not considered here; e.g. in Johann Beer’s *Concerto a 4*, ed. Kurt Janetzky (Zürich, 1978), the player switches between Posthorn in B♭ and Jagdhorn in F.

4. Manuscripts in DS testify to this activity and are an excellent source for broadening our understanding of issues central to the acceptance of the horn in art music of the early 18th century. In the summer of 1990 the author systematically analyzed virtually all works that included the horn by composers active in the early 18th century in DS. This involved examination of approximately 360 unpublished manuscripts of C. Graupner, S. Endler, Telemann, the Graun brothers, and J.F. Fasch, among others. Discussion here is limited to works using mixed-keyed brass written by Graupner. A larger study of Darmstadt horn works of the Baroque is in process. Important sources on Darmstadt’s

musical life in the 18th century are: Wilibald Nagel, *Christoph Graupner als Sinfoniker*, Musikalische Magazin, no. 49 (Langensalza, 1912); Friedrich Noack, *Christoph Graupner als Kirchenkomponist*, Beihefte zu den Denkmälern deutscher Tonkunst (Leipzig, 1926); Martin Witte, "Die Instrumentalkonzerte von Johann Christoph Graupner," PhD diss., Göttingen, Georg-August Universität, 1963; Elisabeth Noack, *Musikgeschichte Darmstads vom Mittelalter bis zur Goethezeit*, Beiträge zur mittelrheinischen Musikgeschichte, vol. 8 (Mainz, 1967); Andrew D. McCredie, "Christoph Graupner—The Suites and Sonatas for Instrumental Ensemble at Darmstadt," *Studies in Music* 17 (1983): 91-111; Myron Rosenblum, introduction to *Johann Christoph Graupner (1683-1760): Four Symphonies*, in The Symphony, series C, vol. 2 (New York, 1984); Oswald Bill ed., *Christoph Graupner: Hofkapellmeister in Darmstadt 1709-1760*, Beiträge zur mittelrheinischen Musikgeschichte, no. 28 (Mainz, 1987).

5. Apart from the examples cited above, no mixed-keyed brass examples have turned up in the writer's studies of horn works in other early 18th-century manuscript collections, namely the Sächsische Landesbibliothek in Dresden, the Wissenschaftliche Allgemeinbibliothek in Schwerin, the Universitätsbibliothek Münster, or in printed works composed in the early 18th century. Moreover, in a survey of manuscript works for horn in DS from the first half of the 18th century, no work (other than those of Graupner) employing mixed-keyed horns or brass was found. The only example that resembles Graupner's mixed-keyed brass treatment is in Samuel Endler's cantata *Das Raritaeten Mann* from 1747 (DS 264). In the bass aria "O bella Maria, o bella Teresa" a *cornò da posta* in F and one in B \flat alternate playing simple octave leaps.

6. Graupner includes the horn in 136 of his more than 1,418 sacred cantatas. In his secular cantatas the percentage increases, with 17 of 24 including horn parts; information from archival study at DS and sources listed in note 4. Virtually all of Graupner's known compositions with horn are preserved in manuscript form at DS; a large portion of these are autographs.

7. Since Graupner dated the autograph scores for virtually all of his sacred and secular cantatas, one can plot the use of brass instruments fairly easily. His cantatas with horn cover the period 1712 to 1754. Even his undated instrumental works have been given approximate dates by Friedrich Noack, probably based on a comparison of paper types in the cantatas. Oswald Bill, director of the DS, informed me (June, 1990) that it is possible that Graupner recopied some of his cantatas. Therefore, though all cantatas are dated, the instrumental work dates assigned with the aid of cantata paper types may be inaccurate. For further discussion of problems relating to dating of instrumental works see Rosenblum, *Graupner*, p. xvii; and Peter Cahn, "Die Sinfonien Christoph Graupners," *Christoph Graupner: Hofkapellmeister in Darmstadt 1709-1760*, Beiträge zur mittelrheinischen Musikgeschichte, Nr. 28, (Mainz: Schott, 1987), 213-220.

8. Graupner possessed a keen sense for instrumental color in his cantatas that is well demonstrated by his use of flauto d'amore, oboe d'amore, descant and bass chalumeaux, viola d'amore, and even the utilization of four or five drums in timpani parts to enable them to double bass lines and play quasi-melodically.

9. That Johann Mattheson was accurate in citing F as the most popular key for horn in the first decades of the 18th century in his *Das neu-eröffnete Orchestre* (Hamburg, 1713), p. 267, is borne out in the many compositions for horn in F at this time. As in Darmstadt, in Dresden the key of F appears most

frequently in early works for horn during the second decade of the 18th century; see Thomas Hiebert, *The Horn in Early 18th-Century Dresden: The Players and Their Repertory* (DMA diss., University of Wisconsin-Madison, 1989), pp. 52-53. It is not known if the horns used in early-18th-century Darmstadt had crooks or were available only at fixed pitch. No iconographical sources are known that show the horn used in concert from early-18th-century Darmstadt; information from Oswald Bill, June 1990.

10. The first dated use of horn in D is found in the sacred cantata *Jesus führt uns selbst zur Weide* (1722), autograph score, DS 430/12. Based on recent research considering the alto/basso question the author believes that the horn part was most likely performed in D *basso*; information presented by author at the 10th Early Brass Festival in Amherst, MA (August, 1994) in a paper entitled "Johann Friedrich Fasch and his Compositions with Horn." An in-depth study of this topic is in preparation.

11. *Jauchze, Darmstadt, sei voll Wonne!* (1722), autograph score, DS 416/5. In Graupner's compositions the practice of changing between two keys in different movements of a work continued sporadically until 1748 when the first example of three key changes within a piece occurs in *Bey Pauken und Trompeten* (DS 416/17), with horns in F, G, and D.

12. Where horn and trumpet play together it appears that the horn parts may have been an afterthought since they are added in red ink to the two staves occupied by the black-ink trumpet parts. Because horns and trumpets do not occur together until 1722 in Darmstadt scores this might indicate that until this time horn and trumpet parts were played by the same players, and after this time by players who specialized on either horn or trumpet. Heather Platt's study of the musicians in Darmstadt from 1709-60 does show that few players specialized on a single instrument; however, since numerous horn players and trumpet players are listed already in the second decade of the 18th century and indications as to the players' main instrument are not clear, such conclusions are not possible. See Heather Platt, "Die Darmstädter Hofkapelle unter Christoph Graupner 1709-1760," in *Christoph Graupner: Hofkapellmeister in Darmstadt 1709-1760, Beiträge zur mittelrheinischen Musikgeschichte*, no. 28 (Mainz, 1987), 27-72.

13. The first dated use of horns in the keys of G, C, E \flat , and A are as follows: key of G in the secular cantata *Auf Darmstadt, lass dein Jauchzen hören* (1724), autograph score, DS 416/7; key of C in the sacred cantata *Herr, Herr haben wir nicht* (1747), autograph score, DS 455/36; key of E \flat in the sacred cantata *Blaset mit Posaune* (1748), autograph score, DS 456/8; key of A in the sacred cantata *Jesus ist der beste Lehrer* (1748), autograph score, DS 456/30. As in other early-18th-century large ensemble repertory for horn, the key of E \flat is underrepresented and the key of E is not represented at all.

14. Strictly speaking, mixed-brass procedures would have been possible as early as trumpets and/or horns in different keys were available.

15. The eleventh harmonic here is treated as an $f\sharp$, though Graupner occasionally treated it as an $f\sharp$.

16. See nn. 3 and 24.

17. *Wie ungleich ist der Menschen Leben*; autograph score, DS 440/18.

18. Graupner's nomenclature for horn is quite variable: for example, the designations *corno di selva* (abbreviation of *selvatica*, or *selva*, in Italian, meaning "forest"), *cor de chasse*, *horn de chasse* (1715), *Waldhorn* (1721), *cornu de caccia*, *corno da caccia* and *corno* appear to be interchangeable; no correspondence was found between the name and key or style of writing. As found on the score and on the protective wrapper he prepared, Graupner almost always uses the *corn. de selva* designation in his early cantatas. Later he simply used the abbreviation *corn*. The scribes who copied parts use a variety of forms, sometimes following Graupner's designations as given in the score, but often simply writing *corno*. Graupner's designations *clarino* and *tromba* appear to be synonymous since they are used interchangeably in scores and parts.

19. *Clarino* in D on the sixth harmonic, *corno 1* in G on the sixth harmonic, and *corno 2* in F on the eighth harmonic.

20. Further discussion of notational procedures for 18th-century horn and trumpet parts are found in J. Murray Barbour, "Unusual Brass Notation in the Eighteenth Century," *Brass Quarterly* 2, no. 4 (June 1959): 139-146; Barbour, *Trumpets, Horns and Music* (East Lansing, MI, 1964), pp. 1-9; "Zur Notierung der Hörner" in Klaus Haller's *Partituranordnung und musikalischer Satz*, Münchner Veröffentlichungen zur Musikgeschichte, no. 18 (Tutzing, 1970), pp. 273-77.

21. *Ouverture a 2 Clarin, 2 Corn di Selva, 2 Violin, Viola e Cembalo*; autograph score, DS 464/37; dated c. 1741-43 by Friedrich Noack.

22. For example, in J.F. Fasch's *Ouverture* in D, for which Graupner prepared a *Titelumschlag* (a protective wrapper with the title on it, DS 1184/6), the first horn in D plays up to the eighteenth harmonic while the second hornist plays down to the first harmonic; in both horn parts one finds numerous non-series tones: in the bass clef E, F♯, and B, and in the treble clef d', f, a', and b'. Another manuscript of the same overture is found in the Sächsische Landesbibliothek in Dresden, MS 2423-N-36; see Hiebert, "Horn," pp. 246-47. Rüdiger Pfeiffer has estimated the date of composition for this *Ouverture* in D (FWV K: D 10) at c. 1740 in *Verzeichnis der Werke von Johann Friedrich Fasch (FWV): kleine Ausgabe*, Studien und Materialien zur Musikgeschichte des Bezirkes Magdeburg, 1 (Magdeburg, 1988), p. 52. For further information on works of Telemann, J.F. Fasch, and the Graun brothers that Graupner copied, as well as his relationships to these composers, see E. Noack, *Musikgeschichte Darmstadts*, pp. 169-250.

23. Study of the dissemination of Graupner's cantatas and instrumental works has not yet revealed enough information to make firm statements about his influence. Some of his manuscripts eventually made their way to other libraries though most are still at Darmstadt; see list of Graupner's works in *New Grove Dictionary of Music and Musicians*, s.v. "Graupner, Christoph," by Andrew McCredie.

24. J.F. Fasch used pairs of horns in G and D in his *Ouverture* in G, Sächsische Landesbibliothek Dresden, Mus. 2423-N-16; see Hiebert, "Horn," pp. 179-181. Rüdiger Pfeiffer has estimated the date of composition for Fasch's *Ouverture* in G (FWV K: G 5) at c. 1750 in *Verzeichnis* p. 59. Hell indicates that in the *sinfonia* to Jomelli's *Talestri* (1751) trumpets in D and horns in G are used together (*Die neapolitanische Opernsinfonie*, pp. 53-54). Leopold Mozart employed mixed brass on at least three occasions: in his *Sinfonia da caccia*, Seiffert 3.29 (1756), with horns in G and D, in *Denkmäler der Tonkunst in Bayern*, ix/2; in his Mass in C, second version, Seiffert 4.1 (before 1764), with horns in

G and trumpets in C, cited in Neal Zaslaw, *Mozart's Symphonies: Context, Performance Practice, Reception* (Oxford, 1989), p. 345; and in his *Litaniae de venerabili* in C, Seiffert 4.6, (c. 1768) with horns in G and trumpets in C, in *Denkmäler der Tonkunst in Bayern*, ix/2. Barbour mentions numerous composers who utilized mixed-brass technique in the 18th century in *Trumpets*, pp. 24-34. Among the composers cited who may have used the technique by mid-century are: Henri-Jacques de Croes (1705-86) and Joseph Riepel (1709-82).

25. Interestingly, L. Mozart's *Litaniae de venerabili* (c. 1768) combining horns in G and trumpets in C is followed about four years later by W.A. Mozart's own *Litaniae de venerabili*, K. 125 (1772) employing a similar configuration of horns in F with trumpets in B \flat ; both pieces utilize trumpets in the tonic and horns in the dominant.

26. Information on horn usage of F.J. Haydn and W.A. Mozart is taken from Paul R. Bryan, "The horn in works of Mozart and Haydn: some observations and comparisons," *The Haydn Yearbook* LX (1975): 198-255; see pp. 192-201 and 216-21 for information on mixed-keyed brass.

27. See Christian Ahrens, *Eine Erfindung und ihre Folgen* (Kassel, 1986); Reginald Morley-Pegge, *The French Horn*, 2nd ed. (London, 1973), pp.105-112; Jeffrey Snedecker, "Joseph Meifred's Méthode pour le Cor Chromatique ou à Pistons (1840)," *Historic Brass Society Journal* 4 (1992): 87-105.

28. Like J.S. Bach's writing in *Der zufriedengestellte Äolus* BWV 205 (1725), J.D. Heinichen, J.F. Fasch, J.D. Zelenka, J.A. Hasse, and Heinrich Stöelzel all wrote for trumpets and horns together in D, largely in vocal works.

29. Bryan, "The Horn," p. 194.

30. *Ibid.*, p. 193.

31. For a discussion of numerous composers who used mixed-keyed brass in the late 18th century see Barbour, *Trumpets*, pp. 24-34.

32. Four horns were not standard in orchestral music until after the beginning of the 19th century. See Bertil van Boer, "The Four-Horn Question: Observations on an Eighteenth-Century Horn Performance Practice," *Horn Call Annual* 4, (1992): 33-43.

33. In solo and chamber works for horn from the late 18th century, hand-stopping was more important than mixed-keyed horns—especially where the presence of a single player made mixed-keyed brass impossible.

34. *Das Ende kommt, der Tod* has been published in *Christoph Graupner: Ausgewählte Kantaten*, ed. Friedrich Noack, in *Denkmäler Deutscher Tonkunst*, 1. Folge, vols. 51-52 (Wiesbaden, 1960), pp. 151-67.

35. Nagel index number 96; see Rosenblum, *Graupner*, pp. xxiii-xxviii.