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Questions of Tonality in Bach's Cantatas: The Woodwind Perspective

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IT IS COMMON KNOWLEDGE that Johann Sebastian Bach originally wrote some of his cantatas in keys other than those in which they are now generally known. This notion has often been used to explain the many difficult passages in Bach's works. But how many pieces are actually in question? The genesis of this article was an attempt to determine which cantatas were involved, what the original keys were, why they were not now published in those keys, and what should be done about it. These questions, justifiably called "a troublesome area of Bach studies,"¹ can be answered in the light of the conclusions to my study of Bach's pitches published in this journal last year.²

No blanket solution exists for all the pieces in question; each must, in the end, be considered individually. Although the answers proposed here affect both voices and instruments, they have the most telling results for players of the woodwind instruments Bach used in his pre-Leipzig cantatas: the recorder, oboe, and bassoon. Since Bach wrote an overwhelming number of superb obbligato parts for the oboe, it is to this instrument that this study is primarily addressed. I hope that it will shed some useful light on this brightest single facet of the oboist's repertoire.

The Problem of Instrumental Pitch

The problem of keys originated in the difference in pitch between various instruments. In Bach's time, church organs were generally tuned very high (the A being about as high as modern B \flat or even higher), while woodwinds were a step or more lower. A system of notating parts was therefore developed that called for some parts to be written in a different key, an expedient not unlike that adopted for the so-called "transposing instruments" in the modern orchestra; (where, for example, the part for the B \flat

1. Laurence Dana Dreyfus, *Basso Continuo Practice in the Vocal Works of J. S. Bach: A Study of the Original Performance Parts* (Ann Arbor: University Microfilms, 1980), 199.

2. Bruce Haynes, "Johann Sebastian Bach's Pitch Standards: The Woodwind Perspective," this *Journal* 11 (1985), 55–114.

clarinet, which sounds a step lower than the other woodwinds, is written a step higher by way of compensation).

Organ pitch, called *Chorton*, was a long-established standard in northern Germany. Its roots went back to the Renaissance. The organs at the Thomas- and Nicolaikirchen in Leipzig, with which Bach worked, had been built in the sixteenth century,³ and their pitch was not changed until well after Bach's time.

The other, lower pitch arrived in Germany in the late seventeenth century on the tide of the orchestral innovations from France first inspired by Jean-Baptiste Lully (1632–87). This new style rapidly captured the fancy of musicians in many German cities and courts. It first brought the old organ tradition into question and later swept it aside. Along with the new style came the recently invented French woodwinds: the oboe, bassoon, recorder, and transverse flute. These instruments were scarcely more flexible in pitch than the old organs, and since they were from France, where pitch had been lower for some time,⁴ they were tuned a tone or tone and a half below German Chorton. The lower pitch became known as *Cammerton*. For various practical reasons, neither the organs nor the woodwinds could adapt to the other pitch for a period of several generations.

My previous article demonstrated how frequencies for these two pitches can be established.⁵ Many writers of Bach's time described Chorton and Cammerton in relation to each other, and a number of reliable scientific measurements of pitch were recorded. Comparing these descriptions with the course of development of the new woodwinds in the seventeenth century, and with the pitches of instruments of the time that have survived (especially recorders, flutes, and organs), it is possible to arrive at absolute historical pitch levels with reasonable certainty.⁶ The probable pitches used by Bach at various places in his career are summarized in table 1.

3. Arthur Mendel, "On the Pitches in Use in Bach's Time," *Musical Quarterly* 41 (1955): 471.

4. W. R. Thomas and J. J. K. Rhodes, "Pitch," *The New Grove Dictionary of Music and Musicians* (1980), 14:783.

5. See note 2.

6. Previous studies of pitch have not taken into account reliable data from early instruments and contemporary scientific reports which amplify and serve as a control on information that is otherwise open to differing interpretations. My conclusions are therefore partly at variance with some but not all previous pitch studies. See Willi Apel, *Harvard Dictionary of Music*, 2d ed. (Cambridge, Mass.: Belknap Press, 1969), 678–79; Nicholas Bessaraboff, *Ancient European Musical Instruments* (Cambridge, Mass.: Harvard University Press, 1941), 357, 378; Mendel, "On the Pitches in Use in Bach's Time"; idem, "Pitch in Western Music since 1500: A Re-examination," *Acta Musicologica* 50 (1978): 1–93, 328; and Thomas and Rhodes, "Pitch."

TABLE I
 Probable Pitches Used by Bach During His Lifetime
 (Notes are approximate and assume A-440 Hz)

		<i>Chorton</i>	<i>Cammerton</i>
Mühlhausen	A =	B \flat	A \flat
Weimar	A =	B \flat	G (normally)
Cöthen	A =	—	G and/or A \flat
Leipzig	A =	B \flat	A \flat

During the process of pitch assimilation, which spanned Bach's career almost exactly, an informal system of notation was developed in northern Germany that allowed instruments at Chorton and Cammertone to be used in the same pieces. Since Cammertone instruments sounded lower in pitch, the common factor in this system was always that their parts were written higher than the organ part. But, to our confusion, Bach applied this system of notation differently in each of the four places where he wrote cantatas.

Six of Bach's cantatas survive from his Mühlhausen period, twenty-six from Weimar, and thirteen from Cöthen; all the rest (including reworkings of some of the earlier ones) are from Leipzig.⁷ At Mühlhausen and Weimar, Bach treated the Cammertone woodwinds as if they were transposing instruments like the modern B \flat clarinet and F horn. Since the rest of the band was tuned to the Chorton organ, only the woodwinds appeared in a higher key. The pitch difference at Mühlhausen was a major second, but at Weimar it was normally one and one-half steps, or a minor third. Since no organ parts from Cöthen survive, no difference, if any existed, can be determined.⁸ At Leipzig, Bach again changed his system, writing all the parts in the same key except the organ part (and usually the brass parts). All these methods of notation are summarized in table 2.

These changes would be only of academic interest but for the effect they have had on most modern editions of the cantatas. A modern editor is faced with a problem when the original music is written in two different keys, since the normal assumption nowadays is that all the instruments (modern or original) will be at the same pitch and therefore in the same key. Obviously, a choice of one universal tonality must be made. The edi-

7. Werner Neumann, *Handbuch der Kantaten Johann Sebastian Bachs*. 4th ed. (Wiesbaden: Breitkopf und Härtel, 1971), 269.

8. Laurence Dreyfus, letter to the author, 19 August 1985.

TABLE 2

The key of C major for the organ produces the following keys for the other instruments:

	Mühlhausen	Weimar	Cöthen	Leipzig
Organ	C	C	C	C
Brass (usually)	C	C	C	C
Voices	C	C	C	D
Strings	C	C	C	D
Woodwinds	D	E ^b (usually)	C	D

tors of the first definitive series of Bach's works, the old Bach-Gesellschaft (BG) edition (which is still the usual source for publications of cantata material, including pocket scores), solved this puzzle in a way that seemed quite reasonable in the late nineteenth century: they normally retained the key for which there was the greatest number of parts.⁹ As the woodwind parts were with the majority in the systems used at Cöthen and Leipzig, their keys for these cantatas were faithfully reproduced. But among the earlier cantatas, the woodwinds ended up transposed down either one or one and one-half steps. This not only changed the original key but caused problems of range as well, and, as Arthur Mendel pointed out, "misrepresents the technique of the woodwind instruments as Bach used them."¹⁰ We can now also add that it sometimes makes the parts virtually unplayable on original instruments.

Key changes in the cantatas are less noticeable when modern woodwinds are used, since unlike their baroque counterparts they are intended to play equally well in many tonalities, and their range is usually larger. But the current interest in performance on original instruments has made it imperative to resolve the question of original tonalities. When Telefunken began its monumental series of recordings of the complete Bach cantatas on original instruments in the late 1960s, the performers immediately noticed tonality problems with Cantatas 12 and 21. This called for some practical research into questions of pitch and notation that had been ignored in the BG edition of the cantatas. As Neumann wrote,

9. Alfred Dürr, *Studien über die frühen Kantaten Johann Sebastian Bachs*, 2d ed. (Wiesbaden: Breitkopf und Härtel, 1977), 217. In some cases, only the woodwind parts are printed in the BG in their original keys, but no clues are provided as to how to resolve the dilemma thus created.

10. Mendel, "On the Pitches in Use in Bach's Time," 339.

Modern editions must take this [question] into account by finding suitable transpositions [in early cantatas]; this is a problem for which the old Bach edition offered no useful solution.¹¹

The seventeen cantatas in which the tonality of the woodwinds is in question are listed in table 3. Sixteen of them are pieces in which the wood-

TABLE 3
Cantatas With Questions of Tonality That Involve Woodwinds

<i>Number</i>	<i>Date</i>	<i>Difference in pitch</i>	<i>Woodwinds involved</i>	<i>Original woodwind key</i>	<i>BG key</i>
12	1714	2nd	Ob	G minor	F minor
18	1713	2nd	Recs, Bsn	A minor	g minor*
21	1714	2nd	Ob, Bsn	C/D minor	C minor
23	1723	—	Obdms, Bsn	B minor	C minor
31	1715	3rd	Obs, Taie, Bsn	E♭	C
71	1708	2nd	Recs, Obs, Bsn	D	C
106	1707	2nd	Recs	F	E♭
131	1707	2nd	Ob, Bsn	A minor	G minor*
132	1715	3rd	Ob, [Bsn]‡	C	A*
150	1713/14	3rd	Bsn	D minor	B minor*
152	1714	3rd	Rec, Ob, [Bsn]	G minor	E minor
155	1716	3rd	Bsn	C minor	A minor
161	1715	3rd	Recs, [Bsn]	E♭	C*
172	1714	2nd/3rd	Ob, Bsn	D	C
182	1714	3rd	Rec, [Bsn]	B♭	G
185	1715	2nd/3rd	Ob, Bsn	G/A minor	F♯ minor
199	1714	2nd	Ob, Bsn	D minor	C minor

This table is based on information given by Neumann, Dürr, Mendel (1955), Dreyfus, and the *Kritische Berichte* of the NBA. The instrument abbreviations are: Bsn = Bassoon; Ob = Oboe; Obdm = Oboe d'amore; Taie = Taille de hautbois; Rec = Recorder.

*Woodwind parts printed by the BG in their original keys in these pieces (without explanation).

‡The bassoon parts in brackets may have been present, since wind instruments play the treble lines.¹²

11. Neumann, *Handbuch*, 11. Unless otherwise indicated, all translations are by the author.

12. But Bach evidently did not automatically consider the bassoon a sort of bass oboe. In an interesting study, "Fragen zur Fagottbesetzung in der Kirchenmusikalischen Werken Johann Sebastian Bachs," *Bach Jahrbuch* (1968), K. Brandt points out that Bach often writes for bassoon with strings, even in movements in which the oboe is present in the ensemble but tacet. See also Dreyfus, *Basso Continuo Practice*, 216–17.

wind parts were originally written one or one and one-half steps higher than the other parts (to compensate for the fact that they sounded a corresponding one or one and one-half steps lower). In these cantatas, the strings were notated in the key of the organ, indicating that they were tuned up to its pitch. Of these sixteen pieces, seven (BWV numbers 12, 18, 21, 71, 106, 131, and 199) involve a difference in pitch of a second and seven (31, 132, 150, 152, 155, 161, and 182) a difference of a minor third; two (172 and 185) were written in different versions using both intervals.

All seventeen of these cantatas were written prior to Bach's appointment at Leipzig. There, Bach consistently used Cammerton notation; that is, all the parts were written in the same key except those for instruments traditionally in Chorton—the organ, cornetto, and usually the brass—which were pitched a second higher. Bach used some of these early cantatas again at Leipzig, however, which meant that he had to make the same kinds of adjustments that we must make now. His revisions for Leipzig therefore offer us solutions as well.¹³

In dealing with cantatas for which the difference in pitch was a major second, Bach usually transposed the string parts up a step and left the woodwinds as originally written. There were several reasons for doing so: since the strings at Leipzig were tuned at Cammerton (about A-410) rather than (as at Mühlhausen and Weimar) Chorton (about A-460), if the parts had been left in their original key, the strings would have sounded a tone lower at Leipzig than originally conceived. This consideration also applied to the vocal parts. For this reason, a transposition up a step produced the original sounding pitch of the cantata. It also had the advantage of retaining the original woodwind key, the importance of which will be explained below.¹⁴

Cantatas originally written with a difference of a minor third between the parts present a more complicated situation. There are two practical problems: 1) when the original woodwind key is used, the sounding pitch of the vocal parts is effectively raised one-half step, which may be too high; and 2) as with the other cantatas, transposition of the strings upward one step sometimes produces awkward keys (A to B, B minor to C# minor, F#

13. As Christoph Wolff points out ("Bach, J. S." III:21, *The New Grove Dictionary of Music and Musicians* 2:818): "Throughout his life Bach was his own severest critic. Even in works which went through two or three different versions . . . the 'final' version does not represent a definitive one but merely a further state in the search for perfection."

14. There is only one exception to this practice: Cantata 21 was later performed once in D minor (the original pitch) and once in C minor. See the discussion of this cantata in the comments on table 5.

minor to G \sharp minor). Each of these pieces therefore needs to be treated individually. Where the original Chorton key cannot be used, Bach's solutions (or if these are lacking, our own) generally involve either substituting a different instrument (as in 31 and 161) or a lower key for the woodwinds (as in 132 and 155). As Alfred Dürr noticed, of the cantatas with an interval of a minor third which Bach reused at Leipzig, not one escaped retransposition.¹⁵

In order to find practical solutions to the performance of these cantatas, we must consider what factors are involved in reconciling tonalities both a whole step and minor third apart. There are four general performing groups that will be affected by transposition: the voices, the string band, the organ, and the woodwinds. We will examine each in turn.

There are strong indications that sounding Chorton was the same or very nearly the same at Mühlhausen, Weimar, and Leipzig. Both Mendel¹⁶ and Dürr¹⁷ have shown that it probably was the same at the latter two places, and Mendel also found that the notation of vocal parts at Leipzig is on the average nearly a tone higher than at Mühlhausen and Weimar.¹⁸ Since the voices were written at Cammerton at Leipzig (ie., a tone lower than at the other places), the vocal parts would probably have sounded at about the same pitch at all three places.¹⁹ This resolves the question about the voices except for the cantatas written in keys a minor third apart;²⁰ these will be treated below when we look at the solutions Bach himself found for the same problem.

Although stringed instruments are also sensitive to changes in pitch and key, strings were regularly retuned as much as a whole step up and down in the early eighteenth century.²¹ When Johann Kuhnau, Bach's predecessor at Leipzig, did not want to transpose his organ parts to unusual tonali-

15. Dürr, *Studien*, 76.

16. Mendel, "On the Pitches in Use in Bach's Time," 354; idem, "Pitch in Western Music since 1500," 77.

17. Dürr, *Studien*, 76–77.

18. Mendel, "On the Pitches in Use in Bach's Time," 352.

19. Dürr, *Studien*, 77 n. 6.

20. As already noted, if these cantatas are performed at the higher of the two notations, the vocal parts will sound one-half step higher than originally conceived. We are assuming the following highest notes for solo singers, based on a comparison of Cantatas 1–10:

Soprano: g \sharp "

Tenor: g \sharp ' / a'

Alto: e \flat "

Bass: e'

With voices, range can be less important than tessitura, however; an occasional high note is not necessarily significant.

21. See Dreyfus, *Basso Continuo Practice*, 199.

ties, in at least three instances he had his string players tune up a step.²² Bach himself twice requested an exceptional one-half step tuning down to “tieff-Cammerton.”²³ Explaining how to reconcile Chorton and Cammerton, Adlung writes in 1783:

Kann der Organist eine Secunde tiefer spielen, oder der Direktor der Musik schreibt dessen Stimme einen Ton tiefer, die besaitete Instrumente stimmt er alsdenn um 1 Ton tiefer um nicht alles umschrieben zu müssen.²⁴

The organist can play a second lower, or the director of the music writes the organ part a tone lower, and tunes the stringed instruments down a tone so as not to have to rewrite everything.

The violin solos of H. I. F. von Biber (1644–1704) offer another example of such retuning of the strings. Aside from the many pieces in scordatura, two of the *Sonatae Violin Solo* (1681) require new tunings of a whole step in the middle of the piece.

Although many writers objected to the thought of woodwinds tuned up to Chorton,²⁵ it seems to have been acceptable on stringed instruments. Many strings, in fact, were apparently designed to play at this pitch (about A-460), since it was the prevailing tuning at Cremona, where many violins (and models of violins) were made.²⁶ Still, J. G. Walther points out that one of the advantages of using Cammerton is that the strings will hold their pitch better²⁷ (and Adlung adds that this is especially true in humid weather).²⁸

Retuning the strings was a common practice, and a better solution than transposition, which changes the fingerings and the relative position of the open strings, thus affecting the sonorities of specific notes (the tonal effects of open-stringed chords, which Bach exploited, for example, in Cantata 161, are especially important).²⁹

22. Arnold Schering, *Johann Sebastian Bachs Leipziger Kirchenmusik* (Leipzig, Breitkopf und Härtel, 1936), 59.

23. In Cantatas 23 and 194. See the remarks on Cantata 23 in the discussion of table 5, and Mendel, “On the Pitches in Use in Bach’s Time,” 347.

24. *Ibid.*, 346 (text and translation).

25. Discussed in Haynes, “Johann Sebastian Bach’s Pitch Standards,” 71–73. See also Johann Joachim Quantz, *Versuch einer Anweisung die Flöte traversiere zu spielen* (Berlin, 1752), translated by Edward R. Reilly as *On Playing the Flute* (New York: Free Press; London: Faber and Faber, Ltd., 1966), 268.

26. Discussed in Haynes, “Johann Sebastian Bach’s Pitch Standards,” app. C.

27. J. G. Walther, *Musicalisches Lexicon* (Leipzig, 1732), “Cammerton.”

28. J. Adlung, *Musica mechanica organoedi*, 2 vols. (1726), ed. J. L. Albrecht with additions by J. F. Agricola (Berlin, 1768), 1:193.

29. Cf. Mendel, “On the Pitches in Use in Bach’s Time,” 340.

The usual method of dealing with a higher organ pitch is explained in the statement by Adlung quoted above. Bach used the same system in Leipzig, copying the organ part down one step. But transposition at sight was evidently expected of a competent organist. In the introduction to his *Harmonische Gottesdienst* (begun in 1725), G. P. Telemann writes:

Die Stücke des sämtlichen Jahr-Ganges sind nach dem Cammer-Tone eingerichtet, wesswegen nötig ist, dass der General-Bass für die Organisten in den Kirchen, wo man sich der Cammer-Tonstimmenden Instrumente bedient, jedesmal transponiret werde, und kann man nach folgendem Entwurfe, welcher die in diesem Werke etwa vorkommenden Töne enthält, aufs leichteste verfahren . . .

The pieces in this liturgical year are conceived at Cammerton, which means that it is always necessary to transpose the continuo part for organists in churches that use [other] instruments tuned at Cammerton. For this purpose one can most easily use the following scheme, which includes most of the keys used in the present works . . .

He then provides a chart showing how to transpose both a major second as well as a minor third below the standard Cammerton keys. Telemann's advice confirms Adlung's practice as well as Bach's. There seems to be sufficient documentation to conclude that transposing downward on the organ was the usual method of dealing with Chorton and Cammerton when they were used together.³⁰

For woodwinds, transposition commonly causes serious problems because of the fingerings required. As Dürr writes:

A further limitation on [Bach's] choice of key arose when woodwinds were used in transpositions of a second or third, since tonalities with more than four accidentals were evidently avoided.³¹

The reason for this limitation is that the woodwinds of Bach's time were essentially keyless; that is, they were designed with an absolute minimum of keywork. The transverse flute and oboe had only one chromatic key, and the bassoon usually had only one also; other keys served only as extensions to increase the reach of the fingers.³² Chromatic notes that were not part of

30. In the fourteen beautiful pieces Krebs wrote for oboe or oboe d'amore and organ, the organ part is notated a tone lower than that of the oboe (see the section at the end of this article on modern editions).

31. Dürr, *Studien*, 81.

32. The recorder, of course, had no keys, except for the largest sizes. The near absence of keys on these instruments does not seem to have been the result of a lack of the necessary technology; musettes of this period, such as the one illustrated in J. M. Hotteterre's *Methode pour la Musette* (1738), usually had as standard equipment, fourteen keys, needed to avoid cross-fingering on an instrument that employed a "closed" finger technique.

the natural seven-hole scale were obtained by means of the so-called "forked" fingerings (also called "cross" fingerings) and by "half-holing." These fingerings were more difficult to play and produced a noticeably different timbre. Their covered or veiled quality gave the baroque woodwinds their characteristically uneven scales, comparable to singing a scale using different vowels for each note. The placement of these forked and half-holed fingerings along the scale gave each tonality its own particular character and technique. Transpositions had therefore to be made with care, for musical as well as practical reasons.

Another factor in woodwind tonality is the matter of trills and other ornaments which use special fingerings. Many woodwind instruction books of the period, for example, give special fingering charts for trills. Some are easy, others nearly impossible. A given tonality may therefore offer the baroque woodwind player particular technical ease or particular difficulty in playing ornaments and finding alternate fingerings for fast passagework.³³

In the introduction to his *Auserlesene Instrumental-Music* (1701), Georg Muffat discusses appropriate woodwind tonalities. Although this collection is written primarily for strings, Muffat suggests the occasional addition of oboes and bassoon:

... wann du nur von solchen Thonen
Concerten erwählest/oder in solche Tonos
versetzest/die obgemelten Instrumen-
ten taugen . . .³⁴

... provided that you choose only con-
certos in those keys, or transposed to
those keys, in which the [oboe and bas-
soon] are of some use . . .

When Kuhnau (1717) speaks of Cammerton at Leipzig as "a second or minor third lower [than Chorton], depending on the circumstances," he is probably referring to the choice of a suitable key for the woodwinds. In his cantata *Nicht nur allein am frohen Morgen*, all the parts are in A except for the oboe parts, which are in C (a difference of a minor third). But in a Pentecost cantata, all the parts are in B \flat except the oboes and bassoons: this time, instead of being written up a third, their parts are only a second higher, again in C. The tonality thus seems to have weighed more heavily with Kuhnau than the absolute pitch.³⁵

33. As an illustration, play (or have played for you) on an early oboe trilled scales in F, then E \flat major; or G, then A major. In both cases, although the keys are only one step apart, the difference of two accidentals in each scale is critical.

34. The keys he suggests are D, A, B \flat , G minor, F and C. The translation of this passage in W. Oliver Strunk, *Source Readings in Music History: The Baroque Era* (New York: Norton, 1965), 91, is faulty and misleading.

35. Mendel, "On the Pitches in Use in Bach's Time," 343–45. Handel's oboe parts are also sometimes in a key different from that of the rest of the band. In arias in *Flavio* ("Amor,

A comparison of the oboe part for the *Sinfonia* of Bach's Cantata 12 in the key of F minor (as published by the BG) with the version in G minor (as it was originally written) shows how detrimental editorial transpositions can be. Particular difficulties arise in F minor at measures 2, 4, and 11 with the combination $c'-db'$ (and any eventual trills using these notes), and with the half-fingered ab' 's in measures 3 and 9. In bar 14, there is a slurred combination $eb'-c'$ that is practically impossible on a period oboe (since the c' can only be played with the same finger used for the eb' , and releasing the Eb key automatically produces an unwanted d').³⁶ These, the most awkward technical problems of the piece, which is an exquisite solo for the oboe, vanish when the original key is used. All oboists (in fact, I suppose, all instrumentalists) will agree that Bach's music is not known for its technical ease, but he was a practical composer who showed a refined sense of when to use technical difficulties to enhance the expression he wanted. The ability to choose appropriate keys was, after all, part of a composer's stock in trade.³⁷ Other examples of cantatas written in suitable keys for the oboe but later published in inappropriate ones are 132, 185, and 199.

A more obvious problem to be considered in transposing is that of range. When woodwind parts are transposed down a step or step and a half, they often include notes below the compass of the instruments (in some cases, modern as well as original ones). These notes can sometimes be played an octave higher, but this is rarely a satisfying solution.

In the absence of any better explanation, earlier writers assumed that when the normal woodwind range was exceeded, instruments in other keys were used (e.g. oboes in Bb , etc.).³⁸ With our present understanding of

nel mio penar") and *Tamerlano* ("Sù la sponda del pigro") (London, 1723 and 1724 respectively), the oboe is written a half step lower. In both pieces, the band is in Bb minor, the oboe(s) in A minor. (Other works with oboe that Handel wrote in Rome are in suspect keys, perhaps because of a pitch difference between the oboes and the band; see Haynes, "Johann Sebastian Bach's Pitch Standards," 110–12.)

36. In the well-known early eighteenth-century portrait which hangs in the Berlin instrument collection, the oboist (François LeRiche?) has his elbow on an oboe concerto in F minor. This key was probably intended as a symbol of his achievements, and meant to impress, since in the entire literature for the oboe written before 1800, only two other concertos in F minor are known to exist (both by Telemann). See Bruce Haynes, *Music for Oboe, 1650–1800: A Bibliography* (Berkeley: Fallen Leaf Press, 1985).

37. When listening to their instruments, most woodwind players can identify which key is being played by sound alone. The best composers presumably shared this sort of sensitivity.

38. Charles Sanford Terry, *Bach's Orchestra* (London: Oxford University Press, 1932), 62, 96, 114; C. M. Blake, *The Baroque Oboe d'amore* (Ann Arbor: University Microfilms, 1981), 182.

Bach's woodwinds, and of his use of different pitch standards, we can now see that this explanation is at best only half true.³⁹ We are now certain, for instance, that Bach's *Flauto* was exclusively the recorder known nowadays as the treble or alto (range $f'-a'''$).⁴⁰ Ulrich Prinz similarly concluded that all *flauto traverso* parts (when tutti duplications are discounted) use the standard instrument with a range of $d'-g'''$ (a''').⁴¹ As Neumann points out,

Apparent shifts of range in [Bach's] early cantatas are the result of pitch differences in the instrumentarium, which necessitated transpositions.⁴²

Bach's obbligato oboe and bassoon parts likewise never exceed the compass of the standard instruments of his day, once the questions of pitch and transposition have been considered.⁴³

Since the choice of key may be critical to the total effect of a performance, it would be useful for us to know which keys were favored for various instruments. Questions of tonality will be more satisfactorily answered by looking at Bach's own preferences, as demonstrated by his surviving music. Table 4 is a compilation of the tonalities of oboe solos by Bach and his colleagues Telemann and Handel, who used a total of fourteen keys. All of them favored C minor; and Telemann and Handel show a decided preference for G minor, while Bach preferred the relative major, B \flat . F major also appears frequently, though Bach normally chose the relative minor, D.⁴⁴ Of the six most commonly used tonalities, five are flat keys and only one is a sharp key. Using a formula that converts keys to numbers (in which, for instance, B \flat = -2, E minor = +1, and C = 0), and dividing the total by the number of pieces, the mean tonalities are as follows: Bach, -1.14; Telemann, -1.16; and Handel, -1.10. These figures, which are remarkably similar, convert to almost exactly the same central tonality: F major/D minor, or one flat (= -1.0).

Looked at from another angle, more than half (57.6%) of all the pieces for solo oboe by these composers vary by only one accidental on either side

39. Since pitch references are relative, a C oboe at A-392 can also be, of course, a B \flat oboe at A-440.

40. Ulrich Prinz, *Studien zum Instrumentarium Johann Sebastian Bachs mit besonderer Berücksichtigung der Kantaten* (Ph.D. diss. University of Tübingen, 1979), 109 (other sources are cited here).

41. *Ibid.*, 135.

42. Neumann, *Handbuch*, 11.

43. Prinz, *Studien*, 171; Terry, *Bach's Orchestra*, 98; Neumann, *Handbuch*, 11. On questions of bassoon range, see the discussion of Cantata 31 following table 5.

44. Handel's preference for G major and F minor is noticeably at variance with the choices of Bach and Telemann, as is his total neglect of E \flat major.

of a key of one flat. Almost all stay within two accidentals of this center (90.8%), and excursions beyond three (E major) are limited to two pieces (neither by Bach). Keys are conservatively used: three-quarters (76.7%) use only two accidentals, and nearly half (46.8%) are limited to one. A piece for solo oboe in any key beyond two sharps or three flats is clearly a rarity verging on the suspect.

But Bach did not write for other instruments only in these keys. The violin solos in his cantatas range from four sharps to three flats, with sharp keys predominating. The mean solo violin tonality is + 0.73, approaching an average of one sharp. For the flute, Bach's central tonality is even further along the sharp side, at + 1.15, putting the oboe and flute on the average more than two accidentals apart from each other.⁴⁵

The pattern that emerges from all of this shows Bach's clear preference for keys tending to the flat side for oboe and to the sharp side for violin and flute. Given the physical nature of the instruments, this is to be expected. The violin, though more adaptable than any woodwind instrument, usually succeeds better in keys that use its open strings (G, D, A, E) on the important notes of the scale (tonic and dominant), which effectively makes G and D the preferred keys.

Johann Mattheson wrote that the favored keys for the *flauto traverso* were G and D major and E minor.⁴⁶ As Eric Halfpenny has noted,

All the best solo utterances that one can call to mind, written for the one-keyed flute, are in medium sharp keys, fairly high-lying and usually not very remote from the tonality of D major.⁴⁷

On the other hand, the oboe (as I have pointed out in a previous article)⁴⁸ is more comfortable two keys further along the flat side.⁴⁹ According to Halfpenny,

The characteristic tonal range of the oboe—two degrees flat and sharp of C major—was noted by Terry in Bach's works, and exactly corresponds to the meantone cycle of a twelve-note keyboard. The solo oboe appears again and

45. My thanks to Stephen Schultz of San Francisco for help in compiling this information, which applies to pieces written for one to three flutes with voice and continuo by Bach.

46. Johann Mattheson, *Das neu-eröffnete Orchestre* (Hamburg, 1713) 1:271. He also mentions another key (illegible in the copy examined), probably either C or A major.

47. Eric Halfpenny, "The Tonality of Woodwind Instruments," *Proceedings of the Royal Musical Association, 75th Session* (1949):33.

48. Bruce Haynes, "Tonality and the Baroque Oboe," *Early Music* (July 1979):355–57.

49. This flute/oboe key relationship is indicated by many surviving eighteenth-century pieces that exist in original versions for both instruments. See Haynes, *Music for Oboe*, iii, n. 3.

again from Purcell to Mozart in keys flat of the seven-hole scale, with a preponderance, as Terry pointed out, of B flat major in the Bach-Handel period.⁵⁰

The recorder and bassoon do not appear regularly enough as soloists in Bach's cantatas to show clear preferences of tonality. Recorder solos are most frequently in G minor.⁵¹

One other question of tonality concerns pieces with "hidden" oboe d'amore parts. Bach was not always careful to specify this instrument when he intended it to be used. There are a number of "oboe" parts in sharp keys that go below the range of the *hautbois ordinaire*,⁵² indicating that the parts were meant for the oboe d'amore. Bach's oboists, handy on a variety of different instruments, would have automatically understood this without special instructions.⁵³ Pieces with hidden oboe d'amore parts are to be found in Cantatas 17, 29, 45, 94, 169, 193, 214, and 215.⁵⁴ In addition, some pieces in the second oboe part to the *St. John Passion* are more convenient on oboe d'amore, though not all of these are indicated.

An example of a hidden oboe d'amore part can be seen in Aria BWV 214 no. 5. It is written in B minor (as we have seen, a very unusual key for oboe), the tessitura is low, and there are several low *b*'s and *a*'s (the *hautbois ordinaire*'s lowest note is *c*'). Fingered a minor third higher on oboe

50. Halfpenny, "Tonality," 31.

51. According to A. D. McCredie, *Instrumentarium and Instrumentation in the North German Baroque Opera* (Ann Arbor: University Microfilms, 1964), 135, the most common tonalities in recorder parts for Hamburg and Braunschweig opera scores around 1700 were F, G minor, A minor, and B \flat . Prinz (*Studien*, 117) points out that the tonalities used by Bach for the recorder consist of three keys on either side of its home key of F.

52. That is, the ordinary oboe in C, which Bach called variously *hautbois ordinaire* (*B minor Mass*), *oboe ordinaria* (Cantatas 95 and 125), and *hautb. l'ordinaire* (Cantata 87 no. 7).

53. One of Christoph Graupner's first cantatas to use oboe d'amore (1717/4) requires both normal oboe (in piece number 3) and oboe d'amore (number 5). Both parts are on the same page and no special indication of the difference in instruments is given. See H. O. Koch, *Sonderformen der Blasinstrumente in der deutschen Musik vom späten 17. bis zur Mitte des 18. Jahrhunderts* (Ph.D. diss., University of Heidelberg, 1980), 67.

54. It is also tempting to assign Bach's Cantata 174 no. 2 to oboe d'amore (cf. D major; text "Ich liebe den Höchsten von ganzem Gemüte"), but the first part lies too high, while the second never descends below *d'*. Cantatas 193 nos. 1 and 3 are too high for oboe d'amore, whereas Cantata 193 no. 5 can be played only on oboe d'amore, since it descends to *a*. Cantata 55 no. 1 is an example, however, of the reverse situation: although labelled for oboe d'amore, the part is notated in the same key as the others (i.e. G minor, which would become the unlikely B \flat minor); there is a *c''' = e \flat '''*, unusually high; and there are no notes lower than the compass of the ordinary oboe. The last chorale calls only for "oboe." Cantata 125 no. 1 also looks like an oboe d'amore part, since the next movement, without an intervening recitative, is for oboe d'amore (the first movement also includes *flauto traverso* and the piece is in E minor). But a note in Bach's hand on the original score specifies "per oboe ordinaria," presumably because of one *c'''*.

d'amore, in D minor (still sounding B minor, of course), the piece is in a comfortable tessitura in a characteristic key, and the lowest note is the oboe d'amore's bottom fingered *c'* (sounding *a*).⁵⁵

The preponderance of solos in F# minor and B minor (twenty-two pieces out of forty-two) for the oboe d'amore by Bach is striking, since Bach never used these keys for the ordinary oboe (see table 4); on the instrument of his day, they are among the most technically difficult.⁵⁶ He was, however, particularly fond of these keys in other contexts,⁵⁷ and wrote in B minor more than in any other key in solos for flute and violin. Since the oboe d'amore is a transposing instrument, F# minor and B minor are fingered as if they were A minor and D minor, common keys for C oboe. Evidently, when Bach wished to use these keys and at the same time include an oboe, for technical reasons he used the oboe d'amore, an instrument that could be played easily in sharp keys (since a fingered C scale on the oboe d'amore will sound the scale in A, with three sharps). This may well be the reason, incidentally, that there are exactly the same number of solo arias by Bach for oboe d'amore as for ordinary oboe (forty-two each).⁵⁸ We may infer that Bach did not choose the oboe d'amore primarily for its affective associations (though these were probably a secondary consideration), but because it was the most practical instrument for the tonality he had selected.

It is possible that Bach (like his contemporaries Mattheson and Quantz) associated the "Affects" he wished to conjure with specific tonalities,⁵⁹ and that this consideration influenced his choice of a particular instrument, especially if the instrument were one that also had certain affective associations. It is impossible to segregate such influences at the moment of composition, but we have seen that other factors were normally involved in Bach's

55. This same aria is the victim of bizarre treatment in the *Musica Rara* edition of the complete oboe parts to Bach's cantatas (see the section at the end of this article on modern editions). Obviously unaware that *c'* is the lowest note on the oboe of Bach's time (*bb* is the lowest note on the modern oboe), the editor moved the *a*'s up an octave and left the *b*'s. One wonders whether the editor considered why Bach wrote notes in a solo aria that exceed the instrument's range.

56. My personal opinion after eighteen years of systematic study of the baroque oboe is that the three most difficult keys (within a range of four accidentals) are B minor, F# minor and C# minor.

57. Dürr, *Studien*, 80. Philipp Spitta called B minor Bach's "Lieblingstonart."

58. Haynes, *Music for Oboe*, 36–59.

59. Mattheson, *Das neu-eröffnete Orchestre*, 231; Quantz, *On Playing the Flute*, 164. Quantz's vehemence in discussing the subject, however, suggests there were disagreements, and J. D. Heinichen, the distinguished Capellmeister at Dresden, argues against the association of emotional effects with specific keys in his *Der General-Bass in der Composition* (Dresden, 1728), 83–87.

TABLE 4
Tonalities of Oboe Solos by Bach, Telemann, and Handel*

	<i>Bach</i>	<i>Telemann</i>	<i>Handel</i>	<i>Combined</i>
G minor	9.6	19.0	16.7	15.1
C minor	13.7	14.3	14.8	14.3
B \flat	13.7	9.5	9.3	10.8
F	9.6	11.1	9.3	10.0
D minor	11.0	9.5	5.6	8.7
E minor	9.6	7.9	7.4	8.3
A minor	6.8	6.3	7.4	6.8
G	4.1	3.2	13.0	6.8
C	6.8	6.3	5.6	6.2
F minor	1.4	3.2	7.4	4.0
E \flat	8.2	3.2	0.0	3.8
D	5.5	4.8	0.0	3.4
E	0.0	1.6	1.9	1.2
B minor	0.0	0.0	1.9	0.6
	<u>100.0</u>	<u>99.9</u>	<u>100.3</u>	<u>100.0</u>

*Figures are given in percentages. Pieces included in this table (based on Haynes, *Music for Oboe*) are exclusively solos for C oboe (solo sonatas, trio sonatas for two oboes and basso continuo, solo concertos, and arias either with basso continuo alone or with orchestra). No pieces are included for other sizes of oboe, or for oboe with other kinds of instruments. The total number of pieces used in compiling this table was: by Bach, 73; by Telemann, 63; and by Handel, 54.

choice of oboe or oboe d'amore. Dürr⁶⁰ and others have also shown that Bach's choice of key was limited by other factors; one was the harmonic architecture of the cantata as a whole (in the early cantatas, for instance, middle movements were in the tonic, subdominant, or dominant keys or their parallel minors). Bach was further circumscribed by the need to write in two tonalities at once, since the instruments had technical restrictions in certain keys. There are also many examples of pieces that Bach rewrote for other instruments or situations, changing the key for what often appear to be functional rather than aesthetic reasons.⁶¹ An awareness of the Affects is implicit in Bach's music; but as a factor in choosing keys, it was apparently less important than practical questions of range and technical facility.

60. Dürr, *Studien*, 80.

61. An appropriate example is the oboe aria BWV 102 no. 3, once in F minor and once (BWV 233 no. 4) in C minor.

*Practical Solutions to Questions of Tonality
in Bach's Early Cantatas*

Bach's cantatas are performed nowadays by ensembles with varying historical perspectives and, as in Bach's own day, differing pitch standards. The most usual general combinations are:

1. Ensembles using twentieth-century instruments at A-440. The sounding pitch of these performances will normally be one-half step higher than originally conceived. Since this can cause the singers troubles, if a choice of tonality is possible, a lower one at this pitch will probably be more successful.

2. Ensembles using eighteenth-century instruments or copies at A-415. Since this appears to have been the approximate pitch at Leipzig when Bach was composing there, and since he himself reworked a number of his early cantatas for later use at Leipzig, most potential problems will be automatically solved. Where the difference in notation between the parts was a major second (i.e., Cantatas 12, 18, 21, 71, 106, 131, 172, 185 and 199), Bach's consistent practice was to transpose the voice and string parts up a step to the key of the woodwinds.⁶² Since the pitch of the band was a step lower at Leipzig (about A-410 instead of 460), even though the vocal parts were raised a step the sounding pitch remained the same for the singers. Other early cantatas that Bach (sometimes less convincingly) reworked for Leipzig are numbers 23, 31, 161, 182, and 185.⁶³ Any of these cantatas will therefore succeed without presenting special problems for this kind of group.

3. Ensembles using eighteenth-century instruments exactly the same in pitch (as far as we can now tell) as those used by Bach at Weimar and Mühlhausen, that is, with strings at A-460 and winds at either A-392 or A-410, depending on the piece. The cantatas that would clearly benefit from performance by such a group are those that involve a difference in notation of a minor third, since other solutions for these pieces are rarely satisfying. Bach reworked four of them (31, 161, 182, and 185) for Leipzig, putting all the parts (except, of course, the organ) in the same key, but his solutions are hardly ideal: none of the parts remained in its original key, and some had to be eliminated or replaced by other instruments.⁶⁴ Six other

62. All of these cantatas except 71, 106, and 131 were performed by Bach at Leipzig at least once in this manner. See Dürr, *Studien*, 75.

63. Dürr, *Studien*, 76.

64. *Ibid.*

cantatas—numbers 132, 150, 152, 155, and (in one version each) 172 and 185—involve the interval of a third. The discussion below includes suggestions for performing each of these pieces with all the instruments in the same key, but these are merely practical expedients; a more desirable solution would be to use Bach's original Weimar tuning. Tonality and range problems for all the performers would automatically be resolved, and the original sound quality of the instruments would be reproduced more faithfully.

Such performances are within our capabilities in the last few years: although string players have yet to do much experimenting with A-460,⁶⁵ good woodwinds are now being made at French pitch (A-392) and players are beginning to use them. This pitch is apparently the same as the normal Cammerton at Weimar, and its existence was the reason why, in most of these cantatas, the woodwind parts were notated a minor third higher.

Table 5 lists all the questionable cantatas, their original keys, the keys used by both the BG and the *Neue Bach Ausgabe* (NBA), keys used by Bach in later performances at Leipzig, and our proposed solutions (it is assumed that the works are to be performed by an ensemble in which all instruments play at the same pitch).

*Comments on the Solutions Proposed in Table 5*⁶⁶

BWV 12. Original oboe key: G minor. This cantata survives in score form; the parts are incomplete. As mentioned above, it borders on the unplayable in F minor on the Bach oboe.

BWV 18. The original Weimar version of this cantata did not have recorder parts; they were added later at Leipzig, where Bach performed the piece in A minor rather than (as at Weimar) in G minor. If recorders are included, a performance in A minor creates no problems. The NBA publishes both versions.

BWV 21. Although originally conceived in D minor for oboe, at least one of Bach's later performances of this piece was in C minor. Two slightly different versions of the oboe part survive in both keys, each of them interesting. Neither is more elaborate than the other, though they are differently

65. They will probably begin to do so, since this pitch has other uses, notably for Venetian music such as that of Vivaldi. See Haynes, "Johann Sebastian Bach's Pitch Standards," 109–110.

66. Much of the information and many of the conclusions in this section are drawn from Dürr, *Studien*.

TABLE 5
Proposed Solutions to Questions of Tonality in Bach's Early Cantatas

<i>Number</i>	<i>Woodwind involved</i>	<i>Original woodwind key</i>	<i>BG key</i>	<i>NBA key</i>	<i>Key used later by Bach</i>	<i>Proposed solution</i>
12	Ob	G minor	F minor	—	G minor	G minor
18	Recs, Bsn	A minor	G minor*	G/A minor	A minor	A minor
21	Ob, Bsn	C/D minor	C minor	C/D minor	D minor, C minor	D minor or C minor
23	Obdms, Bsn	B minor	C minor	—	B minor	B minor
31	Obs, Taie, Bsn	E \flat	C	—	1st Ob C, 2nd Ob as Obdm in E \flat ; others omitted	C (as at Leipzig)
71	Recs, Obs, Bsn	D	C	—	—	D
106	Recs	F	E \flat	—	—	F
131	Ob, Bsn	A minor	G minor*	—	—	A minor
132	Ob, [Bsn] \ddagger	C	A*	A	—	Obdm in C (= A); or Ob in B \flat
150	Bsn	D minor	B minor*	—	—	D minor (or C minor)
152	Rec, Ob, [Bsn]	G minor	E minor	—	—	G minor
155	Bsn	C minor	A minor	A minor	—	A minor (or C minor)
161	Recs, [Bsn]	E \flat	C*	C/E \flat	(Fls in C)	Fls in C or Recs in D
172	Ob, Bsn	D	C	C/D	D, C	D
182	Rec, [Bsn]	B \flat	G	—	G	G; or B \flat
185	Ob, Bsn	G/A minor	F \sharp minor	—	G minor	G minor
199	Ob, Bsn	D minor	C minor	—	D minor	D minor

The instrument abbreviations are: Bsn = Bassoon; Ob = Oboe; Obdm = Oboe d'amore; Taie = Taille de hautbois; Rec = Recorder.

*Woodwind parts are printed by the BG in their original keys in these pieces (without explanation).

\ddagger The bassoon parts in brackets may have been present, since wind instruments play the treble lines.¹²

ornamented. The version in C minor avoids the low db' in bar 14 (an unplayable note on the early oboe) which is of course an eb' in the version in D minor. As Dürr shows, this note and a bb in the second movement indicate that the version in C minor probably derives from the one in D minor.⁶⁷ As with the reconstructed concerto for oboe and violin (BWV 1060), each key has its advantages and drawbacks, and a decision in favor of either one is neither possible nor necessary. Bach's version in C minor, prepared in haste during his first weeks at Leipzig, may have been transposed for practical reasons: it allowed him to use most of the old Weimar parts, with new parts only for the oboe and the organ. The transposition downward may also have been made for the sake of his singers, for this cantata has a relatively high average range. The string parts were later transposed up a tone, so that the original oboe part in D minor could be used.⁶⁸

BWV 23. This work, written in Cöthen, was prepared as one of Bach's audition pieces when he applied for the position of Kantor at Leipzig, and, as has recently been shown, it was first performed with BWV 22 on Estomihi Sunday, 1723.⁶⁹ Although oboe parts were originally prepared in C minor, a last-minute change of key was necessary, probably because of transposition problems in the cornetto and trombone parts. Bach had the strings tune down to "tieff Cammerthon" (as in Cantata 194). Since this took the oboes too low and the piece was now in B minor rather than C minor, he replaced them with oboes d'amore playing parts written in D minor (sounding B minor), and a new bassoon part in B minor was prepared.⁷⁰

The oboe d'amore had just been invented. Graupner, Bach's principal competitor for the Leipzig post, had been writing parts for it at Darmstadt for five years.⁷¹ Although Kuhnau had used the new instrument in 1722,⁷² this cantata probably represents Bach's first experiment with it.⁷³ The ex-

67. Dürr, *Studien*, 27.

68. Dürr, *Studien*, 26; Mendel, "On the Pitches in Use in Bach's Time," 352.

69. Christoph Wolff, "Bachs Leipziger Kantoratsprobe und die Aufführungsgeschichte der Kantate 'Du wahrer Gott und Davids Sohn' BWV 23," *Bach Jahrbuch* (1978): 80.

70. *Ibid.*, 83.

71. Haynes, *Music for Oboe*, 389. Graupner's cantata *Wie wunderbar ist Gottes Güte* (November, 1717) is the first known dated piece for the oboe d'amore.

72. In the cantata *Lobe den Herrn meine Seele*. See Haynes, *Music for Oboe*, 212.

73. The dubious possibility that the A major keyboard concerto, BWV 1055, was originally written with an oboe d'amore part in 1720 has been seriously discussed for too long by non-oboists; see Werner Breig, "Zur Chronologie von Johann Sebastian Bachs Konzertschaffen," *Archiv für Musikwissenschaft* 40, Heft 2 (1983), 80; reconstruction by W. Fischer in NBA (VII/7, *Verschollene Solokonzerte in Rekonstruktionen*). The fact is, the piece is not at all convincing on an oboe d'amore. It is true that the range is correct, but the tessitura

perience was evidently agreeable, for he featured the oboe d'amore in several other works in his first months at Leipzig.⁷⁴

BWV 31. Original woodwind key: E \flat major. This is the first example of the special problems created by the difference in notation of a minor third (one and one-half steps). Bach reworked this cantata and several others for performance at Leipzig. His solution in this case was to transpose the piece down to C (the original Weimar key for all the parts except the woodwinds). The second oboe part could then be played on an oboe d'amore (which, sounding a minor third lower, could play from the original woodwind part in E \flat); but the first part had to be played on a C oboe, and was accordingly transposed down to C. Since the remaining woodwind parts were impractical when transposed, they were suppressed.

The substitution of an oboe d'amore for an oboe in cantatas with a difference of a minor third is a convenient modern expedient. The fingered *c'* of the C oboe in these pieces was a sounding modern *b \flat* (since the original pitch at Weimar was A-392, a tone lower than modern A-440). The same fingering on an oboe d'amore would produce a sounding *a* (for a modern instrument at A-440) or *a \flat* (at A-415), a difference of one-half or one step. Vocal parts would consequently sound lower by the same amount. For some pieces, this is quite acceptable; Bach evidently considered it so in this case, and Cantata 132 (see below) also works well with an oboe d'amore in place of an ordinary oboe.⁷⁵

Another possible solution for this piece, tried some years ago by Harnoncourt for a Teldec recording, is to perform it in D. At A-415, this solution maintains the sounding pitch for the voices; at A-440, it raises them one-half step. The woodwinds are not playing in their original key (E \flat), but then, they are not doing so in Bach's version in C either. D, a

is at least a second too high, creating a strained, unsatisfying effect, and there are numerous awkward *d'''*'s (especially in the delicate *Larghetto*). (Transposition down a tone would be plausible, especially considering the extremely high tessitura of the first violin part, but certain sequential phrases rule this out: see especially bars 25–26 of the *Larghetto*.) The date proposed, 1720, is also improbably early for Bach to have written a piece of such demanding technical requirements, far beyond those of the early Leipzig solos he wrote for the oboe d'amore (see following note).

74. In Cantatas 76, 24, 147, 136, 95, 60, and 64, in the months of June, July, September, November, and December. Bach also immediately began using the oboe da caccia: his first work is Cantata 167, written for June 24. See Dreyfus, *Basso Continuo Practice*, app. A, 285.

75. Dürr (*Studien*, 48) wondered whether the vocal parts to Cantata 31 were reduced from five to four for Leipzig because of the lower pitch. It should be pointed out that since the oboe d'amore had not yet appeared while Bach was at Weimar, it only became possible to include it after he moved to Leipzig.

bright and brilliant key, is more appropriate for the trumpets, which usually play in this key. Though admirable, Harnoncourt's attempt illustrates, I think, why Bach rejected D in his Leipzig version: the effect is thin and forced, especially for the valiant brass players. All things considered, Bach's solution (in C) is still the better one.

Since the bass part of this cantata descends to *GG* in the Leipzig version, and the lowest note of the standard bassoon of the period is *BB♭*, several authors have speculated that a special low-pitched bassoon was employed (the *Quart-Fagott*—Praetorius's term for a form of curtal or dulcian with *GG* as its lowest note—has been suggested).⁷⁶ The solution is simpler. Although it was published in the BG in C, in the original Weimar version the part was in *E♭* rather than C, and the bassoon actually only descended to *BB♭*.⁷⁷ For the reworked Leipzig version in C, Bach solved this problem by eliminating the bassoon and replacing it with a new, separate cello part.⁷⁸ As originally written, none of Bach's cantatas descend below the bassoon's normal range. Bassoonists should beware, however, of modern transpositions of Cantatas 150 and 155 (as in the BG edition): as written by Bach himself, these parts go only to *C* and *BB♭* respectively.⁷⁹

BWV 71. Original woodwind key: D major. Neumann and Dürr both recommend D major. There are a large number of woodwind parts involved that were originally in D; D is a brighter key than C, and is more appropriate for the trumpets; and performance in D presents no problems, as the Teldec recording on original instruments demonstrates. Dürr notes that C is possible, using tenor recorders (though Bach himself never did; tenors have a different sound—especially playing in C—than altos in F playing effectively a sixth higher).

76. Terry, *Bach's Orchestra*, 114; L. G. Langwill, *The Bassoon and Contra-bassoon* (London: Ernest Benn Ltd., 1965), 114; William Waterhouse, "Bassoon," *The New Grove Dictionary of Music and Musicians* 2:278.

77. Dürr, *Studien*, 47. This information was published by H. Schlenger, "Über Verwendung und Notation der Holzblasinstrumente in den frühen Kantaten Bachs," *Bach Jahrbuch* (1931), 93.

78. Dürr, *Studien*, 48.

79. One possibly confusing aspect of Bach's bassoon notation was his use at Weimar of both the new French *basson* at the normal Cammerton there (A-392) as well as the older seventeenth-century German *Fagotto* or *Chorist-fagott* (*Dulcian*). The latter instrument had long been traditional as a support for choir work, and was pitched in Chorton a minor third above the new *basson* (See Brandt, "Fragen zur Fagottbesetzung," 71, and Langwill, *The Bassoon and Contrabassoon*, 34–35.) As Dreyfus (*Basso Continuo Practice*, 203–4) points out, the bassoon parts at Weimar are normally in Chorton and are for *Fagotto*; there are, however, two examples in Cammerton, labelled *basson*.

If we choose a single pitch for all instruments, we will either misrepresent the strings by playing it at the woodwind pitch,⁸⁰ or the reverse. The best solution would probably be to use the third performing group listed above, playing in *both* C and D.

BWV 106. Original recorder key: F major. Considering the importance of the recorder parts in this piece, these instruments should play in their original key, one way or another. If all parts are in F, no technical problems will arise (the gambists can retune their instruments a step higher if they wish, and play in E \flat). Both Neumann and Dürr recommend F.

As has been noted above, performing at A-440 will raise the vocal parts a semitone above their original pitch, which may be impractical in this particular cantata, especially for the bass soloist. If so, another solution is to have the recorder players use F recorders tuned at A-392 (which are the same as E \flat recorders at A-440). In this way, the piece can be performed “in E \flat ” (i.e., one-half step below the original vocal pitch) by everyone except the recorder players, who will be fingering their parts in the original key of F.

BWV 131. Original woodwind key: a minor. A performance of this piece in G minor will take the early oboe below its range by one note, and include the unplayable c \sharp '. The original woodwind key of A minor is recommended.

BWV 132. Original oboe key: C major. There are two possibilities for this cantata:

1. If an oboe d'amore (playing in C) is used instead of an ordinary oboe, the part (originally in C) will sound in A, the key to be used for the other parts. This sets the vocal parts lower than Bach originally intended them (see above, Cantata 31), but is practical in performance. The author recently recorded the oboe part (for Teldec) in A major, using an oboe d'amore.
2. The cantata can also be performed in B \flat ; this preserves the original pitch of the vocal parts, but of course changes the fingerings of both the woodwind and string parts, and therefore (although recommended by both Dürr and the NBA) seems less desirable.

BWV 150. Original bassoon key: D minor. Although the bassoon has important solo work in this piece, the vocal parts are uncomfortably high if it is performed in D minor, which is a minor third above their original level. As a compromise, Dürr recommends C minor, since it keeps the bassoon

80. Mendel, “On the Pitches in Use in Bach’s Time,” 339.

part within the range of the instrument (though changing its sound substantially).

BWV 152. Original woodwind key: G minor. In E minor (as in BG), many notes are out of the range of both the early and modern oboes. This cantata was printed in G minor by Breitkopf in 1949 (ed. Neumann). The soprano is high but singable in G minor; playing at A-392 would make this part easier.

BWV 155. Original bassoon key: C minor. The lowest written note in the bassoon part was originally a $BB\flat$; the part was written a minor third above the others.⁸¹ This piece would be most successful if performed in its original keys, for the soprano, if transposed up a minor third, will reach the stratospheric c''' .⁸² If the piece is played in A minor there are two other possibilities. The sole GG in the bassoon part at measure 37 of the Aria, and possibly a few other notes, could be played an octave higher. Alternately, this movement alone could be played at the bassoon pitch, and the others at Chorton (C minor is the parallel of the dominant of movements 3 and 5, which are in F).⁸³ Since the alto part would still go up to f'' , the performance would be easier at A-392.

BWV 161. Original recorder key: $E\flat$ major. BG prints this work in C (Chorton) except for the *flauti*, which are in French violin clef ($= E\flat =$ Cammerton). It is now thought that Bach's later performance in C at Leipzig used flutes instead of recorders, which seems indeed the best solution. But Dürr suggests that at A-440 the piece could be played in D with recorders at A-415 and strings tuned up a step.⁸⁴ The objection to transposing the string parts is that it would cause a loss of the "bell-imitation for which Bach chose, for the four final chords, the four open strings of the violins and violas."⁸⁵

BWV 172. This cantata was apparently originally in D for the oboes, although the complete parts have not survived. Mendel's theory, that Bach first performed this piece in Leipzig in C to avoid rewriting the string parts and later had it transposed to the key of the woodwinds, is not supported in

81. Terry, *Bach's Orchestra*, 155.

82. The note c''' is common in late seventeenth-century opera, and is also present in Bach's Cantata 51 (*Jauchzet Gott*), as Alan Curtis has pointed out to me. It was, however, an uncommonly high note for nonprofessionals.

83. See Dürr, *Studien*, 81 n. 5.

84. *Ibid.*, 219.

85. Mendel, "On the Pitches in Use in Bach's Time," 340.

this case by dates.⁸⁶ Bach's last two performances were in C, probably for the sake of the voices. For the fourth performance (sometime after 1731), Bach played the obbligato oboe part in the fifth movement on the organ, since it was evidently unsuccessful on the oboe transposed to F. Originally in G, the part lies very low when transposed, using frequent low *c*'s and never going above *e*^b; in G as originally written, but on oboe d'amore (fingered as in B^b) the effective range was a fourth higher than the transposed version. But the oboe d'amore could not have been used in the version in F, for it would then have played in its (fingered) key of A^b, a key never used elsewhere in solos for either oboe or oboe d'amore (see table 4).

BWV 182. Original recorder key: B^b major. The recorder parts were originally written in 1714 a minor third above the band; in two later versions (1724 and 1728–31), all the parts are written in G. Dürr implies that the versions in G (which otherwise recommend themselves for modern performances) lose the effect of painting an "underlay" for the text "Leget euch dem Heiland unter;" he therefore advocates a performance in A (since B^b, the original key, would be too high for the voices), with the recorders pitched one-half step lower than the other instruments.⁸⁷ The ideal circumstances would again reproduce those at Weimar, with the recorders at A-392 and the band at A-460.

BWV 185. Original oboe parts survive in both A minor and G minor. Continuo parts from Weimar survive in F[♯] minor and G minor, indicating two separate performances in different pitches, or perhaps a last-minute change from one pitch to the other. This confusion may be the result of experiments in tuning that Bach and his solo oboist carried out during this period.⁸⁸ The third movement lies more naturally for oboe in B^b major, especially at mm. 5–6; in C, there is an awkward *d*^{'''} in m. 6. This suggests that the original key was G minor, the key Bach used in two later performances at Leipzig.

BWV 199. Original oboe key: D minor. This piece is notoriously difficult on both the early and modern oboe in the key in which it is generally known from its modern edition, C minor; all of Bach's performances of this piece at Weimar as well as Leipzig were without exception in D minor for the oboe.

86. Ibid., 352; see Dürr, *Studien*, 75, and NBA *Kritischer Bericht* ser. IV. 13:38–40.

87. Dürr, *Studien*, 218.

88. See Haynes, "Johann Sebastian Bach's Pitch Standards," 69. The pitch change might also have been made for the first Leipzig performance, which was put together in great haste in Bach's first weeks there.

Modern Editions and Problems of Tonality

In general, modern editions reflect little awareness of the problems caused by inappropriate transpositions. As we have seen, the method used by the BG for choosing keys for the seventeen cantatas listed in table 5 was not the ideal one. By the standards we have discussed, eight of these pieces (12, 23, 71, 106, 152, 172, 185, and 199) were printed in unsuitable keys; five (18, 131, 132, 150, and 161) are printed in a confusing manner with only the woodwind parts in their appropriate keys. Five (31, 132, 155, 161, and 182) can be played as published, although the keys are not always the most satisfactory.

The NBA, by contrast, has carefully examined tonality questions, and, where necessary, has even published cantatas in multiple keys. Unfortunately, only a few of these problematic cantatas (18, 21, 132, 155, 161, and 172) have yet appeared.

For oboists, another modern source of material from the cantatas is the recent publication by Musica Rara of the complete solos for oboe, oboe d'amore, and oboe da caccia from Bach's vocal works (thirty-one volumes, ten published to date). Considering the wealth of excellent material for oboe in this great body of music, and its quality compared to other oboe literature, this would seem a significant and worthwhile project. The edition is unfortunately limited in its usefulness, however, by a number of oversights and careless editorial decisions:

1. The introduction contains a number of questionable statements and inferences concerning the oboe of Bach's time. Mersenne is quoted as an authority on the oboe as Bach knew it, although Mersenne was clearly referring to the shawm (the oboe was invented in the late 1650s, while Mersenne's book appeared in 1636–37). The information on the oboe d'amore is out of date and inaccurate, and the editor is uncertain of the difference between the oboe da caccia and the *taille de hautbois*.⁸⁹
2. The decision to provide a so-called "piano reduction" for the pieces with orchestra (without identifying which pieces these are) and the realization of the continuo part limits the usefulness of this edition to all but the least serious of oboists and continuo players.
3. Pieces with more than one voice (e.g., one oboe, soprano, bass, and basso continuo), or those with any other kinds of instruments (such as oboe, violin, alto and basso continuo), are arbitrarily excluded. Yet these are no less

89. See R. Dahlquist, "Taille, Oboe da caccia and Corno inglese," *Galpin Society Journal* (1973), 58–71.

appropriate as solos than pieces for, say, three oboes, voice, and basso continuo.

4. Several important solos, including the well-known “Stumme Seufzer, stille Klagen” from Cantata 199, Cantata 16 no. 5, and Cantata 186 no. 5 are omitted. No reason is given, but it seems clear that they were neglected because the editor was relying on the old BG edition, without having checked the additions in the new BG (199 was not published until 1913), let alone the NBA.

5. By using the BG as the only source, the edition falls, of course, into all the traps regarding tonality that have been discussed in this article. Where problems of range occur as a result, the parts have been illogically and un-musically transposed up an octave without comment or explanation. All of the “hidden” oboe d’amore parts mentioned in this article still appear as ordinary oboe parts.

6. There are many unnecessary duplications. Solos for two or three oboes in unison are included in volumes both for solo oboe and multiple oboes, and some pieces with simple cantus firmus parts are included.

7. The edition is full of misprints of various kinds.

No other publisher is likely to attempt a similar project on this scale, especially since Musica Rara has already begun it. This edition is thus responsible for perpetuating the misunderstandings about oboe parts in Bach’s music that I have tried to clear up in this article.

Since the practice of writing in Chorton/Cammerton was widespread in Germany in the first half of the eighteenth century, there are many other pieces with parts originally notated in two different keys (in fact, any pieces involving both woodwinds and organ, with a few exceptions). Some of these have appeared in modern editions.

The best-known piece for organ and oboe is probably the *Fantasia* by J. L. Krebs (1713–80), generally known now in F minor. The organ part is indeed in F minor, but the oboe part (as might be expected) was originally in G minor. This *Fantasia* is published in three modern editions, two in F minor and one in G minor (the latter edited by an oboist).⁹⁰ In all, fourteen works for oboe and organ by Krebs survive, and they were recently published in a complete edition.⁹¹ There is one major flaw in this edition: all the pieces have been transposed down to the key of the organ, as if the oboe

90. The two in F minor are published by Breitkopf and Novello. The one in G minor is by Nova Music.

91. Novello, 1981, edited by H. McLean. For a list of the pieces by Krebs, see Haynes, *Music for Oboe*, 208–10.

were in Chorton. As we have seen (for instance, in Telemann's introduction to the *Harmonische Gottesdienst*), organists in such situations were expected to be able to transpose or write out their parts. The edition is otherwise exemplary, and it is a loss to the oboe repertoire that it is of such limited use in its present form.

Conclusion

The fact that certain cantatas by Bach were originally written in keys other than those in which they are now known has been common knowledge among musicians for some time. In fact, the number of cantatas in which questions of tonality exist is limited to seventeen early works. The choice of a tonality is important primarily because it affects the range of the voices and the technique of the woodwinds—of all the instruments involved, the ones most affected by key changes.

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