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The purpose of this document is to examine the origins of, evidence for, and solutions to choral/orchestral balance problems in performance. By consulting several primary sources, this study demonstrates that these balance issues rose to prominence during the early nineteenth century, and that conductors of that era addressed these problems in ways that are different from modern solutions. The performance of choral/orchestral works occurred less often during the early twentieth century, and because many conductors from this generation were not regularly working in the choral/orchestral medium, a knowledge gap resulted. Thus, a new generation of conductors needed to develop their own methodology as balance issues resurfaced following a revival of combined performances beginning in the 1940s.

Selected studies published within the last fifty years offer possible solutions to choral/orchestral balance problems. Some authors contend that exaggerated enunciation and vocal resonance from the choristers are the keys to resolving imbalances. Others approach balance problems by controlling the volume of the orchestra. Still others choose to alter the relative positions of the performers on stage to affect balance problems.

An online survey instrument through [surveymonkey.com](https://www.surveymonkey.com) augments this study. Over two hundred conductors who frequently prepare choruses to sing with orchestras participated in the survey, offering wisdom from their experiences grappling with choral/orchestral balance problems. Utilizing the survey data, this study offers a

categorized collection of practical ideas and rehearsal techniques that will serve as a reference for conductors as they address choral/orchestral imbalances.

There are three principal outcomes of this study. First, it offers several reasons why choral/orchestral balance problems developed significantly during the nineteenth century and explain how conductors of that era addressed the problems. Second, it gives conductors a comprehensive overview of existing recent research on choral/orchestral balance. Third, the survey shows that present-day conductors consider acoustic imbalance between chorus and orchestra an issue with which they struggle, to what they attribute these imbalances, and how they address them. Ultimately, this document provides conductors with both a greater understanding of choral/orchestral imbalances and a variety of new methodologies for addressing them, both from the past and the present.

**BALANCING CHORUS AND ORCHESTRA IN PERFORMANCE:
PROBLEMS AND SOLUTIONS FOR CONDUCTORS OF
THE NINETEENTH CENTURY AND TODAY**

by

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To my wife, Amy, without whose loving support
I could never have done this.

APPROVAL PAGE

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CHAPTER I

INTRODUCTION

The ability to balance a chorus and orchestra acoustically during a musical performance is a skill for which many conductors strive. Yet few conductors seem to have at their disposal practical methods with any depth beyond suggestions for the orchestra to “play softer” and the chorus to “sing louder,” which is often detrimental to both ensembles. With a typically limited amount of combined rehearsal time, choral/orchestral balance is only one element among many last-minute performance considerations that must be addressed by the conductor in a timely manner. Moreover, many conductors seem to have acquired “balancing” methods by observing mentors, but perhaps employ them without fully understanding the objectives of those methods. Likewise, conductors have also become increasingly dependent upon technology to resolve balance problems in the wake of developments in acoustical engineering and electronic amplification.

The “orchestra-softer, chorus-louder” approach is problematic in at least three respects. First, it attempts to over-simplify an extremely complex acoustic relationship. Many factors contribute to choral/orchestral balance problems, and there is, unfortunately, no universal solution for each unique performance scenario. Second, constantly asking singers asked to produce louder sounds invokes concerns of vocal health, particularly for the amateur singer who has less vocal training and attempts to

achieve more individual sound intensity through unhealthy means. Third, when asked to play softer and softer, players of certain instruments—particularly winds and brass—reach a point at which they can no longer produce sustainable, vibrant tones on their instruments. For these reasons, conductors must not only develop a deeper understanding of choral/orchestral balance problems, but also have at their command an array of didactic tools for addressing them.

The purpose of this study was to examine the origins of, evidence for, and solutions to choral/orchestral balance problems in performance. By consulting several primary sources, the researcher will demonstrate that these balance issues rose to prominence during the early nineteenth century and that conductors of that era addressed these problems in ways that are different from modern solutions. Because of a heightened interest in unaccompanied choral singing during the early twentieth century, the performance of choral/orchestral works occurred less often, and thus, little writing on choral/orchestral balance emanated from this period. Furthermore, because many conductors from this generation were not regularly working in the choral/orchestral medium, a knowledge gap resulted. Thus, a new generation of conductors needed to develop a personal methodology when choral/orchestral balance issues resurfaced following a revival of the performance of choral/orchestral works that began in the 1940s.

Selected sources published within the last fifty years offer possible solutions to choral/orchestral balance problems. These sources fall into several categories according to the type of solution(s) prescribed by the author(s). For instance, some scholars have prescribed exaggerated enunciation for the choristers as a solution to the problem. Others

have posited that developing vocal resonance in the singers through the enhancement of the singer's formant is the key to projection of the choral sound over an orchestra.¹ A few authors preferred to strengthen a choral ensemble either from within by using "travelers" or by adding extra "ringers" to the choral forces to add resonance and increase volume potential. Instead of finding ways to increase the volume of the chorus, a number of conductors have approached choral/orchestral imbalances by using techniques to soften the orchestra. Reminiscent of nineteenth-century balancing solutions, at least three scholars have experimented with altering the relative physical arrangement of chorus and orchestra on stage. Finally, some scholars have examined balance problems through acoustic studies of the propagation of sound.

An online survey instrument developed by the researcher and implemented through surveymonkey.com augments this study. Over two hundred conductors in the United States who frequently prepare and conduct choral/orchestral works participated in the survey. The survey participants commented on how often they experience balance problems in their work, to what factors they attribute these problems, how they attend to them, and where their balancing methodology originated. Although an in-depth analysis of the survey data from an acoustic or psychoacoustic perspective is beyond the scope of this study, some educated generalizations that explain why certain techniques may or may not affect the balance between chorus and orchestra are pertinent.

¹ A number of authors have stated that one of the key traits of the human voice that potentially allows it to project and be heard over an orchestral sound is the so-called "singer's formant." This formant is a concentration of sound energy at a frequency range of 2800-3200 Hz; well above the fundamental frequencies of most orchestral instruments. See Johan Sundberg, "The Acoustics of the Singing Voice," *Scientific American* 236:3 (March 1977), 82.

This study has three principal outcomes. First, the study presents conductors with a historical perspective of both the problems of choral/orchestral balance and the methods used by nineteenth-century musicians to address these problems. Second, the literature review provides conductors with a comprehensive overview of existing recent research on choral/orchestral balance. Third, the results of the survey demonstrate: (1) that present-day conductors consider choral/orchestral balance an issue with which they struggle, (2) to what they attribute these imbalances, and (3) how they address them. Most significantly, this document offers a comprehensive collection of practical ideas and rehearsal techniques that contemporary conductors can use as they address issues of choral/orchestral balance. The techniques gleaned from the survey fall into six categories as follows:

- I. Techniques for Improving Diction/Text Articulation
- II. Techniques for Building Vocal Resonance
- III. Techniques of Stage Arrangement
- IV. The Use of Technology
- V. Techniques for Altering the Orchestral Sound
- VI. Other Approaches

Ultimately, this document provides conductors with both a greater understanding of choral/orchestral imbalances and a variety of new methodologies for addressing them, both from the past and the present.

What is meant by the term “choral/orchestral balance” in this study? Acoustic balance between a chorus and an orchestra is challenging to quantify objectively,

although at least one acoustician has made strides in that direction.² What one set of ears identifies as balanced, another may find imbalanced. Further, there are hundreds of listeners in a given concert hall and numerous perspectives and opinions on whether a performance is properly balanced. Unfortunately, all audience members cannot sit in the same seat to listen to the concert.

Another question that further complicates the matter is whether the composer had specific balances in mind while penning the score. After all, at least one scholar has argued that there are moments in music when the volume of the instruments should equal, or even overpower, the voices. William Bennett stated that

[m]ost conductors, especially choral conductors, consider combined works to be not for chorus *and* orchestra but rather for chorus *with* orchestra, implying the subordination of the instrumentalists. The bass line and blazing trumpets of the Baroque period, the ornamental violin lines in the Haydn Masses, the percussion effects in Verdi's Requiem, and the woodwind solos in Schubert's sadly neglected choral works are meant to be heard!³

Bennett's statement certainly resonates with this author. Particularly in some genres of choral/orchestral music composed since the early nineteenth century, there are times when the chorus functions as more of an orchestral timbre or even as an accompaniment to the orchestra, and the acoustic presence of the chorus should be relatively subdued. Thus, proper acoustic balance does not necessarily imply that the voices should always be louder than the instruments.

² A.H. Marshall, "An Objective Measure of Balance between Choir and Orchestra," *Applied Acoustics* 38 (1998), 51-58.

³ William Bennett, "Performing Works for Chorus and Orchestra: Striking the Balance," *Music Educator's Journal* 52:2 (October 1969), 44.

To understand what is meant by “balance” in this study, readers must subscribe to the idea that the modern orchestra and the instruments therein have undergone significant changes in the last two hundred years that have profoundly expanded their potential acoustic presence, while the human singing voice has remained relatively unchanged.⁴ Thus, a typical orchestra is capable of far greater volume than most choruses, and to make matters worse, the chorus is—for sensible logistical reasons—usually placed behind the orchestra on stage. How, then, does the modern choral conductor go about giving his/her chorus enough acoustic advantage to overcome such a discrepancy in volume potential and project its sound for the audience to hear? Moreover, is it volume that the audience needs from the chorus in order to hear and understand the text being sung, or are there other psychoacoustic phenomena at work? Therein lies the definition of “balance” for this document.

The composers mentioned above by William Bennett undoubtedly knew how to orchestrate their music in such a way as to prevent the louder instruments from consistently overpowering the sound of the choral voices. Several changes related to the orchestra, however, demonstrate that the potential for greater orchestral sound intensity developed during the nineteenth century.

⁴ While there have been new vocal techniques developed since 1800 allowing greater acoustic projection of the singing voice, the physiology of the human voice has not changed, whereas the physical makeup of many instruments has.

CHAPTER II

THE PROBLEM OF CHORAL/ORCHESTRAL BALANCE: A LEGACY OF THE NINETEENTH CENTURY

An understanding of choral music between 1800 and 1900 offers insight into the causes of contemporary problems with choral/orchestral balance because many of these problems stem from nineteenth-century phenomena. This chapter demonstrates that critics, composers, and conductors were aware of balance problems in choral/orchestral performances as early as the nineteenth century. Furthermore, the chapter offers explanations for the origins of these balance problems in the specific musical institutions, instrumental technologies, music ideologies, and concert practices of the nineteenth century. Finally, this chapter describes some of the ingenious solutions nineteenth-century conductors employed to address these problems. To the extent that twenty-first century choral conductors continue to face some of the causal factors inherited from the nineteenth century, a revival of the solutions from this time period is worth considering.

The notion of combining voices and instruments in musical performance is far from new. Perhaps even the earliest instruments dating from prehistory were forged by humans to accompany their own singing. Indeed, the primary sources studied by archaeomusicologists are musical instruments or parts of instruments made of stone, pottery, bone, and wood, as well as cave paintings depicting singing and the playing of

instruments.¹ The Psalms frequently refer to the combination of voices and instruments as a form of worship. For example, Psalm 98 reads

Make a joyful noise unto the LORD, all the earth: make a loud noise, and rejoice,
and sing praise.
Sing unto the LORD with the harp; with the harp, and the voice of a psalm.
With trumpets and sound of cornet make a joyful noise before the LORD, the
King.²

Another example comes from the opening of Psalm 149:

Praise ye the LORD.
Sing unto the LORD a new song,
and his praise in the congregation of saints.
Let Israel rejoice in him that made him:
let the children of Zion be joyful in their King.
Let them praise his name in the dance:
let them sing praises unto him with the timbrel and harp.³

During brief periods of time in modern history, society deemed one or the other as being inappropriate in certain settings, but the vocal and the instrumental have been bound inseparably since their origins. The early nineteenth century, though, saw several critical changes that had great effect on the ancient relationship between voices and instruments. These changes inadvertently brought about problems of acoustic balance between chorus and orchestra, many of which conductors continue to face.

¹ Ellen Hickman, "Archaeomusicology," *Grove Music Online*, ed. Laura Macy, <<http://www.grovemusic.com>> (accessed 14 April 2008).

² Psalm 98:4-6 (King James Version).

³ Psalm 149:1-3 (King James Version).

Identifying Balance Problems in the Nineteenth Century

Evidence suggests that musicians and music critics of the nineteenth century were aware that instruments were overpowering voices during choral/orchestral performances. Ironically, perhaps the most compelling evidence comes from an account of a performance in which the choral voices and instruments were equally balanced with regard to acoustics. In his account of a performance of the Haydn *Creation* during the 1834 Handel Festival in Westminster Abbey, a reviewer for *The London Times* expressed amazement that, in this particular performance, the instruments did not overpower the voices, suggesting that balance problems typically abounded as early as the 1830s:

Some effects peculiar to the present performance in the Abbey, and *differing perhaps from the expectation previously formed of it*, are well worthy of remark. The volume of sound, even when the power of the orchestra was exerted to the utmost, was *far less than anticipated*. . . . Another peculiarity, also *quite unexpected*, was that the voices of the solo singers appeared louder and more distinct *than usual*, and were so far from being overpowered by the accompaniment. [Emphasis added].⁴

The above evidence suggests that, by 1834 in London, music critics considered it unusual to be able to hear the voices with any degree of clarity during choral/orchestral performances. Performances in which the orchestra did overpower the voices were apparently the rule rather than the exception. The same reviewer remarked that, depending upon where a listener sits in the cathedral, balance problems were still evident:

⁴ “Royal Musical Festival in Westminster Abbey,” *The Times* (London), Saturday, 21 June 1834, 6.

In general, but particularly on the floor of the cathedral, the chorus does not come out so distinctly as it ought to do, and it would be a great improvement if it could be brought more forward, and if some of the instruments were carried up into their places. The semi-chorus is decidedly too small to preserve its due share in the general effect.⁵

In another account from the same festival, Ignaz Moscheles noted, “the choral music to a part of the audience sounded as though it were smothered by the orchestra; in other parts of the Abbey the effect was reversed, and the performance as a whole could only be enjoyed in a small part of the vast building.”⁶ Once again, balance seemed quite dependent on the perspective of the listener.

One of the more infamous complaints regarding choral/orchestral balance came from the partial premiere of the Brahms *Ein Deutsches Requiem* in December 1867. The timpanist reportedly misread a dynamic marking in the score and played the low D pedal tone too loudly, drowning out the rest of the performers during the fugal conclusion of the third movement.⁷ In November 1871, a reviewer for *The New York Times* criticized a performance of Mendelssohn’s *Elijah*, writing, “the orchestra was not good, and the chorus was bad. Had the accompaniments been subdued, there would not, however, have been so much fault to find with the lack of unanimity of the musicians.”⁸ Clearly, these

⁵ Ibid.

⁶ Isaak-Ignaz Moscheles, *Recent Music and Musicians as Described in the Diaries and Correspondence of Ignatz Moscheles*, edited by Charlotte Moscheles, translated by A. D. Coleridge (New York: Da Capo Press, 1970), 204. First edition, 1873.

⁷ Max Kalbeck, *Johannes Brahms*, Vol. 2 (Berlin: Deutsche Brahms Gesellschaft, 1904-16), 234.

⁸ “Amusements: Musical,” *New York Times*, 1 November 1871.

balance problems were not unique to England, nor did they end in the first half of the nineteenth century.

One of the most outspoken musicians to express concerns about choral/orchestral balance issues was Hector Berlioz (1824-1896). In his highly influential orchestration treatise, Berlioz listed the 827 performers he required for his Requiem and expressed concern that only 360 of those performers would be singers:

It will be perceived [by the audience] that in this aggregate of 827 performers the chorus-singers do not predominate; and even thus there would be much difficulty in collecting in Paris three hundred and sixty voices of any excellence—so little is the study of singing at present cultivated or advanced.⁹

Not only does the above statement highlight the concern Berlioz had for balance between voices and instruments, but also it provides insight into the waning dominance of vocal music over instrumental music as evidenced in Berlioz's assessment of the "study of singing" during the nineteenth century. This paradigm shift plays a key role in this study, and will be presented in more detail.

One 1878 letter to the editor of *The London Times* entitled "Overpowering Orchestras" demonstrates how some audience members felt about choral/orchestral balance problems in oratorio performances:

TO THE EDITOR OF THE TIMES: Sir,—Can you help in putting down another nuisance—namely, the stentorian and blatant powers of our modern orchestra, more especially in the performance of oratorio? The orchestra is certain only intended to be an accompaniment to the voices on such occasions, but how often

⁹ Hector Berlioz, *Berlioz's Orchestration Treatise: Translation and Commentary*, translated by Hugh MacDonald (Cambridge: Cambridge University Press, 2002), 243.

does it drown everything else, making solo singing and chorus a mere dumb show. The other day at Exeter-hall the chorus was apparently doing its duty, but the voices frequently were quite inaudible, owing to the din of the so-called accompaniment. If it had not been irritating it would have been ridiculous. Who is responsible for this great mistake in musical art? Surely [the conductor] cannot like mere noise, and if he thinks it is pleasing to the musical public, I can assure him he is mistaken. I should like to know what chorus and solo singers have to say on the subject. If there is no remedy for this state of things, I can suggest that there be two performances of an oratorio, one for the orchestra alone and the other for the voices. This would be as sensible as the present arrangement, for in these days the greater part of an oratorio performance is, in fact, a grand exhibition of unnecessary power by the band alone. Yours Truly, Francis Bryans, B.A.¹⁰

Bryans' question, "Who is responsible for this great mistake in art?", is particularly telling. Unlike others who complained about a balance problem in a particular performance, Bryans seemed to be speaking more universally about the performance of choral/orchestral works in general.

A retort to Bryans' letter appeared shortly thereafter in *The Musical World*.

Responding to Bryans' statement that the orchestra is intended to be an accompaniment in oratorios, Shaver Silver wrote that

[t]he orchestra, however, as our readers need scarcely be reminded, is intended to be much more. In oratorio, as in modern opera, the orchestra has often a very important part to play, quite independently of the voices. To say that it is to do nothing more than accompany the voices is to send it back a couple of hundred years or so.¹¹

Silver's quick dismissal of Bryans' argument characterizes the late nineteenth-century view of the orchestra as the dominant musical force on concert stages of that era.

¹⁰ Francis Bryans, letter to the editor, *The Times* (London), June 22, 1878.

¹¹ Shaver Silver, in "Occasional Notes," *The Musical World*, July 6, 1878, 435.

Two possible explanations for this apparent rise in criticism regarding balance exist, the latter of which points to the nineteenth century. The first possibility is that such criticism was not a new phenomenon of the nineteenth century, but written sources prior to 1800 showing a penchant for choral/orchestral balance have been lost over time. The second possibility is that balance problems existed prior to 1800, but that audiences of the nineteenth century developed more finely-tuned tastes and higher expectations of musical performances. In the wake of the French and American Revolutions, a burgeoning, more educated middle class developed a new appreciation for the music that had been the unique privilege of the aristocracy. This cultural shift resulted in a greater number of audience participants who became increasingly aware of balance problems. Furthermore, the ensuing construction of public performance venues promoted balance problems as musicians grappled with the acoustic properties of much larger concert halls and the audiences that filled them. Based on the research contained herein, this second possibility is the most valid.

Understanding the Origins of Balance Problems

A number of significant changes during the nineteenth century had a profound impact on choral/orchestral balance, including changes in ideology, changes to musical institutions and practices, developments in instrument construction, and the growth of professionalism in the field of music performance.

Changing Ideologies of Music

The first and most significant change during the nineteenth century was one of ideology. For many centuries, vocal music held a position superior to that of instrumental music because people perceived the human voice to be a natural or divine creation, not conceived or constructed by mortals the way instruments were. More importantly, though, the voice reigned supreme because, unlike any man-made instrument, it had the responsibility for carrying the text. Seventeenth and eighteenth-century thought dictated that music's sole purpose was to provide an alternative vehicle for communicating some form of poetry or prose. Purely instrumental music was thought to be incapable of delivering any profound message in and of itself, and thus, was viewed as being subordinate to music that utilized voices to transmit textual meaning.¹²

Particularly in church music genres, where communication of the text was of utmost importance, instruments had commonly been used only in the absence of a singer or for the purposes of voice-doubling and accompanying. The emphasis on clear propagation of a sacred text through the vehicle of music dates back at least as far as the sixteenth century. Indeed, the clarity of the text in polyphonic musical settings was one of the principal concerns of the Council of Trent.¹³ During the 1500s, many polyphonic settings of sacred texts had grown in complexity to the point of obscuring the words beyond listeners' ability to understand them. According to tradition, it was because of

¹² Carl Dalhaus, *The Idea of Absolute Music*, translated by Roger Lustig (Chicago: University of Chicago Press, 1989), 5-7.

¹³ K. G. Fellerer and Moses Hadas, "Church Music and the Council of Trent," *The Musical Quarterly* 39:4 (October 1953), 576-594.

Palestrina's textually-clear compositional style that choral polyphony was allowed to continue in the church.

This text-over-music mindset continued to be evident in the eighteenth century.

Swiss aesthetician Johann Georg Sulzer (1720-1779) commented that

[i]n the last position we place the application of music to concerts, which are presented merely as entertainments, and perhaps for practice in playing. To this category belong concertos, symphonies, sonatas, and solos, which generally present a lively and not unpleasant noise, or a civil and entertaining chatter, but *not one that engages the heart*. [Emphasis added].¹⁴

The fact that Sulzer referred to instrumental music as a “not unpleasant noise” is certainly telling, but to say that it fails to “engage the heart” is particularly revealing, considering the seventeenth and eighteenth-century emphasis on the rhetorical value of the arts.

Charles Burney was slightly more generous when he referred to music of the eighteenth century as an “innocent luxury, unnecessary, indeed to our existence, but a great improvement and gratification of the sense of hearing.”¹⁵ Thus, even as late as the 1780s, many scholars still viewed instrumental music as a subordinate to text-carrying vocal (and choral) music.

Another reason that vocal music was deemed superior is that the singing voice had long since been the ultimate benchmark by which any melodic instrument was measured. Authors of treatises on instrumental playing techniques from the sixteenth

¹⁴ Georg Sulzer, quoted in Carl Dalhaus, *The Idea of Absolute Music*, 4.

¹⁵ Charles Burney, *A General History of Music, From the Earliest Ages to the Present Period (1789)*, with critical and historical notes by Frank Mercer (New York: Harcourt, Brace and Company, 1935), 21.

through eighteenth centuries frequently argued that an instrument was being played correctly when its sound approximated the beauty and fluidity of the human singing voice. In his 1756 treatise on playing the violin, Leopold Mozart (1719-1787) wrote that

[t]he human voice glides quite easily from one note to another; and a sensible singer will never make a break unless some special kind of expression, or the divisions or rests of the phrase demand one. And who is not aware that singing is at all times the aim of every instrumentalist; because one must always approximate to nature as nearly as possible.¹⁶

In *The Virtuoso Flute-Player*, published in 1791, Johann George Tromlitz (1725-1805) taught his readers that

[a]nyone who wishes to acquire a good manner of performance [on the flute] should follow the example of good singers He must try to imitate such singing in melodic as well as in rapid, running, and rolling passages: as long as his melody and his passagework do not sound just the same way as when executed by a good singer, he is not on the right path, and is not using the right methods.¹⁷

These excerpts demonstrate how the singing voice was held as a paragon for aspiring young instrumentalists during the eighteenth century.

The relative valuation of voices and instruments entered a state of flux at the turn of the nineteenth century, and the momentum began to shift in favor of instrumental music as an equal art form to its vocal counterpart. Twentieth-century musicologist Carl Dahlhaus (1928-1989) wrote that in the nineteenth century, “instrumental music,

¹⁶ Leopold Mozart, *A Treatise on the Fundamental Principles of Violin Playing*, translated by Editha Knoch (Oxford: Oxford University Press, 1985), 101-2.

¹⁷ Johann George Tromlitz, *The Virtuoso Flute-Player*, translated and edited by Ardal Powell (Cambridge: Cambridge University Press, 1991), 324.

previously viewed as a deficient form of vocal music, a mere shadow of the real thing, was exalted as a music-esthetic paradigm in the name of autonomy—made into the epitome of music, its essence.”¹⁸ Pioneering Romantics like J.P.F. Richter (1763-1825) and E.T.A. Hoffmann (1776-1822) promoted a notion of spiritual absolutism, in which the music itself—apart from any text it carried—transcended other forms of communication. These early Romantics snubbed genres such as opera, song, and programmatic pieces, since these musical forms implied that the music was incapable of carrying a message of its own; that it was, by itself, anything less than sublime. Instead, Richter and Hoffmann stressed the greater importance of symphonic forms since they allowed the music to communicate to the audience independently of anything extra-musical. The nineteenth-century music critic Eduard Hanslick (1825-1904) later echoed these sentiments in his ongoing diatribe against Wagner’s concept of *Gesamtkunstwerk*, arguing that

[o]n the one hand it is said that the aim and object of music is to excite emotions, i.e., pleasurable emotions; on the other hand, the emotions are said to be the subject matter which musical works are intended to illustrate. Both propositions are alike in this, that one is as false as the other.¹⁹

In other words, although music may initiate an emotional response in a listener, that response is merely a by-product of the music’s inherent beauty. Music’s beauty is not measured by the emotional response it engenders.

¹⁸ Carl Dalhaus, *The Idea of Absolute Music*, 7.

¹⁹ Eduard Hanslick, *The Beautiful in Music*, translated by Gustav Cohen (London: Novello and Company, 1891), 18.

The growing importance of instrumental music is also manifested in the nineteenth-century rise of a genre now referred to as the choral symphony. These large-scale, symphonically-conceived choral/orchestral works were born out of a spirit of Romanticism: out of a desire to create musical expression beyond the capability of instruments alone. Ludwig von Beethoven's (1770-1827) Symphony No. 9 (1827) was the first significant example of the employment of voices in what had been an exclusively instrumental genre. That Beethoven would grace his final symphony with the addition of voices suggests that he had grown to see instrumental music as worthy of such an inclusion. As the choral symphony blossomed during the nineteenth century in such works as the Berlioz *Romeo et Juliette* (1835), Liszt's *Faust* (1854) and *Dante* (1856) symphonies, and later Mahler's Symphony No. 8 (1907), the chorus increasingly became an integral part the orchestral texture. By the close of the nineteenth century, the voice had, in some cases, given up its text-carrying role altogether. Consider the final movement of Debussy's *Nocturnes*, composed in 1899. In this impressionistic work, the chorus departs from its traditional text-carrying role and behaves as an orchestral timbre serving to evoke the alluring songs of the mythological Sirens.

A certain trend in church music provides further evidence of shifting appraisals of the value of vocal and instrumental music by the mid-nineteenth century. Initiated by German church musician and composer Franz Xaver Witt (1834-1888) and eventually centered in Italy, the Cecilian Movement was a restructuring effort that is often compared to the sixteenth-century Council of Trent. The Cecilians wanted to eradicate from church music the excesses found in nineteenth-century operatic and instrumental music and

return to a compositional style that emphasized simpler harmonies, unaccompanied polyphony, and clarity of text. A number of nineteenth-century composers responded to this movement in their compositions; most notably, Anton Bruckner (1824-1896) in his Mass in E Minor (1866) and later motet settings, as well as Liszt in his *Missa Choralis* (1865). The fact that the Cecilian Movement rose to prominence during the nineteenth century is evidence that instrumental music had grown in stature and that there were musicians of the time who had grown dissatisfied with the diminishing emphasis on textual clarity during performances of vocal music.

The intention here is not to argue that the communication of text through music became obsolete during the nineteenth century. Were that the case, then nineteenth-century audiences would seemingly not care to hear the text at all during choral-orchestral performances, and thus, choral/orchestral balance would not be a problem. The purpose for discussing this change of thought is simply to show that instrumental music, long subordinate to the vocal, rose in importance during the nineteenth century and in some cases outgrew its role as an accompaniment.

Nineteenth-Century Musical Institutions and Practices

Along with, and to some extent, because of, this ideological change, several other developments during the 1800s tipped the equilibrium between voices and instruments heavily towards the latter, resulting in greater challenges of acoustic balance. The first of these developments was that the average size of orchestras was expanded greatly during the nineteenth century through the enlargement of existing instrument sections. Robert

W. Demaree wrote that in the 1800s, “the trend was not toward new ensembles but toward larger ones; orchestras grew toward the 100-member milestone as the century progressed, and ‘festival choruses’ sang in their thousands.”²⁰ The largest orchestras of the eighteenth century had been utilized, on the whole, in opera houses rather than for instrumental concerts. Orchestras that had been assembled to perform symphonies and concertos were generally much smaller, primarily because the venues in which these genres were typically performed were smaller rooms. Large concert halls designed for public orchestral performances are a familiar sight today, but were few at the turn of the nineteenth century as the public demand for such performances was in its early stages. To meet the demands of an ever-expanding public audience and increasing size of performance venues, however, nineteenth-century orchestra leaders began enlarging string sections and doubling wind instruments more frequently.

The demand of public audiences did not, however, single-handedly pilot the growth in the size of orchestras during the nineteenth century. The delicate, symbiotic relationship between the composers, instrument makers, virtuoso players, orchestra leaders, and consumers of music is an important one. From a certain perspective, one could argue that composers, in their desire for heightened musical expression, began calling for larger orchestrations in their scores, spawning growth in orchestral size. Indeed, the practice of re-orchestrating older works for more “modern” instrumentation dates at least back to Mozart’s re-orchestrations of Handel works. From another

²⁰ Robert W. Demaree and Don V. Moses, *The Complete Conductor: A Comprehensive Resource for the Professional Conductor of the Twenty-first Century* (Englewood Cliffs, NJ: Prentice-Hall, 1995), 229.

perspective, one might say that as a result of technological advancements, instrument builders produced a wider array of instruments that were ultimately found worthy to be included in the standard orchestra, thus increasing its size. From yet another perspective, one might argue that refinements in instrument construction influenced composers' musical decisions in their scores. Indeed, attempting to pinpoint the root cause of nineteenth-century orchestral growth is rather difficult.

This nineteenth-century growth of the orchestra was not a geographically uniform phenomenon, nor did it occur all at once. In addition, orchestras functioned in a variety of contexts during the nineteenth century, making precise figures difficult to calculate. Thus, one can only estimate this trend of growth in general terms here by stating that the typical size for an orchestra during Beethoven's life was somewhere between twenty-five and forty players, but by the end of the nineteenth century many orchestras utilized approximately one hundred players.²¹

In addition to expansion through the enlargement of existing sections, the orchestra also saw several new instruments added to its ranks during the 1800s. One example of this trend toward expansion is the integration of the trombone and tuba into the concert orchestra, which significantly fortified the lower brass section. The addition of these two instruments—capable of substantial sound intensity—greatly increased the potential volume of the orchestra during the nineteenth century. The trombone had been utilized in an orchestral context exclusively for the accompaniment of sacred music and

²¹ For a detailed examination of this subject, see Daniel J. Koury, *Orchestral Performance Practices in the Nineteenth Century: Size, Proportions, and Seating* (Ann Arbor, MI: UMI Research Press, 1986).

opera during the seventeenth and eighteenth centuries. There, its function was essentially doubling support for the lower choral voices, or for special dramatic situations in which the introduction of its timbre connoted the supernatural; specifically, the underworld.²² Only in the latter years of the eighteenth century did composers assign the trombone to more independent melodic functions in such examples as the “Tuba mirum” of Mozart’s Requiem. The trombone also became a regular part of the concert orchestra during the late-eighteenth century, although its addition was not without conflict. At least one mid-nineteenth century conductor, to govern the volume of the low brass section, employed trombones designed with the bell pointing back over the shoulder.²³ During the 1830s, the tuba evolved from antiquated instruments like the serpentone, bombardon, ophicleide and cimbasso, and became a stable part of the low brass section.

Several new woodwind instruments also became part of the orchestra during the nineteenth century. The so-called “secondary woodwinds”—piccolo, English horn, bass clarinet, and double bassoon—were integrated into the concert orchestra during this period. The fact that some of these instruments utilize extreme frequency ranges is of great importance. The high frequency range of the piccolo, in particular, approaches that of the singer’s formant. As a result, a greater likelihood existed that the voice would lose some of its acoustic advantage and, consequently, its ability to project over the instrumental timbres that surrounded it.

²² Trevor Herbert, *The Trombone* (New Haven, CT: Yale University Press, 2006), 118-9.

²³ Anthony C. Baines and Arnold Myers, “Trombone,” *Grove Music Online*, ed. Laura Macy, <<http://www.grovemusic.com>> (accessed 5 May 2008).

Although the timpani had been the predominant percussion instrument employed in the orchestral context since the late-seventeenth century, the nineteenth century saw the gradual addition and standardization of an array of new percussion instruments like cymbals, gongs, and later wood blocks, castanets, tubular bells, and xylophones. As with the trombone, many of these percussion instruments had their beginnings in the opera house as composers employed them to evoke special dramatic effects and suggest exoticism. These effects eventually proliferated into the symphonic arena as composers sought broader musical expression in orchestral music. The addition of these percussive timbres further increased the volume potential of the orchestra, making it even more difficult for sung texts to be heard by audiences during combined performances.

Developments in Orchestral Instruments

Along with the addition of new instruments to the orchestra, the nineteenth century also saw much advancement in the field of instrument building, which escalated the volume potential and brilliance of some instruments already part of the orchestra. Robert Barclay pointed to the “huge social upheavals” of the late eighteenth century reflected in the American and French revolutions as well as the rise of industrialism as instigators of this phenomenon. He wrote that

[t]he collapse of court sponsorship of music composition and performance, enhanced commerce between previously isolated centres, and the new popular

appeal of music, all contributed to the reworking of every instrument of the orchestra, and the invention of many others.²⁴

The nineteenth-century development of the purpose-built concert hall also affected instrument construction practices. Performance venues of the seventeenth and eighteenth centuries had typically been palace ballrooms, theaters, churches, and even hotel rooms. In his discussion of the development of the orchestra between 1800 and 1850, Adam Carse states that “while there were theatres everywhere, concert-halls were few and far between.”²⁵ The rise in bourgeois demand for music in the early nineteenth century, however, resulted in the construction of large performance spaces designed specifically for musical performance in many urban centers. Katharine Ellis enumerated several of these buildings, stating that “The very structures within which professional musical activity took place . . . mark one of the defining features of the institutionalisation of musical life in the second half of the [nineteenth] century.”²⁶ Instrument makers experienced increasing pressure to build instruments that had greater volume potential and carrying power that would be capable of filling with sound the new, large concert halls that were being constructed.

²⁴ Robert Barclay, “The Development of Musical Instruments: National Trends and Musical Implications,” in *The Cambridge Companion to the Orchestra*, ed. Colin Lawson (New York: Cambridge University Press, 2003), 31-2.

²⁵ Adam von Anh Carse, *The Orchestra from Beethoven to Berlioz: A History of the Orchestra in the First Half of the 19th Century, and of the Development of Orchestral Baton-Conduction* (Cambridge: W. Heffer, 1948), 12.

²⁶ Katharine Ellis, “The Structures of Musical Life,” in *The Cambridge History of Nineteenth-Century Music*, ed. Jim Samson (Cambridge: Cambridge University Press, 2002), 348.

An increase in the size of performance venues was not the only indicator of the need for improved instruments. These instruments also needed to be sturdy enough to withstand the advanced playing techniques that were being utilized increasingly by virtuoso instrumentalists. In addition, competition between these virtuosos for an ever more brilliant sound resulted in a gradual ascension of standard concert pitch during the nineteenth century and, as a result, affected instrument construction.²⁷ In these contexts, the stringed instruments of the violin family took on much of their form that remains to the present. Violin manufacturers made a number of alterations to the instrument, including a larger and stiffer bass bar, a longer neck that was angled back, a longer fingerboard, and a higher bridge.²⁸ These modifications allowed more tension on the strings, which also had to be strengthened, giving the instrument “greater power and a more mellow tone quality.”²⁹ In addition, the use of the new, heavier bows by Francois Tourte (1747-1835) became more universal, adding to the strength of the bowed instruments. Conversely, plucked string instruments such as the lute became obsolete in the orchestra since their carrying power was extremely limited in comparison to other instruments, although the harp has remained a limited fixture in the orchestra into the twenty-first century.

²⁷ Arthur Mendel and Alexander J. Ellis, *Studies in the History of Music Pitch*: (Amsterdam: Fritz Knuf, 1968), 27-28.

²⁸ Barclay, “Development of Musical Instruments,” 32.

²⁹ David D. Boyden and Peter Walls, “Violin,” *Grove Music Online*, ed. Laura Macy, <<http://www.grovemusic.com>> (accessed 2 April 2008).

Members of the woodwind instrument family also underwent massive overhauls during the nineteenth century. According to Barclay, these modifications were “in response to the needs for projection, volume, and versatility.”³⁰ Perhaps the most significant modification to the woodwind family was Theobald Böhm’s (1794-1881) radical new design for the transverse flute, the improvements to which

resulted in an instrument with fuller tone, truer intonation, easier production in the third octave, and above all, with much greater facility for execution in all keys, which . . . required only the test of time in order almost entirely to supersede the old style of flute in the orchestra.³¹

Böhm’s design would, in turn, influence the designs of several other members of the woodwind family.

Brass instruments also encountered technological developments during the nineteenth century that affected their volume potential. Trumpets and trombones experienced an increase in the flare of their bells during the eighteenth century, greatly brightening the timbres of these instruments. Around the turn of the nineteenth century, trumpet manufacturers began utilizing the valve technology that is standard today. This advancement allowed for more precise tuning and the flexibility to play in a variety of keys. Consequently, in their own orchestrations, composers made more frequent use of the bright timbres of the trumpet, which resulted in a more full-bodied orchestral sound.

³⁰ Barclay, “Development of Musical Instruments,” 33.

³¹ Adam von Ahn Carse, *The History of Orchestration* (New York: E. P. Dutton, 1925), 201.

Development of the Professional Musician

During the nineteenth century, the notion of making a living as a professional orchestral player was first seen as viable.³² Music as a profession saw a change from an era of generalization to one of specialization, in which musicians focused more of their study on the techniques for playing a particular instrument rather than learning to play a number of instruments at a mediocre level. Thus, orchestras were not only growing larger in the nineteenth century, but also increasingly included players who had devoted years to the study of one instrument, resulting in a potentially more refined, focused timbre with greater projection.

This move toward specialization is evident in the changing practices of orchestration. For instance, in the eighteenth century an orchestra might have a clarinet player who doubled on the oboe, necessitating that composers avoid specifying that the two instruments be played simultaneously in a score. In the nineteenth century, however, it became optimal for orchestras to have more wind players who each specialized on a particular instrument. With this increase in orchestral personnel coupled with the growing trend of instrument specialization, composers became free to explore the possibilities of overlapping these instrumental timbres, with the result of a potentially thicker orchestral texture with which choruses needed to compete in performance. Some composers, however, were sensitive to this change and consequently orchestrated their music with thinner instrumental timbres at moments when the clarity of sung text was particularly

³² John Spitzer and Neal Zaslaw, "Orchestra," *Grove Music Online*, ed. Laura Macy, <<http://www.grovemusic.com>> (accessed 2 April 2008).

important. For instance, Gustav Mahler composed orchestrations that called for large numbers of instruments, but he utilized them in thin, transparent textures, resulting in sonorities that resemble a chamber orchestra.

Orchestral Growth vs. Choral Growth

One might argue that following the massed choral festival tradition, choruses were growing proportionally alongside orchestras during the nineteenth century. Indeed, the tradition of huge annual choral festivals dates back to Handel in the 1730s, who amassed several cathedral and royal choirs of London to perform his oratorios.³³ In 1784, London celebrated the “centenary”³⁴ of Handel’s birth by organizing massed choral performances of his oratorios, utilizing approximately five hundred singers in the chorus. The celebration continued annually for the next seven years, during which time the number of performers eventually approached one thousand, a figure that perhaps even Handel could not have imagined.

These mass festivals were not exclusive to the British Isles. Many parts of Europe seized on the idea of massed festivals as an exhibition of nationalism. Spitzer and Zaslaw state that

[i]nstead of projecting the wealth and power of the royal court or an aristocratic patron, these [massed performances] were civic and patriotic displays. In their size and in their coordination of diverse elements, they represented the wealth and

³³ John Butt, “Choral Music,” in *The Cambridge History of Nineteenth-Century Music*, ed. Jim Samson (Cambridge: Cambridge University Press, 2002), 215.

³⁴ At the time, Handel’s birth was thought to have been in 1684.

the capacities of civil society—the musical and social harmony that people could achieve when they set their minds on a common goal.³⁵

Particularly in France, where Revolution had taken place during the final decade of the eighteenth century,

the concept of massed amateur singing took on a political significance . . . that it had never had before and this undoubtedly had an impact on neighbouring countries. Amateur choruses were often associated with democratic or nationalist sentiments that preserved some memory of the French Revolution.³⁶

Perhaps the largest ever “mass chorus” assembled in Paris in 1790, when the entire population of the city gathered to sing a *Hymne à la Divinité* for the first anniversary of the Revolution, an event which marked “the highpoint of the integration of music within the political and revolutionary process in France.”³⁷ In Berlin, a similar event took place in 1786 with a performance of *Messiah* that was followed very quickly by the organization of several amateur choral singing groups in Germany, including the Berlin *Singakademie* in 1791. The grand spectacle of these massed choral singing events initiated an international vogue that spawned numerous choral societies as vehicles for regular social gathering and music-making in both Europe and America.

Another reason for the nineteenth-century budding of amateur choral singing was that, during the previous century, the central role that the church had played in choral

³⁵ Spitzer and Zaslaw, “Orchestra,” *Grove Online*.

³⁶ Butt, “Choral Music,” 218.

³⁷ *Ibid.*, 219.

music for centuries experienced a significant deterioration in the wake of Enlightenment ideology. John Butt states that

[t]he Enlightenment brought both a demystification of the powers of music and a turn away from the general hegemony of religion *per se*. If music was no longer central to the academic core of education, if the educational establishments were less intimately connected with the church and if the churches no longer recognised any special spiritual power in music, the decline [in the church's influence] seems hardly surprising.³⁸

This decline left a void for the preferred music-making experience of the common man. As the institution of church-based choral singing waned, “the amateur chorus rose to be one of the most potent musical institutions in Europe and America.”³⁹ Thus, in the place of liturgically-sanctioned choral music, numerous choral societies sprang up throughout Europe and America during the early years of the nineteenth century.

Several accounts of historical performances provide concrete evidence that while orchestra personnel typically outnumbered choral singers in combined performances of the eighteenth century, choruses gradually caught up with and surpassed orchestras in the nineteenth century. Daniel Koury's study documented several examples.⁴⁰ He adds that during the nineteenth century (and particularly in England where a great affinity for large festival choruses existed), the size of choruses began to exceed that of orchestras, sometimes by as much as a four-to-one ratio.

³⁸ Ibid., 213.

³⁹ Ibid., 214.

⁴⁰ Koury, *Orchestral Performance Practices*, 169.

In light of the above evidence, one might deduce that growth in the size of choral ensembles would negate any balance problems caused by growth in the orchestra discussed earlier. Consider, however, that while the rosters of both orchestras and choruses were on the rise, the former grew with more professional musicians (as stated earlier) while the latter grew primarily through the addition of amateur voices; a trend of quantity over quality that is still evident in many choruses today. Generally speaking, amateur voices are incapable of the same level of acoustic projection. Thus, the increase in potential volume experienced by the chorus did not equal that of the orchestra.

Nineteenth-Century Strategies for Solving Balance Problems

Although little concrete evidence exists to suggest how conductors of the nineteenth century dealt with choral/orchestral balance problems during rehearsal, there are indications of a few solutions conductors employed in performance.⁴¹ The first solution, which may seem overly simple, was to increase the size of the chorus. Consider, again, the data provided by Koury concerning the relative sizes of orchestras and choruses in the eighteenth and nineteenth centuries. He stated that “in the mid-eighteenth century, it seemed that the orchestra was invariably the larger [of the two],” citing several examples in which the orchestra-to-chorus ratios were weighted in favor of the former. Particularly in England, America, and the German-speaking countries, it was “in the

⁴¹ The term “conductor” appears here with the understanding that the field of conducting as we know it today was in its infancy during the early nineteenth century and that the use of a baton-conductor was not yet widespread. The use of this term is simply in reference to the person who was in charge of the performance and made decisions about the relative size of the performing forces.

nineteenth century that choruses start to outnumber orchestras,” according to Koury.⁴² Certainly, a number of factors affecting the ratio changes of choral and orchestral performers from the mid-eighteenth century to the nineteenth century exist. Based on the evidence presented herein concerning the burgeoning volume potential of the orchestra during the nineteenth century, however, these changes were, at least in part, a reaction to perceived acoustic balance problems in combined choral/orchestral performances.

Increasing the singers’ numbers was not the only response to the growing orchestra. The discipline of vocal pedagogy took a new turn during the nineteenth century as scientists began to examine the phenomenon of the human singing voice from an anatomic and acoustic perspective. These scientific approaches were cultivated, at least in part, because of a need to develop a vocal timbre that would project over an orchestral accompaniment that was experiencing significant expansion in size and volume potential. Will Crutchfield states that as a result of orchestral growth in the nineteenth century, “the need to cultivate greater vocal power exercised a progressively increasing, multi-faceted influence on technique and style.”⁴³ While the emphasis of Crutchfield’s essay is on operatic singing, his point is equally applicable to the performance of concerted choral/orchestral works. More efficient, resonant vocal production was necessary if choral voices were to be capable of projecting over the enlarged orchestras of the nineteenth century.

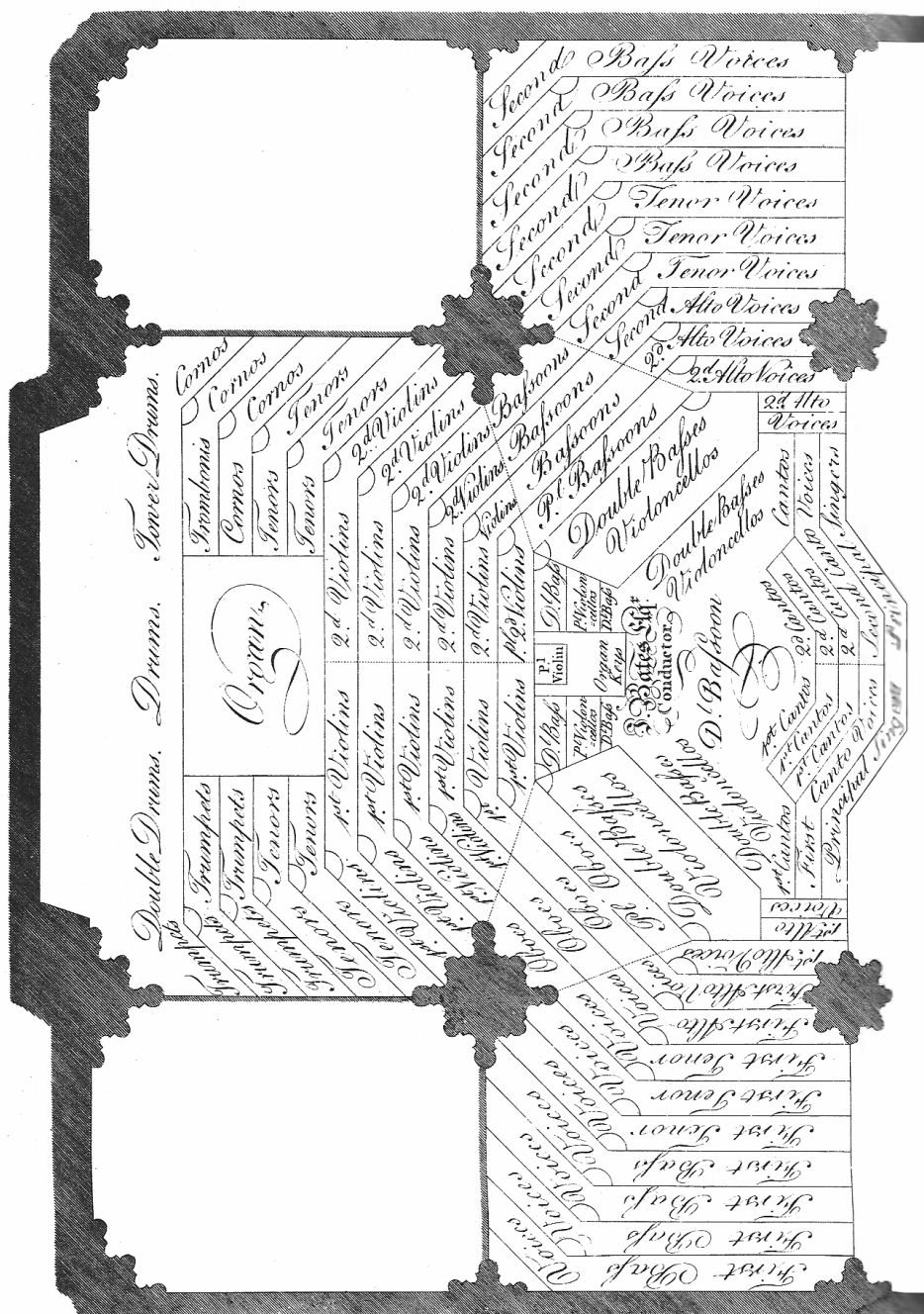
⁴² Koury, *Orchestral Performance Practices*, 169.

⁴³ Will Crutchfield, “The 19th Century: Voices,” in *Performance Practice, Volume II: Music After 1600*, ed. Howard Mayer Brown and Stanley Sadie (New York: W.W. Norton, 1990), 424.

Perhaps the nineteenth-century balancing technique that is least familiar to modern audiences is one of physical stage arrangement. By examining several extant seating plans from late eighteenth-century and nineteenth-century performances in London, Birmingham, Paris, Vienna, Munich, and Dresden, one can see that conductors of this era often positioned the chorus at the front of the stage, closest to the audience.⁴⁴ Consider, again, the 1784 Handel commemoration in London. Charles Burney's account of the occasion provides two iconographic examples that are valuable both for depicting what these performances looked like and in demonstrating a late eighteenth-century approach to choral/orchestral balance problems. The first example is a seating plan for the performance of Handel's *Messiah* in Westminster Abbey, shown in Figure 2.1 below.

⁴⁴ See Table I in Donna Maria Di Grazia, "Rejected Traditions: Ensemble Placement in Nineteenth-Century Paris," *Nineteenth-Century Music* 22:2 (Autumn 1998), 193.

Figure 2.1. Seating Plan, 1784 Handel Commemoration, Westminster Abbey⁴⁵

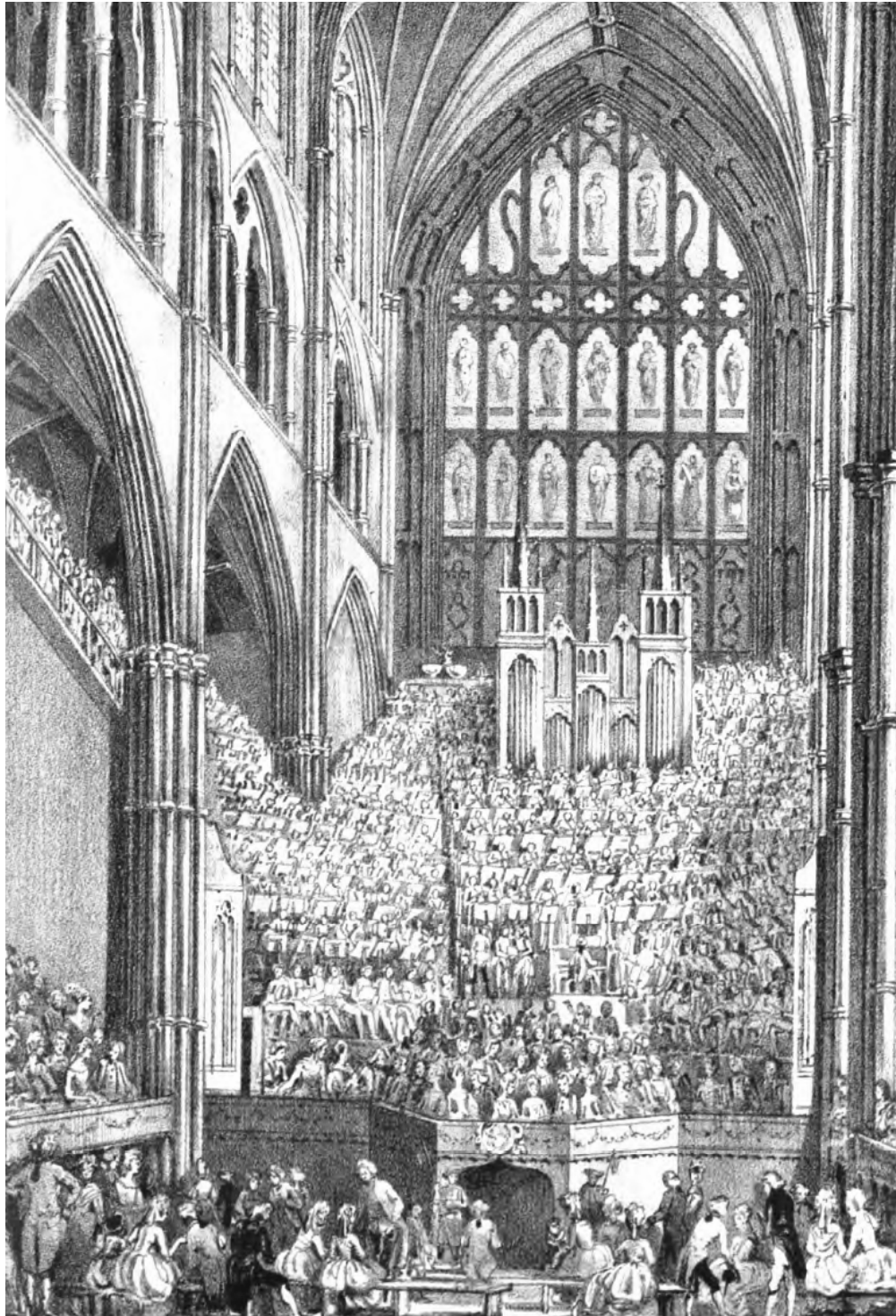


⁴⁵ Charles Burney, *An Account of the Musical Performances in Westminster-Abbey* (London, 1785. Facsimile reprint Amsterdam: Fritz A. M. Knuf, 1964), facing page 113.

One can make a number of striking observations from these two examples that are pertinent to this study of acoustic balance. In Figure 2.1, the choral singers as well as the vocal soloists are positioned in front and to the sides of the orchestra. What is even more remarkable is that the voices are positioned in front of the conductor in such a way that many of them—particularly the sopranos and altos—would not be able to see the conductor at all. Finally, one can see in Figure 2.1 that the brass and percussion are placed as far back as possible, perhaps in an effort to subdue the acoustic presence of these particularly powerful instruments.

The second example, shown in Figure 2.2 below, is an artist's rendition of the same performance, yielding another perspective of the performance and providing information missing from Figure 2.1. First, one can see the steep gradation of the tiers depicted in Figure 2.1, revealing that the instrumentalists were not hidden behind the vocalists as Figure 2.1 alone might suggest, but were significantly elevated in successive rows above them. Second, Figure 2.2 reveals that the conductor guided the performance from the organ console, which was the eighteenth-century protocol. Assuming that the organ console was in a fixed position in the Abbey, the conductor was obligated to lead the performance from that location and conceivably had to choose whether the voices would be closer to the audience but unable to see him clearly, or further from the audience with a better view of the conductor. The fact that the conductor chose the former option is integral to this study. In this instance, projection of the text to the audience was clearly more important than a clear sightline to the conductor for the choristers.

Figure 2.2. Artist's Rendition of the Handel Commemoration at Westminster-Abbey, June 5, 1784⁴⁶



⁴⁶ Burney, *Musical Performances in Westminster- Abbey*, 108.

Nineteenth-century performances in which the chorus was positioned in front of the instruments were not unique to Westminster Abbey. Daniel Koury logged a number of other festival performances during the nineteenth century in which the chorus was placed either in front or to the sides of the orchestra. These include an 1812 performance of Handel's *Timotheus* in Vienna, an 1843 performance of Haydn's *Creation* in Vienna, an 1844 festival at Darmstadt, an 1852 performance of Beethoven's *Choral Fantasia*, and an 1882 performance of Gounod's *Rédemption* at the Birmingham Festival.⁴⁷

The fact that this practice of placing the chorus in front was so prevalent in the nineteenth century is remarkable, considering that it has essentially vanished from modern performances. Donna M. Di Grazia provided a thought-provoking exploration of this “rejected tradition” of stage arrangement.⁴⁸ She offered several pieces of evidence to show that conductors in many early nineteenth-century Parisian performances—particularly Berlioz—seemed strongly to prefer positioning the chorus not only in front of the orchestra, but in front of the conductor. In other words, the chorus stood downstage of the conductor and directly in front of the audience, such that the conductor had his back to the chorus. As one might expect, the singers' inability to see the conductor introduced its own set of logistical problems, not the least of which was keeping the performance together. Berlioz's solution was to utilize auxiliary conductors, located at the front of the chorus, who would mirror the principal conductor and provide cues to the chorus. The main point Di Grazia made was that since significant nineteenth-century evidence exists

⁴⁷ See Koury, *Orchestral Performance Practices*, Chapter 15 for more detailed information.

⁴⁸ Di Grazia, “Rejected Traditions,” 190-209.

supporting this stage arrangement, the fact that this tradition would be abandoned almost entirely in modern performances is relevant considering the recent emphasis on historically-informed performance practice.

In addition to placing the chorus in front, Berlioz offered one further recommendation for aiding in projection of the choral sound. Since choruses typically stand in rows facing the audience, Berlioz understood that the singers in the back rows would face more difficulty in projecting their voices since they were, in effect, singing into the backs of the heads and bodies of the singers in front of them. In his preface to the score of *Roméo et Juliette* (1839), Berlioz provided specific instructions for how the stage should be arranged. Referring to the positioning of the chorus, he writes that “the sopranos, being placed in front, will sing seated; the tenors and basses, contrarily, will sing standing, their voices, in that manner, will not be muffled by the women who occupy the first ranks.”⁴⁹ Although these are Berlioz’s instructions for only one of his works, the fact that he was so specific in this regard demonstrates that helping the chorus project despite an abundance of orchestral sound was a concern for him.

Finally, one would be remiss not to consider the rise of the baton-conductor during the nineteenth century as a “solution” to choral/orchestral balance problems. The modern perception of the conductor—a person who leads the performing forces without playing an instrument himself—is one that did not become common until the nineteenth century. Although audiences initially viewed these baton-conductors as simple time-

⁴⁹ Richard Washburn Hynson, “The Revolutionary Choral Style of Hector Berlioz as Evidenced in Selected Examples of His Choral-Orchestral Works,” dissertation, University of Cincinnati, 1987. Quoting Hector Berlioz, “Preface,” *Roméo et Juliette* (New York: Ernst Eulenberg): vii-viii.

keepers who provided cues to the performers, by the late nineteenth century the conductor's role became that of an interpreter of the music, with the entire performing force as his "instrument."⁵⁰ Hammar stated, "As orchestral size grew, it was apparent that a more satisfactory and definitive means of coordinating the efforts of the players (and singers in large choral works) was needed."⁵¹ Certainly, a number of reasons exist why baton-conducting became standardized during the nineteenth century, but one must consider that the immense growth of choral and orchestral performing sizes necessitated a single, dedicated leader who could listen for and manually respond to balance problems in the performance.

⁵⁰ Spitzer and Zaslaw, "Orchestra," *Grove Online*.

⁵¹ Russell A. Hammar, *Pragmatic Choral Procedures* (Metuchen, NJ: Scarecrow Press, 1984), 11.

CHAPTER III

CHORAL/ORCHESTRAL BALANCE FROM THE TWENTIETH CENTURY TO THE PRESENT

As the orchestra outgrew its accompaniment role during the nineteenth century, some scholars began to question whether or not voices should acoustically predominate during combined performances. This chapter demonstrates first that differing opinions on the proper choral/orchestral balance continued into the early years of the twentieth century. Then between 1900 and 1940, performances of unaccompanied choral works supplanted performances of choral/orchestral works in the wake of the early twentieth-century political and economic climate. As a result, little writing on the balance of chorus and orchestra originates from this period. As combined choral/orchestral performances reemerged in the 1940s and 50s, a new generation of conductors found themselves grappling with balance problems once again.

The Early Twentieth Century

Two early twentieth-century British sources, published within one year of each other, shed light on turn-of-the-century perspectives concerning choral/orchestral balance. The first source, authored by Ebenezer Prout (1835-1909), expressed concern that the English affinity for choral singing—and the ensuing numerical expansion of English choruses—had caused an unfortunate imbalance between combined choral and

orchestral performing forces, and did not mirror the performance practices of the seventeenth and eighteenth century.¹ The second source, by John E. Borland, was in direct response to the first and posited that a numerical comparison of choristers versus instrumentalists in a given performance oversimplifies a more complex equation, and that many of Prout's claims were unsubstantiated.² While this debate is specific to England, and thus, should not be thought to represent opinion throughout Western culture, it is nonetheless relevant to this project because it reflects two sides of a polemical debate that was in place by the early 1900s. Moreover, Borland's essay, in particular, provides unique insight regarding the disappearance of the chorus-in-front approach detailed in Chapter II.

Ebenezer Prout, an esteemed British music theorist and pedagogue, presented a paper to the Incorporated Society of Musicians in 1900 entitled "The Proper Balance of Chorus and Orchestra." Therein, Prout argued that the relative sizes of choral and orchestral performing forces in England had become grossly out of proportion in favor of the chorus, and that the orchestra should be viewed as equally important rather than as a mere accompaniment.³ Prout said that choruses too often overpower the orchestra in performances, and was disturbed that the general public seemed to think that unless the volume of the chorus completely engulfed that of the orchestra, the latter was too loud.

¹ Ebenezer Prout, "The Proper Balance of Chorus and Orchestra," *Music: A Monthly Magazine Devoted to the Art, Science, Technic and Literature of Music* 19 (November 1900 - April 1901), 482-496.

² John E. Borland, "Orchestral and Choral Balance," *Proceedings of the Musical Association*, 28th Session (1901 - 1902), 1-24.

³ Clearly, the idea that choruses in England were too large was one that Professor Prout had staunchly advocated for quite a long time. As early as 1877, Prout had voiced similar complaints of the chorus overpowering the orchestra. See Ebenezer Prout, *Instrumentation* (London: Novello, 1887), 122.

He asserted that these listeners “know no more about the proper balance of orchestra and chorus than a cow knows about double counterpoint,” and that their musical tastes had been tainted by a “modern craze for sensationalism” that included numerous performances by extremely large choral societies and festival choruses.⁴

To support his claims that the ratio of chorus to orchestra should never exceed three to one, Prout examined performance records dating back to the careers of Bach and Handel, and later Berlioz and Verdi. By demonstrating that, for these great masters, the proper balance was achieved by employing a roughly equal number of orchestral players and choral singers, Prout conjectured that similar proportions of singers and instrumentalists in contemporary performances would more accurately reflect the composers’ intentions. He closed his address with two remedies. First, he suggested limiting the size of choirs that perform regularly alongside orchestras. Second, he stated that “all that is needful is to eradicate from the mind of the public the idiotic notion that in choral music the voices must always predominate.”⁵ This final statement by Prout is particularly revealing because it further reflects a growing enthusiasm for the sound of instrumental music that had developed during the nineteenth century, even in England, where choral music was especially beloved.

Not long after Prout’s address, John Borland offered a rebuttal to Prout in his presentation to the twenty-eighth session of the Musical Association in 1901. Borland detailed several reasons why it is inadvisable to extrapolate general rules for

⁴ Prout, “Proper Balance,” 489, 490.

⁵ Ibid., 496.

choral/orchestral balance from a mere examination of the relative numbers of singers and instrumentalists in specific performances. As an example, Borland called upon the same Foundling Hospital *Messiah* performance that Prout had referenced in which there were eighteen singers and thirty-three instrumentalists. He contended that several of those instrumentalists should not be included in the statistics when considering balance with the chorus, reasoning that the oboes and strings rarely play in opposition to the voice parts but often double them; the trumpets (and horns doubling at the octave) are only introduced in “special numbers,” rendering them essentially a non-issue with regards to balance; and finally, that the kettledrum appears only in a few instances throughout the oratorio. Borland further argued that the eighteen singers used in the Foundling Hospital performance were very likely professionals—a crucial element ignored by Prout—and that this bears much influence on the amount of sound produced by eighteen voices.

After offering similar refutations of Prout’s examples of Berlioz and Verdi, Borland shifted the focus of his argument to another essential balancing element that Prout had ignored: stage arrangement. Borland pointed out that unlike the “ordinary arrangement of a choir behind a band”⁶ that characterized English choral/orchestral performances in 1900, a number of eighteenth-century performances to which Prout had referred were accomplished with the chorus placed not behind the orchestra, but to the side or even in front of it. Thus, according to Borland, a comparison of relative numbers of singers and players in those earlier performances to corresponding relative numbers in

⁶ Borland, “Orchestral and Choral Balance,” 10.

present-day performances is misleading when considering balance between the chorus and the orchestra.

Borland's statement above regarding the "ordinary arrangement" of a choir and orchestra provides great insight into this study. Most importantly, his statement confirms that by 1900 in England, the earlier tradition of placing the chorus in front of the orchestra had apparently dissolved. Further, Borland offered a revealing opinion on the reason this standard had changed by the early twentieth century:

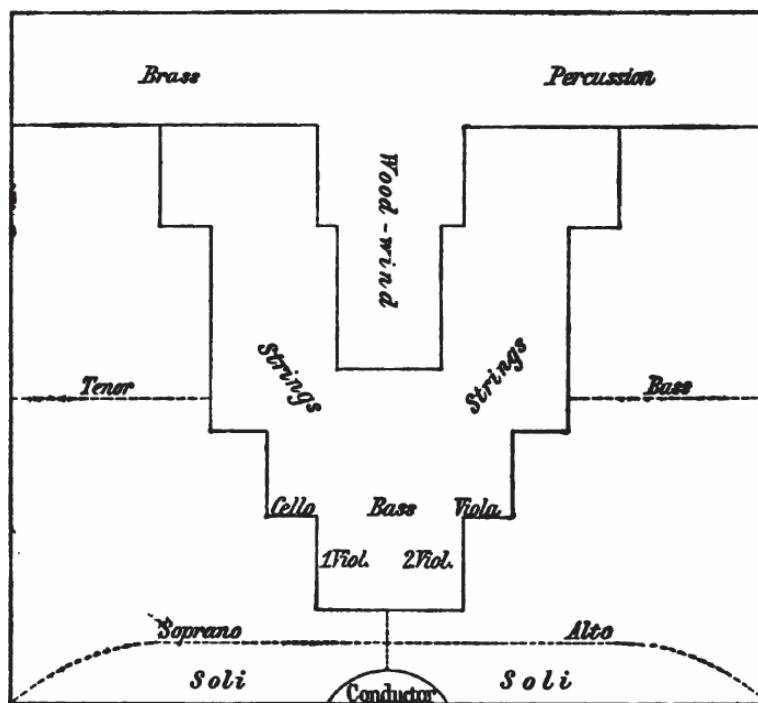
Roughly speaking, as orchestral music developed in importance, it became more and more necessary to give prominence to the band instead of to the choir, and as about a century ago the amateur choralist (who cost nothing) began more and more to take the place of his paid colleague, it was easiest to increase the choir and to economise bandtone by bringing the players in front.⁷

Not only does Borland's statement corroborate the material in Chapter II on the rise in importance of orchestral music during the nineteenth century, but also points to another by-product of increasing amateurism in choral singing during the 1800s. While there are a number of possible reasons for this change of stage arrangement toward the end of the nineteenth century, Borland's explanation is certainly valid. Under the old system of music patronage, musicians were typically performing for a previously-agreed-upon sum of money. As public concerts became more common during the 1800s, monetary considerations for performances became more important as concert organizers needed to minimize overhead in order to profit from ticket sales.

⁷ Ibid., 11.

According to Borland, however, this practice of placing the chorus in front was still apparently the norm in both France and Germany at the turn of the twentieth century. To substantiate this claim, Borland called upon Carl Schroeder's (1848-1935) *Handbook of Conducting*, published in 1889. Schroeder, a German conductor based in Hamburg, specified that when a chorus performs with an orchestra, the chorus is split in two and placed on either sides of a wedge-shaped orchestra, as shown below in Figure 3.1.⁸

Figure 3.1. Carl Schroeder's Diagram of Stage Arrangement for Choral/Orchestral Performance



Because Schroeder offered no other possible stage configurations for choral/orchestral performances, Borland concluded that in Germany this was still the norm in the final

⁸ Carl Schroeder, *Handbook of Conducting*, English translation by John Matthews (London: Augener, 1889), 61.

years of the nineteenth century.⁹ Finally, Borland looked to the writings of Berlioz to determine the normal choral/orchestral stage configuration in France, and as stated above, Berlioz seemed to prefer having the chorus up front. Determining exactly when the chorus-in-front tradition expired in the musical centers within Germany and France must remain the topic of later research.

The scholarship presented by both Ebenezer Prout and John Borland is exemplary of the nineteenth-century emerging emphasis on historically-informed performance practice. Further, the scholarship demonstrates how perceptions of the proper relationship between voices and instruments had significantly changed by that time. Prout's impassioned argument, in particular, embodies a new sentimentality toward instrumental music that had scarcely existed a century earlier: one that viewed the orchestra as much more than an accompaniment to singing voices. From Borland's perspective, one can see that at least one important tradition with significant impact on choral/orchestral balance—placing the choir in front—was nearing its end.

Choral/Orchestral Performance Between 1900 and 1940

Evidence suggests that the performance of choral/orchestral works fell out of favor between 1900 and 1940 in the United States and Europe. Consequently, a substantial dearth of writing exists on combined choral/orchestral performance and the intrinsic balance problems between the two during the early twentieth century. In a

⁹ In considering Schroeder's evidence, however, one must bear in mind that writing published in 1889 may be slightly behind its time and therefore more reflective of the 1860s to 1870s in Germany.

chapter entitled “The Choral Conductor and Twentieth-Century Choral Music,” Daniel Moe posited that if he had been writing in the 1950s,

a section on the special problems of voices and instruments in twentieth-century choral music might have received scant attention. This would not have been because such literature did not exist, but because in many high school, college, and church situations this literature was not being frequently performed.¹⁰

Locating sources from the first half of the twentieth century about choral/orchestral balance problems is difficult indeed. This lack of choral/orchestral performance and subsequent absence of writing on the subject would result in a half-century knowledge gap, and younger conductors emerging during mid-century would need to develop new set methodologies for tackling the problems inherent in choral/orchestral performances.

The performance of combined choral/orchestral works certainly remained popular through the end of the nineteenth century. Leonard van Camp wrote that

[n]umerous choral unions and choral societies existed in American colleges when music was gaining a solid foothold in higher education in the late nineteenth century. Generally, such organizations mixed persons from the community with students to perform the better-known oratorios of Handel, Haydn, and Mendelssohn. Community choruses, church choirs, male choruses, high school choruses, and college and university choruses performed primarily accompanied repertoire.¹¹

¹⁰ Daniel Troen Moe, “The Choral Conductor and Twentieth-Century Choral Music,” in *Choral Conducting: A Symposium*, edited by Harold A. Decker and Julius Herford (Englewood Cliffs, NJ: Prentice-Hall, 1973), 172.

¹¹ Leonard Van Camp, “The Rise of American Choral Music and the *A Cappella* ‘Bandwagon,’” *Music Educators Journal* 67:3 (November 1980), 36.

This trend of massed choral/orchestral performances in the United States undoubtedly links back to similar trends from the European musical centers of the earlier part of the nineteenth century, as was presented in Chapter II.

Around the turn of the twentieth century, however, a shift toward more unaccompanied choral singing occurred. Frank Damrosch's (1859-1937) Musical Arts Society of New York City, formed in 1894, began performing more unaccompanied repertoire, despite the fact that "the public [still] enjoyed the pretentious and showy oratorios that used huge choruses and famous soloists."¹² Soon other singing organizations joined this countermovement that emphasized choral performances without instrumental accompaniment.

The largest impetus for the so-called "*a cappella* choir movement" came not from such professional organizations as the Musical Arts Society, but rather from touring collegiate choirs of St. Olaf College, Northwestern University, and Westminster Choir College. The conductors of these choirs utilized instruments infrequently, both because they felt dependence on accompaniment hindered musicianship, and for the practical reason that instruments were difficult to bring along on tour. John Finley Williamson (1887-1964), founder and conductor of the Westminster Choir, made the following remarks in his 1925 address to the Music Teachers' National Association:

The best way to secure trueness of intonation is through *a cappella* singing. Let a choir once experience the sheer joy that comes from being a part of a chord in

¹² Van Camp, "Rise of American Choral Music," 36.

tune with just or natural intervals and the battle is over. They will resent singing out of tune.¹³

As a result of frequent tours and radio broadcasts, these collegiate choirs were highly influential in stimulating *a cappella* choral singing in schools and churches throughout the country during the 1920s and 30s.

The aftermath of World War I in several European musical centers as well as the Great Depression of the 1930s had a profound impact on musical performance, as finances were less available for purchasing expensive instruments and hiring professional musicians to play them. Arthur Froggatt's 1927 article in *The Musical Times* exemplifies concerns that a stressed post-War stressed would bring about the demise of London's status as an international musical center.¹⁴ Particularly on some university campuses where money for instruments was very limited by budget cuts in the 1930s, one still finds choral ensembles referred to as "The So-And-So University *A Cappella* Choir," no doubt organized during this time period.

Besides this popular trend of choral singing without an orchestra, attitudes of instrumental players may have further contributed to this gulf between chorus and orchestra that occurred in the early twentieth century. In 1938, the principal violist of the

¹³ Leonard Van Camp, "The Formation of *A Cappella* Choirs at Northwestern University, St. Olaf College, and Westminster Choir College," *Journal of Research in Music Education* 13:4 (Winter 1965), 237. Quoting John Finley Williamson, "Choir Organization and Training," *Papers and Proceedings of the Music Teachers National Association*, Forty-Ninth Annual Meeting, 1925 (Hartford, CT: Music Teachers National Association, 1926), 229.

¹⁴ Arthur T. Froggatt, "Some Economical Aspects of Orchestral Concerts," *The Musical Times* 68:1012 (June 1, 1927), 513-514.

BBC Symphony Orchestra spoke about how instrumentalists viewed the task of performing with a chorus:

Choral concerts are hated by symphony orchestras. A large body of singers seems to deaden all one's own singing quality and makes intelligent listening a labour. . . . A choral concert involves implacably dull rehearsals. First the orchestra by itself—yards of sustained notes and intolerable dullness, mostly sheer accompaniment. Then, with the choir—we feel ourselves just fodder for the thing. . . . There is generally only one final combined rehearsal, when the work is heard in its entirety for the first time, and the orchestral player has a good appetite if he is by then not too fed-up to listen. The story of the 'cellist who once dreamt he was playing in 'Messiah', and woke up to find he was, well describes the feelings of the artist doomed to play in a Handel oratorio with the original scoring.¹⁵

Although this is merely one author's opinion, this quotation demonstrates that some instrumentalists had become weary of being “just fodder for the thing” and were less amenable to participation in combined performances, fostering a further divide between choruses and orchestras during the early twentieth century.

While musicians did not completely abandon choral/orchestral performance during the first half of the twentieth century, one can see that a widespread affinity for unaccompanied choral singing limited the number of orchestrally-accompanied masses, cantatas, and oratorios being performed. Certainly the *a cappella* choir movement was an integral one for the development of choral artistry in the twentieth century, but unintended ramifications developed in the wake of the movement that would present challenges to a new generation of conductors in the latter half of the century.

¹⁵ Bernard Shore, *The Orchestra Speaks* (London: Longmans, Green & Co., 1946), 18-19.

Revival of Choral/Orchestral Performance

Combined choral/orchestral performance did not become fashionable again until the 1940s, following developing criticisms of the exclusivity fostered by *a cappella* singing. As early as 1931, John C. Kendel stated in an issue of the *Music Supervisors Journal* that *a cappella* choirs were creating one-sided choral programs, in which persons of lesser talent became neglected.¹⁶ In 1932, Edgar B. Gordon added, “It will be unfortunate if we allow these musically superior organizations to supplant those organizations in which practically any young person may qualify.”¹⁷ In 1935, the president of the Eastern Music Supervisors Conference spoke out against the elitism that followed the *a cappella* ideal:

Granted that it is sometimes more pleasurable to have a picked (*a cappella*) choir that can sing more beautiful music—more interesting to us; nevertheless, ours is a life devoted to teaching *all* to sing—the vocally unwashed as well as the gifted.¹⁸

In other words, if you were a student who was not talented enough to sing in the *a cappella* choir, there was not a place for you in the choral program. Thus, education equality played an important role in the revival of choral/orchestral performance during the mid-twentieth century.

¹⁶ Leonard Van Camp, “The Development and Present Status of *A Cappella* Singing in United States Colleges and Universities” (D.M.A. diss., University of Missouri at Kansas City, 1964) 74. Quoting John C. Kendel, “After *A Cappella*--What?,” *Music Supervisors Journal* 8:3 (February 1931), 41.

¹⁷ Ibid. Quoting Edgar B. Gordon, “The Extra-Curricular Aspects of High School Choral Music,” *MSNC Yearbook* (1932), 114.

¹⁸ Ibid. Quoting Laura Bryant, “The Inclusive Chorus in the High School,” *MENC Yearbook* (1934), 153.

Another rising criticism of *a cappella* singing concerned the limitation on repertoire that it created. Indeed, three or four centuries of music were being excluded from choral repertoire excepting those occasional compositions that had been designated for unaccompanied voices. Karl Eschman expressed his disappointment in the “disappearance of the oratorio from the college campus” based on a growth in *a cappella* singing.¹⁹ George Abbott attacked unaccompanied singing when he wrote, “I think it is time we called a halt and evaluate this craze for *a cappella* singing which has swept the country.”²⁰ Paul J. Weaver argued that there was “an overemphasis on short and relatively unimportant works, with the result that we have neglected consideration of the large and relatively greater and more important works.”²¹ George Howerton noted that the level of competition among choral programs had reached an unhealthy level: “Our whole aim apparently has been to impress the other fellow—to show him what wonderful things we can do, and how much better our group is than his own.”²² These criticisms of unaccompanied singing signaled a paradigm shift that opened the doors for chorus and orchestra to join forces once again.

¹⁹ Ibid., 75. Quoting Karl Eschman, “Music in the College Community,” *Music Educators Journal* 22:2 (October 1935), 23.

²⁰ James A. Keene, *A History of Music Education in the United States* (Hanover, NH: University Press of New England, 1982), 329. Quoting George J. Abbott, “Loudlie Sing Cuckoo,” *Music Supervisors Journal* 20 (May 1934), 46.

²¹ Van Camp, “Present Status of *A Cappella* Singing,” 76. Quoting Paul J. Weaver, “Choral Music in the College and University,” *MENC Yearbook* (1938), 118.

²² Ibid., 77. Quoting George Howerton, “Music Education Through Choral Experience,” *MENC Yearbook* (1939-40), 334.

Two major events delivered the final blow to the *a cappella* choir movement and ushered choral/orchestral performance back into fashion: World War II and the rise of the historically-informed performance practice movement. Male students began to disappear from college campuses during the early 1940s as they headed into the armed forces, and this loss affected choral more than instrumental music, simply because there was no substitute for the male voice. Many *a cappella* choirs became women's glee clubs. The minority of colleges that had retained some of their male students had to cut the size of their choral programs to equalize the number of men's and women's voices in their choirs. Within the same decade, musicologists began eschewing unaccompanied performance of Renaissance motets and madrigals—the staple repertory of the *a cappella* choirs—by arguing that the correct performance practice of these pieces should involve some instruments.

Beginning in the 1940s, the number of choral/orchestral performances across the country increased. Even as early as the 1920s, Fred Waring's (1900-1984) Pennsylvanians had paved the way by popularizing on the radio the idea of singing with instruments. Indeed, the career of Robert Shaw (1916-1999), eminent American choral conductor, was born out of Waring's organization. In the late 1940s and 50s, the highly-influential Robert Shaw and Roger Wagner Chorales, touring and performing with more serious repertoire such as the Bach Mass in B Minor, reacquainted American audiences with traditional oratorios utilizing an instrumental accompaniment. Burton Zipser stated

that by the late 1960s, “one of the most successful means of stimulating audience attendance [was] through a combined choral-orchestral concert.”²³

This revival of choral/orchestral performance is also evident in an emergence of scholarly writing on the subject during the late 1960s and 1970s. Authors such as Burton Zipser (1968), William Bennett (1969), Daniel Moe (1973), Thomas Kurt (1973), Michael Bowles (1975), Jack Boyd (1977), and Allen Lannom (1978) made contributions on the subject of performing works for combined chorus and orchestra. Though not all of these authors address balance specifically, the fact that the number of published writings—many of them pedagogical in nature—increased during this time implies the presence of a widespread need for this type of information as conductors returned to working more frequently in the choral/orchestral medium.²⁴

Scholarly writing from the late 1960s demonstrates that balance had once again become a key issue, as evidenced by the amount of attention Burton Zipser devotes to balance problems in his 1968 article entitled, “When Chorus and Orchestra Get Together—Harmony or Discord?” Summarizing the comments of Theron Kirk²⁵ to the American Symphony Orchestra League in June of 1968, he wrote that “balance is crucial, whether it is the relationship of some combinations of voice and instruments, or simply a weakness in the particular choir. If adjustments can be made, the performance will be

²³ Burton A. Zipser, “When Chorus and Orchestra Get Together—Harmony or Discord?” *Choral Journal* 9:1 (July/August 1968), 18.

²⁴ A detailed discussion of these articles appears below in Chapter IV.

²⁵ Theron Kirk was, at the time, the Vice President of the American Choral Directors’ Association.

more successful.”²⁶ Zipser’s summary continued by suggesting that choruses should employ an acoustic shell, that the size of orchestras be decreased for choral/orchestral works, and that an assistant be placed in the hall to listen for balance problems.

Other writers spoke more philosophically about balance problems. William Bennett argued that, too often, the orchestra is relegated to an accompanying role in performances of choral/orchestral works. He reminded his readers that the choral conductor must “realize the purpose of the orchestra as part of [the composer’s] original knowledge of a piece, not as an afterthought,” “use the orchestra as an integral part of the whole, not as an accompanying nuisance or insignificance,” and “strive for a total effect, not a choral effect.”²⁷ These sentiments echo those of Ebenezer Prout from nearly seventy years earlier.

Along with the return of choral/orchestral works to the concert stage during the second half of the twentieth century, acoustic balancing problems between choruses and orchestras inevitably began to reappear. By the 1960s, however, nearly half a century had passed since a multitude of conductors had worked significantly in the choral/orchestral medium and dealt considerably with the adjunct balance issues, resulting in a vast knowledge gap. Many of the nineteenth-century methods for addressing choral/orchestral balance problems had been lost in this transition, and younger twentieth-century conductors had fewer methods at their disposal for addressing these problems.

²⁶ Zipser, “When Chorus and Orchestra Get Together,” 18.

²⁷ Bennett, “Striking the Balance,” 45.

Evidence of Present-Day Balance Issues

One does not have to look far to find evidence that these choral/orchestral balance problems plague performances even to the present day. Table 3.1 below is a collection of concert review excerpts from the last twenty-five years. Although this compilation is by no means exhaustive, it demonstrates that audiences and music critics of the present day continue to experience balance problems between chorus and orchestra in performances.

Table 3.1. Concert Review Excerpts

Date	Reviewer / <i>Newspaper</i>	Work(s) Performed	Reviewer Comments on Choral/Orchestral Balance
3/26/1984	Roy Guenther / <i>Washington Post</i>	Verdi <i>Requiem</i>	“However, for much of the concert, [the choral ensemble’s] fine work was barely audible, thanks to a poorly planned stage setup that made it impossible for their sound to project into the hall. As a result, the orchestra’s precise and exciting playing was seldom in balance with the chorus.”
11/16/1987	Roy Guenther / <i>Washington Post</i>	Beethoven <i>Missa Solemnis</i>	“The stylistic diversity, virtuosic writing and idealized sound-world of Beethoven’s <i>Missa Solemnis</i> provide a formidable challenge under the best performing conditions. Washington Cathedral’s acoustics do not provide those conditions, as was frequently apparent in the [choral ensemble’s] performance of this masterpiece yesterday afternoon. . . . In the powerful tutti, however, the chorus simply could not project sufficiently, despite the orchestra’s efforts to balance volume without losing energy. [The conductor’s] purposely slow tempos were not the answer either, as they occasionally sapped the music of its inherent vigor. One recurrent balance problem could have been avoided if the cathedral’s massive organ had been played in its intended supportive role rather than an intrusive one.”

Date	Reviewer / Newspaper	Work(s) Performed	Reviewer Comments on Choral/Orchestral Balance
7/16/1991	Allan Kozinn / <i>New York Times</i>	Rorem <i>American Oratorio</i>	"[The conductor] had trouble drawing a fully unified sound from the large choir at first. But by the set's midpoint, the ensemble problems had mostly cleared up, as had balance problems between the chorus and the orchestra. The muddiness of the blend was worsened, no doubt, by the acoustics of the school's Concert Shed, which is actually a hockey rink."
12/15/1994	Hubert Beckwith / <i>Washington Post</i>	Bach <i>Magnificat</i>	"One might have expected a chorus of 130, crowded on a stage as small as that of the [theater], to overwhelm Bach's counterpoint in oceans of vocal tone. That did not happen. Instead, the sound from the singers in the rear of the stage projected so poorly that at times the small orchestra threatened to overpower the chorus."
4/25/1996	Joseph McLellan / <i>Washington Post</i>	Beethoven Symphony no. 9	"The fourth [movement] also was excellent, though there were sometimes small problems in the balance between chorus and orchestra."
9/3/1997	Jerry Young / <i>Austin American-Statesman</i>	Mozart <i>Coronation Mass</i> , Haydn <i>Nelsonmesse</i>	"Mozart's <i>Coronation Mass</i> fared better than Haydn's <i>Lord Nelson Mass</i> , which suffered somewhat from a rustiness and balance problems both within the choral ensemble and between the chorus and orchestra. The orchestra, made up of many of [the city's] star players, was placed at the front of the platform directly between the choir and audience, which contributed to the balance problems."
1/31/1999	Jerry Young / <i>Austin American-Statesman</i>	Poulenc <i>Gloria</i>	"As with last year's Beethoven's Ninth Symphony, the choir and orchestra had balance problems. Without pushing hard, the orchestra overpowered even the choir's loudest sounds, and inner vocal lines were indistinguishable. This may be a musical flaw or an acoustical problem to solve, or some of both, but it detracted from this otherwise exciting performance."

Date	Reviewer / <i>Newspaper</i>	Work(s) Performed	Reviewer Comments on Choral/Orchestral Balance
4/16/1999	Richard Todd / <i>Ottawa Citizen</i>	Charpentier <i>Te Deum</i>	<p>“The [choral ensemble], who joined the orchestra for the two big works on the program, were just under 40 strong. There were about the same number of instrumentalists on stage for the Charpentier. You might think that would represent a satisfactory balance but, as a rule of thumb, the number of singers in a choir should be 50 per cent or more larger than the orchestra accompanying it. . . . Although the chorus always managed to be heard, the effort it took was all too apparent. Worse, perhaps, the vocal sound always seemed diminutive. Thus, in the <i>Te Deum</i>, the choral sound never had the force to sound joyful, and one had the impression that the orchestra was holding back. That also contributed to an unfortunately staid effect.”</p>
11/1/1999	Judith Green / <i>Atlanta Journal-Constitution</i>	Verdi <i>Requiem</i>	<p>“The group crammed itself onto a chamber orchestra-sized stage that’s almost at the level of the main floor’s seats. Instead of using the hall’s terrace seating, which is above and behind the stage, the 64-member chorus stood on four shallow risers behind the orchestra. With the 80 musicians practically in our laps, the chorus was all but inaudible unless the accompaniment was very thin --- which it isn’t very often in this operatic piece. . . . When Verdi led the premiere, he had a chorus of 120 and an orchestra of 100, so you can see that [this ensemble’s] proportions are exactly reversed. This also contributed to the balance problems.”</p>
7/15/2002	Richard Morrison / <i>The Times</i> (London)	Mahler <i>Symphony no. 8</i>	<p>“What [the conductor] didn’t entirely solve were the work’s balance problems. The shape of the [concert hall] determined that most of the singers had to face sideways, rather than towards the audience. Yet [the conductor] seemed not to take this into account. Consequently even this vast chorus was occasionally overwhelmed by the brass. Even less sympathetic was his handling of the eight soloists, placed behind the orchestra. They found themselves competing on unequal terms with some pungent instrumental counterpoint, often at a speed that allowed little space for expressivity.”</p>

Notice in Table 3.1 above that the musical works that have presented balance problems are not limited to those composed in the nineteenth and twentieth centuries with traditionally larger, thicker orchestrations. Even smaller-scale, thinly-orchestrated works by the Baroque and Classical composers have, at times, been subject to balance issues between the chorus and orchestra.

As evidence in this chapter has demonstrated, the performance of combined choral/orchestral works was limited during the early twentieth century as a trend of strict *a cappella* choral singing became popular. Many conductors from this time period seldom prepared combined repertoire for concerts, and as a result, their proficiency in addressing choral/orchestral balance problems lacked refinement. A new generation of conductors emerged around the middle of the twentieth century and began programming more choral/orchestral works. In the process, they rediscovered some of the same balance issues experienced by musicians of the nineteenth century. Because monetary and spatial considerations had, by this time, repositioned the chorus behind the orchestra on stage, conductors needed a new methodology for correcting choral/orchestral balance problems.

CHAPTER IV

CONTEMPORARY EXISTING SOLUTIONS FOR CHORAL/ORCHESTRAL BALANCE PROBLEMS

This chapter provides readers with a summary of recent, existing research on choral/orchestral balance. At present, no written sources exist that deal with the issue of choral/orchestral balance in a comprehensive manner. There are, however, numerous textbooks and journal articles on the art of choral conducting, some of which devote a brief section or paragraph specifically to dealing with combined choral and orchestral performing forces. Some of these studies offer proposals for addressing balance issues between the two.

The sources reviewed in this chapter fall into three categories according to the approach prescribed by the author. The first category includes sources that offer rehearsal techniques for teaching choristers to project their sound more efficiently over an orchestral accompaniment. The second category includes sources that view choral/orchestral balance as a problem that is best solved by addressing issues in the orchestra rather than the chorus. The third category includes sources that prescribe physical and spatial changes to the arrangement of performers on stage to elicit a better audience-perceived balance. In addition to these three approaches, this chapter incorporates a review of acoustic studies related to choral/orchestral balance performed by acousticians and sound engineers.

Addressing the Chorus to Affect Balance

Some authors emphasized the importance of eliciting exaggerated diction from the chorus to propagate the choral sound over that of the orchestra. According to Robert Shaw, this approach to textual clarity originated in Fred Waring's "tone-syllables" as well as John Finley Williamson's numerous preparations of the Westminster Choir to sing with the New York Philharmonic.¹ In his book, *The Art of Conducting* (1975), Michael Bowles included a short section entitled "Choral Work with Orchestra" in which he discussed aspects such as changing the size and shape of gestures and carefully planning choral/orchestral rehearsals so as not to tax the voices too heavily or leave the orchestra sitting idle. While he did not discuss balance in detail, he did stress the importance of consonant energy:

Obviously, clarity of diction is essential too, if there is to be successful communication with the audience. In English this takes the form, principally, of giving meticulous attention to the consonants, especially the last in a word. "The Lord is Great" from Haydn's *The Creation* provides a simple case in point. Even with a nice blend of voices, and so on, the complete attention of the audience may be difficult to hold if, for example, it is mystified by being informed that "The Law is gray and gray is my."²

Jack Boyd (1977) agreed with Bowles that the exaggeration of consonants is the key to projection of choral sound over the instruments. He added that "explosive consonants" and "exaggerated articulation" must be stressed to the chorus in rehearsals well before combining with the orchestra:

¹ Jeffrey Baxter, "An Interview with Robert Shaw: Reflections at Eighty," *Choral Journal* 36:9 (April 1996), 10.

² Michael Bowles, *The Art of Conducting* (Garden City, NY: Da Capo Press, 1975), 193.

The singers will probably not understand the degree of added effort they will need to expend in order to pronounce a text so it can be understood over the sound of an instrumental ensemble, even if there are only five or six brass instruments. The sound will be grotesque (to them) while you are rehearsing without the instruments or with only a piano reduction. There is no convincing answer to their disbelief that you could actually want such a sound. All you can do is just plow ahead and assure them that the first rehearsal with the instruments will prove you right.³

Boyd continued by offering two techniques for encouraging this type of consonant articulation. He stated that by having the singers whisper the text loudly during rehearsal, they become “used to the idea of forcing the consonants and pronouncing the complete sound of every letter in every word.”⁴ If the choristers gradually forget to make these exaggerated articulations during the performance, Boyd recommended that the conductor purse his lips and show his teeth as a visual reminder. Finally, he mentioned that when singing with a particularly large orchestra, the original dynamic markings for the chorus may need to be replaced with a “mezzo-forte-and-above volume level” if the voices are to be heard at all.

Allen Lannom’s 1978 article entitled “The Choral Conductor and the Performance of Choral-Orchestral Works” addressed a number of perceived shortcomings when the choral conductor steps in front of an orchestra. Making references to inequities between the general expectations placed on orchestral conductors and those on choral conductors, who he stated are “ill-prepared to cope with orchestral problems [and] are expected to have skills far in excess of realistic considerations,” Lannom’s tone supported the idea

³ Jack Boyd, *Rehearsal Guide for the Choral Director* (Champaign, IL: Mark Foster Music, 1977), 139.

⁴ *Ibid.*, 139.

that methodology for addressing choral/orchestral balance problems was still somewhat lacking by the late 1970s. To fix acoustic imbalances, Lannom recommended more marcato singing and “crisp” consonants, and that these techniques must be taught to the choristers very early in the preparation process and not put off until the dress rehearsal. Further, he recommended strong choral accents at important musical entrances, particularly imitative ones. Finally, Lannom suggested having an assistant listen out in the hall since “the conductor has the poorest spot in the auditorium from which to hear *all* of the music.”⁵

In a 1991 article entitled, “Preparing Choirs for Orchestral Concerts and/or Singing with Other Conductors,” Charlene Archibeque and Kerry Barnett offered further suggestions for addressing choral/orchestral balance problems. Like the previous authors, they emphasized the necessity of exaggerated consonants and articulation when singing with an orchestra. They also advised that the choristers “must hold their music up and project their voices to the rear of the hall, and maintain as constant an eye contact with the conductor as possible.”⁶ According to Archibeque and Barnett, these actions will not only result in better projection over the orchestral sound, but, as one would certainly expect, will also foster better visual communication with the conductor. The authors further asserted that choruses have developed a bad reputation for singing behind the beat. This reputation, they explained, is primarily a result of the modern performance

⁵ Allen Lannom, “The Choral Conductor and the Performance of Choral-Orchestral Works,” *Choral Journal* 19:1 (September 1978), 5-7.

⁶ Charlene Archibeque and Kerry Barnett, “Preparing Choirs for Orchestral Concerts and/or Singing with Other Conductors,” *Choral Journal* 31:7 (February 1991), 20.

practice of placing the singers in rows behind the orchestra, thus often displacing them at great distance from the conductor. The sound delays resulting from this displacement create the illusion of behind-the-beat singing. Therefore, as Archibeque and Barnett suggested, choristers must learn to sing slightly ahead of the beat to compensate for this phenomenon, and better eye contact with the conductor will allow them to anticipate the ictus. The authors' final counsel on choral/orchestral balance involved the addition of extra, trained singers. These "ringers" will help in the case that "the choir has insufficient personnel to address the demands" of a given choral/orchestral work.⁷

Perhaps the most thorough and specific treatment of this consonant-exaggeration approach is found in Vance George's chapter in *The Cambridge Companion to Conducting*.⁸ In a section appropriately titled "Breaking the Orchestral Sound Barrier," George provided several "unorthodox techniques" for the amplification of several specific consonant sounds. Table 4.1 below is a summary of his recommendations:

⁷ Archibeque and Barnett, "Preparing Choirs," 21.

⁸ Vance George, "Choral Conducting," in *The Cambridge Companion to Conducting*, edited by José Antonio Bowen (New York: Cambridge University Press, 2003), 52-53. Because some of George's methods involve both addressing the orchestra and stage arrangement, those methods are summarized in the respective sections of this chapter.

Table 4.1. Vance George's Recommendations for Consonant Projection

Vance George: "Choral Conducting"
<ul style="list-style-type: none"> • Add the neutral vowel "uh" before weak consonants like w, f, and l. For example, at the first choral entrance in Beethoven's Ninth Symphony on the word, "Freude," the men should sing "uh-Freude" instead. • The "uh" can also be used after certain consonants like m, n, p, l, and k. For instance, the word "Amen" may become "Amen-uh" in certain instances. • Substitute k for a hard g and d for a flipped r. For example, the word "Gloria" becomes "klaudia."⁹ • The d consonant may also be used to help articulate sustained vowels over melismatic passages. • In thicker-textured music, lift on the ties, slurs, and dots to exaggerate the articulation of the note that follows and to lessen vocal fatigue when singing with an orchestra.

Beyond his prescriptions for diction exaggeration, George included a short excerpt from the "Libera Me" of Verdi's Requiem to which he added a few annotations to the score, as shown in Figure 4.1 below.

Figure 4.1. "Libera Me" from the Verdi Requiem, mm. 130-136, Contralto, with George's annotations¹⁰

Allegro risoluto

Li - be-ra me, Do - mi - ne, de mor - te ae - ter - na, in di - o il - la tre - men

half-spoken

⁹ George's examples for the r > d substitution are all passages in Latin. He adds that the r's should be sung normally when singing American English.

¹⁰ Ibid., after Example 5.2 Operatic colors in "Libera me" from Verdi's Requiem.

Although George did not expressly state the purpose of his annotations, it is clear that several of them were geared toward projecting vocal sound over an “orchestral sound barrier.” The first annotation is the word “lift” that has been added between a dotted-quarter note and the following eighth note. Like George, many conductors recommend adding separation after dotted notes, not only to secure the rhythmic positioning of the short note that follows, but to articulate that note more clearly and minimize vocal fatigue. The annotation “half-spoken” in the second measure is an example of George’s technique of “delineat[ing] awkward or buried pitches with an unorthodox scoop from above or below in an almost unpitched, spoken *parlando*.”¹¹ In addition, George included directives like “square lips,” “bare teeth,” and “wrinkle nose” near specific words of the Latin text. Again, though not expressly stated, one can surmise that these annotations served as reminders for singers to shape the vocal tract for a brighter, more resonant, projecting timbre.

A more recent study by Shirlee Emmons and Constance Chase (2006) also recommended that the conductor alter the normal singing patterns of his choristers to aid in projection over an orchestra. The focus of this study, however, was on the development of vocal resonance rather than exaggeration of consonant sounds. Emmons and Chase posited that choral singers

can be trained to sing with an overtone somewhere between 2750 and 3000 Hz in their tone. Referred to as the “overtone of ring” and “the singer’s formant,” this frequency in a tone will allow it to carry through the piano, orchestra, or organ sound. It can be maintained regardless of the vowel being sung and its dynamic

¹¹ Vance George, “Choral Conducting,” 53.

level. The human ear distinguishes 2750 from other overtones, hearing it as “louder.” Resonance carries better than sheer volume.¹²

Citing the presence of the singer’s formant in the vocal tone as the key to carrying power, Emmons and Chase conjectured that this resonance can be developed in amateur choristers with time and patience. They offered several practical suggestions for sustaining the singer’s formant, as summarized in Table 4.2 below.¹³

Table 4.2. Emmons and Chase’s Recommendations for More Resonance

Emmons and Chase: <i>Prescriptions for Choral Excellence</i>
<ul style="list-style-type: none"> • Rest the tip of the tongue on top of the lower front teeth for all vowels. • Move back vowels to a more forward position. Generally speaking, front vowels carry better than back vowels. • To sing <i>forte</i>, use a larger mouth opening for non-passaggio notes • Modify vowels in the passaggio and above to include the singer’s formant frequency. • Sing all passaggio pitches more narrowly: front tongue position, smallish mouth, and protruding lips. • Male singers should modify toward [o] and later [u] as the pitch rises. • Female singers should protrude the lips and diminish the mouth size through the passaggio and then open more once above it.

In addition to exaggerating consonants and building vocal resonance, some authors recommended that, where possible, conductors should add more choristers to one voice section when that section needs to project more. Although he was speaking to balance issues within a choral ensemble rather than balance with an orchestra, Walter

¹² Shirlee Emmons and Constance Chase, *Prescriptions for Choral Excellence: Tone, Text, Dynamic Leadership* (Oxford: Oxford University Press, 2006), 135.

¹³ *Ibid.*, 136-7.

Ehret (1959) recommended the use of “travelers” in the chorus who can float to a different voice part at certain times to fortify a section.¹⁴ For example, in a passage where the tenors sing alone with orchestral accompaniment, it may be helpful to ask some or all of the basses to join them to reinforce the sound. Allen Lannom (1978) also mentioned the “doubling” of voices as a necessity when singing with an orchestra.¹⁵ This practice of using “travelers” is one that Robert Shaw also commonly used in the annual Carnegie Hall Choral Workshops during the 1990s. Several weeks prior to each workshop, singer participants would receive a score with Shaw’s extensive edits already added, including instructions for “traveling.”¹⁶ In utilizing this technique, however, conductors must be aware that, for example, adding basses to the tenor section not only adds volume but alters the vocal timbre of the section as well.

Addressing the Instrumentalists to Affect Balance

Other authors placed more emphasis on addressing the orchestra rather than the chorus when attempting to affect balance between the two. Daniel Moe (1973) emphasized that the instruments—particularly brass—are often able to overpower choral voices quite easily, even when one hundred choral voices compete with only eight brass players. He wrote that while such an out-of-balance performance may be very exciting

¹⁴ Walter Ehret, *The Choral Conductor’s Handbook* (New York: Edward B. Marks, 1959), 35.

¹⁵ Lannom, “The Choral Conductor,” 5-6.

¹⁶ Robert Shaw, Editions for *Stabat Mater* by Karol Szymanowski, edited for ASOC July 11, 1993. Re-checked by Robert Shaw for Carnegie Hall 1999 Workshop July 12, 1998. Transcribed by H. Keuper July 20, 1998.

for an audience to hear, the music has, in effect, been “desecrated.” In fairness to the instrumentalists, he admitted that brass instruments can only be played at a certain degree of softness before the tone quality of the instrument suffers. Nevertheless, Moe stated that the conductor is usually safe in softening the dynamic markings in the brass parts by one level before ever rehearsing with the instruments. Further, he added that brass players should limit playing fortissimo to two instances: moments when the chorus is not singing, and final cadences.¹⁷

Charles W. Heffernan (1982) agreed with Moe that the conductor should decrease the dynamic markings in all of the brass parts before rehearsal to prevent them from overpowering the voices. He further recommended draping a cloth over the brass players’ music stands to diminish the resonance of the brass instruments.¹⁸ Heffernan also addressed balance problems resulting from the dominance of the string players. He recommended that if the strings are too loud, asking them to bow away from the bridge and closer to the fingerboard will help.¹⁹ Generally speaking, bowing closer to the fingerboard produces a more mellow tone on stringed instruments, while bowing closer to the bridge produces a brighter, sometimes metallic timbre.²⁰

A very informative source for choral conductors is *Face to Face With an Orchestra* (1987) by Don V. Moses, Robert W. Demaree, Jr., and Allen F. Ohmes. This

¹⁷ Moe, “The Choral Conductor and Twentieth-Century Choral Music,” 175.

¹⁸ Charles W. Heffernan, *Choral Music: Technique and Artistry* (Englewood Cliffs, NJ: Prentice-Hall, 1982), 19.

¹⁹ *Ibid.*, 107.

²⁰ Joshua Holritz, interview by author, Winston-Salem, NC, October 19, 2008.

book is geared toward the choral conductor who wants to learn more about the orchestral realm as one is preparing to conduct a choral/orchestral work. Aside from recommending increased consonant dynamic levels from the chorus and the movement of some consonants off of the beat (in effect, isolating them from simultaneous orchestral attacks), the majority of the authors' suggestions approached balance issues from the side of the orchestra. Table 4.3 below is a summary of these authors' ideas for addressing choral/orchestral balance problems.²¹

Table 4.3. Moses, Demaree, and Ohmes' Recommendations for Addressing the Orchestra

Moses, Demaree, and Ohmes: <i>Face to Face With an Orchestra</i>
<ul style="list-style-type: none"> • At the first combined rehearsal, allow the orchestra to play louder while they are sight-reading, and avoid constantly hushing them. Generally, they will become more sensitive to balance by the third time through. • Do not use instrument mutes to control balance. Mutes are intended to change timbre, not volume. • If necessary, you can reduce the number of string players in a certain passage. Always keep the players in the front, as they are generally better players. • Understand that the orchestra is not always the accompaniment. There are places where the composer intended it to overpower the voices. • Incorrect playing may cause balance problems. Bowings may need to be changed and players may need to shorten notes. • Be aware that instruments can only be played to a certain degree of softness before the tone quality of the instrument suffers.

These authors also discussed the factors involved in choosing the size of the string section for a choral/orchestral work. They stated that the historical period of the work, the

²¹ Don V. Moses, Robert W. Demaree, Jr., and Allen F. Ohmes, *Face to Face With an Orchestra: A Handbook for Choral Conductors Performing Handel's Messiah, Bach's Magnificat, Vivaldi's Gloria, and Other Works* (Princeton, NJ: Prestige Publications, 1987): 33-34.

size of the chorus, the size of the auditorium, and the acoustical character of the hall are all important to consider.²²

In addition to his consonant-exaggeration approach that was summarized earlier in this chapter, Vance George offered other suggestions for addressing choral/orchestral balance problems that are more appropriately categorized in this section. Like several of the previously mentioned authors, George recommended altering the dynamic markings in the orchestral parts. He stated:

Adjust dynamics between strings, winds, and brasses and between the chorus and orchestra. Bruckner marks *ff* in all parts, but balance the winds and brasses by marking them one or two dynamic levels lower. You may ask them to play under the voices, but dynamics have a way of creeping back up. Bracket and mark fugue themes *f*, marking countersubjects and episodes one dynamic level lower. In a final rehearsal of Brahms's *Requiem* I reminded the orchestra to play the brackets in the foreground and the remainder in the background. It took hours to mark but those few words rescued the fugal textures and the structure of the *Requiem*.²³

Further, George maintained that the ratio of singers to string players is a key balancing issue, and offered the following sample ratios based on the time period of the choral/orchestral work being performed:

Renaissance: 1-24 singers, strings 1, 1, 1, 1, 1.
 Baroque: 40-60 singers, strings 4, 4, 3, 3, 2.
 Classical: 80-100 singers, strings 8, 8, 5, 4, 2.
 Romantic: 125 to 180 singers, strings 16, 16, 8, 8, 6.
 Mahler Symphony No. 8: 200 adults and 75 children.²⁴

²² Ibid., 25.

²³ Vance George, "Choral Conducting," 60.

²⁴ Ibid., 61.

Along with these methods for addressing issues in the orchestra to affect choral/orchestral balance, one source written on the subject of choral arranging that addresses orchestration techniques for choral/orchestral writing is appropriate to include. In his book, *Choral Arranging* (1966), Hawley Ades suggested to the arranger that “the [instrumental] accompaniment must always enhance and never obscure the vocal presentation of the music and text,” and that this is particularly important in “dealing with accompaniments where the sheer power of instruments can easily overwhelm the choral sound.” To this end, he recommended that the strings and/or woodwinds would generally suffice as accompaniment during choral passages in which the dynamic is mezzo forte or below, and that the brass instruments should be assigned only “occasional figurations” during such passages. Further, Ades stated that “the brass as the primary basis for the accompaniment is ordinarily reserved for climactic forte or double forte sections where the power of these instruments is appropriate, but even here discretion is advisable.” During these sections, Ades advocated scoring for choral unison and implementing more staccato figurations for the brass, if possible.²⁵ While sources like this were not geared toward the conductor *per se*, they suggested a preemptive approach to choral/orchestral balance problems through balance-sensitive orchestration procedures.

Altering Spatial Arrangement to Affect Balance

Some authors suggested that changes in the physical arrangement of the stage are the best way to affect balance. In addition to recommending exploded consonants from

²⁵ Hawley Ades, *Choral Arranging* (Delaware Gap, PA: Shawnee Press, 1966), 186.

the chorus and altering dynamic markings in the orchestral parts, Lewis Gordon (1989) offered four solutions for conductors that involve changes to the “ordinary” arrangement of performers on stage, shown below in Table 4.4.²⁶

Table 4.4. Lewis Gordon’s Recommendations for Stage Arrangement

Lewis Gordon: <i>Choral Director’s Rehearsal and Performance Guide</i>
<ul style="list-style-type: none"> • Make sure that the choral group is elevated well above the instruments so that the vocal sound will project without interference. • If the singing is being “swallowed” by stage curtains, use sound deflectors or a shell. • Position instrumentalists so that their instruments point across stage rather than outwards toward the audience. • Consider positioning the chorus <i>alongside</i> of the instrumental ensemble.

Similar to Gordon, Vance George recommended that, when positioned behind the orchestra on stage, the first row of choral singers should be elevated twenty inches above the level of the orchestra, and that each row of singers thereafter should be elevated another ten inches. Beyond this vertical displacement, George added that a “richer sonority, blend, and better hearing” will result from allowing a one-person width between each singer, and that moving the men’s voices to the front and center of the chorus will help if they are few in number.²⁷

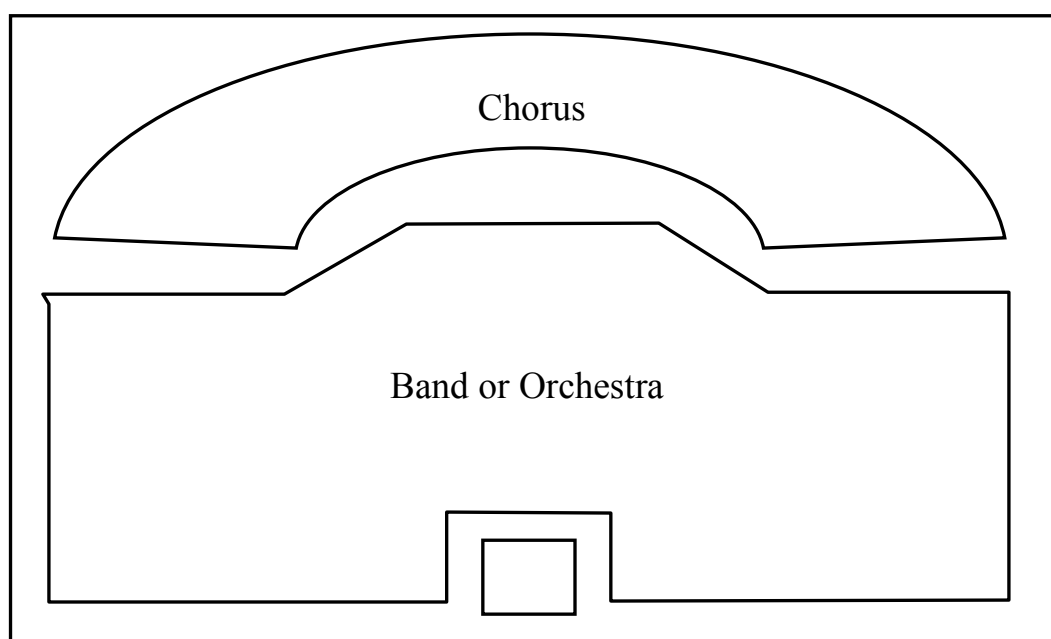
Robert Garretson’s solution to choral/orchestral balance problems is, perhaps, the most similar to that of the nineteenth-century musicians discussed in Chapter II. In

²⁶ Lewis Gordon, *Choral Director’s Rehearsal and Performance Guide* (West Nyack, NY: Parker Publishing Company, 1989), 225-6.

²⁷ Vance George, “Choral Conducting,” 61.

Conducting Choral Music (1961), Garretson offered three different seating plans for combined choral/orchestral performances.²⁸ His first plan, depicted in Figure 4.2 below, looks most similar to modern concert seating arrangements with the chorus in rows behind the orchestra.

Figure 4.2. Garretson, First Seating Plan²⁹

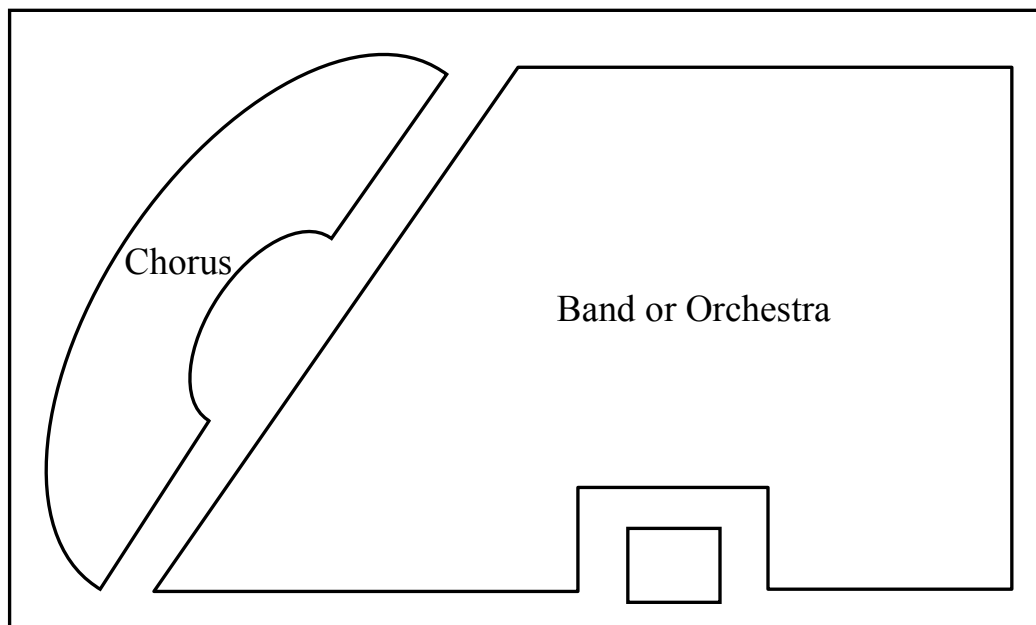


He stated that while all performers can see the conductor using this plan, balance problems are a likely outcome. In this case, he prescribed lessening the volume of the orchestra by assigning only one instrument per part. If choral/orchestral balance is still a problem, Garretson advised that the stage arrangement be altered to look something like Figure 4.3 below, in which the chorus is placed to one side of the stage allowing it to project more easily.

²⁸ Robert L. Garretson, *Conducting Choral Music*, 1st ed. (Boston: Allyn-Bacon, 1961), 214-6.

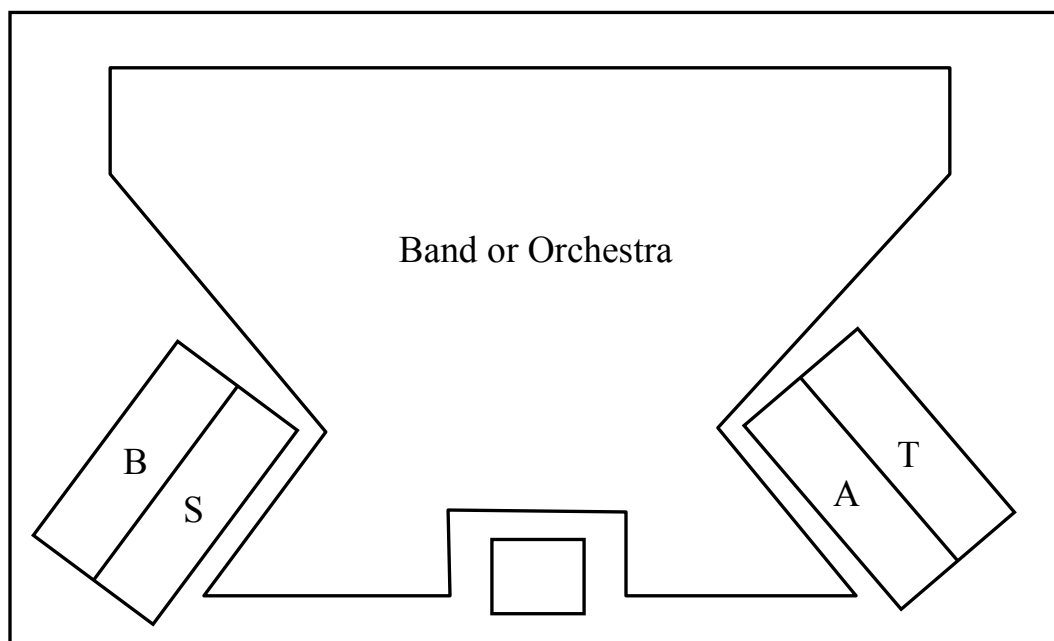
²⁹ Ibid., 215. Redrawn by author.

Figure 4.3. Garretson, Second Seating Plan³⁰



Garretson's final solution—most resembling nineteenth-century practice—is represented in Figure 4.4 below. In this arrangement, the chorus is split in half and placed on the front corners of the stage closest to the audience. He admitted that this arrangement has the disadvantage of increasing tonal and rhythmic instability in the choristers, but stated that it allows for the greatest projection of sound from the voices.

³⁰ Ibid., 215. Redrawn by author.

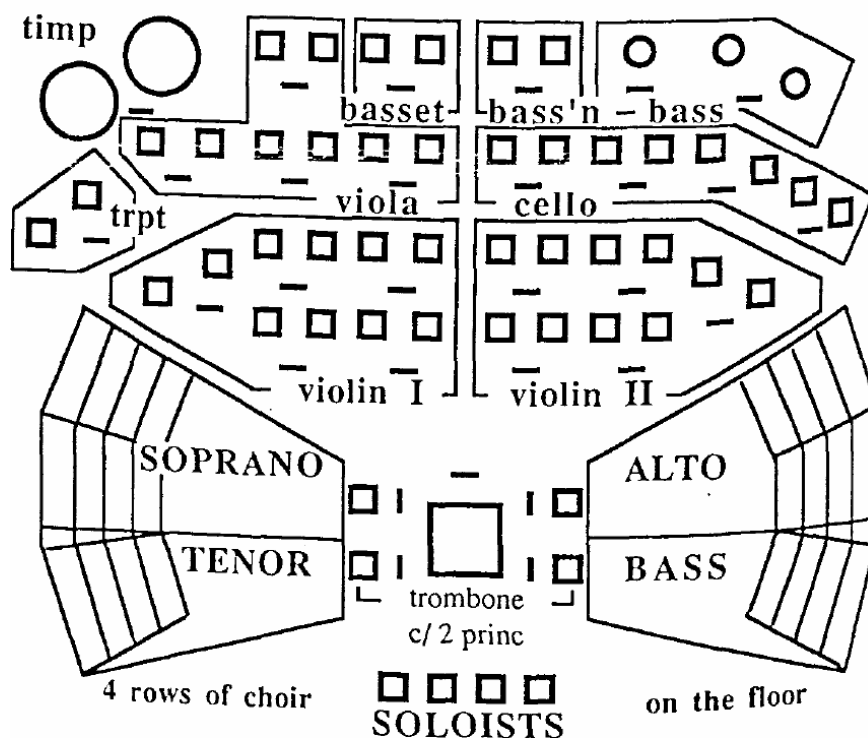
Figure 4.4. Garretson, Third Seating Plan³¹

In the late 1980s, James Fankhauser experimented with alternative stage arrangements after researching late eighteenth- and early nineteenth-century Viennese performances. Fankhauser conducted performances of Mozart’s *Requiem* and Handel’s *Messiah* in which he arranged the performing forces similar to Garretson’s final diagram above. He was excited by the results, and documented them in a 1989 article entitled “Choral-Orchestral Balance: An Old Problem Reviewed.” Figure 4.5 (seen below) is a diagram of Fankhauser’s stage arrangement for the Mozart performance, which he modeled after an 1812 performance of Handel’s *Alexander’s Feast* that had been re-orchestrated by Mozart.³²

³¹ Ibid., 216. Redrawn by author.

³² James Fankhauser, “Choral-Orchestral Balance: An Old Problem Reviewed,” *Choral Journal* 30:1 (August 1989): 5-7.

Figure 4.5. Diagram of Fankhauser's Stage Arrangement for the Mozart Requiem.



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Upon examination of Fankhauser's diagram, one can see that there are several key aspects that bear particular influence on balance issues. First, the chorus is positioned in front of the orchestra on sets of risers facing inward towards the conductor (represented by the large square). While this would cause some of the singers—the ones furthest downstage—to have their backs slightly to the audience, Fankhauser remarked that "this potential loss of sound and clarity was overcome by the virtue of the choir's increased presence and proximity to the audience."³³ Another noteworthy feature is the placement of the trombones near the front and, like the choir, facing inward toward the conductor.

³³ Fankhauser, "Choral-Orchestral Balance," 6.

This position seems practical for at least two reasons. First, since the trombones frequently double the voice parts in Mozart's Requiem, it makes good sense to place them near the chorus. Second, in Fankhauser's experience, the trombonists played at more reasonable volume levels because (1) they could hear each other and were better able to judge their relative loudness, (2) the bells of their instruments were not pointed directly toward the audience, and (3) the conductor was better able to control them at that proximity. A final distinction in Fankhauser's arrangement is that the four vocal soloists positioned at the very front of the performing force would essentially have their backs to the conductor. Fankhauser's solution to that sightline issue was to place a student conductor in the first row of the audience, somewhat reminiscent of Berlioz's use of "semi-conductors" in the early nineteenth-century Parisian performances.

According to Fankhauser, this Requiem performance was highly successful due to a variety of factors. Not only was the chorus able to hear the orchestra better, but the orchestra "leaders," now positioned closer to the chorus, could more readily hear the voices. Moreover, the conductor, who is typically bombarded by orchestral sound and unable to hear and correct errors in the chorus, found himself in much closer proximity to the singers and thus, better able to make corrections during the final dress rehearsal. Fankhauser cited two "slight drawbacks" in utilizing this stage arrangement. First, the soloists were at considerable distance from the orchestra and apparently had difficulty hearing the instrumental accompaniment. Second, the conductor experienced difficulty in gesturing to the split choir on his either side rather than having the entire choir directly in front of him.

Shortly after the success of this Requiem performance, Fankhauser decided to recreate the same effect in a performance of Handel's *Messiah*. Because this second performance was to be in a much larger hall, Fankhauser had his singers face the audience and watch him out of the corners of their eyes so that the vocal sound would carry still further. He was pleased that his singers "needed none of the adjustment usually necessary to get used to reacting to a conductor dozens of feet away."³⁴ Further, he found that the instrumentalists, with some practice, were effectively able to adjust to the sound delays resulting from their displacement from the conductor.

Acoustic Studies Related to Choral/Orchestral Balance

There is one study that has examined specifically the balance between chorus and orchestra from an acoustic perspective. Published in 1992, the study was conducted by A. Harold Marshall, Professor Emeritus at the University of Auckland, New Zealand, and pioneer in the field of acoustic concert hall design.³⁵ Marshall's study involved the Auckland Bach Cantata Society, a choir of approximately thirty voices and a small orchestra that regularly performs Bach cantatas and motets in a city church in Auckland. In this performance space, the choir frequently found itself severely overpowered by the orchestra, not to mention the singers had difficulty hearing each other.

Marshall's task was to develop a means of equalizing this imbalance. His solution is based on Sundberg's premise that the singer's formant is the key to projecting vocal

³⁴ Ibid., 7.

³⁵ Marshall, "An Objective Measure of Balance Between Choir and Orchestra," 51-58.

sound over an orchestra.³⁶ Based on his own previous research, Marshall knew that “more sound is radiated to the side than straight ahead at the singer’s formant frequency band.”³⁷ Thus, surrounding the singers from behind with acoustic panels would redirect more sound energy toward the audience than one might expect. Based on this knowledge, Marshall designed and assembled four custom reflecting panels to be placed behind the choir during the performance to help the singers project and thereby correct the imbalances. Marshall’s study provides a more detailed description of the panel design.

Subjectively speaking, the reflecting panels made significant improvements, in that a number of the performers and audience members reported after the first concert with the panels that the balance between voices and instruments improved. Further, as the article title suggests, Marshall made a more objective measurement of the balance using a differential C_{80} coefficient.³⁸ He placed calibrated loudspeakers (pointed upward) both in the center of the choir position and near the front of the orchestra position. Measuring C_{80} from a position in the audience with and without the reflecting panels, he determined that there was a significant change in C_{80} from the choir position, while there was relatively little change from the orchestra position. In other words, the addition of the panels increased the sound clarity of the chorus without significantly increasing the perceived volume of the orchestra.

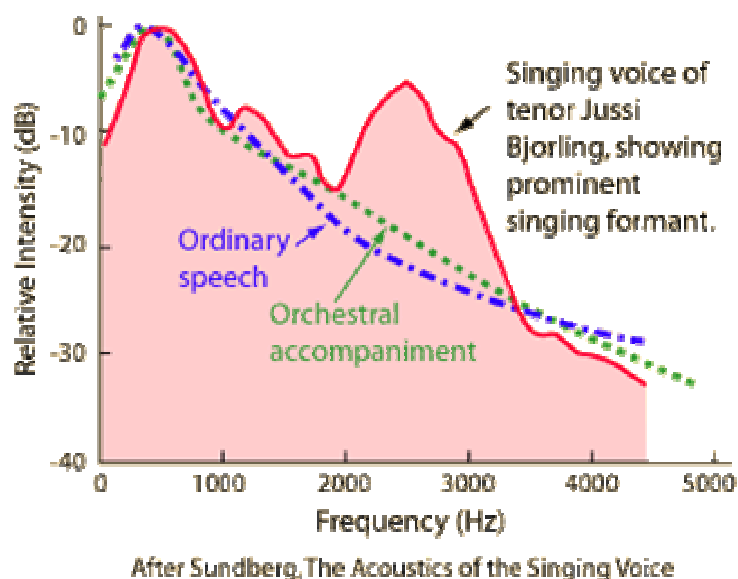
³⁶ See Sundberg, “The Acoustics of the Singing Voice,” 82.

³⁷ Marshall, “An Objective Measure,” 54.

³⁸ C_{80} is an acoustic measurement of sound clarity. Measured in decibels (dB), C_{80} is a logarithmic ratio of the sound energy that arrives within the first eighty milliseconds to the sound energy arriving after the first eighty milliseconds. See Jessica Hall, “Clarity,” *Concert Hall Acoustics*, <<http://www.concerthalls.unomaha.edu/discussion/clarity.htm>> (accessed 17 September 2008).

While they do not address choral/orchestral balance specifically, there are other studies worth mentioning that are relevant to the material in this document. Johan Sundberg's research in the 1970s demonstrated that the key to projection for operatic singers lies in a concentration of sound energy at approximately 3000 Hz known as the singer's formant. Comparing the long-term average spectra of an orchestra to that of an operatic tenor singing with an orchestra, Sundberg found that the singer's formant occurs at a frequency range characterized by relatively little orchestral sound energy, thus enabling the voice to project.³⁹ Figure 4.6 below shows Sundberg's comparison graph.

Figure 4.6. Long-Term Average Spectra of an Orchestra and Singing Voice⁴⁰



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³⁹ Sundberg, "Acoustics of the Singing Voice," 82.

⁴⁰ Carl R. Nave, "Sundberg's Singing Formant," *HyperPhysics Concepts*, <<http://hyperphysics.phy-astr.gsu.edu/Hbase/music/singfor.html>> (accessed 16 September 2008).

While Sundberg's research focuses on operatically-trained voices, the extent to which the singer's formant is present in choral singing voices varies widely. While conductors certainly hope to develop the singer's formant in the voices of their choristers, a one-on-one setting tends to be more effective at developing the phenomenon.

Another study, by Alex Burd and Laurence Haslam (1994), examined concert halls that contained built-in seating for a chorus behind the stage proper. In some of the halls, the choir seating began at the same vertical level as the back of the orchestra, while in others there was a significant height difference between the back of the orchestra and the front of the choir. Subjectively speaking, the singers preferred being on the same level as the orchestra, primarily because proximity to the conductor during performance was of utmost importance.⁴¹

The purpose of this chapter has been to review existing recent research on the balance between chorus and orchestra in performance. A number of writings addressed choral/orchestral balance issues from one of the many perspectives possible. There is a need, however, for a study that provides conductors with tools to approach choral/orchestral balance problems from a variety of perspectives.

⁴¹ Alex Burd and Laurence Haslam, "The Relationship of Choir and Orchestra in Concert Halls," *Proceedings of the Institute of Acoustics* 16:2 (1994), 479-485.

CHAPTER V

CHORAL/ORCHESTRAL BALANCE SURVEY

Selection of Participants

The participants for this survey consisted of 511 conductors of professional, semi-professional, church, collegiate, and community choruses from across the United States. Many of the participants conduct multiple choruses. The researcher retrieved their email addresses by visiting publicly-available websites that were listed in the “Choir Directory” section on the Choralnet website (www.choralnet.org). In the case that there was no specific email address given for the conductor on the choral organization’s website, the researcher used a generic email address (e.g., info@thischoralsociety.org or auditions@thatchoralsociety.com), if published on the website. The researcher selected participants based on website information suggesting they regularly prepared and/or conducted choral/orchestral works. Because a survey instrument constitutes the use of human subjects in research, the researcher secured permission from the Institutional Research Board at the University of North Carolina at Greensboro before disseminating the survey.

Design and Dissemination of Survey

The researcher developed the format and content of the survey through a multi-stage review process between himself and music faculty at the University of North

Carolina at Greensboro. Dr. Elizabeth Keathley, Dr. Welborn Young, and Dr. William Carroll conducted the review. The researcher created and hosted the survey using SurveyMonkey (www.surveymonkey.com), a website that specializes in the creation, dissemination, and analysis of web-based surveys.¹

Between October 14 and October 16, 2008, an initial invitation to participate in the survey was emailed to the 511 participants. On October 23, the participants who had not yet responded to the survey were sent a follow-up invitation.² Included in both email invitations were two encoded links. The first linked participants to the survey on the SurveyMonkey website and tracked the participants' responses in order to keep a tally of who had responded. The second link allowed participants to opt out of the survey if they chose. The survey was open to collect responses for a total of sixteen days, ending on October 30, 2008.

Survey Response

Of the 511 participants, approximately forty percent responded to the invitation: a total of 202 respondents. There were approximately fifty participants whose email invitations were rejected by a web server as spam, and there were approximately ten participants who replied directly to the survey invitation via email saying that they could not, for a variety of reasons, respond to the survey. Fifteen participants opted out of the survey using the encoded link from the email invitations. Of the 202 respondents, there

¹ A copy of the entire survey is located in Appendix B.

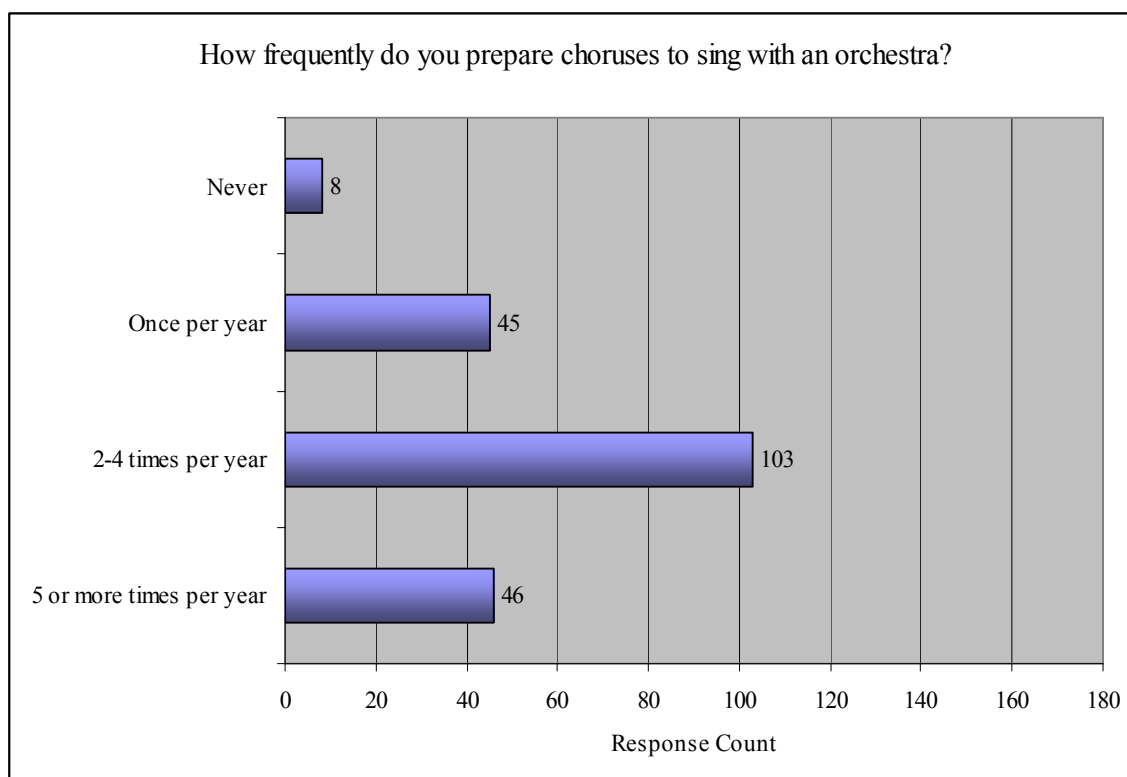
² Both email invitations are located in Appendix A.

were 186 who completed the entire survey and sixteen who answered only a portion of the questions. The following pages contain a summary and discussion of the data collected from each survey question. For each question, a graph is provided depicting the number of responses for each answer choice. Following each graph is a brief discussion of the results.

Frequency of Preparing and/or Conducting Choral/Orchestral Works

Questions 1 and 2 constituted the first section of the survey, which served to identify the respondents' frequency of preparing and/or conducting choral/orchestral works. These two questions were essential for establishing the fact that nearly all of the respondents regularly work in the choral/orchestral genres.

Table 5.1. Question 1 Data Summary

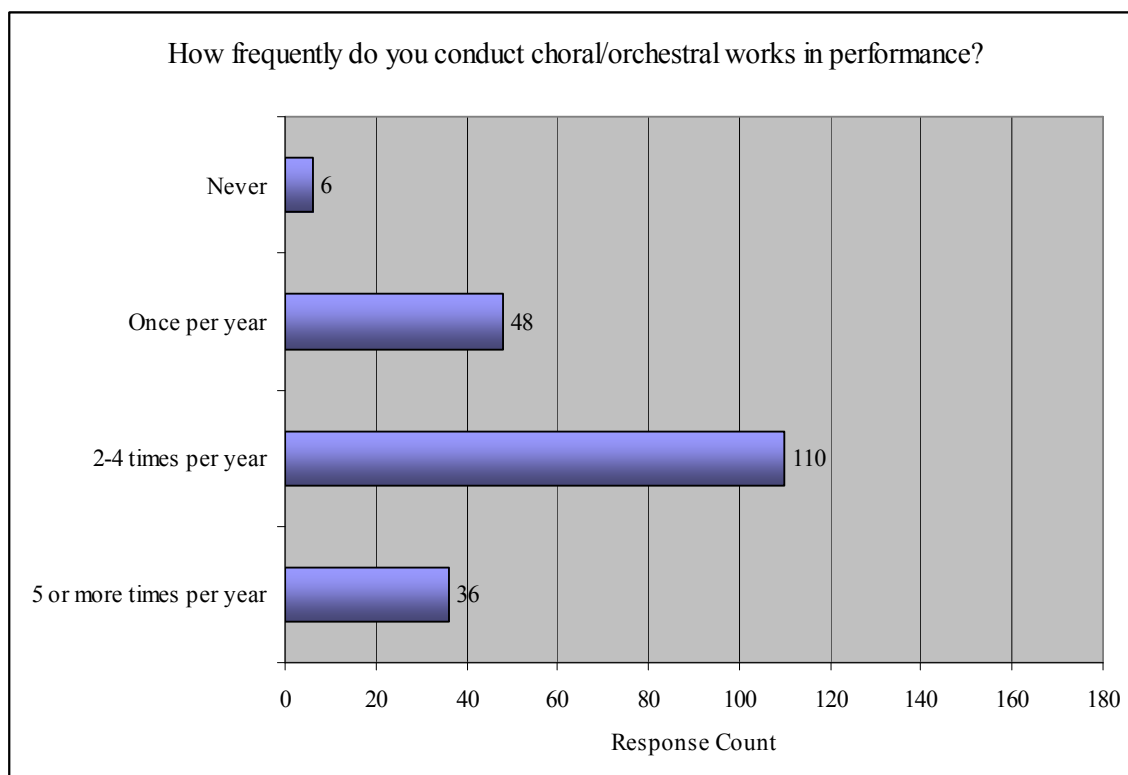


Question 1 Comments

The results from this question suggest that roughly ninety-six percent, or 194 respondents, are conductors who prepare choruses to sing with orchestras at least once per year. Around one half of the respondents indicated they did so two to four times per year. Approximately one fourth of the respondents do so once per year, and almost the same number do so five or more times per year. The remaining eight respondents who said they “Never” prepare choral/orchestral works fall into three possible categories. They may conduct only the combined rehearsals and performances (and use a separate chorus preparer), they may have never worked in the choral/orchestral medium, or they have before but no longer do so (e.g., because of retirement). Perhaps the question could

have been worded, “On average during your career thus far, how frequently have you prepared choruses to sing with orchestras?” to avoid confusion.

Table 5.2. Question 2 Data Summary



Question 2 Comments

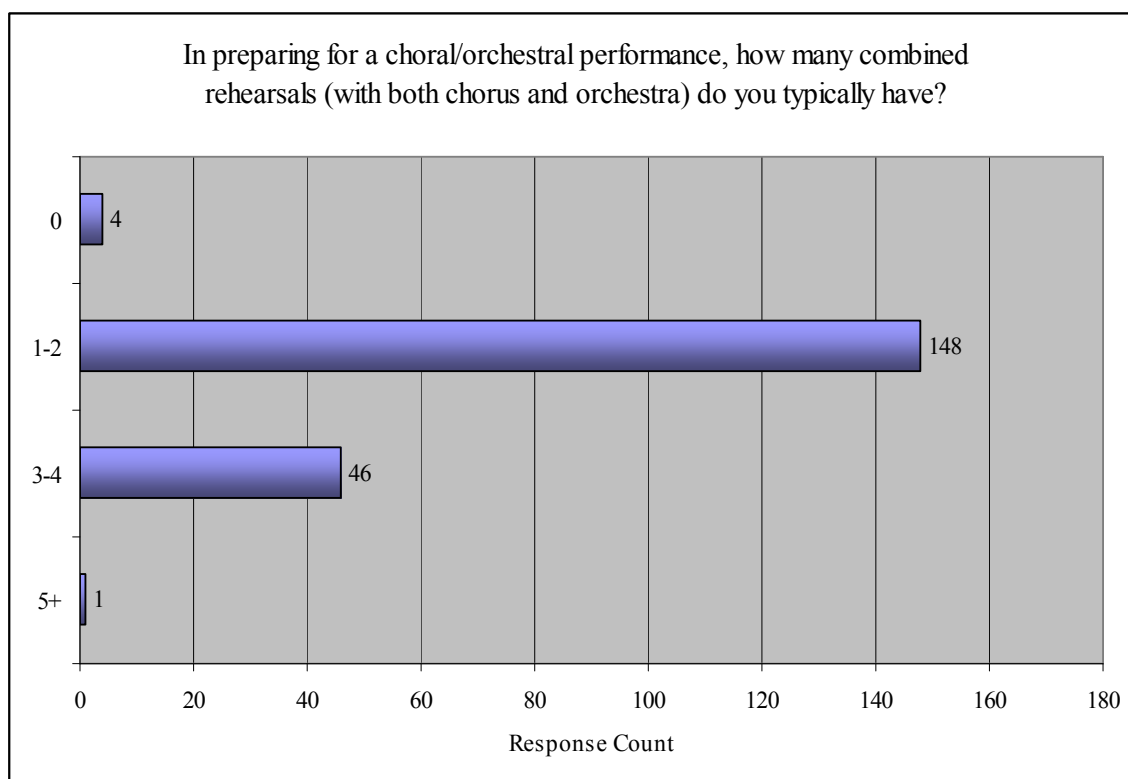
Because there are many instances in which the person who prepares the chorus is not the same person who conducts the combined rehearsals and performance, the researcher chose to ask this as a separate question from Question 1. With a few exceptions, the results for this question were very similar to those for Question 1. About ninety-six percent of the respondents indicated that they conduct choral/orchestral works at least once per year. The six respondents who indicated that they “Never” conduct

choral/orchestral works in performance may be explained similarly as was done in the comments for Question 1 above.

Number of Combined Rehearsals

Questions 3 and 4 constituted the second section of the survey, which determined the number of combined rehearsals (with chorus and orchestra) the respondents typically have in preparation for a performance. The researcher elected to distinguish between combined rehearsals and combined rehearsals in the actual performance space since balance is of particular concern only in the hall/auditorium where the performance will take place.

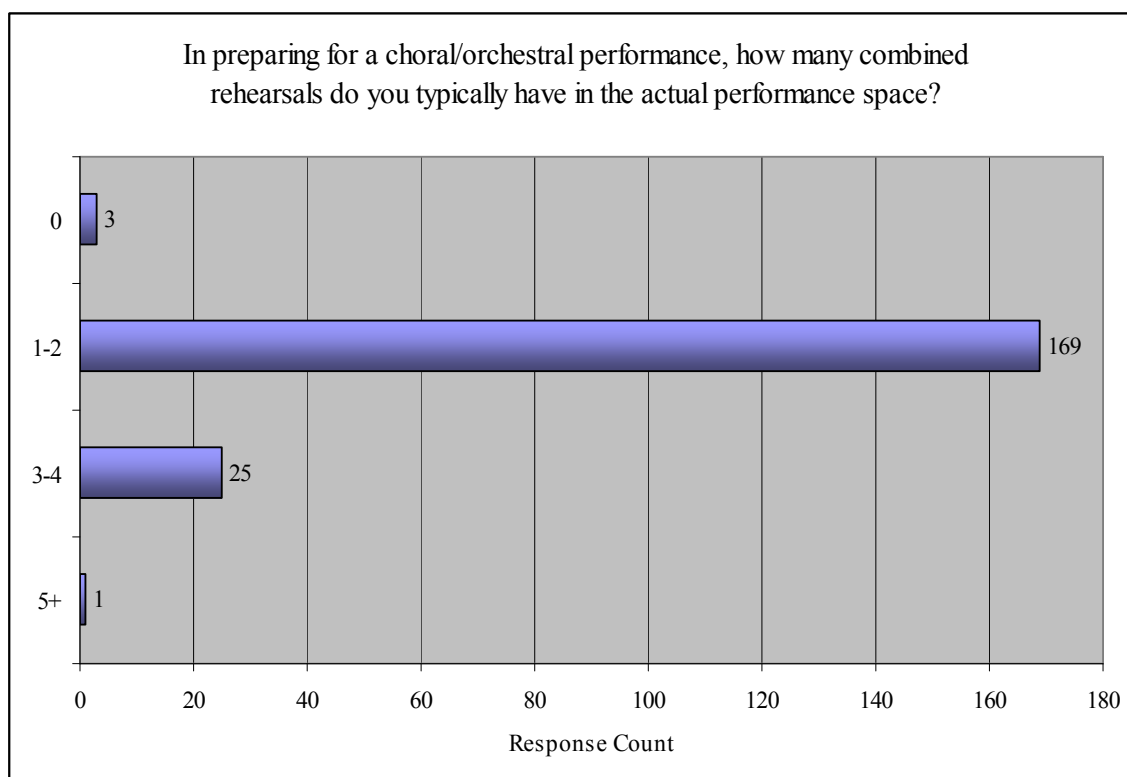
Table 5.3. Question 3 Data Summary



Question 3 Comments

Nearly seventy-five percent, or 148 respondents, indicated that they typically had one or two combined rehearsals prior to a choral/orchestral performance. Nearly twenty-five percent indicated that they had three or four combined rehearsals. When professional musicians are involved in the performance, monetary resources to compensate those musicians are often limited. In this researcher's experience, there have rarely been more than two combined rehearsals for a choral/orchestral performance. Thus, there is often little time for fixing balance problems.

Table 5.4. Question 4 Data Summary



Question 4 Comments

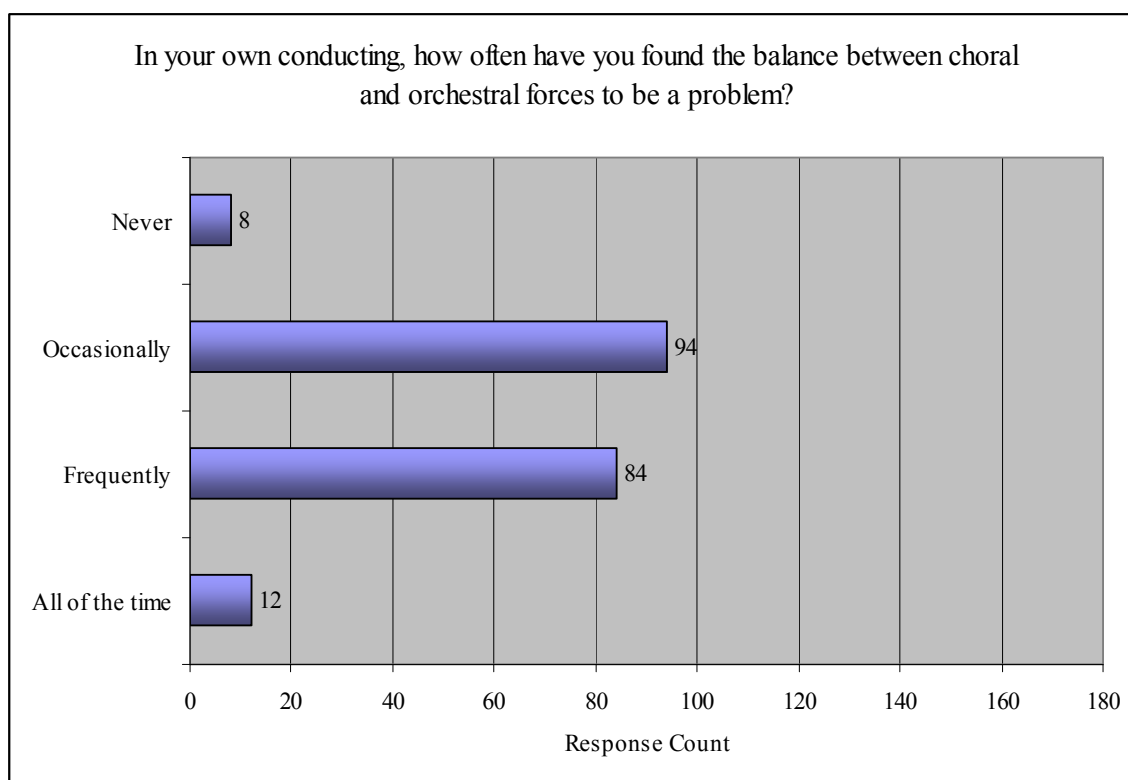
Approximately eighty-four percent, or 169 respondents, indicated that they typically had one or two combined rehearsals in the actual performance space.

Comparing these data to the responses in Question 3, one can see that approximately twenty-one of the respondents who typically have three to four combined rehearsals have only one or two combined rehearsals in the actual performance space. Once again, limited combined rehearsal time—particularly in the actual performance space—means that there is less time for the conductor to address balance issues during rehearsal.

Frequency of Choral/Orchestral Balance Problems

Questions 5 and 6 determined the frequency that present-day conductors experience problems with the acoustic balance of chorus and orchestra; that is, the frequency as the conductor of a performance, as well as the frequency they experience as an audience member attending the performance of a choral/orchestral work.

Table 5.5. Question 5 Data Summary

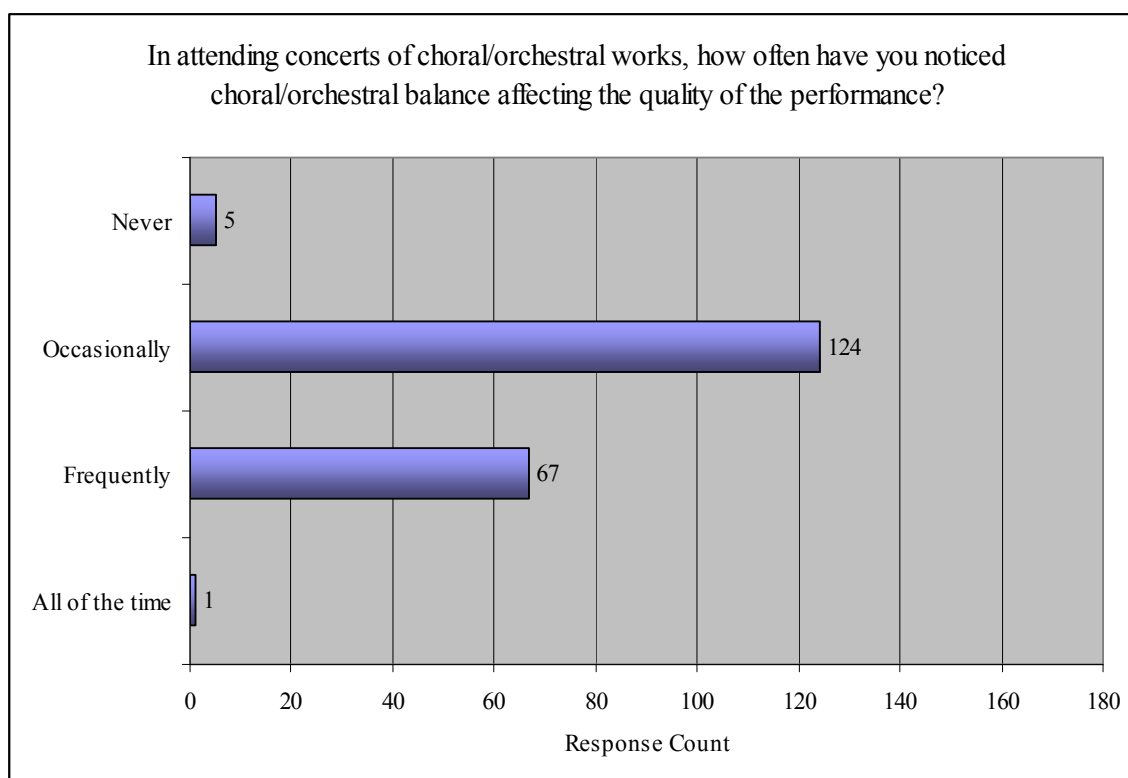


Question 5 Comments

The results demonstrate that approximately ninety-four percent, or 190 respondents, feel that in their own conducting they experience balance problems at least

occasionally. This evidence corroborates the notion that present-day conductors continue to grapple with choral/orchestral balance problems, and would benefit from this research.

Table 5.6. Question 6 Data Summary



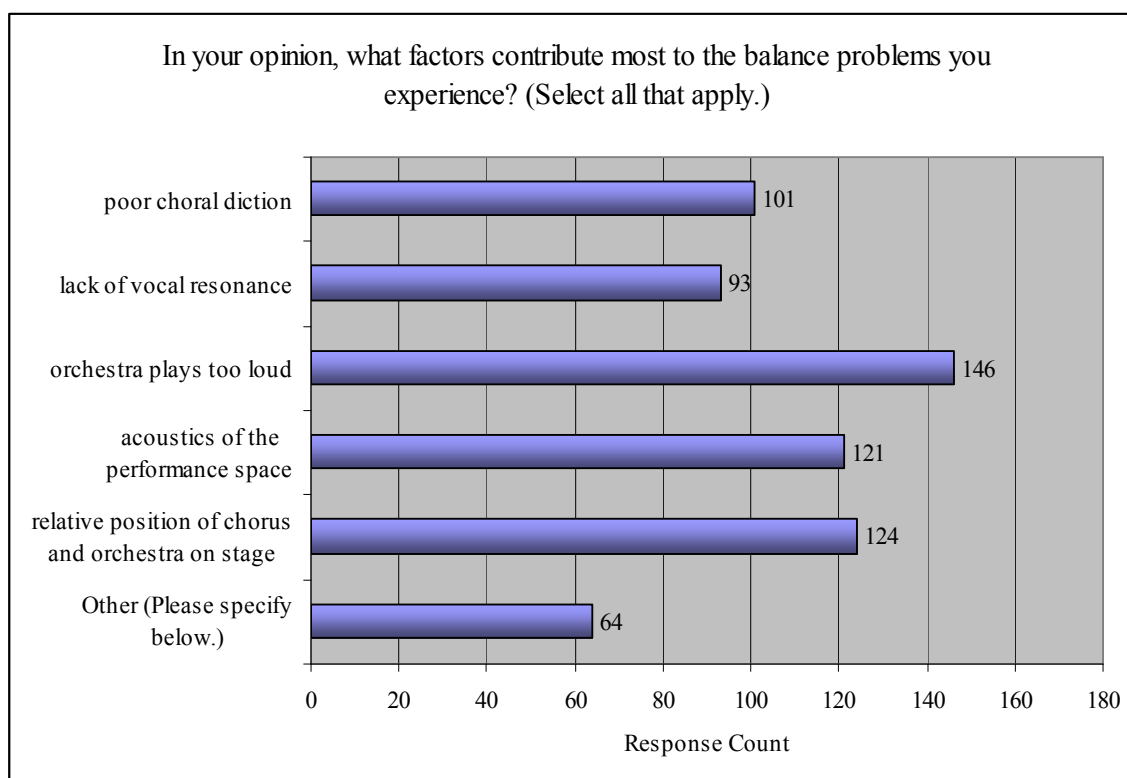
Question 6 Comments

Approximately ninety-five percent, or 192 respondents, indicated that as an audience member they noticed choral/orchestral balance problems at least occasionally. Question 6 is important because the results suggest that balance issues are not only apparent from the conductor's podium, but from the audience perspective as well.

Causes of Choral/Orchestral Balance Problems

Questions 7 through 12 sought to discover possible causes for choral/orchestral balance problems, both by asking the respondents to comment on solutions already in writing and by prompting them to add their own unique solutions. This section explored such possible causes as certain instruments or instrument families, singing in certain languages, certain speech elements, and certain musical works.

Table 5.7. Question 7 Data Summary



Question 7 Comments

In Question 7, respondents were allowed to select multiple answers based on their opinions of what factors most contributed to choral/orchestral balance problems. The

answer selected most frequently was “orchestra plays too loud,” with approximately seventy-two percent, or 146 respondents, choosing this answer. The second most popular answer was the “relative position of chorus and orchestra on stage.” There were sixty-four respondents who chose the option “Other” and provided more specific information.³ Some respondents used this space to add other balance factors not included in the answer choices, while others used it to clarify and/or expound upon their answers to Question 7.

By far, the most frequently mentioned additional factor in choral/orchestral balance problems was the relative sizes of the chorus and orchestra. Several respondents indicated that balance problems occurred when the chorus was too small for either the number of players in the orchestra or the chorus was simply not large enough to perform the musical work, itself. For example, one respondent wrote:

In my concert-going experiences, I’ve found that the chorus is generally undersized for the material programmed. An orchestra cannot be expected to ‘play down’ to a choir of only 50 singers. It is critical that conductors, both choral and orchestral, have a clear understanding of the abilities and limitations of their respective ensembles BEFORE programming a joint-concert.

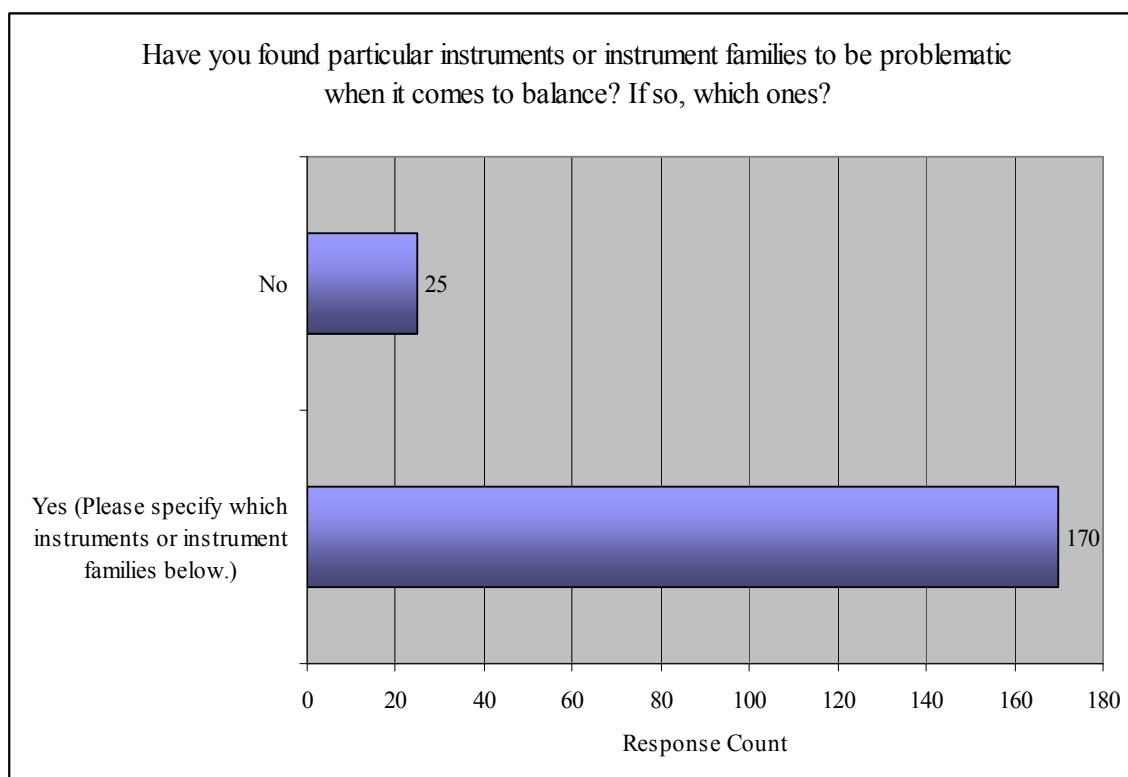
What is implicit in these responses is that choral/orchestral balance problems are best solved well before the first rehearsal; first, through a careful selection of repertoire, and second, through meticulous planning of the size of the orchestra needed to accompany a chorus of a certain size. The following list summarizes the other responses to Question 7:

- The chorus is not elevated enough above the level of the orchestra players.
- The chorus is vocally fatigued and thus unable to produce a resonant sound as a result of too much rehearsal on the day of the performance.

³ A compilation of the open-ended responses to this and all other open-ended questions is located in Appendix D.

- The orchestra is made up of non-professional players who are unable to produce a stable, vibrant tone below a certain dynamic level.
- The choristers' heads are "buried" in the score, resulting in a misdirection of sound energy downwards rather than outwards.
- The orchestration is too thick or poorly written, resulting in a masking effect.
- The choristers over sing trying to balance the orchestra, resulting in a pushed, inefficient vocal sound.
- The choral conductor lacks knowledge of instrumental techniques for "quieting" the orchestra.
- The conductor of the performance—who is often the orchestral conductor rather than the choral conductor—either does not understand the needs of the chorus or does not detect a balance problem.
- The choristers do not anticipate the beat enough, and as a result, their attacks occur simultaneously with instrumental attacks and are, thus, covered.
- There is a lack of vowel uniformity within the chorus.
- There are intonation problems in the chorus.

Table 5.8. Question 8 Data Summary



Question 8 Comments

A clear majority of the respondents indicated that they had found particular instruments or instrument families to be problematic when it comes to balance. Nearly every respondent who answered “Yes” mentioned brass instruments as difficult to balance. Percussion instruments were mentioned as problematic more than forty times, while strings and woodwinds were named fewer than thirty times. There were a number of more detailed responses that were particularly insightful:

I think that it very much depends on the context, for example, tessitura of the voices in relation to the orchestration. Sometimes winds and strings can cover low altos based on the context. While the obvious answer might be brass I often find

that the problem is sometimes brass in relation to the tutti sound rather than specifically between brass and voices.

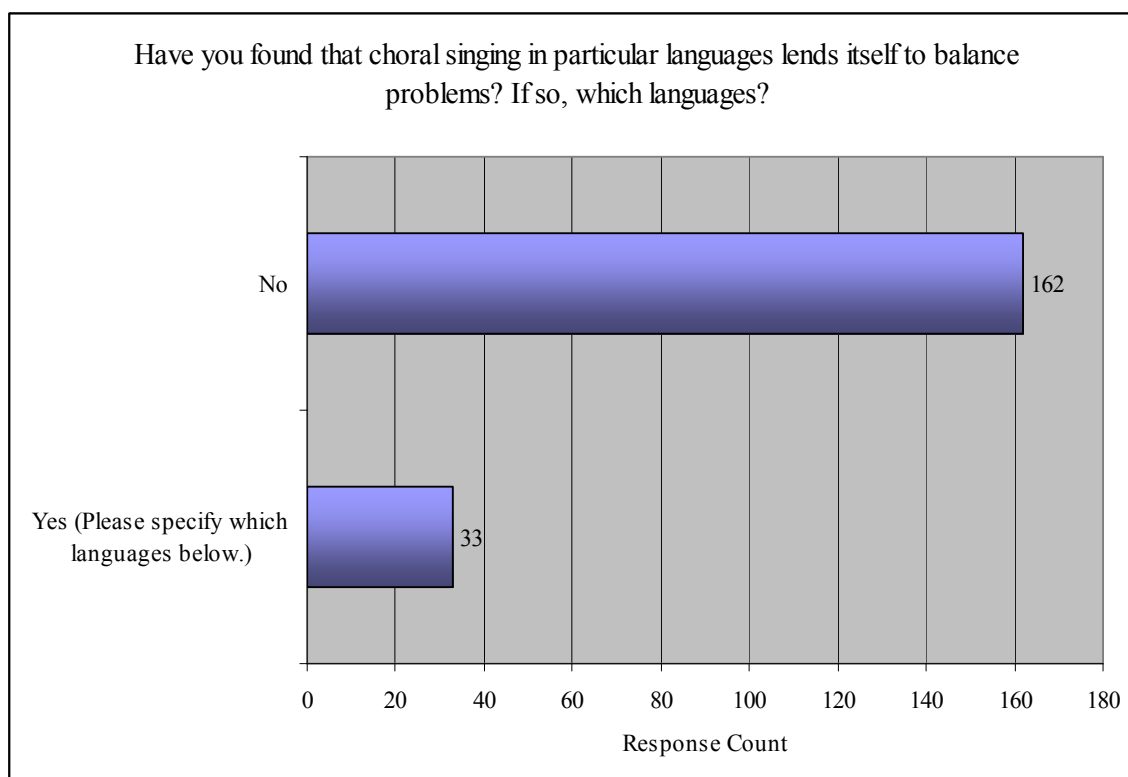
Of course, the brasses are often the culprits, and toning them down is a frequent chore. Ironically, if you get a very well-balanced and in-tune woodwind section, they also have to really pay close attention to how loudly they play (meaning that a mediocre woodwind section is not a real balance problem, usually).

Brass and percussion present the greatest challenges. Strings, however, can be surprisingly overpowering. Our solution for years has been to hire ONLY a fine string quintet! I know this seems like heresy, but I hire virtuoso string players and they love it. Then the challenge is to balance them with the winds and percussion, but it DOES work, at least for the works that we have performed. For instance, we have done the Brahms Requiem that way; *Messiah*, *Israel in Egypt*, *Elijah*, Mozart's Requiem and many other works. But you have to have really fine string players, with the endurance to play an entire work basically as a solo for each of them.

Keep the string players listening for the tone of the voice and have the clarinets and brass lighten up: specifically, they should not sustain long notes with the same volume. A common practice, e.g. Mozart, is to play half notes and whole notes with a subito diminuendo, unless the note performs a melodic function in the phrases.

Obviously brass instruments are most likely to cover, and if the score is percussion-heavy, then those instruments as well. I also think that orchestras tend to play louder for a conductor who is not their own (a choral conductor who is inexperienced at instrumental conducting, for example) and so take a more boisterous approach until corrected.

Table 5.9. Question 9 Data Summary



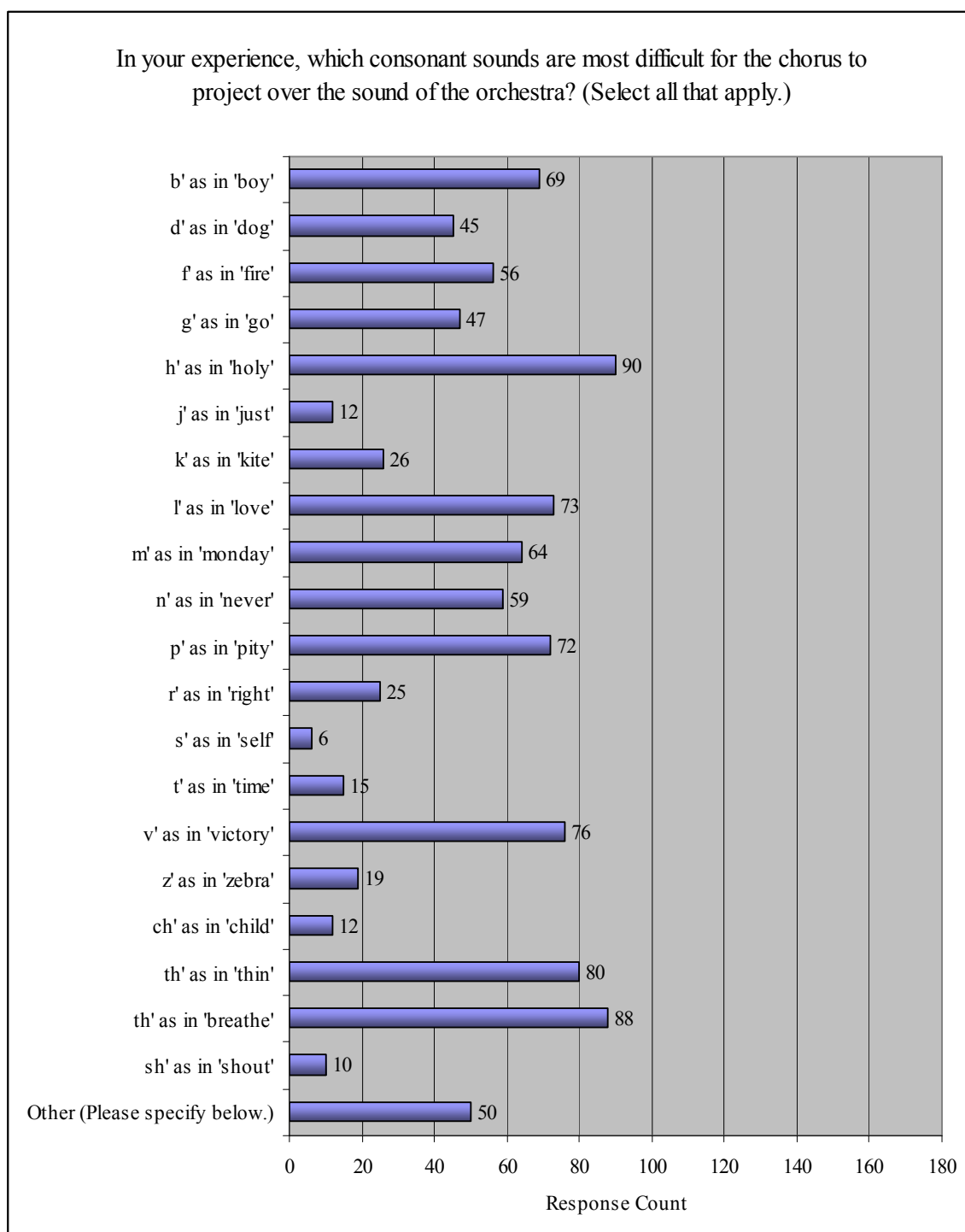
Question 9 Comments

Over eighty percent of the respondents indicated that particular languages did not lend themselves to balance problems. Of the thirty-three respondents who answered “Yes,” however, more than half indicated that French was a particularly troublesome language. Some reasoned that the “fluidity” of the French language was to blame, while a number of respondents said that the problems were linked to the singers’ lack of comfort with French (as well as other foreign languages), thus, more “timid” singing. One respondent said that his singers “have a tendency to recoil from singing languages that are not their own.” English was also listed by ten respondents, most of whom expressed concern that their English-speaking choristers habitually pronounced the language too

casually while singing. One respondent stated that his answer depended upon the definition of “balance:”

“Balance” could be perceived or interpreted as either “understanding the text” or as “comparative relation of dynamic/volume between the chorus and orchestra.” I strongly believe that the former is rarely a worthwhile effort, i.e. it’s COMPLETELY unrealistic (and thus unnecessary) to expect that the listener would actually perceive and understand every word sung without knowing the text already (or having it printed in a program, for instance). It never works with opera soloists and only rarely works with art song. The only time it CAN work is with completely homophonic music, a cappella! The latter, however (the balance of actual dynamic/volume between the orchestra and chorus) is actually realistic and worth every bit of rehearsal time to achieve. As for language, it makes a difference only as to the SINGERS’ understanding of how to make it clear.

Table 5.10. Question 10 Data Summary



Question 10 Comments

Because some respondents may not be familiar with International Phonetic Alphabet (IPA) symbols, the researcher decided to represent the various consonant sounds by giving an English example word (e.g., ‘b’ as in ‘boy’) rather than utilizing IPA symbols. For simplicity’s sake, only consonant sounds used in English were included as answer choices in the survey. A few English consonant sounds ([ʒ], [ŋ], [j]) were inadvertently excluded from the survey.

The consonant sounds most frequently selected as difficult for singers to project over an orchestra were [h], [ð], [θ], [v], [l], and [p]. The consonant sounds selected by twenty or fewer respondents included [z], [t], [dʒ], [tʃ], [ʃ], and [s], suggesting that these consonant sounds are easier to project.

Respondents also had the opportunity to select “Other” and either provide an additional consonant sound or elaborate upon their answers to this question. The additional consonant sounds that were mentioned by respondents as difficult to project include [ŋ], [r], [j], [ɟ], and [χ]. Several respondents indicated that they felt that all consonant sounds were equally difficult to project. Some added that a consonant sound’s position in a word had more of an impact on projection. For example, one respondent commented that “generally, most consonants can project, but I find that, regardless of the ‘sound’ we’re trying to create, consonants at the *ends* of words are more difficult because the musical line is generally decaying.” While several respondents offered additional explanations to their answer(s), only a few more detailed responses are included here:

Beginning and ending soft consonants, such as ‘d’, ‘n’, ‘m’, and ‘v’ and sometimes ‘th’ are probably the hardest for a chorus to project, because they *are* softly enunciated in spoken English. They must be produced more forcefully when sung. It is a matter of exaggeration, and people hate to exaggerate, but that is necessary, particularly when singing over an orchestra.

I honestly don’t find this to be a valid assessment of success in a performance. Good, bel canto singing means that many consonants aren’t performed with the crispness that would ultimately provide the greatest clarity, and I am absolutely unwilling to sacrifice good choral sound for consonants. Even with extremely clear diction, singing makes these sounds less clear. I give the congregation the words to follow along.

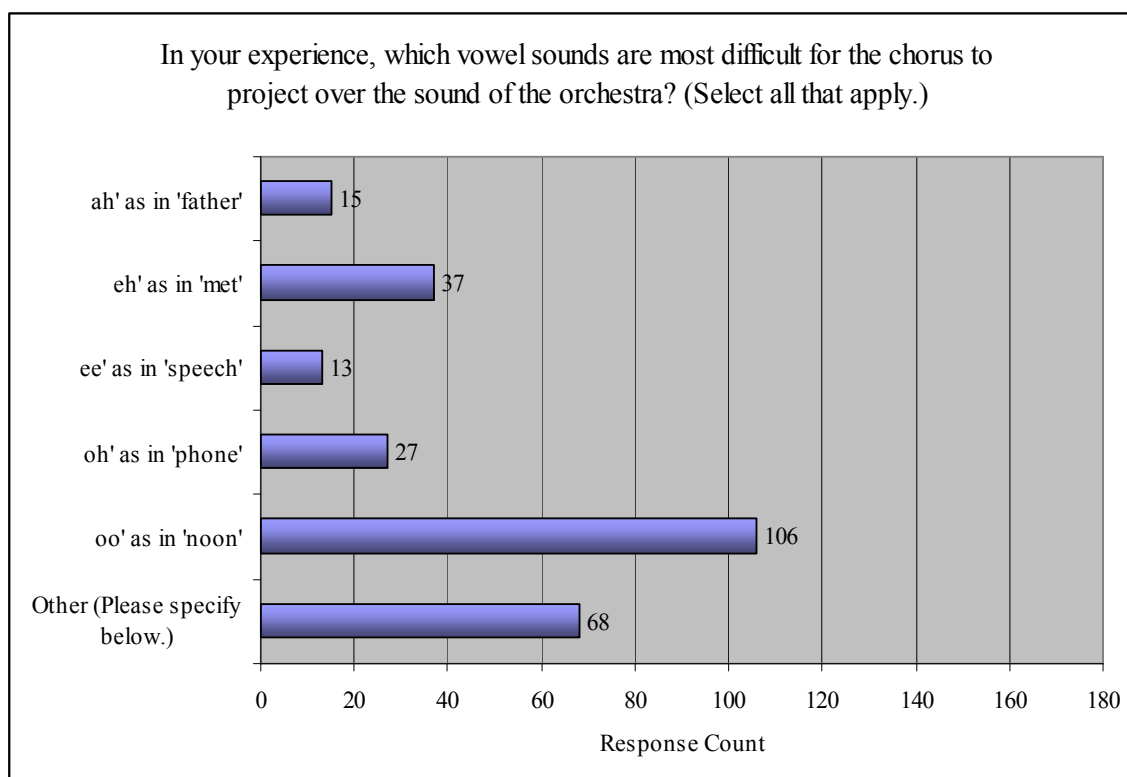
Once the performers make the extra effort needed for “J” and “G”, it’s really no problem. Without such effort, the following almost *always* takes place: “V” mistakenly sounds like “F,” “D” mistakenly sounds like “T,” “B” mistakenly sounds like “P,” and “Z” mistakenly sounds like “S.” Fricatives (except “th”) are never a problem. Americans tend to sing nasals more readily (and frequently) than they ought to. Therefore, “n” and “m” are rarely *not* heard (or perceived) by the listener. In fact, nasals tend to change the sound and resonance so much that they ought not to be sung with as much emphasis as they usually are. Palatalized Consonants (e.g. Russian, Macedonian, Polish) are frequently executed too subtly to be perceived over an orchestra. Some contend that this is okay, especially since it would be un-stylistic to do so. However, I believe that this is a case-by-case issue. A native speaker (and trained musician) should be present for penultimate rehearsals for such issues.

By comparing voiced and unvoiced consonant equivalents (e.g., [v] and [f]), one can see that respondents most often selected the voiced consonant as more “difficult to project” than its unvoiced counterpart. Table 5.1 below compares the number of times respondents selected a voiced consonant to the number of times they selected its unvoiced equivalent.

Table 5.11. Comparison of Selection of Voiced and Unvoiced Consonant Equivalents

Voiced Consonant	No. of Times Selected	Unvoiced Equivalent	No. of Times Selected
[b]	69	[p]	72
[d]	45	[t]	15
[v]	76	[f]	56
[g]	47	[k]	26
[dʒ]	12	[tʃ]	12
[z]	19	[s]	6
[ð]	88	[θ]	80

Table 5.12. Question 11 Data Summary



Question 11 Comments

As in Question 10, Question 11 listed an English example word for each vowel (e.g., ‘ah’ as in ‘father’) rather than utilizing IPA symbols in case some respondents were not familiar with the phonetic alphabet. For simplicity’s sake, the survey only offered the five basic vowel sounds found in ecclesiastical Latin as answer choices.

More than half of the respondents chose [u] as the most difficult to project of the five vowel sounds. This is not surprising considering that research has shown that the first two formants of the vowel [u] have the lowest frequencies of any vowel sound.⁴

⁴ Barbara M. Doscher, *The Functional Unity of the Singing Voice*, 2nd ed. (Lanham, MD: The Scarecrow Press, 1994), 137-139.

With a first formant in the range of about 75 to 350 Hz and a second formant ranging from about 750 to 1250 Hz, the [u] vowel is more easily masked by similar frequencies emanating from the orchestra. Particularly with amateur voices in which the singer's formant is less developed, projection of the [u] vowel is understandably difficult.

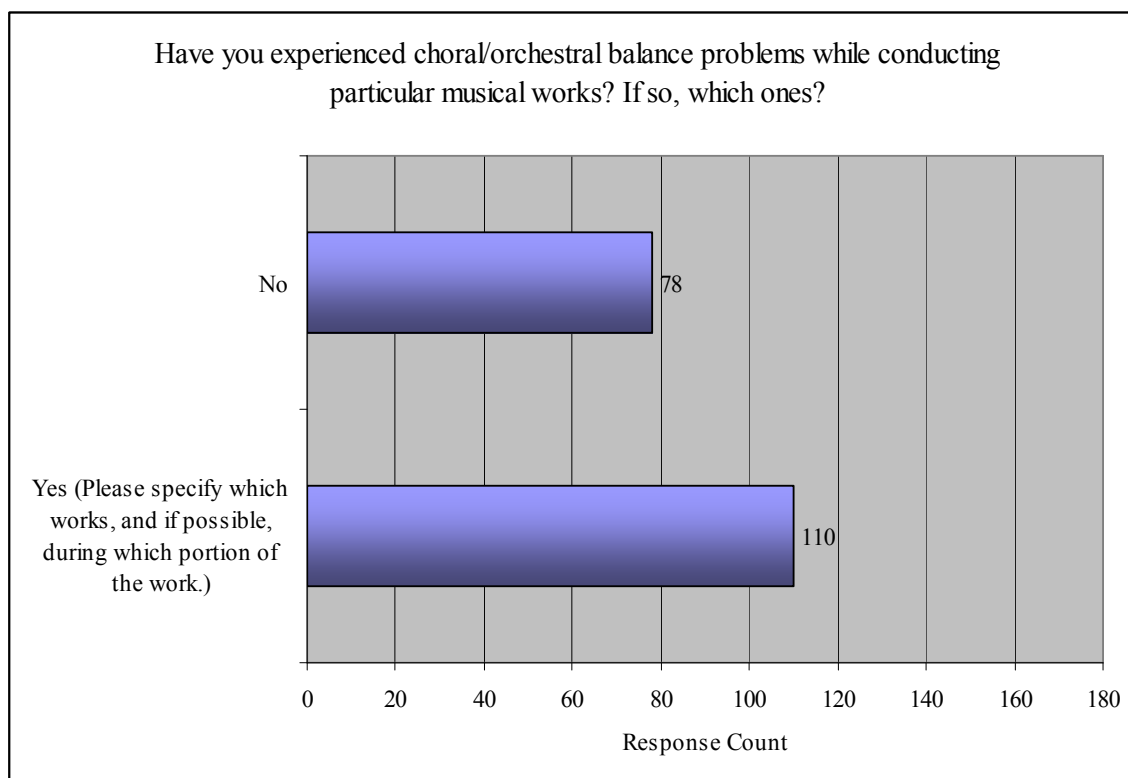
As in Question 10, respondents could choose "Other" to either add vowel sounds or provide further comments on their answer(s). The additional vowel sounds mentioned by respondents in this section were [y], [ʌ], [ə], [ɪ], and [ø]. Several respondents indicated that they did not see vowels as a problem in choral/orchestral balance. Others commented that the projection of vowel sounds depends on the presence of resonance in the vowel sounds, the vocal range in which the vowels are being sung, and external factors such as the orchestration. A few of the more detailed responses to Question 11 appear below:

The open 'ah' and 'eh' vowels are probably the hardest because it is so easy for singers to swallow these vowels, or at least cover them. We work on vocal line all the time, using the 'oo' and 'ee' vowels to connect with the open 'ah' and 'eh' vowels to keep them forward. We sing "fish-face style" - which means keeping the lips pursed a bit at all times and avoiding horizontal spread. We modify the schwa vowels to a forward 'uh' also. Thus, the word 'the' becomes 'thuh'. That one change makes an enormous difference. Fish-face production and constant exercises to connect all vowels in as forward and clear a line as possible have improved the Chorale's forward projection immensely.

None. We teach the singers to resonate all vowels as if they all were "ee." During warm-ups, I have them vocalize in the following legato sequence: "ee-oo-oh-long a-ah," with all the vowels following "ee" resonating in the same resonator cavities. This is facilitated by having the singers not chew on the vowel changes, but singing through them with a "dumb" jaw.

I don't believe that vowels are the issue. However, [u] does carry less overall acoustic energy than other vowels. For choral-orchestral performances, I often ask my choirs to brighten all their vowel sounds in places where balance is an issue.

Table 5.13. Question 12 Data Summary



Question 12 Comments

Of the 110 respondents who answered “Yes” to Question 12, most specified a specific musical work or works that had given them balance problems while conducting.

Over fifty works were mentioned in all. The most frequently mentioned works were

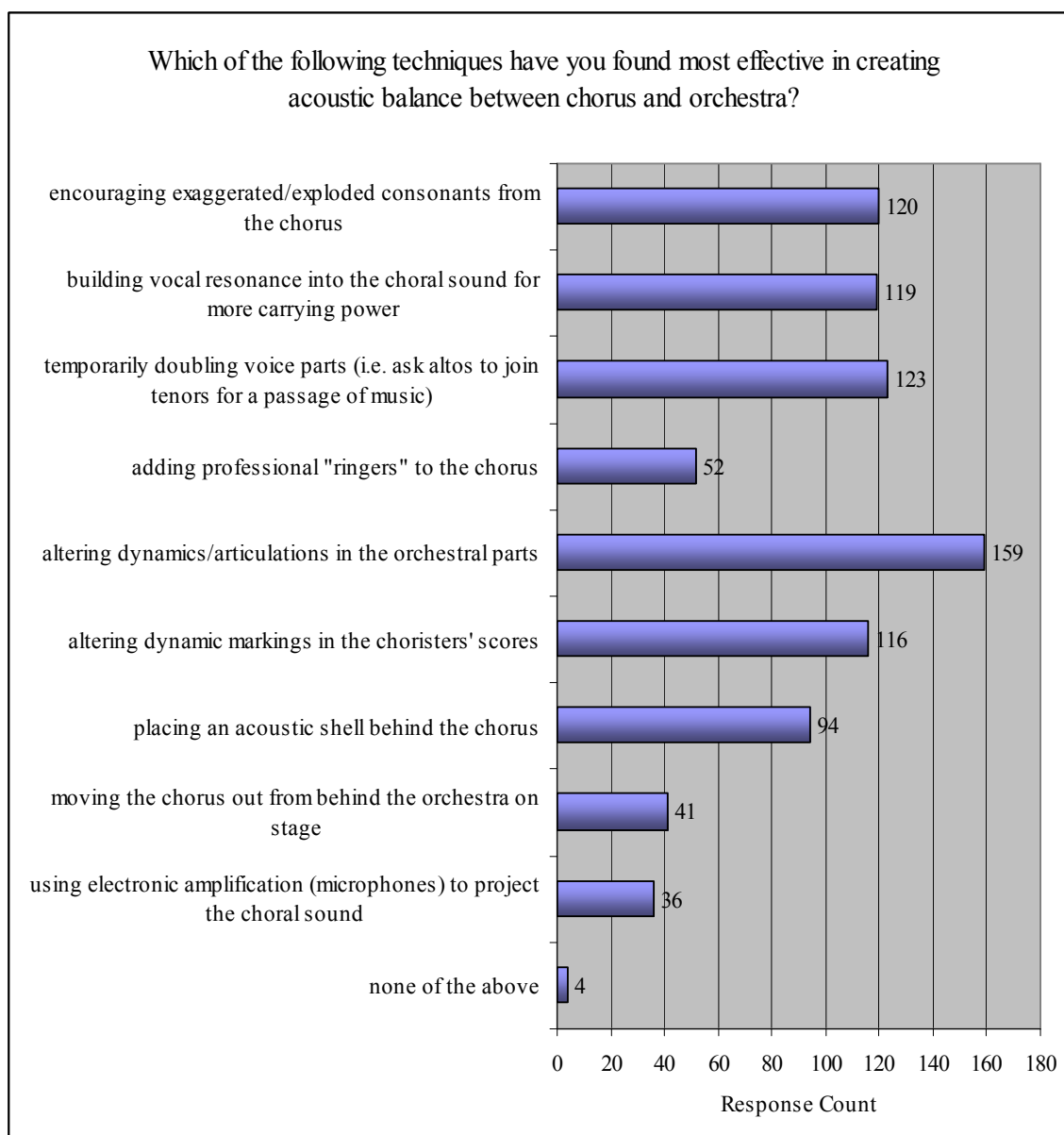
Verdi Requiem (20 times)
 Brahms Requiem (16 times)
 Orff *Carmina Burana* (14 times)
 Beethoven *Missa Solemnis* (8 times)
 Britten *War Requiem* (7 times)
 Vaughan Williams *Dona Nobis Pacem* (7 times).

One must be careful not assume, however, that these six works are somehow more difficult to balance than all of the others mentioned. One might argue that the reason these were mentioned more frequently is that, perhaps, they are performed more frequently than other works that were mentioned fewer times.

Present-Day Methods for Addressing Choral/Orchestral Balance Problems

Questions 13 through 16 constituted the fifth section of the survey. Questions 13 and 14 sought to discover techniques that conductors find most helpful in addressing balance issues between chorus and orchestra. While Question 13 prompted respondents to choose from nine solutions already in print (and discussed in Chapter III), Question 14 allowed respondents to contribute new solutions. Questions 15 and 16 probed further to learn how the respondents utilize their methods with different types of singers, and what the origins of those methods might be.

Table 5.14. Question 13 Data Summary



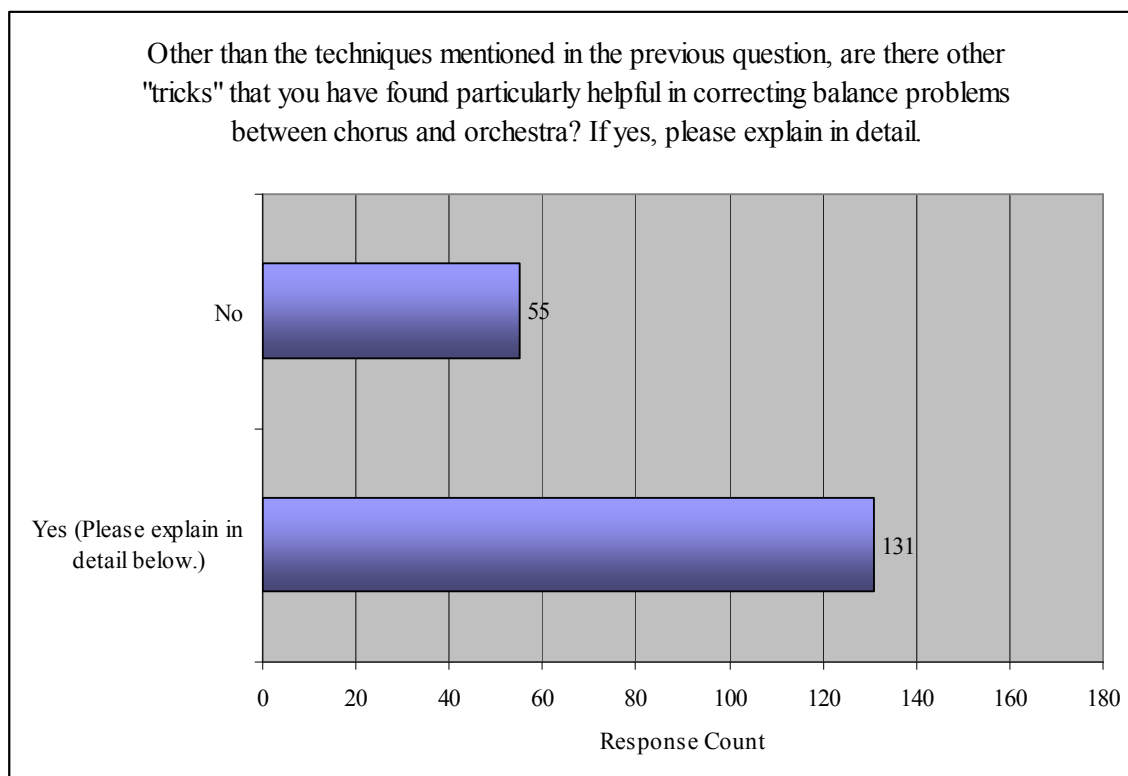
Question 13 Comments

Question 13 listed nine existing (in print) choral/orchestral balance solutions and asked the respondents to choose which solution(s) they had found most effective in their conducting experience. The most popular answer choice was “altering

dynamics/articulations in the orchestral parts.” Nearly seventy-nine percent, or 159 respondents, chose this answer.

Respondents were also given an opportunity to make comments about their answers to this question. Because there are similarities that exist between respondents’ comments on Questions 13 and 14, Question 13 comments appear below along with Question 14 comments.

Table 5.15. Question 14 Data Summary



Question 14 Comments

Nearly sixty-five percent of the respondents indicated that they had other “tricks” for solving choral/orchestral balance problems. The researcher has compiled and categorized these responses according to the type of method used. The six categories are as follows:

- I. Techniques for Improving Diction/Text Articulation
- II. Techniques for Building Vocal Resonance/Re-Voicing Techniques
- III. Techniques of Stage Arrangement
- IV. The Use of Technology
- V. Techniques for Altering the Orchestral Sound
- VI. Other Approaches

In the case that one respondent’s answer contained multiple solutions that fit into different categories, the researcher has divided the answer and placed each portion of the answer into the appropriate category. The researcher has made every effort to consolidate answers that were duplicated among several respondents.

Category I: Techniques for Improving Diction/Text Articulation

I change consonants, say from a g to k in Gloria, etc to alter projection.
Exaggerated/exploded consonants don’t really cover it. I find that presounding consonants and moving to the voiced consonants (m’s, n’s, etc.) early can help a lot.
brighter vowels
detaching or separating all dotted and tied notes (semi-staccato) works well also
Articulations -- depends on the music -- we do this all the time in Bach, Handel, and other early music composer’s but I would not have the same approach to altering articulation in Beethoven, Brahms, etc.
Building resonance is, of course, important, but is a long-term vocal goal --- focusing on consonants gets much better results in solving balance problems more quickly.
I will typically make certain sections more staccato or accented as the situation requires
Have chorus sing in a much more detached style than normal.
On occasion, I have asked certain members of the choir to add a “d” onto individual notes in melismatic passages (to add an element of articulation). I don’t ask the entire choir to do this, only about 1/4 of the singers at most.
Usually the timing of the consonants - both initial and final makes a huge difference.

shadow vowels
I think the whole notion of “diction” often results in performances that have poor choral sound and that all the work applied to clarity isn’t nearly as effective as one would hope. The exception to that is when consonants end a phrase, and then my goal is “together” but never louder nor more explosive. There are rare times when the music seems to require a greater emphasis on clear diction, in a louder, more percussive type of piece, but those are rare, and not really as choral as most works.
Emphasizing phrasing with the choir. When the choir phrases as a lyrical melody, the most important parts tend to come through more clearly.
Having the chorus “beat” the orchestra by exploding the consonant before the beat as a soloist would.
marcato-style singing can cut through better when appropriate, particularly Baroque music; softer soft singing, so that loud singing creates a more dramatic contrast
Pronunciation altering i.e. Germanic Latin instead of classic Latin.
absolute clarity of consonants (not exaggerated or exploded) but precisely TOGETHER and clear
In general, getting the choir to buy into - and master- the concept of “the consonant should be the same dynamic as the vowel”. The issues a conductor has to confront diminish considerably when the choir truly incorporates this. More to the point, it is really a primary concern that text is split up by vowels and consonants and the vocalists have independent control over each.
It is exactly what singers must do in song literature, the only difference being that most really skilled pianists solve the problem for the singers by playing a bit behind when needed. Orchestras cannot do this. So the solution lies on the shoulders of the chorus (and its conductor).
actually reiterating a melismatic line of vowels with a consonant (“I” or “n”)
using Madeline Marshall “schwa” sounds after consonants (“Duh” at the end of “God”) and adding consonants in fast melismatic Baroque passages
Consonants are helpful, but only to a limited extent since vowels carry the tone. I often say “use the consonants to propel the tone forward,” a quote from a former voice teacher, Costanza Cuccaro. Consonants are very helpful in creating a more forward, resonant tone in amateur as well as trained singers. Such a tone is typically richer in upper partials, which most orchestral instruments lack. Therefore, this kind of singing helps all singers, including choirs, to be heard over orchestras. (It’s also vocally healthy!).
I think the most beneficial aspect of allowing the choir to be heard is the presentation of text. The correction of this issue resides in the understanding that the presentation of text, specifically consonants, must be different when working with an orchestra than when working with an a cappella choral ensemble. The diction techniques of Robert Shaw are a fantastic tool when presenting a combined work.
I would say that percussion and precision of consonants go a long ways in creating a proper balance between chorus and orchestra. Consonants are one of the main means by which we achieve this. I’m a graduate of Westminster Choir College and watch Joseph Flummerfelt prepare us more than 20 times for works with major orchestras. Sometimes a legato line needs to be less legato in a given situation to have the right presence. It isn’t an issue of volume that makes a choir heard.
I find that choruses singing with orchestras generally do not articulate clearly; they need to be less legato (not with less line), and ‘on top of the beat’ with vowels opening on the beat and consonants immediately preceding the beat.
Articulation - not only exaggerated consonant sounds, but working to make sure that the onset of every voice is simultaneous. Also, they should work for making the vowel sound ON the beat and any initial consonant sounds timed so they slightly precede the “on-the-beat vowel.”
Placement of consonants more forward; having some singers do non voiced consonants in place of voice. e.g., have half the choir sing a k instead of a g, “Kloria” instead of gloria
The singers must know how to make use of articulations of strong/weak, short/long, and differences in “stroke” in the ways that a string player does - detache, martellato, sostenuto, etc.

Incisive attacks that occur well before the beat with consonants so that they can punch through the orchestral texture.

Category II: Techniques for Building Vocal Resonance

How about teaching the choir to sing with a free, open, full sound?
It mostly has to do with vocal placement.
My experience has been that, even with a relatively small chorus, a clear resonant sound is the best help for achieving good choral/orchestral balance. A chorus with a breathy vocal production will seldom balance an orchestra. When attention is given to a clear, resonant vocal production chances for proper balance are greatly improved. I would go so far to say that it is the foundation for choral/orchestral balance. This type of good, vocal production also seems to naturally encourage singers toward great clarity in articulating consonants.
Coach your singers in open throat/vowel singing for a bigger sound.
bright forward tonal color supported by constantly moving breath articulated by energetic consonants
Ask the chorus to sing BRIGHTER vowels. The survey talks about “resonance,” which usually implies some kind of depth or roundness in the tone. In terms of carrying over an orchestra, BRIGHT sounds -- placed very forward in the mask and even sometimes approaching non-beauty, carry better.
I teach the chorus to sing on each vowel sound as long as possible on the value of each note, with consonants front at the tip of the tongue and articulated together at the precise time without projecting the consonant into the preceding vowel. Thus the singers do not interfere with their own resonance, nor do they tire during rehearsal or performance of long, demanding works.
I cannot emphasize enough the great value of getting everyone to present their best and most beautiful sound. Loud and soft hasn’t as much to do with the balance as good ensemble playing and singing. It is the work of everyone involved to achieve this. I work on training my choir in a cappella singing so that they become more sensitive and I use my orchestral musicians in small groups to build their ensemble skills. These have been quite effective for me.
good production support and good intonation
Sometimes vowel color (placement) can also help. e.g., a brighter color will carry over the orchestra better than a darker color (even though I prefer a darker color in general for my chorus)
Singers should be trained from the first rehearsal to sing on the breath with good resonance so that their sound will carry.
Asking the singers to imagine that they ‘shoot’ each tone to the back wall as if fired from a cannon. Asking singers to brighten the vowels and/or mix in a lower register than typical.
A psycho-imagery thing: simply having the choir aim its sound up and over the orchestra to some point in the hall (an entrance door, an exit sign, a balcony, etc.) seems always to work wonders. I think this is so because, regardless of the vocal training of the choir, it taps into a very natural ability learned from very young to project the voice where we intend it to be heard. simple, I know, but it works!
Adding brightness to a crescendo, especially at the end of a piece.
make sure the chorus understands vowel modification and vocal ring
Completely consistent and open vowel sounds -- particularly the “ah” vowel. When it is free, there is no other vowel that carries as well. Frequently when the sopranos are singing high and not singing an “ah” vowel, I will change their vowel to “ah” so that it will project better. The rest of the choir sings the proper text so that the text is intelligible. Likewise with low basses, I will change their vowel to “ee” -- one of the brightest -- so that as much of their pitch and timbre is heard. Again, the rest of the choir delivers the text intelligibly.

Really focusing on getting the singers to sing into their frontal resonance (aka 'mask') so that they are singing on the breath with pleasant bel canto sound, not forcing or trying to shout through the orchestra

I've always thought that the easiest way to increase the size of a choir is to increase the size of each individual vocal instrument. Too many singers make inadequate use of resonators. Even if the vocal production is clear, the overall sound can be comparatively small because of limited use of oral space. Simply increasing this space will enhance the sound considerably, increasing its "size" without raising the dynamic level. Slightly protruding the lips adds space to the oral cavity on all vowels. With many choirs, vowel production is simply too casual, with little attention given to this use of oral space.

Category III: Techniques of Stage Arrangement

At times I have put the brass in the middle of the choir, dividing the choir in half. This allows the choir to project past the brass section

Many Mozart-period performances had the choir divided on either side of the orchestra

Also, physical elevation of the chorus is particularly helpful. The voice is a rather directional instrument.

Positioning the orchestral sections to best advantage given the particular acoustics of the performance space.

I would love to have the time (and courage) to get the chorus somewhere else besides behind the orchestra. It would require a lot of "production" time, experimentation and, ultimately, cost but how about the orchestra up on platforms behind the chorus (on the floor). Or the chorus interspersed in some way around the orchestra? Given that I have typically only two/ three rehearsals with both groups, I would never have the time to figure out if a newer approach would work. (And orchestras tend to be very set in their ways -- I can imagine how the violas would react to having a bunch of tenors about them). Just some thoughts.....

Place chorus nearer the front of the stage on either side of the orchestra- use separate shell pieces for chorus

In our usual performance area, physical separation of the chorus from the orchestra helps greatly. I seat the orchestra 25 feet in front of the choir, and usually on a lower level. This makes a huge positive difference for choir, orchestra, and for the audience.

I have found that the single most effective way to balance choral and orchestral forces is to place the chorus, seated, in front of the orchestra. All of the balance problems disappear. I have done this to great effect with a number of pieces, from Brahms' REQUIEM to Dvorak's STABAT MATER.

put the singers above, to the side, or in front of orchestra if at all possible

My choir sings in a divided chancel. In singing with instruments, I always have to remind them to turn their bodies to face the congregation, while facing their eyes toward me. The same technique would of course apply to the sides of a chorus in a semicircular formation.

Placing the choir on a raised platform, then on risers, making sure there is no carpeting below the risers, or obstructions above their heads.

Positioning the choir downstage of the orchestra

placement of the instruments - further to the side and facing in toward the center/conductor as opposed to facing more directly to the audience

<p>Configuring the chorus and raising them up are probably the most critical “tricks” that we have learned. Perhaps the best configuration to maximize choral sound is having the men in the middle and the women on each side. If you disperse the chorus into quartets or small groups, you will not maximize the sound, so alas! We rarely can do that, even though that is what the singers prefer. Use 4 rows instead of 3, or even 5 rows instead of 4, to make the chorus deep. Height is then the other most critical factor. You must get the chorus well above the orchestra so their sound can project up and over and out. Do not let any person or object block any of the singers’ vocal production. This means that the first row of the chorus must not be singing into the backs of the brass or percussion players, and the other rows must not be singing into the backs of the row in front of them. RAISE the entire chorus on boxes and risers, and make the back row very high. We have built about 60 black plywood boxes of all types, including 15 “individual boxes” that are either 4 inches or 8 inches high. This way, we have great flexibility to place the chorus and allow every individual voice to sing straight out to the audience without obstruction. For our recent Mozart Requiem concert with 22 players, I had the chorus narrow and deep - 5 rows - with the back rows raised about 10 feet above the orchestra, and the front row at least 4 feet (that means, the floor level upon which the singers were standing, so add 5 or 6 feet of body height to that to imagine how very high the chorus was). It was a bit hard to conduct, and I had to stand about 12 inches high and look down a bit at the orchestra and up at the chorus, but the result was worth it. The choral sound was overwhelming, even while every note of the orchestra was heard also.</p>
<p>being very careful about the seating within the ensemble -- with the right placement of singers in the right places, one can really impact the overall projection and depth of the choral sound</p>
<p>Concerning brass, it’s important that they are pointed into the orchestra rather than out to the audience.</p>
<p>Placement of the sections and even individual singers -- many place stronger singers in back and weaker in front so that the weaker singers are guided by the voices of the stronger singers behind them -- I do just the opposite, by placing the stronger singers more prominently (let’s face it, there are certain people in an unauditioned or community chorus who make little or no sound, or whose sound you would rather not hear in the mix. Placing them in front just obscures the sound of the stronger singers behind them, and puts more space between the sound you wish to have, and the audience). I have also found that elevating the chorus significantly, so that the sound does not get mitigated by the heads or instruments of the instrumentalists, is helpful.</p>
<p>Splitting the chorus in two, separated down the middle, placing brass and percussion behind the chorus opening, and winds between the two parts of chorus, strings in front.</p>
<p>If it is possible, particularly when performing Baroque works, to strategically place your choral sections so they are aligned with the orchestral parts the double them (as if often the case with Bach cantatas, etc) not only does this act as reinforcement for the singers but it helps bring out the sound of each individual part and can effectively eliminate balance issues. For example, if the violins are doubling the sopranos and let’s say the trombones are doubling the tenors while the string bass continuo double the basses - one might set up the choir (if behind the orchestra, from the conductor’s perspective) so that the sopranos are on the far left near the violins, the tenors to right of center so that they are aligned with the trombones, and the basses to the far right so that they are near the string bass players.</p>
<p>Rehearse “in the round” or with the choir standing in front of and facing the orchestra</p>
<p>Make sure the singers are positioned higher than the orchestra</p>
<p>chorus in front of the orchestra solves most problems and is the way it was done until the large choruses of the mid 19th c. It is difficult logistically but well worth the effort.</p>
<p>re-voice chorus so they stand SATBBTAS -- for a “stereo effect”</p>
<p>Make sure that there are significant height differences between rows of choral singers, 14”, so that singers are not singing into the heads of other singers.</p>
<p>moving singers farther apart, providing more space for vocal sound to resonate</p>
<p>Placing the singers in a carefully arranged “scrambled” position, so each singer can hear the other parts and use his/her voice to fullest advantage.</p>

Having brass play into their stands, finding sound absorbing material to place around percussion. placing brass in less dynamically rich locations on stage.
It's all about where they are placed in relation to each other and the audience. Also, the numbers set against each other. Even with unbalanced numbers you can have a better sense of balance with good placement.
Voice matching and placement in the hall to adjust where strong singers can do their best to lead the weaker ones.
Chorus rehearsing around the orchestra in a circle, aids in orchestral listening and balance
The key is to have the chorus above the orchestra
Having the orchestra flat on the floor, with the winds and brass NOT elevated, and the lowest row of the chorus well above the orchestra helps enormously. This is the arrangement in all major concert halls, and it can be duplicated in churches and smaller venues with steps, platforms, and risers.
Increasing the height of the chorus. In other words, placing choral risers on 3' platform behind the orchestra.
In our bi-annual performance of Messiah, I have places the orchestra on the stage left half of the stage with the chorus on the stage right half. They work together and the orchestra has commented that they feel like they are more of one performing group. Soloists are center stage close to the continuo. It is more difficult to conduct, however, because if you have common cue, the parts are not physically together (Ex. Sopranos and 1st violins doubling a line). I still prefer it, however.
We have experimented with the placement of the chorus. In one hall, we brought the chorus downstage on the sides of the orchestra, with the winds and brass far upstage, and that worked rather well. We generally have better results on standing (rather than seated) risers, because the singers are closer to the apron of the stage.
Have brass face sideways to audience and, if necessary, put carpeting under them.

Category IV: The Use of Technology

We have been together as a chorus for 32 years. In the early years, the idea of amplifying the chorus would have been anathema. And in those days, we did not have very good equipment. But we have several electronic geniuses in the group, and over the years they have amassed a lot of expensive mikes, booms and good mixers and amplifiers. ROUTINELY, we use this equipment. If we don't actually need to amplify the chorus, then at the least we use monitor speakers so that the left side of the chorus can perfectly hear the right side and vice versa. Monitors, placed to the front/sides of the chorus, are tremendously helpful. Sometimes, when we have a harpsichord for continuo, we feed the harpsichord into the monitors also, so the chorus can hear absolute pitches instead of the less clear string sounds, sometimes. When we have to sing over a large orchestral force, we definitely amplify and we do it to a very high level, so that audiences rarely are aware that they are hearing an enhanced volume. When we sing with a full professional orchestra of 50 or 60 players, we actually can work it out entirely through amplification, even with our puny 55 voices! The key is to have SINGER/MUSICIANS choose the equipment, place it very carefully, and run the mixer board. The average "sound guy" can wreck a choral/orchestra performance. I never let such a fellow control our sound. I am speaking from a lot of experience!!!!
High quality electronic amplification
Microphones will distort the sound, and should not be used in any work written with acoustic sound in mind.
In a recent concert, I used "clouds" above the performers. This had the nice effect of allowing everyone to hear each other better, and it also caused the choir's sound to project noticeably more strongly.

Sometimes, the use of an expertly- and discreetly-microphoned pit chorus or off-stage chorus is helpful. This requires some ingenuity and technical savvy (use of monitors so hidden chorus can follow the director's conducting gestures) so the additional voices do not overpower the voices that are on stage.
I also use sound shields, particularly if the brass are behind string players.
Add supertitles to the performance. It doesn't actually change the sound, obviously, but it changes the perception of the spoken word.
Baffles ABOVE the chorus directing the sound forward
placement of percussion behind sound screens

Category V: Techniques for Altering the Orchestral Sound

Instrumentalists must understand that playing (accompanying) for a choral organization is different than playing as the primary performer
Sometimes providing the orchestra with a copy of the text/translation can be helpful so that they have a better understanding of the context of the piece. At the same time taking time to inform the choir who is playing at any particular time is also helpful in advance of the orchestra rehearsal.
balancing dynamic markings in both the choral and orchestral parts
reducing the number of orchestra on parts (i.e. stands of strings) will help -- sometimes even just having first stand alone play in softer passages.
Marking dynamic edits in the orchestral parts must be done sensitively and with an acute awareness of where the problems are arising--to the degree that they are caused by the orchestra. Just marking everything down doesn't do anything except flatten the musical idea. Any markings must help the players shape the phrases more coherently--when that is done, most balance problems can be solved. Then again, the orchestra is usually not the problem.
Simply asking the orchestra to play more lightly and paying attention to articulation helps enormously. Lighter, shorter notes don't take up so much acoustic real estate.
In my experience, the most important technique has been to modify the dynamics and articulation in the orchestral parts.
cutting out all doublings in the orchestral parts, reducing string count or stands playing in select measures, re-arranging orchestration to meet balance needs of choir,
Have orchestra play dramatically softer than marked, but with the "energy" of indicated dynamics (like playing a loud orchestral passage on a sound system but with the volume turned down).
When playing Baroque or Classical repertoire, remind instrumentalists of the significantly lighter sounds of the original instruments. Performances of this repertoire with original instruments do not have balance issues. Have players try to emulate the early instrument sounds. String players can move their bow holds forward from the frog a bit to facilitate a lighter, more buoyant bowing technique.
Altering dynamics.... to be considered with 'reservations'. In the same way as a soloist's dynamic level of 'piano' is different from a chorister's, so will the dynamic level be adjusted (within limits.... I still like 'real 'pp' - if the orchestra is expert enough to play it beautifully..) for the choir, performing with orchestra.
When choosing your instrumental accompaniment hire individuals rather than an orchestra, then you can limit the number of pieces on the stage.

Assuming, that as a director, you have done a proper job of preparing your singers to sing with an orchestra (diction, NOT over-singing, etc.), a choral conductor must take the unpopular step of educating the instrumentalists as to their role as accompanists - partners with the chorus - players have to understand the human voice and its capabilities - that musicality, (phrasing, tone, etc.) suffers when singers sing just in order to be heard. They must also understand that audiences don't like it when they came to hear choral singing and go away with ears ringing from what they might term 'blasting' from the orchestra.
ALWAYS have the orchestra play at least 1, and usually 2 dynamics softer than printed.
reducing size of orchestra
The orchestra is quite responsive to the notion that their role is to support the text. I make sure that they understand what the chorus is "saying" at all times and help them understand how they can reflect the text. It seems to work best to treat the participants as a single ensemble rather than the orchestra and the chorus.
You can also reduce instrumental forces at times. For example, maybe you leave out the double bass in a passage where the cello is doubling it anyway. Or maybe you only have one horn play the passage where all three are in unison anyway.
Shortening the length of notes in the orchestra or reducing the number of chairs that play during an orchestrally-accompanied section can also help, especially in the lower sounding instruments.
Placing the orchestra on the nave floor of a church, with carpeting underneath the brass.
Carefully addressing the articulations in any instrument playing colla parte so that the instrument matches the articulation of the singers perfectly and precisely
Reducing the size of the orchestra at key spots. For example, during a soft choral section that is supported by full strings, only half of the string group may be used.
Reduce the number of orchestral players for a section of the piece where balance is a problem
Making the players and the singers aware of each other's respective roles and when their part is to be featured or brought out. Also, spending time on the orchestral players articulation so as to sometimes match and other times compliment the singers pronunciation.
only the care taken in selecting the size of the orchestra, appropriate for the type of music being performed and the size of the chorus. In my opinion, it is far better to do a scaled-down orchestration with a smaller chorus, than to allow the larger orchestra overshadow.
Cut back on the numbers of instruments playing if there are balance problems. Adjust dynamics so that the chorus is always a presence in the sound, not something in the background.
Remove or restrict instrumental doubling of voice parts in all but baroque works.
Thinning texture of orchestra for key choral entrances (e.g. just first two desks of strings, etc).
Limiting my orchestral forces (particularly the strings) to a comfortable minimum (taste-dependent), reassigning some deleted instruments (contrabassoon, for example) to bass trombone, especially when budgetary constraints exist, and when replacement instruments are in tacet
I will often ask string players to play "off" the strings to assist balance in sensitive sections
Altering dynamics in orchestra
Letting the orchestra hear the chorus sing various passages without accompaniment in rehearsals so they have some sense of how to shape their part against it and what I would like to have heard
Remove leading parts in the brass and winds that carry the melody, thus allowing the orchestra to be more of a back-up instead of the lead
Long notes in double basses & brass-- ask for quick diminuendos or even fp depending on the context.
Making sure that dynamics, phrasing and articulation in the parts matches that of the text-- especially in baroque & classical music.
Always acquaint the orchestra with the text (the story) and what their role is in presenting that story to the audience. This is especially important in works where "word painting" occurs, e.g. Handel's Messiah.

I simply ask the orchestra to be sure and listen to the choir (and vice-versa) and to work together as one large ensemble. Also, I find that the conductor's gesture is very important. The orchestra will respond to effective gestures that convey quieter playing.
I frequently have the chorus sing passages a cappella, and then ask the orchestra to balance with it. If they cannot hear the chorus, they are probably too loud.
I make lots of dynamic changes to the orchestral parts and reduce the dynamic over the course of longer notes.
I also encourage the orchestra to listen for the chorus, which tends to encourage them to play "under" the voices.
Use smaller string sections - most modern orchestras are FAR too large
I always ask the players to use their excellent ears and listen to the chorus, which helps balances and unification of articulations, etc.
attention to articulation in individual parts to allow for more transparency is important, and asking each section at some point to be aware of their sound in relation to the whole.
Make everyone LISTEN for each other. Especially, have the orchestra listen for the clarity of text.
DON'T be afraid to rewrite parts/modify (or add) dynamics not indicated in score.
Besides improving the sound of the choir, deadening the sound of the orchestra, particularly the loudest instruments, is also part of the equation. In smaller, baroque works, with small orchestras and small choirs, pointing the trumpets sideways and/or deadening their part of the stage with rugs or blankets are methods that have been successful for me.
Sound-deadening treatment near brass players (a layer of foam rubber on the trumpets' music stand, blankets on floor or walls near horn players) -- these are old opera pit tricks that can help sometimes. In proscenium-style auditoriums with chorus behind orchestra, raising the valance curtain at the top of the stage opening can really make a difference, since the shell behind a chorus often directs sound forward rather high.
Sometimes, orchestrations can be evaluated for relatively 'non-essential' parts that can be left out, thus reducing the orchestra's volume.
For me, the best way is to simply ask the orchestra to play softer and balance with the chorus. As a composer, if a chorus part is at forte, I'll typically write for strings and woodwinds at a mezzo-forte, and brass and percussion at a mezzo-piano.
shorten rhythmic values in orchestral parts
The Bach Magnificat, for example, can best be performed with proper balances when using period-instrument orchestras. So can the Haydn "Creation" and the Mozart "Requiem." This is true for a variety of reasons.
in a work like the Mozart Requiem, I tend to eliminate trombones in many sections where the doubling obfuscates the vocal lines.
In first rehearsals, I allow the orchestra to play at their normal dynamics, as it is difficult to play lighter when first reading a piece. With each subsequent rehearsal, I request less and less volume, but try to maintain the energy of louder dynamics ("play this section mezzo piano but with the tone and energy of your normal forte"). I tell the orchestra at the first rehearsal about this plan of gradually lessening their volume as the rehearsals progress.
I give the orchestra the complete text of the work we're performing (some read it, some don't...) I often ask the orchestra to make sure they are playing softly enough that they can hear the words the chorus is singing.
Using historically appropriate instruments for baroque and classical music makes the problems of balance virtually disappear.
Face brass players to stage right and left not directly toward the audience. Sometimes slightly smaller instrumental ensembles.

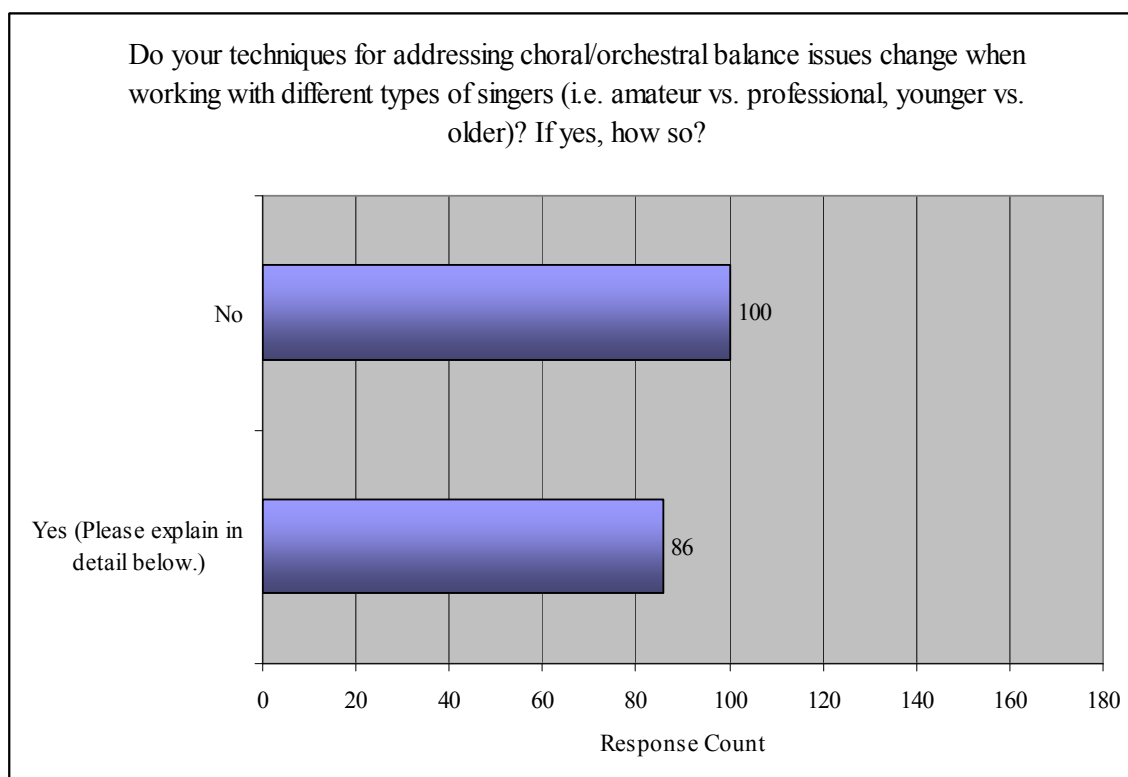
In problem passages, after telling brass and woodwind players precisely which chorus voices they are playing with....insist that THEY (each one, personally) listen for those voices and MONITOR THEMSELVES through the trouble spots. Amazingly, it works for me. Having instrumental musicians 'own' the product they share with the singers....good results.
keep conducting gestures small for orchestra while keeping face and non-baton hand open and expressive for chorus; explain to orchestra that chorus, when singing, assumes the role of first violin section and that first violins and all other sections need to scale dynamic range down accordingly ("leave the chorus some head-room");
Reduce the number of stands of string players at light choral moments.
Above all, however, I still believe that if you have an orchestra that trusts and respects your work, you can get them to do anything.
It is imperative that the members of the orchestra know what the sound of the text is and what the meaning of the text is and what the rhetorical gestures in the music are. If they only go about the business of trying to "accompany" the singers, the result will never be satisfactory.
Put rugs/carpet squares under the brass instruments and towels on music stands
Hiring a period-instrument orchestra for a performance of Messiah. Good Baroque players don't sustain everything they play.
Reducing coverage of sectional parts in the performance of a work, i.e., fewer brass, woodwinds, strings, use of mutes,
Have chorus sing a section a cappella for the orchestra, then have orchestra join them and imitate the word stress of the chorus. Since singers naturally (and with great encouragement, at times) allow text stress to shape the phrases, the weaker syllables are easily buried by the instruments that do not have the benefit of text to guide their dynamic interpretation. This method also reminds the orchestra that there are other things going on and encourages listening to the chorus.
You have to have good players who can play softly with integrity
Communicating to musicians which musical material is primary, and what is secondary.
limit the size of the string section
use professional players and singers as much as possible, so the professional singers can increase the sound of the chorus, and the professional players can play quietly with beauty.
In Baroque pieces, using C trumpets instead of Bb; asking orchestra to play one dynamic degree lower than written in parts; asking some strings not to play at critically quiet sections or anywhere except passages of orchestra only or tutti.
Two things: 1. Trumpets: I find that trumpets with conical bores are much easier to balance with the choir than those that are non-conical. The trumpet players also seem to enjoy playing on conical instruments more in this context as well; they can "play out" much more without fear of over-balancing the choir. 2. Strings: Having them play closer to the fingerboard, even over it a bit, creates a more silvery sound with less body. This seems most appropriate for pre-Romantic music.
review the instruments called for, and reduce the forces if practical
The size of the string sections in the orchestra can also be trimmed to match the number in the chorus - it is not necessary to have 10-10-8-4-4 when there is only a chorus of 50. It may not even be necessary with a chorus of 100...

Category VI: Other Approaches

I ask choirs to focus on rhythm and articulation, and ensemble rather than volume. Exaggerated consonants take away from the aesthetic I find. Working on dynamic and articulation, creating a clearer texture is the best way.
Encouraging singers to NOT try to sing over the orchestra, but to sing together well in their section works best for me.
If the chorus sings in tune, the sound projects beautifully.
Increasing rhythmic ensemble in the chorus.
Some problems are due to the relative number of singers to the number of orchestral instruments used.
Knowing how to balance the forces at hand both orchestra and chorus begins with using the right number of musicians for a given work. I suppose this grows out of experience working with specific groups. It is much easier to achieve balance, without asking for miracles from either the orchestra or chorus, when forces are sonically (not necessarily numerically) equal.
choosing the right size of forces for the particular work
Much of what is required to be successful in the issue of balance is to avoid choosing works where the choir is not up to the task of balance, either because of too small numbers or too many small or unskilled/untrained voices.
Simply be deliberate about programming to the strengths of both ensembles. We cannot expect a choir of 50 to balance with an orchestra on Beethoven's 5th Symphony. As conductors, we must not let our desire to program a certain piece outweigh the quality with which our ensembles will present the work.
Make sure the choir is tuning to the orchestra; if they're not listening, their power will be undermined.
When possible, increase the size of the choir.
One obvious thing is to always have an assistant standing in the hall during rehearsal to check for balance.
The most important things are either 1) prepare and conduct the work yourself, or 2) be able to work with a simpatico orchestral director who understands the inherent problems.
Working with a conductor who understands/comes from the singers' perspective; this shows itself in placement of choir in relationship to orchestra, awareness of dynamics with which orchestra must play to help balance...things like that.
Increasing the number of singers for various works to "balance" the required orchestral component.
As a conductor / director you must teach and cultivate proper vocal / choral technique and know what orchestral forces you will need for the work at hand. When the preliminaries are done properly you will not run into a balance problem that requires more than the usual tweaks to achieve a good performance.
For very soft sections, e.g., final Requiem in Verdi, direct the sound to the floor or inward. Have the singers turn slightly towards the center of the choir or have them tilt their heads down. Brass play into the floor ...
Encourage the fact that the choir and the orchestra are one ensemble performing in support of each other, not the usual "orchestra vs. choir"
Schedule several rehearsals together so that a unified comfort level is established
It is really the conductor's responsibility to bring these two groups together to "perform as one." Treat them as a community of musicians who appreciate each other's efforts.
Get the right numbers for balance. 20 volunteer singers = 3 student violinists; 6-8 professional singers = 1 professional trombonist, etc.
Get your Assistant to conduct at least 1/2 of a full rehearsal with orchestra. This allows YOU to listen and only makes the group better.
It is most important to have a set of 'ears' in the hall. There is NO way to check the correct balance from the stage.

Trying to spend enough time with both singers and players helping everyone understand the nature and notion of the piece, increasing their sensitivity to issues of balance and color.
have chorus and orchestra individually sing/play for each other so they can hear each other
And of course, one must always prepare using the orchestra score to avoid balance problems
Refuse to give up. Many conductors simply seem to accept poor balance because it takes a lot of convincing to get the orchestra to lighten up sufficiently. Balance is absolutely critical and must be continually considered.
I find singers are more likely to sing with fuller sound and attentive diction when they make some emotional connection to the meaning and wording of the text. To bring an emotional component to the actual sound (and its production) gives greater likelihood of effective projection of both the emotion AND the text which inspires it.
I try to insure a 3-1 ratio balance with any orchestra, i.e., 3 singers to every 1 orchestra player.
The chorus needs to know that singing piano with an orchestra is different than singing piano in an acappella piece of music. This can lead to everyone singing at one volume if not carefully monitored.
Again, it is mainly an issue of good analysis and decision making. Understand the orchestral forces required and what the choral forces will be. Understand the hall. Then, make rep selections that make sense. Really, choosing the right rep (or the correct version...say which version of the Faure Requiem to use) is the key to this issue (in my opinion). Additionally, "balance" is relative. I view the score as one entity, not two. I do not need to hear the choir over the orchestra. It is one of the colors in the overall sound. No more important than any other.
Seeing the whole ensemble as an ensemble, not just the orchestra accompanying the choral stars, can also help.
Make sure that the choristers don't have their face buried in the score.
just common sense to pick the right music and adjust the size of the orchestra
I try to never make balance/blend the ONLY focuses of my work I love the sound of voices and voices singing in ensemble...orchestras deserve to learn from those sounds when they are beautifully produced, etc. I HATE the us/them syndrome that is often fostered by BOTH choral and orchestral conductors...what a waste of time, and an obvious show of huge insecurity. My observation is that when a conductor has nothing to discuss besides balance and blend, there is little or no music making happening...what about the meaning of sound - vocal and orchestral - what about the meaning of the text - again, vocal and orchestral. thanks for asking!
A conductor who has a very deep and detailed understanding of every aspect of the score can make a huge positive difference. The more every performer (singer and orchestra players) understands his/her role in the context of the work as a whole, the better the final result will be.

Table 5.16. Question 15 Data Summary

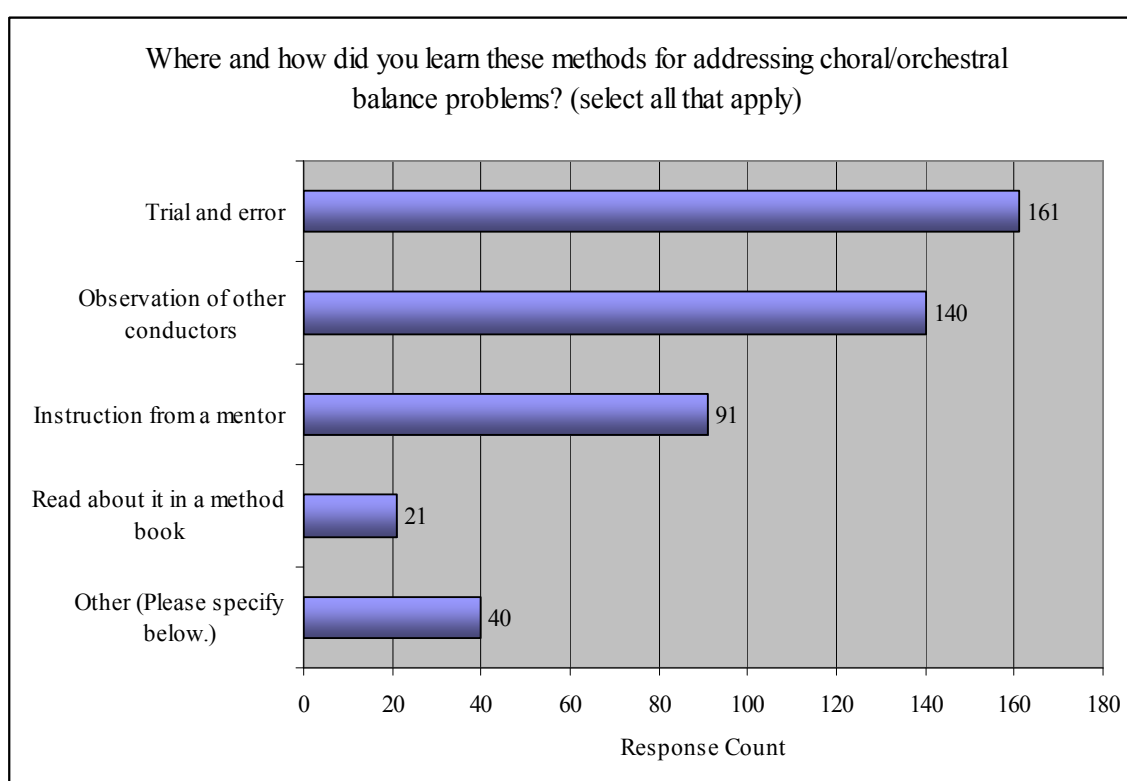


Question 15 Comments

Although a slightly higher number of respondents indicated that their techniques did not differ when working with different types of singers, there were a number of interesting explanations by respondents who said their techniques differed. Most respondents indicated that they experienced more choral/orchestral balance problems when working with younger and more amateur singers. According to the respondents, professional singers seem to adjust more quickly to singing with an orchestra than do amateurs, and that amateur singers need far more reminding. One respondent also added that professionals tend to have their heads up out of the score more frequently, thus allowing their voices to project more clearly.

The respondents emphasized that, particularly for younger voices, choosing appropriate repertoire and, in many cases, utilizing smaller orchestras were essential. Others said that while their technique was the same, the language used to convey those techniques was different.

Table 5.17. Question 16 Data Summary



Question 16 Comments

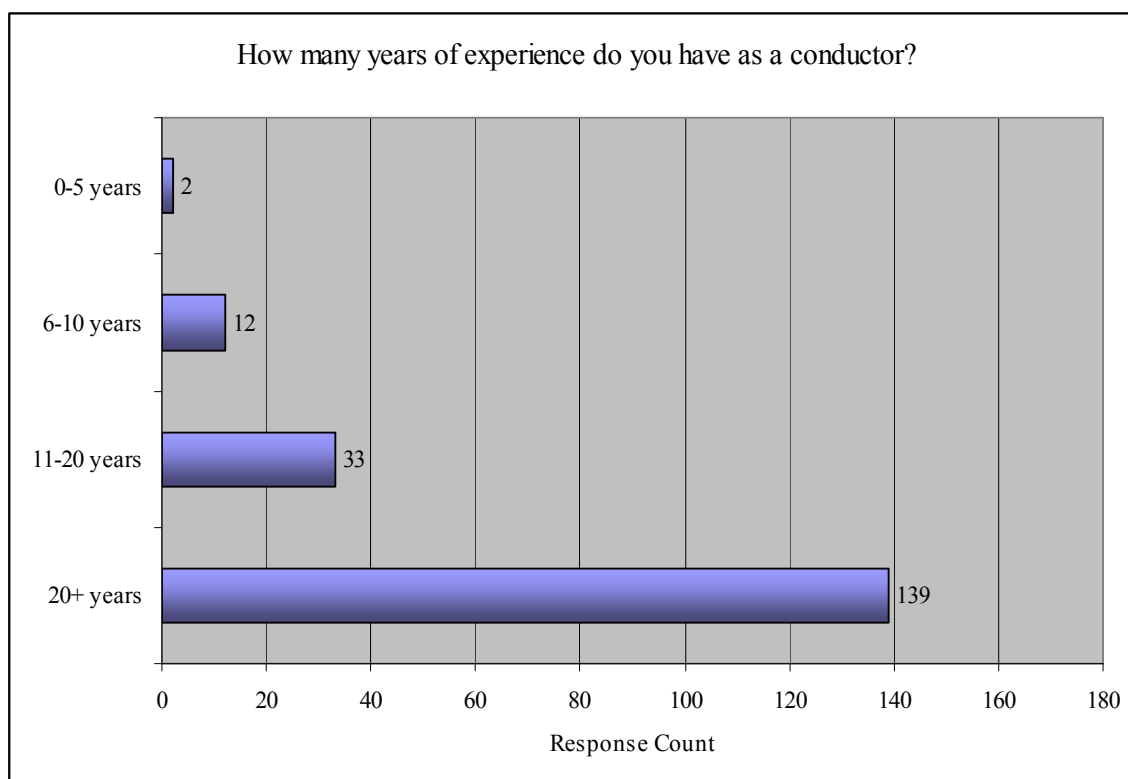
Several respondents who selected “Other” attributed their knowledge of balancing techniques to “experience,” distinguishing it from the “Trial and error” option. Others used the opportunity to provide more specific information, such as specific mentor conductors from whom they learned. The fact that so few respondents chose “Read about

it in a method book” supports a primary tenet of this document that there is little writing on the subject of choral/orchestral balance. There is the possibility, however, that what has been written on the subject was not known by the respondents or does not resonate with conductors of today.

Professional Experience of Respondents

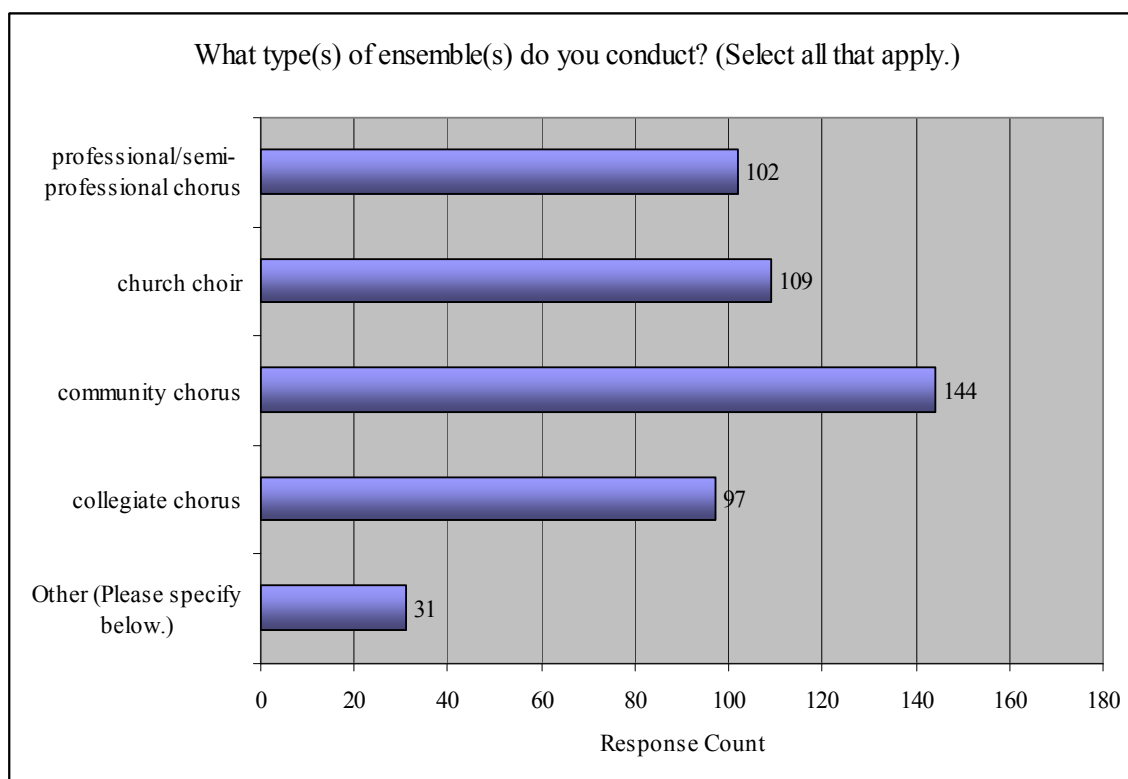
Questions 17 through 19 constituted the sixth and final section of the survey. Questions 17 established the experience level of the respondents, and Question 18 served to ascertain the types of ensembles the respondents conduct. Question 19 was simply a request for respondent contact information if follow-up correspondence was deemed necessary. To protect the anonymity of the respondents, the responses to Question 19 are not included in this document.

Table 5.18. Question 17 Data Summary

*Question 17 Comments*

The fact that 139 of the respondents (over 85 percent) indicated that they have twenty or more years of conducting experience strengthens the validity of the answers provided in the survey.

Table 5.19. Question 18 Data Summary



Question 18 Comments

Since many of the respondents conduct more than one type of ensemble, this question allowed multiple answers. Of the 31 respondents who selected “Other,” some added that they conducted high school and children’s choirs. Others chose to be more specific and use terms like “symphony chorus” to describe their ensembles. Since the question did not specify choral ensembles, some respondents listed other instrumental ensembles that they conduct.

CHAPTER VI

SUMMARY AND CONCLUSION

A number of significant changes occurred during the nineteenth century that affected the acoustic balance of chorus and orchestra. Attitudes towards instrumental music transformed, and instrumental music gradually became an equal with vocal music genres that had been considered superior for several hundred years. As a result, the size of the orchestra increased greatly during the nineteenth century, both through the enlargement of existing sections and the addition and standardization of new instruments to the orchestral texture. A number of technological advances resulted in instruments that were capable of fuller and brighter sounds than their earlier counterparts had been. Finally, during an era when choral singing was becoming an increasingly amateur activity, professionalism in the orchestra was on the rise. Therefore, even though both choral and orchestral organizations were growing in size, the new amateur members of the chorus were less capable of projecting sound than their professional counterparts in the orchestra.

All of these changing circumstances during the nineteenth century resulted in a need for solutions to choral/orchestral acoustic imbalances. One can view both the numerical growth in choral societies as well as the scientific developments in voice science as responses to these imbalances. One nineteenth-century solution differs from those utilized currently: as conductors sought to address these balance problems, they often placed the chorus in front of the orchestra on stage, closest to the audience. Another

nineteenth-century solution that present-day audiences might find more familiar involves the vertical configuration of singers. In some cases, conductors had the choristers in the front rows sing from a seated position to insure the voices in the back rows could project more effectively over the heads of the choristers in front of them. In other cases, performances were given on more steeply-tiered stages than is common now (as in the 1834 Handel Festival performance), allowing the voices to project more easily. Finally, the development of the baton-conductor during the nineteenth century may be viewed as a “solution” for the choral/orchestral balance problems that developed during that era.

As conductors of the twenty-first century seek to address acoustic imbalances between choral and instrumental performing forces, this glance back to the nineteenth century offers not only insights into the origins of these imbalances, but particularly in the case of the chorus-in-front-of-orchestra arrangement, presents conductors with a possible solution that might have seemed ludicrous previously.

During the first half of the twentieth century, the performance of combined choral/orchestral works was limited as a trend of strict *a cappella* choral singing came into fashion. Because many conductors from this time period were not regularly preparing choral/orchestral repertoire for concerts, their skills in addressing choral/orchestral balance problems became less refined. As a new generation of conductors emerged around the middle of the twentieth century and began programming more choral/orchestral works, they rediscovered some of the same balance issues experienced by nineteenth-century musicians. Since monetary and spatial considerations

had repositioned the chorus behind the orchestra on stage by this time, conductors needed a new structured methodology for correcting choral/orchestral balance problems.

Selected resources published during the latter half of the twentieth century offer possible solutions to choral/orchestral balance problems. For instance, some scholars prescribe exaggerated enunciation for the choristers as a solution, while others maintain that developing vocal resonance in the singers through the enhancement of the singer's formant is the key to projection of the choral sound over an orchestra. Another popular technique involves the addition of voices to the chorus, whether it be through adding extra "ringers" or utilizing "travelers" from within the existing ensemble. Other scholars prefer to address problems in the orchestra to correct choral/orchestral imbalances. A few authors have experimentally returned to nineteenth-century stage configurations with some success, and still others have taken an acoustic approach through studies of sound propagation. This document compiles these multifarious approaches to provide conductors with a comprehensive resource for addressing choral/orchestral imbalances.

The survey conducted as part of this study yielded a number of insights on choral/orchestral balance problems, many of which are captured in writing for the first time herein. Respondents to the survey are conductors who work (or have worked) regularly in the choral/orchestral medium during their careers. Through experience, these conductors have discovered explanations for the balance problems they face between chorus and orchestra, as well as several unique, practical ideas for addressing these balance problems.

Several questions in the survey served to discover the reasons that balance problems occur between choral and orchestral performing forces. Most respondents experienced balance problems at least occasionally during performances they conduct and performances they attend as an audience member. They attributed balance problems to a variety of reasons: the loudness of the orchestra, the relative position of the two ensembles, the acoustics of the performance space, poor choral diction, and a lack of vocal resonance in the choristers' voices. Most respondents indicated that brass instruments are the most difficult to balance with a chorus, but respondents expressed concern that percussion instruments tend to overpower singers as well. Most agreed that the language being sung is not a factor in balance. Of those who felt language was a factor, however, a slight majority found French troublesome, both because of the language's inherent fluidity and because of American choral singers' lack of comfort executing French pronunciation resulting in more timid singing. Regarding which consonant sounds were more easily projected over an orchestra, the results are inconclusive. Generally speaking, however, the survey data suggested that unvoiced consonants project more readily than their voiced equivalents. The sound [u] is a more difficult vowel to project than [a], [ε], [i], and [ɔ] according to the survey results. A study of the formant frequency ranges for each of these vowels corroborates the results since the first two formant frequencies for [u] are lower than those of the other four vowels and would more easily be masked by the orchestra. The respondents gravitated toward the Requiems of Verdi and Brahms and Orff's *Carmina Burana* as difficult choral/orchestral works to balance acoustically. One must not assume, however, that

these three works are more difficult to balance than others. The fact that they were named more often may reflect the current popularity of these works and the frequency they are performed.

The various solutions to choral/orchestral balance problems given by the survey respondents fall into six categories (with some inevitable overlap) as follows:

- I. Techniques for Improving Diction/Text Articulation
- II. Techniques for Building Vocal Resonance/Re-Voicing Techniques
- III. Techniques of Stage Arrangement
- IV. The Use of Technology
- V. Techniques for Altering the Orchestral Sound
- VI. Other Approaches

The most common solutions in **Category I** were:

- Because unvoiced consonants generally project more easily than their voiced equivalents, substitute voiced consonants with unvoiced equivalents. For example, the word “gloria” should begin with [k] instead of [g].
- Choral pronunciation of consonants must be executed precisely together, and the consonants must occur slightly ahead of the beat so that they are isolated from instrumental attacks.
- Use more detached/separated/marcato singing.
- Add “shadow vowels” after consonants.
- In the sustained melismatic passages typical of the Baroque, add an intermediate consonant sound to articulate the melisma. For example, “e - le - - - - - i - son” becomes “e - le de de de de de de de de de - i - son.” It is often only necessary to

have a portion of the singers to articulate this way while the others articulate without the intermediate consonant sound.

The most common solutions in **Category II** were:

- Encourage brighter vowels and tone color, even to the point of approaching non-beauty. Vowels that our ears recognize as “brighter” are rich in higher-frequency formants and carry more acoustic energy.
- Encourage an open-throat, full, non-breathy sound from choristers.

The most common solutions in **Category III** were:

- If the chorus is positioned behind the orchestra on stage, elevate the chorus significantly above the level of the orchestra. The heads of the front row singers should be well above the orchestra level, and the heads of singers in each successive row should be elevated above those of the row before.
- Generally speaking, bring the chorus as far forward on stage as possible. The practicality of doing this will vary in each performance venue.
- Face instrumentalists inward toward the conductor instead of toward the audience. Because this may give the conductor a false sense of balance in favor of the orchestra, employ an assistant to listen from the audience’s perspective during rehearsal.
- Spread singers further apart to allow more space for each individual voice to resonate. One respondent suggested allowing for a one-person width between each singer.

The most common solutions in **Category IV** were:

- The floor surface underneath the singers should be hard and without carpet.
- Surround brass and percussion instruments with sound absorbing materials. This might entail placing carpet squares or blankets on the floor, covering music stands with thin foam rubber or blankets, and utilizing engineered sound shields.
- Utilize baffles or “clouds” above the chorus.
- In proscenium-style auditoriums, raise the valance curtain.
- A small number of respondents recommended using electronic amplification, with the caveat that this approach must only be taken when experienced, professional sound technicians are available.
- In addition, one respondent suggested utilizing super titles for the benefit of the audience during the performance. While they do not affect balance, they may positively affect the audience’s perception of the text being sung.

The most common solutions in **Category V** were:

- Provide a copy of the text and/or translation for the instrumentalists.
- During rehearsal, give the orchestra an opportunity to hear the chorus *a cappella* on a certain section, and then let them play.
- Encourage lighter, shorter notes from the orchestra, which take up less “acoustic real estate.”
- Cut doublings where possible, and reduce the stands of strings in certain passages where possible.

- Use period instruments if possible, or ask the players to emulate period instruments. Utilize trumpets with conical bores and ask the strings to play closer to the fingerboard.

The most common solutions in **Category VI** were:

- Take a preemptive approach to balance by making sound repertoire choices. Know your ensemble and do not allow your personal desire to perform a particular choral/orchestral work outweigh
- Utilize an assistant or student to either listen out in the hall during rehearsal or periodically conduct from the podium so that you can listen from the hall.
- Encourage the choristers to have their faces up out of the score as often as possible.

Upon examination of the survey results, two key themes emerge as conductors related their expertise. One recurring theme is that despite what one might think, it is not necessarily more volume that allows an audience to hear the chorus over the orchestra. Rather, the key is to have the chorus make sound where the orchestra is not making sound. Conductors can accomplish this from a temporal perspective; that is, by timing the onset of certain consonants so that they are slightly ahead of instrumental onsets. Thus, at that instant the chorus is not facing as much “competition” from the instruments. Others may “make sound where the orchestra is not” by training singers to access aural frequency ranges not being utilized by the orchestra. Imagine the propagation of sound from the stage to the audience as liquid flowing through several pipes. Each pipe

represents a different aural frequency range. Attempting to force all of the liquid through one of the pipes will prove futile. By sending different portions of the liquid through various pipes, however, the conductor has a better chance of getting all of it to the audience simultaneously. Thus, achieving a brighter, more resonant choral sound that makes use of sound energy at a much higher frequency range is more effective in projection than the simple addition of volume.

The other recurring theme from the survey results is that a preemptive approach to solving balance problems is best. In other words, acoustic imbalances between chorus and orchestra can best be addressed before the first rehearsal through the choice of repertoire. Conductors must know the capabilities of their ensembles, know the performance hall(s) in which they will sing, and have a thorough knowledge of the repertoire. Choose repertoire based on these considerations instead of choosing a work that you've always wanted to conduct and hoping the performing forces available will be able to rise to the challenge.

As evidence presented herein has suggested, the acoustic balance between combined choral/orchestral performing forces is, indeed, an issue with which present-day conductors grapple. Endeavoring to better themselves as professionals, conductors must achieve both a deeper understanding of the origins of balance problems and awareness that these problems are multifaceted beyond the effectiveness of a simple "orchestra-softer, chorus-louder" approach. By examining evidence from both the past and the present, this study sheds new light on an old problem.

Although this research has yielded new solutions to the problems of acoustic balance between chorus and orchestra, there are a number of possible avenues for further study on this topic. Since the conductors who participated in this survey would, for the most part, consider themselves “choral” conductors, a similar survey that posed questions to conductors who are primarily “orchestral” may yield further insights, particularly with regard to methods for balance within the orchestra and how those methods might be applied to a choral/orchestral situation. Another avenue of research might be a closer examination of choral/orchestral balance from a psychoacoustic perspective. What phenomena within the human ear and brain distinguish between a performance that is balanced and one that is not? Finally, as mankind becomes increasingly dependent on technology, what will choral/orchestral performances of the future look and sound like? As the sophistication of electronic amplification continues to develop, will the practice of using microphones to assist with balance become more widely accepted in this type of performance venue? As the twenty-first century continues, answers to these questions will have profound implications on the performance of choral/orchestral works of the last four hundred years.

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APPENDIX A
SURVEY INVITATIONS

Initial Invitation

Subject: Dissertation Survey – Choral/Orchestral Balance

PLEASE NOTE: This message is intended for [FirstName] [LastName], conductor of the [NameOfEnsemble]. If this email address is not monitored by [FirstName], I would appreciate it if you would forward it.

Dear [FirstName]:

Greetings! I am currently engaged in a research study aimed at discovering more about the acoustic balancing of choral and orchestral forces during combined performances. My research involves a web survey, and your input will be extremely valuable to the outcome of this study.

Please follow this link: <http://www.surveymonkey.com/s.aspx> to begin the survey. It should take no longer than 15 minutes to complete this survey. The deadline for responses is Thursday, October 30, 2008.

As a choral conductor myself, I know of and respect your valuable time. It is only with your assistance, however, that I might complete this study in hopes of providing updated information on the subject of choral/orchestral balance.

Please note that my published study will not reveal your name or the name of your organization. Your responses will be kept in confidence.

If you have any questions, or wish to receive a copy of the completed study, please contact me at kjturner@uncg.edu.

Thank you,
Kelly J. Turner
DMA Candidate
University of North Carolina at Greensboro

To opt out of this survey, click here: <http://www.surveymonkey.com/optout.aspx>

Follow-Up Invitation

Subject: Choral/Orchestral Balance Survey (One Week Reminder)

PLEASE NOTE: This message is intended for [FirstName] [LastName], conductor of the [NameOfEnsemble]. If this email address is not monitored by [FirstName], I would appreciate it if you would forward it.

Dear [FirstName]:

I am writing to follow up on a survey invitation that was emailed to you last week. The survey will end in about a week, and I would greatly appreciate your help with my research.

Click here to take the survey: <http://www.surveymonkey.com/s.aspx>

Click here to opt out: <http://www.surveymonkey.com/optout.aspx>

It should take no longer than 15 minutes to complete. The deadline for responses is Thursday, October 30, 2008. If you have any questions, or wish to receive a copy of the completed study, please contact me at kjturner@uncg.edu.

Thank you,
Kelly J. Turner
DMA Candidate
University of North Carolina at Greensboro

APPENDIX B
CONSENT FORM

The purpose of this research study will be to compile solutions to the problem of acoustic balance between chorus and orchestra during the performance of combined choral/orchestral works. Participation in this research study is voluntary, and you may withdraw your consent to participate at any time. There are no anticipated risks from participating in this research study and there are no direct benefits to you. Responses will be kept in strict confidence and at no time will your name or contact information be connected to responses given in this survey unless you provide this information voluntarily.

This study has been reviewed and received clearance through the Institutional Review Board at the University of North Carolina at Greensboro. Questions or concerns regarding the risks related to this study should be directed to Eric Allen, Director of the Office of Research Compliance at eric_allen@uncg.edu or 336-256-1482. Please contact Dr. Welborn Young at weyoung@uncg.edu or 336-334-5493 or Mr. Kelly Turner at kjturner@uncg.edu or 336-655-8798 if you have any questions regarding this survey or research project. Respondents may request a copy of the summary results by contacting Mr. Turner.

It will take approximately 15 minutes to complete the following survey. Your voluntary participation in this survey is greatly appreciated.

Please print this information for your records.

To begin the survey, click “Next” below.

APPENDIX C
SURVEY QUESTIONS

1. How frequently do you prepare choruses to sing with an orchestra?

- A. Never
- B. Once per year
- C. 2-4 times per year
- D. 5 or more times per year

2. How frequently do you conduct choral/orchestral works in performance?

- A. Never
- B. Once per year
- C. 2-4 times per year
- D. 5 or more times per year

3. In preparing for a choral/orchestral performance, how many combined rehearsals (with both chorus and orchestra) do you typically have?

- A. 0
- B. 1-2
- C. 3-4
- D. 5+

4. In preparing for a choral/orchestral performance, how many combined rehearsals do you typically have in the actual performance space?

- A. 0
- B. 1-2
- C. 3-4
- D. 5+

5. In your own conducting, how often have you found the balance between choral and orchestral forces to be a problem?

- A. Never
- B. Occasionally
- C. Frequently
- D. All of the time

6. In attending concerts of choral/orchestral works, how often have you noticed choral/orchestral balance affecting the quality of the performance?

- A. Never
- B. Occasionally
- C. Frequently
- D. All of the time

7. In your opinion, what factors contribute most to the balance problems you experience? (Select all that apply.)

- A. poor choral diction
- B. lack of vocal resonance
- C. orchestra plays too loud
- D. acoustics of the performance space
- E. relative position of chorus and orchestra on stage
- F. Other (Please specify below.)

8. Have you found particular instruments or instrument families to be problematic when it comes to balance? If so, which ones?

- A. No
- B. Yes (Please specify which instruments or instrument families below.)

9. Have you found that choral singing in particular languages lends itself to balance problems? If so, which languages?

- A. No
- B. Yes (Please specify which languages below.)

10. In your experience, which consonant sounds are most difficult for the chorus to project over the sound of the orchestra? (Select all that apply.)

- | | | |
|----------------------------------|-----------------------|-------------------------|
| A. 'b' as in 'boy' | H. 'l' as in 'love' | O. 'v' as in 'victory' |
| B. 'd' as in 'dog' | I. 'm' as in 'monday' | P. 'z' as in 'zebra' |
| C. 'f' as in 'fire' | J. 'n' as in 'never' | Q. 'ch' as in 'child' |
| D. 'g' as in 'go' | K. 'p' as in 'pity' | R. 'th' as in 'thin' |
| E. 'h' as in 'holy' | L. 'r' as in 'right' | S. 'th' as in 'breathe' |
| F. 'j' as in 'just' | M. 's' as in 'self' | T. 'sh' as in 'shout' |
| G. 'k' as in 'kite' | N. 't' as in 'time' | |
| U. Other (Please specify below.) | | |

11. In your experience, which vowel sounds are most difficult for the chorus to project over the sound of the orchestra? (Select all that apply.)

- A. 'ah' as in 'father'
- B. 'eh' as in 'met'
- C. 'ee' as in 'speech'
- D. 'oh' as in 'phone'
- E. 'oo' as in 'noon'
- F. Other (Please specify below.)

12. Have you experienced choral/orchestral balance problems while conducting particular musical works? If so, which ones?

- A. No
- B. Yes (Please specify which works, and if possible, during which portion of the work.)

13. Which of the following techniques have you found most effective in creating acoustic balance between chorus and orchestra?

- A. encouraging exaggerated/exploded consonants from the chorus
- B. building vocal resonance into the choral sound for more carrying power
- C. temporarily doubling voice parts (i.e. ask altos to join tenors for a passage of music)
- D. adding professional "ringers" to the chorus
- E. altering dynamics/articulations in the orchestral parts
- F. altering dynamic markings in the choristers' scores
- G. placing an acoustic shell behind the chorus
- H. moving the chorus out from behind the orchestra on stage
- I. using electronic amplification (microphones) to project the choral sound
- J. none of the above

Further comments (optional):

14. Other than the techniques mentioned in the previous question, are there other "tricks" that you have found particularly helpful in correcting balance problems between chorus and orchestra? If yes, please explain in detail.

- A. No
- B. Yes (Please explain in detail below.)

15. Do your techniques for addressing choral/orchestral balance issues change when working with different types of singers (i.e. amateur vs. professional, younger vs. older)? If yes, how so?

- A. No
- B. Yes (Please explain in detail below.)

16. Where and how did you learn these methods for addressing choral/orchestral balance problems? (Select all that apply.)

- A. Trial and error
- B. Observation of other conductors
- C. Instruction from a mentor
- D. Read about it in a method book
- E. Other (Please specify below.)

17. How many years of experience do you have as a conductor?

- A. 0-5 years
- B. 6-10 years
- C. 11-20 years
- D. 20+ years

18. What type(s) of ensemble(s) do you conduct? (Select all that apply.)

- A. professional/semi-professional chorus
- B. church choir
- C. community chorus
- D. collegiate chorus
- E. Other (Please specify below.)

19. May we contact you for follow-up discussion if our research warrants it?

- A. No
- B. Yes (Please provide your name, contact information, and the best time to reach you.)

APPENDIX D
SURVEY RAW DATA

Several questions in this survey were either completely open-ended or offered respondents the opportunity to explain their multiple-choice answers in an essay format. The following appendix is a compilation of all of those questions and the respective answers given by respondents. Only obvious spelling and grammar mistakes have been corrected.

7. In your opinion, what factors contribute most to the balance problems you experience? (Select all that apply.)		
Answer Options	Response Percent	Response Count
poor choral diction	51.5%	101
lack of vocal resonance	47.4%	93
orchestra plays too loud	74.5%	146
acoustics of the performance space	61.7%	121
relative position of chorus and orchestra on stage	63.3%	124
Other (Please specify below.)	32.7%	64
<i>answered question</i>		196
<i>skipped question</i>		6
Other (Please specify below.)		
In my concert-going experiences, I've found that the chorus is generally under-sized for the material programmed. An orchestra cannot be expected to 'play down' to a choir of only 50 singers. It is critical that conductors, both choral and orchestral, have a clear understanding of the abilities and limitations of their respective ensembles BEFORE programming a joint-concert.		
Occasional problems when large brass sections are involved.		
Size of the chorus, Poor composition (think about the choral fugue in Beethoven 9), vocal tiredness (frequently, major orchestras rehearse with the choir on the morning of a big performance to save orchestra dollars; this is a big mistake.		
Articulation, lack of attention to balance within the score. Choice of singing legato, bowing, and many other factors, muddy the texture and make things more difficult to hear.		
Incorrectly adjusted dynamics in the orchestral parts.		
The choral forces, in forte passages with high brass, are just not large enough to balance the sound, especially when the orchestra is placed in front of the choir.		
Conductor's choice of the size of the orchestra (i.e. regardless of how loud the orchestra may play, it is simply too large for the choral forces available)		
Orchestra and chorus not phrasing together, not following same articulations		
Size of the chorus (too small for the orchestra)		
Facility of the conductor. A conductor who is voice sensitive and knowledgeable will typically get far better results.		
poor intonation		

It takes approximately 250 amateur singers to balance a full symphony orchestra. Not that many choruses are that large. Orchestras are usually not responsive enough to conductor's requests to play softer. Further, musicians' playing softer causes a loss in their ability to play expressively. It is a Catch 22 situation.
Size of the chorus and/or orchestra, heaviness of orchestration, poor amplification (when used), type of voices (adult, teen, children, whatever)
The biggest problem arises from the reality that most choruses sing rhythmically behind, and most orchestras play on time. That would be bad enough even if singers didn't have to sing texts. But they do, and many of them never come to believe that they must put their consonants AHEAD of the corresponding attack in the orchestra. No amount of good sound or otherwise clear diction will fix the problem that emerges when the orchestra plays a downbeat at exactly the same time the chorus sings an initiating consonant other than 't' or 'd.' The biggest problem, therefore, is that the beginnings of their vowels are not sounding at the same time as the orchestra attack. Combined with a generally less authoritative rhythmic sense, the chorus's lateness can make the balance problems impossible to solve. No amount of shushing the orchestra (the usual solution) will help.
Musical sophistication of choral forces does not match the orchestra's level of musicianship.
Size of chorus has lots to do with it in our case at least, although the above factors are often true and just don't apply to us particularly. We have 55 exceptional singers with great diction and vocal production. We choose venues because of their acoustics and layout of the space and I carefully position the chorus in relation to the orchestra. With these factors worked out, we find we can balance just acoustically and with careful placement of brass and percussion with an orchestra of 22 players or fewer. When it is more, we must use amplification. It is also true that I choose professional players very much on the basis of how superior they are. The best players can always play more softly than weaker players. I also mark down all orchestral dynamics by at least one. We work a great deal at getting the balance right. It is a top priority in our performances.
number of players employed within the orchestral forces
Positioning of the brass in front of the choir.
You've omitted the biggest contributor-- overly heavy orchestration.
Balance problems in the structure of the work itself.
You don't specify whether a choral conductor is leading, or an orchestra conductor. I've found almost always, that if a choral person is directing, they can fashion the acoustics so that it is a 60/40 balance, choral over orchestra. Most Orchestra Directors either do not care for that balance, or don't know how to get it.
The size of choir in relationship to chamber/full orchestra.
Many of the problems I've encountered with choral / orchestral balance can be traced to inadequate forces either in the orchestra or chorus.
Lack of professional singers in chorus
Lack of intense uniformity in vowel production
inadequate quantity of singers
* unless previously stipulated, many orchestra managers do not like to utilize a baroque chamber-sized ensemble (1 or 2 on a part) so balance becomes a problem with a 20-40 member choral ensemble * many collegiate, community and high school choirs are "overmatched" and balance is a problem
Having the luxury of an enormous chorus is rare. Therefore, the issue tends to be experience of the performers, e.g. orchestral players are frequently inexperienced in what to listen for when playing for singers, a lightness of tone and bow weight are imperative. Concurrently, the singers frequently forget what changes when singing with orchestra: a much more 'percussive' sound is helpful (both consonants and vocal weight of the initial part of the note), and so is maintaining a resonant sound (singing 'on the voice') from note to note. Too many directors ask for the choir to sing all the notes short; this is a HUGE mistake. Strong initial articulation is key, *combined* with a full, legato, resonant, weighted tone. Less articulation from the orchestra is important, unless the rhythm/tempo/pulse is obfuscated by doing so (OR the choir's perception thereof is reduced). My \$.02

Lack of orchestral ability/skill
appropriate size of forces
It's important to note that younger, less experienced orchestras have more trouble playing softly enough for choruses to be heard over them. On the other hand, of course older, more experienced choristers can generally project better --- so we try to find a point on the "curve" with a good balance of sound for a given work.
1-Number of singers in proportion to size of orchestra 2-Occasional balance problems due to nature of the orchestration
size of orchestra is too large for the size of the chorus
Size of forces
unwillingness from conductors to modify scoring to favor the chorus and inability of conductor to demand softer playing from orchestra
Although I am tying the failure of choirs to project through the orchestral sound to your "lack of vocal resonance" above, I want to be sure that I state this explicitly as a major factor in balance issues.
The size of the orchestra relative to the size of the chorus is relevant also.
All are applicable but most can be addressed if the conductor(s) of the ensembles are mindful of the inherent ensemble difficulties.
Size of the orchestra (compared to the choir) can also be a factor
The size of the chorus (both vocally and numerically) in relation to the size of the orchestra.
Probably, most orchestral players don't frequently play in concert with a chorus. Many of the orchestral players are or close to being professional players while many of the choristers are very adept amateurs. Most of the time, the orchestras are seated further downstage in front of the proscenium while choruses are on risers starting at the back of the orchestra. As an instrumentalist who conducts singers, I remain ever vigilant not to let the singers be buried.
choirs not familiar with vocal formants
poor skills of the conductor
Bad planning from the two directors. Both must decide on the numbers depending usually on the size, ability and power of the chorus.
All can play a role, but poor repertoire and/or force selection is the main issue. If the conductor chooses rep correctly (i.e. knowing what orchestral forces are required and what his/her choral forces are) this really should not be an issue. Additionally, if the venue is a problem, choose a different hall. These are problems created primarily by bad decision making.
"Choral conductors" not knowing how to work with instrumentalists
number of instrumentalists may be out of proportion to the number of singers
I use only orchestra parts that I have marked. This helps with dynamics, especially where it is marked F or FF and you have asked the orchestra to play down, they do it once and then creep back up. Use your own parts. Make sure the choir director has your marked score, accents, dynamics, and articulations. This is creating balance before rehearsal, and is completely necessary for a successful performance.
Lack of orchestral awareness of how to play similar articulations to those of the singers in terms of strong and weak syllables, phrasing according to textual punctuation. Choral singers who are less technically accomplished with their instruments than the members of the orchestra and unable to sing at either extreme of the dynamic range without compromising intonation, clarity, beauty and balance.
Size of chorus and orchestra and how they relate to each other are also large factors.
All of the above are contributing factors; however, "relative position of chorus and orchestra" is the key factor in my opinion. I am also a record producer of major choral/orchestral recordings and know this to be the case from that perspective as well.
Always an issue with brass being too loud
choirs tend to 'oversing' in order to 'balance' the orchestra, which leads to acoustically inefficient singing (pressed/pushed sound) which cannot be heard over the orchestra, no matter 'how hard a choir tries'.

Singers with heads down in score.
Placement of speakers and sound reinforcement person in charge of controls
Chorus of improper size for the work. Rhythmic coordination between chorus and orchestra; too often, the chorus doesn't anticipate the beat enough to allow the diction to cut through the orchestral forces.
I suppose that all of the above occasionally apply...but, balance is a very tricky thing. I often find the WORST position for judging what is going on AS it is happening is where I (or whoever is conducting) is standing. The halls in which I conduct are fantastic spaces to listen to music, but are not very good for front/center stage. I just take a breath and hope for the very best! However, I am TOTALLY AGAINST consistently and automatically blaming the chorus for not being heard OR being behind, etc. these attitudes are cop-outs for bad preparation...conductors who insist that choruses are too loud in rehearsal, and then wondering why they can't hear them when they sing with players, etc., etc.
poorly prepared orchestra conductor
The size of the orchestra, the size of the string section, whether or not the chorus is elevated above the orchestra, whether or not the orchestra is professional orchestra. Community orchestras tend to play out, and don't have the technique to play well at a lower dynamic. The vocal maturity of the chorus also matters, and the chorus MUST be elevated above the orchestra in all cases.
improper balance between number of instrumentalists and number of singers; i.e., too many instrumentalists or too few singers.
Size of the chorus is simply too small to adequately balance an orchestral accompaniment.
Trying to work with artificial sound reinforcement (microphones and PA systems).
conductor does not go into hall to listen to balance
My situation involves a volunteer choir, not a choir of trained voices. Unless the choir outnumbers the orchestra, there will likely be a balance problem. An increase in the ratio of wind instruments to strings adds to this choir-masking effect.

8. Have you found particular instruments or instrument families to be problematic when it comes to balance? If so, which ones?		
Answer Options	Response Percent	Response Count
No	12.8%	25
Yes (Please specify which instruments or instrument families below.)	87.2%	170
<i>answered question</i>		195
<i>skipped question</i>		7
Yes (Please specify which instruments or instrument families below.)		
Brass, Percussion		
Brass		
Brass		
As observed in my answer to the last question, brass can be a problem.		
Brass - some percussion with brass		
Brass, low strings		
Brass- always brass. "One trombone can demolish a tenor section," Roger Wagner, 1987		
brass. It's very clear to me that brass instruments have gotten louder and louder over the last couple of centuries, and most brass players seem unable or unwilling to play anything other than fortissimo.		
brass		
brass, especially horns		
Brass		

Low Brass, Trombones & Tuba
brass
Brass, Strings
Brass, mostly. Strings, occasionally.
Flutes can cut through the texture, particularly in the high range, and brass, of course particularly if you do not have sensitive players (some amateurs are fabulous, but I conduct my church members, and we use some middle school and high school students who are not as experienced with the smaller ensemble setting).
brass, percussion
Brass and percussion.
Obviously, the brass, when playing forte passages.
brass instruments (especially when you dealing with student players).
Brass instruments tend to eat up the diction of the choir more than others.
Brass
Woodwinds and brass
Full brass covers up a choir
Typically brass and percussion create more problems for us than the other instrumental families.
I wanted to answer “no” to this question (but the computer would not let me!) as I think that it very much depends on the context, for example, tessitura of the voices in relation to the orchestration. Sometimes winds and strings can cover low altos based on the context. While the obvious answer might be brass I often find that the problem is sometimes brass in relation to the tutti sound rather than specifically between brass and voices.
Of course, the brasses are often the culprits, and toning them down is a frequent chore. Ironically, if you get a very well-balanced and in-tune woodwind section, they also have to really pay close attention to how loudly they play (meaning that a mediocre woodwind section is not a real balance problem, usually).
I find that strings absorb choral sound. Many groups simply hire too many strings for the size of their ensemble. Also, I find I often need to quiet down the brass.
Brass. Almost impossible in our venue without discreet miking of the choir.
Low strings, low brass, low woodwinds
Brass
percussion and brass
brass (non-French horn)
brasses
brass, high winds
brass and percussion obviously
brass
Brass and percussion
Trumpets, ‘bones. Almost any instrument can cover an average size chorus
strings
Brass
brass, especially low
Brass Percussion
High Brass, Timpani
brass and percussion
Any can be, if the above problem is not solved.
Brasses. Strings, occasionally...only because they are too many in our college orchestra.

Of course! Brass and percussion present the greatest challenges. Strings, however, can be surprisingly overpowering. Our solution for years has been to hire ONLY a fine string quintet! I know this seems like heresy, but I hire virtuoso string players and they love it. Then the challenge is to balance them with the winds and percussion, but it DOES work, at least for the works that we have performed. For instance, we have done the Brahms Requiem that way; Messiah, Israel in Egypt, Elijah, Mozart's Requiem and many other works. But you have to have really fine string players, with the endurance to play an entire work basically as a solo for each of them.
Strings and brass
brass
Brass and percussion
Brass, high woodwinds
This really depends on what kinds of groups we are discussing -- for example, university orchestras might have brass or winds with slightly less dynamic control whereas the best pros (particularly carefully selected players) can be superb. Although when hiring major symphony pros to come in as a freelancer to play in an ensemble with a community chorus, it can often be an issue as they will sometimes overplay. Likewise, I work extensively with period instruments -- brass are never an issue and sometimes it is the middle strings (VLN II and Viola) that need to play more to balance even against a chorus -- this is much more complicated than the basic question you have asked.
Percussion, high brass
Brass in larger choral works.
Brass
Brass
Winds & brass. Percussion can be an issue too
Brass...particularly horns and trombones. Also percussion (timpani)
Brass
brass
Brass, esp. trombones.
Brass, Percussion
Obviously, brass. In pieces like Bach's CHRISTIANS BE JOYFUL (Christmas Oratorio) with trumpets playing high (=loudly) it's more difficult than something like Berlioz' SHEPHERD'S FAREWELL (L'enfance du Christ). The scoring of the orchestral part is a major consideration, such as doubling of instruments in the Mozart version of Handel's MESSIAH.
brass
brass
brass
All brass, and violins when its a large first violin section, and most especially percussion!
brass
Brass
brass, percussion
brass
Brass, particularly in sustained playing and when doubling the voices
brass
It really depends on the genre and the orchestration. Brass instruments are usually the most difficult to balance. I would also mention percussion instruments in some late 20th c. works.
Modern flutes, violins
brass, piano, timpani
brass, percussion
brass, strings, winds

doing baroque music with modern vs. period instruments skews the balance of the wind instruments both within the orchestra and between chorus and orchestra
Not when the conductor knows what to do: keep the string players listening for the tone of the voice and have the clarinets and brass lighten up: specifically, they should not sustain long notes with the same volume. A common practice, e.g. Mozart, is to play half notes and whole notes with a subito diminuendo, unless the note performs a melodic function in the phrases.
Brass
High brass and upper strings.
brass
brass and percussion
most often brass, occasionally violins
Brasses, of course, are the toughest instruments to balance. For undergraduate singers and orchestra, we're careful about programming works with lots of brass, choosing more Baroque and Classic period works with smaller wind sections.
Clarinets (often!); brass (occasionally)---very much depending on the skill of the players
brass, specifically trumpets and trombones
percussion, although most instruments can be played softly enough to balance if the performer is willing to do so
Brass and percussion
Brass and Percussion
Brass
violins, woodwinds
Brass, Percussion
brass obviously, but even strings can sometimes cover voices if allowed to do so.
Trumpets/Brass
Brass and percussion
brass
Brass, esp. trumpets and trombones
Brass and percussion are the most frequent.
woodwinds, brass
brass and sometimes celli and basses, though almost never a problem with period instruments (e.g. baroque orchestra)
In works by Mozart or Haydn when the chorus is doubled by the trombone section you need to be more mindful of the sound which is coming out.
varies, but in our house, timpani and low brass are VERY resonant
Horns
Percussion and Brass
brasses
Brass
horns, trombones
brass, strings
brass and incorrectly registered organ
Brass, Woodwinds
Typically, Brass, both upper and lower
brass
untuned percussion for wide spectrum high frequency, for sheer volume tutti brass section writing can be dangerous
Brass

Brass (depends on their placement on stage); Percussion - where multiple players are required
strings
brass
Brass.
brass, percussion, violins (in upper range), cellos and basses (when playing with just soloists, which of course is a different issue than you're really asking about)
Percussion and brass
In general, brass and wood winds tend to be more problematic, with percussion running close in there, too. Strings (unless grossly out of balance with themselves or the chorus) tend to not be as big a problem. Sometimes, though, even piano can be a problem depending on the individual chorus-pianist combination.
This is dependent on the acoustics of the space. Sometimes the timpani might be overbearing; trumpets may be too brash; percussion in general need to be adjusted (sometimes even too soft!)
Brass
ANY instruments doubling the choral parts can distort or overbalance the singers, but in terms of sheer volume, the brass choir has the greatest potential for overwhelming the chorus (and the rest of the orchestra).
trombones and horns, and percussion
strings always.....brass sometimes
brass
Brass
Brasses, Winds, Percussion
Percussion instruments that are capable of pitch, either specific (i.e. chimes) or non-specific (i.e. tam-tam); Strings or winds, but particularly winds when they play in the same relative range of the choir. In some situations, colla voce trombones.
Brass, winds
Brass
Trombones!
Obviously brass instruments are most likely to cover, and if the score is percussion-heavy, then those instruments as well. I also think that orchestras tend to play louder for a conductor who is not their own (a choral conductor who is inexperienced at instrumental conducting, for example) and so take a more boisterous approach until corrected.
brass
Trumpets, trombones
brass
brass - depending on skill of players..
brass
Brass, Percussion
As long as the work is well-written and performed with reasonable forces, the family of instruments doesn't matter too much; brass can be problematic, in part because of their position in the orchestra which allows them to hear the chorus better than some other instruments.
Sometimes woodwind family balances are issues, I have noticed. Often times, though, these are color adjustments, not dynamic problems. I rarely "pick on" brass players. I usually find their contribution to the overall picture to be very thrilling, so I don't worry about them too much.
Brass
brass
Brass
low brass in FF sections
horns, trombones

brass, occasionally woodwinds (oboe, clarinet)
Brass, always
brass of course, timpani sometimes; but it all depends on the orchestration in any given passage--even a single oboe or violin section can be a challenge
The brass and woodwinds have to work to play quietly
brass
brass and percussion primarily
Brass ensembles can be more problematic. Thicker orchestrations that employ double woodwinds
Brass.
heavy brass (trumpet, trombone), horns
Brass, Violins
Brass
brass
brass, percussion, sometimes strings
Brass
brass most often
Brass
brass
winds in general, brass in particular
Brass
brass
Brass

9. Have you found that choral singing in particular languages lends itself to balance problems? If so, which languages?		
Answer Options	Response Percent	Response Count
No	83.1%	162
Yes (Please specify which languages below.)	16.9%	33
<i>answered question</i>		195
<i>skipped question</i>		7
Yes (Please specify which languages below.)		
English or French		
English		
German in particular but also in English -- balance problems caused by diction issues. If the orchestra is too loud, the diction can be lost -- especially with rapid text.		
French (probably because most of singers are not feel confident with the language)		
My singers are less comfortable in German and French so lack of solidity causes problems that lead to balance issues. English can be a problem because of the habitually lazy way Americans speak.		
English		
Anything other than Latin or Italian, including English		
French		
KIND of... not the language as much as the emphasis placed on consonants. It's possible to have solid consonants singing French, but it's easier with German (lends itself to more guttural consonants), etc.		
The less familiar the language, the more severe the problem, for the above reasons.		

We had difficulty with the Spanish in the fast passages of the Missa Criolla. We had a lot of percussion and it was probably harder for the Chorale to enunciate the unfamiliar Spanish texts than English or Latin. I feel that Latin presents the FEWEST balance problems because of the pure, open vowels and percussive consonants. English, with its many diphthongs, can turn mushy with an orchestra. We work extremely hard on percussive pronunciation and vowel unification with English texts.
Generally, for me at least in my American Midwest experience, languages that are not in English. There is a sense of hesitation with singing German, French, Latin, Dutch, Italian, etc. Hence the balance is compromised. My choristers have a tendency to recoil from singing languages that are not their own. This is so unlike my former choirs in the Philippines (my home country), where choirs are eager to sing non-Philippine texts even if, for the most part, their diction is still not where it is supposed to be.
I find that French is a little more difficult because of the fluidity of the language.
French.
French
In my experience with American choirs, French seems to be the language in which balance is most affected.
French and any other difficult languages
“Balance” could be perceived or interpreted as either “understanding the text” or as “comparative relation of dynamic/volume between the chorus and orchestra.” I strongly believe that the former is rarely a worthwhile effort, i.e. it’s COMPLETELY unrealistic (and thus unnecessary) to expect that the listener would actually perceive and understand every word sung without knowing the text already (or having it printed in a program, for instance). It never works with opera soloists and only rarely works with art song. The only time it CAN work is with completely homophonic music, a cappella! The latter, however (the balance of actual dynamic/volume between the orchestra and chorus) is actually realistic and worth every bit of rehearsal time to achieve. As for language, it makes a difference only as to the SINGERS’ understanding of how to make it clear.
Romance languages. (Softer/shorter consonants)
English! Singers often (in this country) sing English the way they speak it. And that is a problem!
Foreign languages other than Latin (familiar texts) cuts down on the confidence of the singers as well as the lack of matching vowel sounds cuts down on vocal resonance.
French
French. There is much focus on particular vowel color and fewer percussive (ending) consonants. This makes full resonance singing a constant requirement and intelligibility more difficult.
Any language that is not natural or native to the chorus can pose significant problems.
French, because singers are never secure enough with the language and its sounds, so they tend to back off and sing tentatively
My answer to this question is NO but I can’t comment without checking the yes box: I speak 9 languages and know quite about dozens more. No language is inherently of such poor natural resonance that it contributes to balance problems. All languages have their own idiomatic overtone system, tendency toward forward, mid or back vowels, nasal or non-nasal resonances, consonantal clusters, etc. It is unfortunate that relatively little time is spent in teaching the proper placement and resonance of a foreign language’s vowels or the key differences in the sounds of the consonants. In other words, singers revert to the standard resonance practices of their native languages and, as a result, fail to deliver the foreign pronunciation properly.
English
French
Russian, French
French
If the chorus is less familiar with a particular language (or musical idiom for that matter) the singers may be more timid
French

The problem is less the language and more whether or not the vocal lines are melismatic or syllabic.

10. In your experience, which consonant sounds are most difficult for the chorus to project over the sound of the orchestra? (Select all that apply.)		
Answer Options	Response Percent	Response Count
b' as in 'boy'	35.6%	69
d' as in 'dog'	23.2%	45
f' as in 'fire'	28.9%	56
g' as in 'go'	24.2%	47
h' as in 'holy'	46.4%	90
j' as in 'just'	6.2%	12
k' as in 'kite'	13.4%	26
l' as in 'love'	37.6%	73
m' as in 'monday'	33.0%	64
n' as in 'never'	30.4%	59
p' as in 'pity'	37.1%	72
r' as in 'right'	12.9%	25
s' as in 'self'	3.1%	6
t' as in 'time'	7.7%	15
v' as in 'victory'	39.2%	76
z' as in 'zebra'	9.8%	19
ch' as in 'child'	6.2%	12
th' as in 'thin'	41.2%	80
th' as in 'breathe'	45.4%	88
sh' as in 'shout'	5.2%	10
Other (Please specify below.)	25.8%	50
<i>answered question</i>		194
<i>skipped question</i>		8
Other (Please specify below.)		
Generally, most consonants can project, but I find that, regardless of the 'sound' we're trying to create, consonants at the ENDS of words are more difficult because the musical line is generally decaying.		
No opinion on this.		
Diction is often a rhythmic problem.		
non plosives		
I don't know that I've ever thought that specifically about it. Diction is always a concern, and ALL consonants are important.		
I honestly don't find this to be a valid assessment of success in a performance. Good, bel canto singing means that many consonants aren't performed with the crispness that would ultimately provide the greatest clarity, and I am absolutely unwilling to sacrifice good choral sound for consonants. Even with extremely clear diction, singing makes these sounds less clear. I give the congregation the words to follow along.		
I don't think specific sounds are more difficult than others. I do think it depends on the texture of the music at any given point. I also think crisp articulation helps enormously.		
The early diphthong problem has great negative impact on text projection, in my opinion.		
I don't see this as a problem.		

Any non percussive
It's all relative to the orchestration and volume level of the music being played, especially with an un-amplified chorus, plus how well the chorus has been trained
The "r" can become a real problem: when not modified, it becomes too bright... when modified, it becomes harder to hear.
I don't think it really matters -- when you're up against an orchestra of 80+, it is the sheer volume/weight of the sound and the quality of the voices that make the difference. All of these can't be heard if the choir forces are not enough and if the orchestra is playing too loud.
The above vowels are all ones that take time to speak, and therefore delay the onset of the vowel. Hence the problem of them. However, of these, 'm' and 'n' are among the worst.
Beginning and ending soft consonants, such as 'd', 'n', 'm', and 'v' and sometimes 'th' are probably the hardest for a chorus to project, because they ARE softly enunciated in spoken English. They must be produced more forcefully when sung. It is a matter of exaggeration, and people hate to exaggerate, but that is necessary, particularly when singing over an orchestra.
All consonant sounds are problematic if not cleanly articulated, rhythmically accurate, and appropriately connected or detached from the vowels which precede and/or follow them.
Also depends on the hall.
consonants
any on the list can be a problem depending on the situation
Vocalized consonants (M/N/etc.) must be started precisely and uniformly, getting to the vowel immediately, giving a clean start.
I've never noticed one more than any other
all non-voiced consonants
I find all consonants equally important/"difficult"
Once the performers make the extra effort needed for "J" and "G", it's really no problem. Without such effort, the following almost ALWAYS takes place:
"V" mistakenly sounds like "F"
"D" mistakenly sounds like "T"
"B" mistakenly sounds like "P"
"Z" mistakenly sounds like "S"
Fricatives (except "th") are never a problem. Americans tend to sing nasals more readily (and frequently) than they ought to. Therefore, "n" and "m" are rarely NOT heard (or perceived) by the listener. In fact, nasals tend to change the sound and resonance to much that they ought not to be sung with as much emphasis as they usually are.
Palatalized Consonants (e.g. Russian, Macedonian, Polish) are frequently executed too subtly to be perceived over an orchestra. Some contend that this is okay, especially since it would be un-stylistic to do so. However, I believe that this is a case-by-case issue. A native speaker (and trained musician) should be present for penultimate rehearsals for such issues.
Voiced, non-aspirated, non-percussive consonants (see choices above) are harder to project because of the lower frequency profile of the sound. High-frequency consonants (like "s") carry much better (sometimes too well!)
This is very difficult to generalize. Intelligibility will depend on many factors, including the choral/orchestral texture, size/type of orchestral forces, musical style/genre of the work being performed, AND quality of the chorus' diction and articulation.
y' as in 'you'

I honestly don't know that I've found any particular consonant to be especially problematic in choral/orchestral singing; ALL consonants generally need to be articulated with more energy
I'm not sure that I agree with the idea that particular consonants are problematic.
rolled 'r' as in 'freude'
Does not apply
Proper diction is about every sound of every word - not specific consonant sounds voiced - unvoiced consonants - everything. Diction and balance are two different things.
ch (in German) as in nacht or sich
Done correctly, this is not an issue
I guess I've never thought about it at this detailed a level.
Plosive consonants in general tend to project better than fricative consonants.
'f' and 'p' use space in the line so that needs to be built in, and with other consonants using a shadow is useful for orchestral singing (as in 'muh') in place of closing the m. Also, glottals are important, as in 'deo' equals 'de/o,' etc.
Generally speaking, voiced rather than unvoiced. Generally speaking, interior rather than beginning or ending.
I am stupefied by this question. The chorus either has clear diction or it doesn't, and that criterion may or may not contribute to balance with orchestra.
Depending on 'how you sing' - consonants do not need to be exaggerated - which many choirs tend to (need to?) do, if their singing is on the pressed/edgy side. Consonants, voiced or unvoiced, 'ride' the air flow. As long as consonants are 'spoken/sung' together and in good rhythm and proper articulation/phrasing, they should be able to be heard. And - the emotional content of the music/text will usually trigger the appropriate intensity/strength of the consonant. Any exaggeration will destroy the musical/expressive aspect of the music.
Ich-lauts (ich) and ach-lauts (ach) in German.
I often have trouble hearing enough "tuned" consonants...m's, n's, z's as well as secondary vowel sounds (diphthong) in ALL languages, but particularly in English and German...
voiced final consonants are more fraught with problems.
I really don't find that one is more problematic than another
I don't think it is possible to isolate consonant sounds as being generally difficult to project. It all depends on the orchestration and demands of any particular phrase.
Varies
ending consonants in general
I don't find any consonances particularly problematic, but maybe I just haven't noticed.
Not so much a matter of specific consonants, but more a matter of where consonant occurs. Ending consonants much more difficult to project, because singers tend to neglect them. Of course, liquid consonants (l, m, n) are more difficult to project than others
in summary, final consonants, as noted, and voiced ones including "ng"

11. In your experience, which vowel sounds are most difficult for the chorus to project over the sound of the orchestra? (Select all that apply.)		
Answer Options	Response Percent	Response Count
ah' as in 'father'	7.8%	15
eh' as in 'met'	19.2%	37
ee' as in 'speech'	6.7%	13
oh' as in 'phone'	14.0%	27
oo' as in 'noon'	54.9%	106
Other (Please specify below.)	35.2%	68
answered question		193
skipped question		9
Other (Please specify below.)		
Again, I don't find any one sound to be problematic. The problem is generally 'big-picture', with the choir being too small for the work that's programmed.		
No opinion on this.		
Hums, too.		
u umlaut		
I don't find that vowels effect balance to a great degree		
None. We teach the singers to resonate all vowels as if they all were "ee." During warm-ups, I have them vocalize in the following legato sequence: "ee-oo-oh-long a-ah," with all the vowels following "ee" resonating in the same resonator cavities. This is facilitated by having the singers not chew on the vowel changes, but singing through them with a "dumb" jaw.		
[i] is a good vowel for projection, pretty much everything else is hard		
I think vowels project quite well, actually, but if any vowel has a chance to be muted, it would be "oo".		
None if sung properly.		
Consonants are the main problem in my experience, not vowels.		
It is not the particular vowel, it is the resonance or lack thereof that is the problem		
I don't think vowels are better or worse for projecting choral sound.		
Again, all depends upon balance of the writing		
I don't find that vowels are as difficult to project... adding or subtracting some resonance prior to the combined rehearsal (anticipating the problems) can usually address these vowel issues. The BIGGER issue is sometimes being able to project WITH a good choral tone, depending on the specific voice section.		
"ee" and "eh" will generally cut through		
None in particular--possibly 'oo'		
The open 'ah' and 'eh' vowels are probably the hardest because it is so easy for singers to swallow these vowels, or at least cover them. We work on vocal line all the time, using the 'oo' and 'ee' vowels to connect with the open 'ah' and 'eh' vowels to keep them forward. We sing "fish-face style" - which means keeping the lips pursed a bit at all times and avoiding horizontal spread. We modify the schwa vowels to a forward 'uh' also. Thus, the word 'the' becomes 'thuh'. That one change makes an enormous difference. Fish-face production and constant exercises to connect all vowels in as forward and clear a line as possible have improved the Chorale's forward projection immensely.		
For women, 'ee' sounds in higher pitches. Women tend to dislike the vowel sound. For men, 'oo' sounds in lower pitches.		

It depends on the orchestration and relative dynamic. The closed vowels are softer than the open vowels-- for example "oo" is softer than "ah"-- but vowels change so quickly in a text that this only applies to music w/o words. I believe the point of diction is to be understood. If you start changing vowel sounds to fix balance you might as well throw out the words. And if you throw out the words, why have singers there?
Does not matter, depends much more on the range.
I find no difference in vowel sounds in regards to balance
this is dependant on register and tessitura
I've never noticed one more than any other
none
"uh" as in "but." Modification may be necessary, based on dynamic or tessitura.
all equal
I don't believe that vowels are the issue. However, /u/ does carry less overall acoustic energy than other vowels. For choral-orchestral performances, I often ask my choirs to brighten all their vowel sounds in places where balance is an issue.
Again, the frequency spectrum for "oo" is the lowest, making it hardest to project.
See previous response.
none particularly more so than another in my opinion.
Again, I do not see issues with particular vowels.
[y], schwa
n/a
no
This is simply a factor of the overall balance, in my experience. I think it's hard to say that one vowel is consistently easier or harder to hear over an orchestra.
ih
They all can project well.
I don't think vowels are a problem with balance
I don't find any of these to be a problem in isolation. If there is a balance problem, it is not, in my experience, the fault of the acoustical properties of a particular vowel.
Does not apply
Depends on the instruments. i.e. Strings can cover 'oo' vowels easily.
doesn't make sense.
Difficult to say on this, as so much is dependent on the range the singers are in, thickness of the orchestration, etc. Any (or all) can be a challenge.
Again, done correctly, this is not an issue
Unmatched vowel sounds are the most problematic, other than that no one particular sound is better or worse.
In my experience, vowels have not been a problem.
Totally depends on the register in which they are singing. Vowel modification is necessary in all voices. Question is not specific enough.
Any vowel will be hard to project over an orchestra if it is not focused and/or unified.
the schwa and the German umlaut O sound
none
none are more difficult than others
ugh as in 'nun'
German umlaut U
See previous answer.

Similar answer to earlier question.... if the choir has good vocal training and healthy vocal habits, all vowels will have 'the singer's formant' - permitting the vowels to be heard over an orchestra.
none
none are more difficult than any other, in my opinion.
Vowels are not an issue. All great singing takes place on vowels. Without them, you have nothing else!
Same here
See previous answer.
varies
Generally closed vowels are more difficult
In general, the darker the vowel, the more difficult to project over the orchestra.
I have not noticed any more problematic than others.
None in particular
i as in sit
humming with orchestral accompaniment doesn't work...
all variants of the above that are most closed: short oo, ih

12. Have you experienced choral/orchestral balance problems while conducting particular musical works? If so, which ones?		
Answer Options	Response Percent	Response Count
No	41.5%	78
Yes (Please specify which works, and if possible, during which portion of the work.)	58.5%	110
<i>answered question</i>		188
<i>skipped question</i>		14
Yes (Please specify which works, and if possible, during which portion of the work.)		
Bernstein Chichester - movement I – all; Ravel Daphnis suite - sections with brass		
Rutter's Gloria - first and third movements; various Mack Wilberg arrangements with lots of brass - Praise to the Lord, Come Thou Fount of Every Blessing - Rene Clausen's New Creation, Alexander Nevsky, almost any Broadway medley,		
War Requiem (Britten): Final mvt, finale; Carmina Burana: 2nd to last mvt, etc.		
Beethoven 9- Altos and basses in the big fugue, Ravel "Daphnis and Chloe" throughout the accompanied sections, Verdi Requiem (any time the brass is in---according to the size of the chorus).		
most 19th & 20th century works		
Mozart, c minor Mass (Gloria, Cum Sancto) Various Bach Cantatas		
Carmina Burana, Dvorak REQUIEM, Berlioz REQUIEM, Sibelius KULLERVO		
Virtually every work. It would be impossible to enumerate. Every piece from Messiah to Missa Solemnis of Beethoven has inherent challenges, given forces, room etc. too many variable to discuss adequately.		
Orff Carmina Burana, particularly during the men's "In Taberna" movement		
Berlioz "Requiem" (Brass in four corners of room) and Bloch's "Sacred Service" (Projection of Ashkenazic Hebrew over large orchestra in dead room)		
Mahler 2nd, Brahms Requiem.		
We just performed the Mozart Requiem so that is freshest in my memory. In the Dies irae -- "quantus tremor est futurus" in basses of the chorus sometimes unclear -- orchestra usually too loud and chorus not percussive enough with diction.		
All that have forte brass, especially when playing high.		

Too many to list... I always assume balance will be an issue that needs addressing throughout the rehearsal process on all such performances.
Mahler: Das klagende Lied, Symphony No. 8 (especially finale); Mendelssohn: Walpurgisnacht
Mendelssohn Vom Himmel hoch
Beethoven's Missa Solemnis
The three most difficult works to achieve acceptable balance have been: Verdi Requiem, Britten War Requiem, Orff Carmina Burana
Again, I wanted to answer "no" as I am not aware of problems that were more evident with a particular work as most of the issues relate to the context of the performance. Certainly some of the larger 19th century works with larger orchestras require more attention to balance issues.
Rutter Gloria mvmt 1 & 3, Verdi Requiem (Libera me all), Vaughan Williams Dona Nobis Pacem, especially the Beat Beat Drum section; Bruckner e minor mass (nearly all)
Verdi Requiem: Dies Irae
Piston - Carnival Song (throughout--it's an all-brass ensemble); Bach - Magnificat (first and last movements, or anything with an orchestral tutti); Haydn - Lord Nelson Mass (loud, fast sections)
John Rutter works....too much orchestration for amateur choirs; other 19th and early 20th century choral/orchestral works that have large orchestrations, particularly winds and brass
Mahler, "Resurrection Symphony"(all) Brahms, "Requiem" (last mvmt); Berlioz "Te Deum"(all); Beethoven "Symphony No. 9(4th mvmt); Schubert "Mass in E flat"(wind-voice double choir sections); Mendelssohn, "Lobgesang"(opening); Verdi "Requiem"(all), Elgar, "Coronation Ode"(last mvmt); Mozart "Requiem" (Dies Irae)
Poulenc Gloria, Mozart Requiem, Bach B Minor
The bigger the work, the more problematic it becomes.
Walton Belshazzar's Feast, Rutter Gloria, Pinkham Christmas Cantata
Carmina Burana, Verdi "Requiem",
Almost every work with a dense orchestration has sections that need attention. Rather than give specifics on which works create problems, I would say that works written in the classical period and earlier present the least problems.
Rutter Gloria (yeah, I know, but still...); Stravinsky Symphony of Psalms; Bernstein Chichester Psalms; Tippett A Child of Our Time; Brahms Requiem (Mvmt II, "ewigkeit" prior to the fugue); Britten War Requiem; Poulenc Gloria (Gloria & Laudamus Te mvmts); and of course, the Orff.
Poulenc Gloria
Bach works that contain brass/tympani;
All can be problems if the timing issue is not solved.
Brubeck's "Mass: A Celebration" was probably the most difficult work I have conducted, although Bernstein's "Chichester Psalms" was a close second. Changing meters, very fast and changing tempi, and Brubeck's ferocious 5/4 meter throughout the 25 pages of the Alleluia presented the greatest challenges for me. I try to conduct almost completely from memory, even though the score is in front of me for those "just in case" moments. Memorization is the best way to deal with complex scores, I think.
Dona Nobis Pacem - Vaughan Williams, Mass in C - Mozart
Brahms German Requiem -- just a difficult work to balance because of the true equal nature of the chorus and orchestra. In order for the orchestra to be at its most expressive, it can often over play the chorus (unless you really have a significantly large symphonic ensemble).
Magnificat, J.S. Bach/ trumpets
This list is really too long for a 15' survey. It's a problem that grows with more modern historical eras and greater use of winds & brass. It's also a particular problem with new music-- composers aren't trained in balancing an orchestra & voices. That's even more true of what's supposed to be accessible holiday music, which is scored for the studio, not the concert hall. See Randall Alan Bass. (spelling?)
Beethoven 9th Symphony, Beethoven Missa Solemnis, Verdi Requiem
Romantic, some 20th C. Baroque is obviously easier to balance.

Mentioned earlier.
Brahms Requiem (my fault, the orchestra was much too small for the size of the chorus), Rutter Gloria (Last Movement, organ too loud)
There are so many! Carmina, Verdi Requiem, Dona Nobis Pacem (Vaughn-Williams), everything with multiple percussion, Rutter Gloria (brass)
Schoenberg Guerrelieder, Verdi requiem, Elgar, Dream of Gerontius
most
Verdi Requiem, dies irae; Brahms Requiem, movement 3 alto voice, add tenor a la Shaw; Ravel. Daphnis; Many more; I edit dynamics in most Romantic and 20th century works in preparing the parts.
Works of Mozart, Haydn and Beethoven, when played on modern instruments with chamber-sized choirs.
Elijah
Any Bach cantatas or motets in which the orchestra is too large or incapable of playing in a Baroque style; Carmina Burana, especially "tutti" sections
Beethoven Missa Solemnis opening of Gloria, Pleni sunt coeli
Villa Lobos Choros No. 10, the whole thing; Walton Belshazzar's Feast
19th-20th c works with large orchestras
Stravinsky - Symphony of Psalms (all) & Mass (all); Opera – all; But the experience of the personnel in the orchestra makes a big difference! For example, students tend to play too heavily, loudly and un-stylistically - all the time. It's take LOTS of rehearsal time to train or re-train them.
Brahms' Requiem, especially against the horns
Works with a larger orchestra - especially in the Romantic repertoire.
Elijah, Missa Solemnis, The Armed Man, VW Dona Nobis Pacem, Brahms Requiem
A story about the Britten "War Requiem" I heard from a chorus master who worked with Britten -- at the climactic point in the "Libera Me" (rehearsal mark 113) -- the chorus master told Britten "you can't hear the chorus here." Britten's response: "Neither will they be heard at the Last Judgment."
Verdi-Requiem--"Tuba mirum"; Mendelssohn-Symphony #2, "Lobgesang"
The biggest problems I have are in "pops" program with brass (trumpets) in their high register and a drummer who plays with too much enthusiasm
Romantic era
Britten's War Requiem -Dies Irae, Sanctus
in general, more heavily orchestrated works (Brahms, Verdi, Poulenc, for example) are more challenging to balance than earlier works (Vivaldi, Bach, Handel, smaller masses of Haydn and Mozart), which are more lightly orchestrated.
I find piercing sound of modern Baroque trumpets particularly difficult when doing major works by Bach and Handel with a chorus of 25-30. I much prefer doing these works with period instruments. Their modern counterparts were designed with volume in mind. Period instruments play at A=415 and the brass has a more opaque color when playing higher. We tend to see modern instruments as superior but is that really true? Do they represent "progress" or merely "change."
Belshazzar's Feast – Walton; Tuba Mirum in Verdi Requiem
No specific works come to mind immediately; but, any time that the chorus is kept at a tessitura which is too low to project or if there is too much orchestral doubling in the same octave.
Trombones in classical works, because they are very different instruments today. ALL instruments because they play MUCH louder than they did even 70 years ago. Certain orchestra pits that are so very orchestra friendly that the orchestra sounds great but does not balance the stage.
Bernstein, Chichester in full orchestration
This is a complicated question... and one that would take me a long time to answer accurately. One that comes to mind is the DONA NOBIS PACEM of Vaughan Williams.
All

Works that include a lot of brass, or passages that combine brass with voices. For example, the Rutter Gloria in the full orchestra version.
War Requiem, Verdi Requiem many other works but most of it works out by performance time
Carmina Burana, most thickly orchestrated romantics (Brahms) especially where instruments double exactly vocal lines
Brahms' "Ein Deutsches Requiem" - the first fugue!!
Vaughan Williams Sea Symphony mvmt I middle
Verdi - Te Deum, Requiem; Bruckner - Te Deum; Beethoven - Ninth; Walton - Belshazzar's Feast
All. Well, nearly all. I just conducted the Bach 'Magnificat' two nights ago. The orchestra was too small (nearly one on a part) and the choir was too large (45 college singers). The balance was fantastic!
Elijah (whirlwind section in part II); Belshazzar's Feast (brass and percussion throughout); Carmina Burana (percussion)
Anything with brass (especially Romantic Era works), and anything that has long melismatic lines for the choral parts, which tend to become non-articulated.
Durufle "Requiem" -- Sanctus in the climax (rehearsal # 49 - 51)
Depends on the composer's sensitivity to the vocal texture, the strength and configuration of the various forces, and a lot of things not directly related to the pieces themselves.
Carmina Burana, percussion throughout; Mozart requiem, colla voce trombones
Any thickly-scored choral-orchestral piece presents balance problems. Prime examples include "Dies Irae" from Verdi REQUIEM, opening and closing movements of Vaughan Williams' HODIE and DONA NOBIS PACEM, Beethoven 9... The list goes on.
Brahms Requiem; most RVW works for chorus and orchestra; Mack Wilberg; Verdi Requiem; Beethoven Missa Solemnis
Any work which is heavily orchestrated; Mahler 2, 8, Verdi Requiem, Brahms Requiem where orchestra is heavy. Many, many works
Verdi Requiem; Beethoven Missa Solemnis; Brahms Requiem
Mostly works with brass
Brahms' Ein Deutsches Requiem. The fugues
Beethoven Missa Solemnis. Chorus was too far back on the stage.
All works at varying times depending on the interaction of the other criteria, mostly, size of forces, room acoustics, and choral acumen. I'm sorry, but I think this is a preposterous question. The whole point of rehearsal is to mitigate these problems because they are created by the interaction of performer and space, and not necessarily by the work itself. If you attempt the Berlioz Requiem with a smallish choir, they won't be heard. If you do a Bach motet with colla parte instruments and continuo with a 60-voice choir, the instruments won't be heard.
La Fiesta de la Posada--Dave Brubeck
simply due to imbalance of performers/age, maturity of voices versus the instrumentalists, who don't always have the finesse to play 'ensemble'. Mendelssohn: Festgesang der Künstler (Brass Choir and Men's Choir)...
works where orchestra is supposed play f or ff
Masses, Cantatas, Spirituals....pianissimo passages
Brahms Requiem - Fugues; Carmina Burana - loud brass sections; Sing for the cure - men's number
the concluding section of the credo in Haydn's "lord nelson mass"...
The late Romantic pieces with larger brass and winds sections
Britten War Requiem, large full section of dies irae; Verdi Requiem, final hosanna in Sanctus when brass kick in.
Verdi Requiem / Mahler 2 / Carmina Burana
Balance is always a key issue in any performance of any piece.
Beethoven Missa Solemnis; Brahms Ein Deutsches Requiem

Ode to Joy can be a challenge, as can opera in concert because the orchestra (which the composer had imagined would be in an orchestra pit) is on stage.
Brahms Requiem, Fugue 3rd movement, Mozart Great C minor Mass, Orff, Carmina Burana, any time the full orchestra is playing and they are marked forte, unless the chorus is in a high tessitura and singing forte, balance is going to be an issue. There isn't a one size fits all solution. You have to use your ears as a conductor, and it is essential to have a conductor in the hall listening for balance. If you have the right sized orchestra, your chorus is large enough and well trained, and they are positioned ABOVE the orchestra, the balance problems will be minimal.
Works by Beethoven (Hallelujah from the Mt of Olives) and Brahms (How Lovely Is thy Dwelling Place) because of the size of the orchestra required (double woodwinds)
Again here, not so much a matter of specific works per se, but rather of types of sound. ppp choral/orchestral sections are almost always too loud in the orchestra, and solo movements are always problematic for the vocal soloist.
Stravinsky's Mass wherever the trombones play comes particularly to mind.
Bach "Magnificat," Handel: one of the Coronation Anthems
Jenkins The Armed Man
Sorry, I haven't time to amplify, but here and there occasionally on very many occasions. Usual issues are insufficient singers for very powerful passages, or insufficient familiarity of score in players. Mostly, these things get worked out in rehearsal, but not always.
Vaughan Williams: Hodie, Benedicite, Dona Nobis Pacem
all

13. Which of the following techniques have you found most effective in creating acoustic balance between chorus and orchestra?		
Answer Options	Response Percent	Response Count
encouraging exaggerated/exploded consonants from the chorus	64.2%	120
building vocal resonance into the choral sound for more carrying power	63.6%	119
temporarily doubling voice parts (i.e. ask altos to join tenors for a passage of music)	65.8%	123
adding professional "ringers" to the chorus	27.8%	52
altering dynamics/articulations in the orchestral parts	85.0%	159
altering dynamic markings in the choristers' scores	62.0%	116
placing an acoustic shell behind the chorus	50.3%	94
moving the chorus out from behind the orchestra on stage	21.9%	41
using electronic amplification (microphones) to project the choral sound	19.3%	36
none of the above	2.1%	4
Further comments (optional):		45
answered question		187
skipped question		15
Further comments (optional):		
Singing louder is NOT the answer. Instrumentalists must understand that playing (accompanying) for a choral organization is different than playing as the primary performer.		
How about teaching the choir to sing with a free, open, full sound?		

I only have professional singers
I could have checked more boxes as to things I have used. In fact with one symphony chorus we have to use amplification, although the result is never satisfying. I change consonants, say from a g to k in Gloria, etc to alter projection. I ask choirs to focus on rhythm and articulation, and ensemble rather than volume. Exaggerated consonants take away from the aesthetic I find. Working on dynamic and articulation, creating a clearer texture is the best way.
Encouraging singers to NOT try to sing over the orchestra, but to sing together well in their section works best for me. If the chorus sings in tune, the sound projects beautifully. The minute anyone tries to sing too loudly, the sound of the entire section becomes fuzzier and less clean and clear.
Sometimes providing the orchestra with a copy of the text/translation can be helpful so that they have a better understanding of the context of the piece. At the same time taking time to inform the choir who is playing at any particular time is also helpful in advance of the orchestra rehearsal.
Exaggerated/exploded consonants don't really cover it. I find that presounding consonants and moving to the voiced consonants (m's, n's, etc.) early can help a lot.
brighter vowels, balancing dynamic markings in both the choral and orchestral parts
I don't have the option of moving the choir or having a shell given our space constraints. Telling the orchestra to play less loud often works. Also -- and this is big -- reducing the number of orchestra on parts (i.e. stands of strings) will help -- sometimes even just having first stand alone play in softer passages.
Marking dynamic edits in the orchestral parts must be done sensitively and with an acute awareness of where the problems are arising--to the degree that they are caused by the orchestra. Just marking everything down doesn't do anything except flatten the musical idea. Any markings must help the players shape the phrases more coherently--when that is done, most balance problems can be solved. Then again, the orchestra is usually not the problem.
We have been together as a chorus for 32 years. In the early years, the idea of amplifying the chorus would have been anathema. And in those days, we did not have very good equipment. But we have several electronic geniuses in the group, and over the years they have amassed a lot of expensive mikes, booms and good mixers and amplifiers. ROUTINELY, we use this equipment. If we don't actually need to amplify the chorus, then at the least we use monitor speakers so that the left side of the chorus can perfectly hear the right side and vice versa. Monitors, placed to the front/sides of the chorus, are tremendously helpful. Sometimes, when we have a harpsichord for continuo, we feed the harpsichord into the monitors also, so the chorus can hear absolute pitches instead of the less clear string sounds, sometimes. When we have to sing over a large orchestral force, we definitely amplify and we do it to a very high level, so that audiences rarely are aware that they are hearing an enhanced volume. When we sing with a full professional orchestra of 50 or 60 players, we actually can work it out entirely through amplification, even with our puny 55 voices! The key is to have SINGER/MUSICIANS choose the equipment, place it very carefully, and run the mixer board. The average "sound guy" can wreck a choral/orchestra performance. I never let such a fellow control our sound. I am speaking from a lot of experience!!!!
detaching or separating all dotted and tied notes (semi-staccato) works well also
Articulations -- depends on the music -- we do this all the time in Bach, Handel, and other early music composer's but I would not have the same approach to altering articulation in Beethoven, Brahms, etc.
At times I have put the brass in the middle of the choir, dividing the choir in half. This allows the choir to project past the brass section
Increasing rhythmic ensemble in the chorus.
Altos won't help tenors, but tenors can help altos. Move voices up, not down, to be heard. Usually we don't have a choice about altering acoustics. Pros help, but it's not the resonance, it's the ping. Simply asking the orchestra to play more lightly and paying attention to articulation helps enormously. Lighter, shorter notes don't take up so much acoustic real estate.
High quality electronic amplification (to clarify)
Some problems are due to the relative number of singers to the number of orchestral instruments used.

We are a professional choir, so have voices with knowledge of what's necessary vocally.
Knowing how to balance the forces at hand both orchestra and chorus begins with using the right number of musicians for a given work. I suppose this grows out of experience working with specific groups. It is much easier to achieve balance, without asking for miracles from either the orchestra or chorus, when forces are sonically (not necessarily numerically) equal. This may sound like an overly simple technique but in my experience it has been a good place to start.
In my experience, the most important technique has been to modify the dynamics and articulation in the orchestral parts.
Many Mozart-period performances had the choir divided on either side of the orchestra
I talk to the musicians
choosing the right size of forces for the particular work
I've never used amplification. So I can't answer that part of the question. Also, physical elevation of the chorus is particularly helpful. The voice is a rather directional instrument.
Amplification of course is a last resort. Building resonance is, of course, important, but is a long-term vocal goal --- focusing on consonants gets much better results in solving balance problems more quickly.
Positioning the orchestral sections to best advantage given the particular acoustics of the performance space.
I would love to have the time (and courage) to get the chorus somewhere else besides behind the orchestra. It would require a lot of "production" time, experimentation and, ultimately, cost but how about the orchestra up on platforms behind the chorus (on the floor). Or the chorus interspersed in some way around the orchestra? Given that I have typically only two/ three rehearsals with both groups, I would never have the time to figure out if a newer approach would work. (And orchestras tend to be very set in their ways -- I can imagine how the violas would react to having a bunch of tenors about them). Just some thoughts.....
cutting out all doublings in the orchestral parts, reducing string count or stands playing in select measures, re-arranging orchestration to meet balance needs of choir,
I think that in addition to the items that I have checked off, I will typically make certain sections more staccato or accented as the situation requires. Much of what is required to be successful in the issue of balance is to avoid choosing works where the choir is not up to the task of balance, either because of too small numbers or too many small or unskilled/untrained voices. If you have to balance by moving the chorus out front or using amplification you either have chosen the wrong work or have an orchestra that is too large.
Have chorus sing in a much more detached style than normal. Have orchestra play dramatically softer than marked, but with the "energy" of indicated dynamics (like playing a loud orchestral passage on a sound system but with the volume turned down). When playing Baroque or Classical repertoire, remind instrumentalists of the significantly lighter sounds of the original instruments. Performances of this repertoire with original instruments do not have balance issues. Have players try to emulate the early instrument sounds. String players can move their bow holds forward from the frog a bit to facilitate a lighter, more buoyant bowing technique. Place chorus nearer the front of the stage on either side of the orchestra- use separate shell pieces for chorus
It mostly has to do with vocal placement.
On occasion, I have asked certain members of the choir to add a "d" onto individual notes in melismatic passages (to add an element of articulation). I don't ask the entire choir to do this, only about 1/4 of the singers at most.
Much has to do with the conductor -- some conductors are able to let the singers "just sing". That freedom has much to do with being able to adapt to acoustical issues of balance. If the symphonic chorus is constrained vocally, it will be much more difficult to achieve a change in the vocal sound.
In our usual performance area, physical separation of the chorus from the orchestra helps greatly. I seat the orchestra 25 feet in front of the choir, and usually on a lower level. This makes a huge positive difference for choir, orchestra, and for the audience.

I have found that the single most effective way to balance choral and orchestral forces is to place the chorus, seated, in front of the orchestra. All of the balance problems disappear. I have done this to great effect with a number of pieces, from Brahms' REQUIEM to Dvorak's STABAT MATER.
Again it depends entirely on the performing forces and the space. Each one of these things may be necessary or useful to solve a particular problem. There is no one answer to every situation, and no hierarchy of answers that would apply in any situation.
Altering dynamics.... to be considered with 'reservations'. In the same way as a soloist's dynamic level of 'piano' is different from a chorister's, so will the dynamic level be adjusted (within limits.... I still like 'real 'pp' - if the orchestra is expert enough to play it beautifully..) for the choir, performing with orchestra.
Usually the timing of the consonants - both initial and final makes a huge difference.
In many instances, a sensitive and skillful conductor, given minimal rehearsal time, can make a huge difference. A very focused choral sound, produced by singers who deeply understand the music/text they want to communicate, can compensate somewhat for reduced numbers. Sometimes, however, the chorus is simply too small or underpowered, or the acoustical situation too unfavorable.
Microphones will distort the sound, and should not be used in any work written with acoustic sound in mind.
My experience has been that, even with a relatively small chorus, a clear resonant sound is the best help for achieving good choral/orchestral balance. A chorus with a breathy vocal production will seldom balance an orchestra. When attention is given to a clear, resonant vocal production chances for proper balance are greatly improved. I would go so far to say that it is the foundation for choral/orchestral balance. This type of good, vocal production also seems to naturally encourage singers toward great clarity in articulating consonants.
naturally, asking the orchestra to play softer
In a recent concert, I used "clouds" above the performers. This had the nice effect of allowing everyone to hear each other better, and it also caused the choir's sound to project noticeably more strongly.
anything that works for the effect

14. Other than the techniques mentioned in the previous question, are there other "tricks" that you have found particularly helpful in correcting balance problems between chorus and orchestra? If yes, please explain in detail.		
Answer Options	Response Percent	Response Count
No	29.6%	55
Yes (Please explain in detail below.)	70.4%	131
<i>answered question</i>		186
<i>skipped question</i>		16
Yes (Please explain in detail below.)		
Simply be deliberate about programming to the strengths of both ensembles. We cannot expect a choir of 50 to balance with an orchestra on Beethoven's 5th Symphony. As conductors, we must not let our desire to program a certain piece outweigh the quality with which our ensembles will present the work.		
When choosing your instrumental accompaniment hire individuals rather than an orchestra, then you can limit the number of pieces on the stage. Coach your singers in open throat/vowel singing for a bigger sound, put the singers above, to the side, or in front of orchestra if at all possible.		
My choir sings in a divided chancel. In singing with instruments, I always have to remind them to turn their bodies to face the congregation, while facing their eyes toward me. The same technique would of course apply to the sides of a chorus in a semicircular formation.		

Assuming, that as a director, you have done a proper job of preparing your singers to sing with an orchestra (diction, NOT over-singing, etc.), a choral conductor must take the unpopular step of educating the instrumentalists as to their role as accompanists - partners with the chorus - - players have to understand the human voice and its capabilities - that musicality, (phrasing, tone, etc.) suffers when singers sing just in order to be heard. They must also understand that audiences don't like it when they came to hear choral singing and go away with ears ringing from what they might term 'blasting' from the orchestra. My singers have come to dread the experience, or, at the very least, expect not to be heard. It's a hard job to hold the players down throughout the course of a performance. I think it is a great deal like the difference between a concert pianist and a fine piano accompanist. The roles are entirely different and because one excels in one area does not guarantee they will be adequate in the other. Singers should be told that each dynamic level will most probably have to be raised by one increment, but under no circumstances should we expect our singers to 'overcome' an orchestra. It benefits no one and is harmful to voices. I tend to choose works by composers who understand that principle. Passages where singers are not singing can be powerful and loud, but return to lighter instrumentation when the singing begins.

Tricks (they're certainly NOT new...)

1. Make sure the choir is tuning to the orchestra; if they're not listening, their power will be undermined.
2. When possible, increase the size of the choir.
3. ALWAYS have the orchestra play at least 1, and usually 2 dynamics softer than printed.

shadow vowels; reducing size of orchestra.

The orchestra is quite responsive to the notion that their role is to support the text. I make sure that they understand what the chorus is "saying" at all times and help them understand how they can reflect the text. It seems to work best to treat the participants as a single ensemble rather than the orchestra and the chorus.

bright forward tonal color supported by constantly moving breath articulated by energetic consonants

see prior

Ask the chorus to sing BRIGHTER vowels. The survey talks about "resonance," which usually implies some kind of depth or roundness in the tone. In terms of carrying over an orchestra, BRIGHT sounds -- placed very forward in the mask and even sometimes approaching non-beauty, carry better. You can also reduce instrumental forces at times. For example, maybe you leave out the double bass in a passage where the cello is doubling it anyway. Or maybe you only have one horn play the passage where all three are in unison anyway. One obvious thing is to always have an assistant standing in the hall during rehearsal to check for balance.

I teach the chorus to sing on each vowel sound as long as possible on the value of each note, with consonants front at the tip of the tongue and articulated together at the precise time without projecting the consonant into the preceding vowel. Thus the singers do not interfere with their own resonance, nor do they tire during rehearsal or performance of long, demanding works.

I cannot emphasize enough the great value of getting everyone to present their best and most beautiful sound. Loud and soft hasn't as much to do with the balance as good ensemble playing and singing. It is the work of everyone involved to achieve this. I work on training my choir in a cappella singing so that they become more sensitive and I use my orchestral musicians in small groups to build their ensemble skills. These have been quite effective for me.

I think the whole notion of "diction" often results in performances that have poor choral sound and that all the work applied to clarity isn't nearly as effective as one would hope. The exception to that is when consonants end a phrase, and then my goal is "together" but never louder nor more explosive. There are rare times when the music seems to require a greater emphasis on clear diction, in a louder, more percussive type of piece, but those are rare, and not really as choral as most works.

Shortening the length of notes in the orchestra or reducing the number of chairs that play during an orchestrally-accompanied section can also help, especially in the lower sounding instruments.

1. Placing the orchestra on the nave floor of a church, with carpeting underneath the brass.
2. Placing the choir on a raised platform, then on risers, making sure there is no carpeting below the risers, or obstructions above their heads.
Carefully addressing the articulations in any instrument playing <i>colla parte</i> so that the instrument matches the articulation of the singers perfectly and precisely.
- Emphasizing phrasing with the choir. When the choir phrases as a lyrical melody, the most important parts tend to come through more clearly.
- Reducing the size of the orchestra at key spots. For example, during a soft choral section that is supported by full strings, only half of the string group may be used.
Reduce the number of orchestral players for a section of the piece where balance is a problem
Making the players and the singers aware of each other's respective roles and when their part is to be featured or brought out. Also, spending time on the orchestral players articulation so as to sometimes match and other times compliment the singers pronunciation.
Other than the specifics of articulation referred to in the previous question, there is only the care taken in selecting the size of the orchestra, appropriate for the type of music being performed and the size of the chorus. In my opinion, it is far better to do a scaled-down orchestration with a smaller chorus, than to allow the larger orchestra overshadow.
No tricks, just some common sense. Cut back on the numbers of instruments playing if there are balance problems. Adjust dynamics so that the chorus is always a presence in the sound, not something in the background.
Having the chorus "beat" the orchestra by exploding the consonant before the beat as a soloist would.
marcato-style singing can cut through better when appropriate, particularly Baroque music; softer soft singing, so that loud singing creates a more dramatic contrast
Remove or restrict instrumental doubling of voice parts in all but baroque works. Pronunciation altering i.e. Germanic Latin instead of classic Latin. Positioning the choir downstage of the orchestra
good production support and good intonation; absolute clarity of consonants (not exaggerated or exploded) but precisely TOGETHER and clear
Get as large a chorus as possible and work relentlessly on improving diction.
placement of the instruments - further to the side and facing in toward the center/conductor as opposed to facing more directly to the audience
Thinning texture of orchestra for key choral entrances (e.g. just first two desks of strings, etc).
In general, getting the choir to buy into - and master- the concept of "the consonant should be the same dynamic as the vowel". The issues a conductor has to confront diminish considerably when the choir truly incorporates this. More to the point, it is really a primary concern that text is split up by vowels and consonants with the vocalists have independent control over each.
The biggest one I've spoken about. However, it is not a "trick;" rather, it is exactly what singers must do in song literature, the only difference being that most really skilled pianists solve the problem for the singers by playing a bit behind when needed. Orchestras cannot do this. So the solution lies on the shoulders of the chorus (and its conductor).

<p>Configuring the chorus and raising them up are probably the most critical “tricks” that we have learned. Perhaps the best configuration to maximize choral sound is having the men in the middle and the women on each side. If you disperse the chorus into quartets or small groups, you will not maximize the sound, so alas! We rarely can do that, even though that is what the singers prefer. Use 4 rows instead of 3, or even 5 rows instead of 4, to make the chorus deep. Height is then the other most critical factor. You must get the chorus well above the orchestra so their sound can project up and over and out. Do not let any person or object block any of the singers’ vocal production. This means that the first row of the chorus must not be singing into the backs of the brass or percussion players, and the other rows must not be singing into the backs of the row in front of them. RAISE the entire chorus on boxes and risers, and make the back row very high. We have built about 60 black plywood boxes of all types, including 15 “individual boxes” that are either 4 inches or 8 inches high. This way, we have great flexibility to place the chorus and allow every individual voice to sing straight out to the audience without obstruction. For our recent Mozart Requiem concert with 22 players, I had the chorus narrow and deep - 5 rows - with the back rows raised about 10 feet above the orchestra, and the front row at least 4 feet (that means, the floor level upon which the singers were standing, so add 5 or 6 feet of body height to that to imagine how very high the chorus was). It was a bit hard to conduct, and I had to stand about 12 inches high and look down a bit at the orchestra and up at the chorus, but the result was worth it. The choral sound was overwhelming, even while every note of the orchestra was heard also.</p>
<p>Limiting my orchestral forces (particularly the strings) to a comfortable minimum (taste-dependent), reassigning some deleted instruments (contrabassoon, for example) to bass trombone, especially when budgetary constraints exist, and when replacement instruments are in tacit. Sometimes, the use of an expertly- and discreetly-microphoned pit chorus or off-stage chorus is helpful. This requires some ingenuity and technical savvy (use of monitors so hidden chorus can follow the director’s conducting gestures) so the additional voices do not overpower the voices that are on stage.</p>
<p>Subtle alterations in articulation, often related to diction, can help a chorus cut through the orchestra.</p>
<p>I will often ask string players to play “off” the strings to assist balance in sensitive sections.</p>
<p>see my previous answer</p>
<p>Your list is great, but I’ve also revoiced music occasionally, sometimes putting the basses or altos up the octave, added second sopranos to alto, having tenors sing the baritone part if there’s a lot of divisi, etc. . .</p>
<p>- Altering dynamics in orchestra</p> <p>- Letting the orchestra hear the chorus sing various passages without accompaniment in rehearsals so they have some sense of how to shape their part against it and what I would like to have heard</p> <p>- being very careful about the seating within the ensemble -- with the right placement of singers in the right places, one can really impact the overall projection and depth of the choral sound</p>
<p>Remove leading parts in the brass and winds that carry the melody, thus allowing the orchestra to be more of a back-up instead of the lead.</p>
<p>See question 13</p>
<p>Long notes in double basses & brass-- ask for quick diminuendos or even fp depending on the context. Making sure that dynamics, phrasing and articulation in the parts matches that of the text-- especially in baroque & classical music.</p>
<p>Always acquaint the orchestra with the text (the story) and what their role is in presenting that story to the audience. This is especially important in works where “word painting” occurs, e.g. Handel’s Messiah.</p>
<p>I simply ask the orchestra to be sure and listen to the choir (and vice-versa) and to work together as one large ensemble. Also, I find that the conductor’s gesture is very important. The orchestra will respond to effective gestures that convey quieter playing.</p>
<p>I frequently have the chorus sing passages a cappella, and then ask the orchestra to balance with it. If they cannot hear the chorus, they are probably too loud. Concerning brass, it’s important that they are pointed into the orchestra rather than out to the audience. I also use sound shields, particularly if the brass are behind string players.</p>

The most important things are either 1) prepare and conduct the work yourself, or 2) be able to work with a simpatico orchestral director who understands the inherent problems.
Working with a conductor who understands/comes from the singers' perspective; this shows itself in placement of choir in relationship to orchestra, awareness of dynamics with which orchestra must play to help balance...things like that.
I also generally balance choirs that will work with orchestra differently than choirs that will sing a cappella, considering which parts are doubled/covered by the orchestra.
Sometimes vowel color (placement) can also help. e.g., a brighter color will carry over the orchestra better than a darker color (even though I prefer a darker color in general for my chorus) also, actually reiterating a melismatic line of vowels with a consonant ("l" or "n")
Increasing the number of singers for various works to "balance" the required orchestral component.
It is really not a trick but here goes. As a conductor / director you must teach and cultivate proper vocal / choral technique and know what orchestral forces you will need for the work at hand. When the preliminaries are done properly you will not run into a balance problem that requires more than the usual tweaks to achieve a good performance.
Placement of the sections and even individual singers -- many place stronger singers in back and weaker in front so that the weaker singers are guided by the voices of the stronger singers behind them -- I do just the opposite, by placing the stronger singers more prominently (let's face it, there are certain people in an unauditioned or community chorus who make little or no sound, or whose sound you would rather not hear in the mix. Placing them in front just obscures the sound of the stronger singers behind them, and puts more space between the sound you wish to have, and the audience). I have also found that elevating the chorus significantly, so that the sound does not get mitigated by the heads or instruments of the instrumentalists, is helpful.
Splitting the chorus in two, separated down the middle, placing brass and percussion behind the chorus opening, and winds between the two parts of chorus, strings in front.
articulating the choral parts
If it is possible, particularly when performing Baroque works, to strategically place your choral sections so they are aligned with the orchestral parts the double them (as if often the case with Bach cantatas, etc) not only does this act as reinforcement for the singers but it helps bring out the sound of each individual part and can effectively eliminate balance issues. For example, if the violins are doubling the sopranos and let's say the trombones are doubling the tenors while the string bass continuo double the basses - one might set up the choir (if behind the orchestra, from the conductor's perspective) so that the sopranos are on the far left near the violins, the tenors to right of center so that they are aligned with the trombones, and the basses to the far right so that they are near the string bass players.
For very soft sections, e.g., final Requiem in Verdi, direct the sound to the floor or inward. Have the singers turn slightly towards the center of the choir or have them tilt their heads down. Brass play into the floor ...
With most works (and most choirs), the balance will usually be a problem. You have to go into the rehearsal process with that balance in mind. A piano dynamic that works for a cappella chorus will rarely work with orchestral accompaniment. Likewise the way an orchestra on its own will play forte and fortissimo will rarely work when with a chorus. I make lots of dynamic changes to the orchestral parts and reduce the dynamic over the course of longer notes.
I also encourage the orchestra to listen for the chorus, which tends to encourage them to play "under" the voices.
Singers should be trained from the first rehearsal to sing on the breath with good resonance so that their sound will carry.
Add supertitles to the performance. It doesn't actually change the sound, obviously, but it changes the perception of the spoken word.

* Encourage the fact that the choir and the orchestra are one ensemble performing in support of each other, not the usual “orchestra vs. choir”
* Schedule several rehearsals together so that a unified comfort level is established
* Rehearse “in the round” or with the choir standing in front of and facing the orchestra
* It is really the conductor’s responsibility to bring these two groups together to “perform as one.” Treat them as a community of musicians who appreciate each other’s efforts.
* Finally, the conductor must lead both instrumentalists and vocalists equitably, being prepared and able to solve problems and enhance the abilities of both
Use smaller string sections - most modern orchestras are FAR too large.
I always ask the players to use their excellent ears and listen to the chorus, which helps balances and unification of articulations, etc.
Make sure the singers are positioned higher than the orchestra
not really a trick, but attention to articulation in individual parts to allow for more transparency is important, and asking each section at some point to be aware of their sound in relation to the whole.
chorus in front of the orchestra solves most problems and is the way it was done until the large choruses of the mid 19th c. It is difficult logistically but well worth the effort.
1) Make everyone LISTEN for each other. Especially, have the orchestra listen for the clarity of text.
2) Get the right numbers for balance. 20 volunteer singers = 3 student violinists; 6-8 professional singers = 1 professional trombonist, etc.
3) DON’T be afraid to rewrite parts/modify (or add) dynamics not indicated in score.
4) Get your Assistant to conduct at least 1/2 of a full rehearsal with orchestra. This allows YOU to listen and only makes the group better.
5) Remind singers NOT to oversing; just to rely on their good technique.
using Madeline Marshall “schwa” sounds after consonants (“Duh” at the end of “God”) and adding consonants in fast melismatic Baroque passages
Asking the singers to imagine that they ‘shoot’ each tone to the back wall as if fired from a cannon. Asking singers to brighten the vowels and/or mix in a lower register than typical.
It is most important to have a set of ‘ears’ in the hall. There is NO way to check the correct balance from the stage.
Trying to spend enough time with both singers and players helping everyone understand the nature and notion of the piece, increasing their sensitivity to issues of balance and color.

<p>Consonants are helpful, but only to a limited extent since vowels carry the tone. I often say “use the consonants to propel the tone forward,” a quote from a former voice teacher, Costanza Cuccaro. Consonants are very helpful in creating a more forward, resonant tone in amateur as well as trained singers. Such a tone is typically richer in upper partials, which most orchestral instruments lack. Therefore, this kind of singing helps all singers, including choirs, to be heard over orchestras. (It’s also vocally healthy!).</p>
<p>Besides improving the sound of the choir, deadening the sound of the orchestra, particularly the loudest instruments, is also part of the equation. In smaller, baroque works, with small orchestras and small choirs, pointing the trumpets sideways and/or deadening their part of the stage with rugs or blankets are methods that have been successful for me.</p>
<p>No doubt you are aware that in the 19th century it was standard procedure to place the choir in front of the orchestra, with the chorus master conducting the choir and following the orchestra conductor upstage. This arrangement is documented in the case of Berlioz’s <i>Romeo and Juliet</i>, I believe.</p>
<p>Sound-deadening treatment near brass players (a layer of foam rubber on the trumpets’ music stand, blankets on floor or walls near horn players) -- these are old opera pit tricks that can help sometimes. In proscenium-style auditoriums with chorus behind orchestra, raising the valance curtain at the top of the stage opening can really make a difference, since the shell behind a chorus often directs sound forward rather high.</p>
<p>Sometimes, orchestrations can be evaluated for relatively ‘non-essential’ parts that can be left out, thus reducing the orchestra’s volume.</p>
<p>For me, the best way is to simply ask the orchestra to play softer and balance with the chorus. As a composer, if a chorus part is at forte, I’ll typically write for strings and woodwinds at a mezzo-forte, and brass and percussion at a mezzo-piano. I have not great “nugget” or “trick” past that.</p>
<p>I wish I had some solution, but other than the things discussed prior, nothing new to add.</p>
<p>shorten rhythmic values in orchestral parts, have chorus and orchestra individually sing/play for each other so they can hear each other, re-voice chorus so they stand SATBBTAS -- for a “stereo effect”</p>
<p>Make sure that there are significant height differences between rows of choral singers, 14”, so that singers are not singing into the heads of other singers. Tell brass to be sure they can understand the words the choir is singing.</p>
<p>A psycho-imagery thing: simply having the choir aim its sound up and over the orchestra to some point in the hall (an entrance door, an exit sign, a balcony, etc.) seems always to work wonders. I think this is so because, regardless of the vocal training of the choir, it taps into a very natural ability learned from very young to project the voice where we intend it to be heard. simple, I know, but it works!</p>
<p>Having the chorus sing less legato has been helpful.</p>
<p>moving singers farther apart, providing more space for vocal sound to resonate</p>
<p>I think the most beneficial aspect of allowing the choir to be heard is the presentation of text. The correction of this issue resides in the understanding that the presentation of text, specifically consonants, must be different when working with an orchestra than when working with an a cappella choral ensemble. The diction techniques of Robert Shaw are a fantastic tool when presenting a combined work.</p>
<p>While I don’t consider this a “trick”, I would say that percussion and precision of consonants go a long ways in creating a proper balance between chorus and orchestra. Consonants are one of the main means by which we achieve this. I’m a graduate of Westminster Choir College and watch Joseph Flummerfelt prepare us more than 20 times for works with major orchestras. Sometimes a legato line needs to be less legato in a given situation to have the right presence. It isn’t an issue of volume that makes a choir heard. Every situation is different depending on the work. In the case of works like Verdi Requiem and Berlioz Requiem, Joe would expand the ranks of men by pulling in alumni but choirs usually lose the battle if they try and out sing an orchestra. Intonation is a very underrated factor in this but precision and articulation are in my view, the most important. And of course, one must always prepare using the orchestra score to avoid balance problems</p>

<p>This depends on which language is sung and on what is the quality of the instrumental playing and of the instruments. The Bach Magnificat, for example, can best be performed with proper balances when using period-instrument orchestras. So can the Haydn "Creation" and the Mozart "Requiem." This is true for a variety of reasons.</p>
<p>I can't think of any "tricks," although in a work like the Mozart Requiem, I tend to eliminate trombones in many sections where the doubling obfuscates the vocal lines.</p>
<p>Refuse to give up. Many conductors simply seem to accept poor balance because it takes a lot of convincing to get the orchestra to lighten up sufficiently. Balance is absolutely critical and must be continually considered.</p> <p>In first rehearsals, I allow the orchestra to play at their normal dynamics, as it is difficult to play lighter when first reading a piece. With each subsequent rehearsal, I request less and less volume, but try to maintain the energy of louder dynamics ("play this section mezzo piano but with the tone and energy of your normal forte"). I tell the orchestra at the first rehearsal about this plan of gradually lessening their volume as the rehearsals progress.</p> <p>I give the orchestra the complete text of the work we're performing (some read it, some don't...) I often ask the orchestra to make sure they are playing softly enough that they can hear the words the chorus is singing.</p>
<p>Listening. Too much time is spent talking about choral/orchestral "philosophy" when it is best learned by simply doing and listening.</p>
<p>I find that choruses singing with orchestras generally do not articulate clearly; they need to be less legato (not with less line), and 'on top of the beat' with vowels opening on the beat and consonants immediately preceding the beat. I find also the language does affect things; French should be easily heard because the forward placement cuts through; English is more difficult as it is a much darker language.</p>
<p>Articulation - not only exaggerated consonant sounds, but working to make sure that the onset of every voice is simultaneous. Also, they should work for making the vowel sound ON the beat and any initial consonant sounds timed so they slightly precede the "on-the-beat vowel."</p>
<p>Adding brightness to a crescendo, especially at the end of a piece. Placing the singers in a carefully arranged "scrambled" position, so each singer can hear the other parts and use his/her voice to fullest advantage.</p>
<p>The biggest part of the problem is that instrumentalists play too loudly. They are not used to playing in duet with a chorus. Using historically appropriate instruments for baroque and classical music makes the problems of balance virtually disappear. Modern instruments are the problem but the players will respond if it is demanded of them.</p>
<p>Encouraging instruments to play softer....singers are not encouraged to "push". Face brass players to stage right and left not directly toward the audience. Sometimes slightly smaller instrumental ensembles.</p>
<p>In problem passages, after telling brass and woodwind players precisely which chorus voices they are playing with....insist that THEY (each one, personally) listen for those voices and MONITOR THEMSELVES through the trouble spots. Amazingly, it works for me. Having instrumental musicians 'own' the product they share with the singers....good results.</p>
<p>keep conducting gestures small for orchestra while keeping face and non-baton hand open and expressive for chorus; explain to orchestra that chorus, when singing, assumes the role of first violin section and that first violins and all other sections need to scale dynamic range down accordingly ("leave the chorus some head-room"); make sure the chorus understands vowel modification and vocal ring</p>
<p>Reduce the number of stands of string players at light choral moments. Having brass play into their stands, finding sound absorbing material to place around percussion. placing brass in less dynamically rich locations on stage.</p>
<p>Rhythmic Integrity</p>

My primary ensemble is a 50 voice community (un-auditioned) chorus. I find singers are more likely to sing with fuller sound and attentive diction when they make some emotional connection to the meaning and wording of the text. To bring an emotional component to the actual sound (and its production) gives greater likelihood of effective projection of both the emotion AND the text which inspires it.
I try to insure a 3-1 ratio balance with any orchestra, i.e., 3 singers to every 1 orchestra player. Our current concert consists of the Requiem by Cherubini and the Beethoven Choral Fantasy...40 players in the orchestra...110 singers. I'm not quite where I wanted to be with the singers but close.
Plan ahead! Let everyone know, chorus and orchestra, that we might be trimming a few violins if needed. We have had a first combined rehearsal early on just to see what we need far in advance of a concert. The chorus needs to know that singing piano with an orchestra is different than singing piano in an a cappella piece of music. This can lead to everyone singing at one volume if not carefully monitored. I've found the orchestra needs more attention when it comes to playing softly.
See previous answer...
Again, it is mainly an issue of good analysis and decision making. Understand the orchestral forces required and what the choral forces will be. Understand the hall. Then, make rep selections that make sense. Really, choosing the right rep (or the correct version...say which version of the Faure Requiem to use) is the key to this issue (in my opinion). Additionally, "balance" is relative. I view the score as one entity, not two. I do not need to hear the choir over the orchestra. It is one of the colors in the overall sound. No more important than any other.
Sensitivity to the people involved, and recognizing the individual people in the sections, not just the orchestral mass as a whole can help bring out the musicality and ultimately improve the balances within an ensemble. Seeing the whole ensemble as an ensemble, not just the orchestra accompanying the choral stars, can also help. Learn about orchestral playing and conducting, and have respect for the musicality and sensitivity of the players in the orchestra.
Completely consistent and open vowel sounds -- particularly the "ah" vowel. When it is free, there is no other vowel that carries as well. Frequently when the sopranos are singing high and not singing an "ah" vowel, I will change their vowel to "ah" so that it will project better. The rest of the choir sings the proper text so that the text is intelligible. Likewise with low basses, I will change their vowel to "ee" -- one of the brightest -- so that as much of their pitch and timbre is heard. Again, the rest of the choir delivers the text intelligibly.
I wrote my "trick" in the previous answer.
Placement of consonants more forward; having some singers do non voiced consonants in place of voice. e.g., have half the choir sing a k instead of a g, "Kloria" instead of gloria
Most choral conductors only see an orchestra for 1 or 2 rehearsals before a performance, whereas the chorus rehearses 6 -8 weeks with the conductor. It is absolutely necessary for the conductor to develop a strong rapport with the instrumentalists, choosing the same players each season when possible. Once the orchestra builds trust in the conductor, they are much more willing to become 'accompanists'. The concert master/mistress also plays a huge role in complimenting the musical desires of the conductor. If the principle violin I player refuses to play softer or change a particular nuance or bowing, the conductor is at the total mercy of that person. The choral conductor's most important job here is to prepare the choir consistently in vocal production, projection and stage presence. Most of the time, if the choral conductor has done his/her job with the chorus, the orchestra can be the sole problem for balance problems. Professional string players want to "play", and we need to let them, but they also need to understand the subtle nuances that produce good balance. Many instrumental parts are rental and very difficult to read. Sometimes dynamic markings are so small that they are missed by the players. It is our responsibility as conductors to make them aware of passages that require dynamic awareness. If they aren't told, they won't do it. Above all, however, I still believe that if you have an orchestra that trusts and respects your work, you can get them to do anything.
Shadow vowels and consonants, articulation

It is imperative that the members of the orchestra know what the sound of the text is and what the meaning of the text is and what the rhetorical gestures in the music are. If they only go about the business of trying to “accompany” the singers, the result will never be satisfactory. The singers must know how to make use of articulations of strong/weak, short/long, and differences in “stroke” in the ways that a string player does - detache, martellato, sostenuto, etc. Most of all, everyone needs to listen and acknowledge the partnership of the process.
Baffles ABOVE the chorus directing the sound forward
Put rugs/carpet squares under the brass instruments and towels on music stands
Teaching both the chorus and orchestra to be sensitive to their articulations so that parts are clean, clear, and unobtrusive.
The only “tricks” that I use are: Get a performance space with decent acoustics. Hire good instrumentalists. Make sure that the choristers don’t have their face buried in the score.
Hiring a period-instrument orchestra for a performance of Messiah. Good Baroque players don’t sustain everything they play.
It’s all about where they are placed in relation to each other and the audience. Also, the numbers set against each other. Even with unbalanced numbers you can have a better sense of balance with good placement.
In my opinion all choral music should be performed in a space which approximates the space for which it was intended
There is no substitute for evaluating each situation on its own merits and challenges.
No ‘tricks’ - just common sense to pick the right music and adjust the size of the orchestra. Common sense is not a trick...
Reducing coverage of sectional parts in the performance of a work, i.e., fewer brass, woodwinds, strings, use of mutes, placement of percussion behind sound screens
Have chorus sing a section a cappella for the orchestra, then have orchestra join them and imitate the word stress of the chorus. Since singers naturally (and with great encouragement, at times) allow text stress to shape the phrases, the weaker syllables are easily buried by the instruments that do not have the benefit of text to guide their dynamic interpretation. This method also reminds the orchestra that there are other things going on and encourages listening to the chorus.
I try to never make balance/blend the ONLY focuses of my work I love the sound of voices and voices singing in ensemble...orchestras deserve to learn from those sounds when they are beautifully produced, etc. I HATE the us/them syndrome that is often fostered by BOTH choral and orchestral conductors...what a waste of time, and an obvious show of huge insecurity. My observation is that when a conductor has nothing to discuss besides balance and blend, there is little or no music making happening...what about the meaning of sound - vocal and orchestral - what about the meaning of the text - again, vocal and orchestral. thanks for asking!
Communicating to musicians which musical material is primary, and what is secondary.
You have to have good players who can play softly with integrity
Really focusing on getting the singers to sing into their frontal resonance (a.k.a. ‘mask’) so that they are singing on the breath with pleasant bel canto sound, not forcing or trying to shout through the orchestra. Incisive attacks that occur well before the beat with consonants so that they can punch through the orchestral texture. Voice matching and placement in the hall to adjust where strong singers can do their best to lead the weaker ones.
Tell individual sections to play or sing louder or softer when there is an imbalance.
Chorus rehearsing around the orchestra in a circle, aids in orchestral listening and balance
A conductor who has a very deep and detailed understanding of every aspect of the score can make a huge positive difference. The more every performer (singer and orchestra players) understands his/her role in the context of the work as a whole, the better the final result will be.

The key is to have the chorus above the orchestra, and to limit the size of the string section, and to use professional players and singers as much as possible, so the professional singers can increase the sound of the chorus, and the professional players can play quietly with beauty. Having the orchestra flat on the floor, with the winds and brass NOT elevated, and the lowest row of the chorus well above the orchestra helps enormously. This is the arrangement in all major concert halls, and it can be duplicated in churches and smaller venues with steps, platforms, and risers.
I have a community chorus and bring in instruments rather than needing to work with a particular orchestra. Use smaller instrumental sections when possible. Even 1 per part strings if needed.
I've always thought that the easiest way to increase the size of a choir is to increase the size of each individual vocal instrument. Too many singers make inadequate use of resonators. Even if the vocal production is clear, the overall sound can be comparatively small because of limited use of oral space. Simply increasing this space will enhance the sound considerably, increasing its "size" without raising the dynamic level. Slightly protruding the lips adds space to the oral cavity on all vowels. With many choirs, vowel production is simply too casual, with little attention given to this use of oral space.
I am constantly using verbal reminders to the singers to use consonants for projection, and to the orchestra to remember that they are 10-15 feet in front of the chorus. The size of the string sections in the orchestra can also be trimmed to match the number in the chorus - it is not necessary to have 10-10-8-4-4 when there is only a chorus of 50. It may not even be necessary with a chorus of 100...
Increasing the height of the chorus. In other words, placing choral risers on 3' platform behind the orchestra.
In our bi-annual performance of Messiah, I have placed the orchestra on the stage left half of the stage with the chorus on the stage right half. They work together and the orchestra has commented that they feel like they are more of one performing group. Soloists are center stage close to the continuo. It is more difficult to conduct, however, because if you have common cue, the parts are not physically together (Ex. Sopranos and 1st violins doubling a line). I still prefer it, however.
In Baroque pieces, using C trumpets instead of Bb; asking orchestra to play one dynamic degree lower than written in parts; asking some strings not to play at critically quiet sections or anywhere except passages of orchestra only or tutti.
Two things: 1. Trumpets: I find that trumpets with conical bores are much easier to balance with the choir than those that are non-conical. The trumpet players also seem to enjoy playing on conical instruments more in this context as well; they can "play out" much more without fear of over-balancing the choir. 2. Strings: Having them play closer to the fingerboard, even over it a bit, creates a more silvery sound with less body. This seems most appropriate for pre-Romantic music.
review the instruments called for, and reduce the forces if practical
It really depends on the passage. Sometimes it is a matter of articulation; sometimes free breathing can help. But for a general remark, my most effective approach is to assure that orchestra and singers phrase alike, breathe together, and understand the shading of the texture in each troublesome passage. It is also the case, in my opinion, that there are times when the chorus should be subsidiary to the orchestra, in which cases singers might think there is a balance problem when I think it's just right.
We have experimented with the placement of the chorus. In one hall, we brought the chorus downstage on the sides of the orchestra, with the winds and brass far upstage, and that worked rather well. We generally have better results on standing (rather than seated) risers, because the singers are closer to the apron of the stage.
Have brass face sideways to audience and, if necessary, put carpeting under them.

15. Do your techniques for addressing choral/orchestral balance issues change when working with different types of singers (i.e. amateur vs. professional, younger vs. older)? If yes, how so?		
Answer Options	Response Percent	Response Count
No	53.8%	100
Yes (Please explain in detail below.)	46.2%	86
<i>answered question</i>		186
<i>skipped question</i>		16
Yes (Please explain in detail below.)		
High School voices don't carry as well as young boys or as well trained adult -- amateur or professional		
When working with younger singers, I work more from the standpoint of adjusting the orchestral sound.		
Maybe; but I haven't worked with younger amateur singers in years, at least not in combination with instruments.		
I don't work with young singers (below 20), so I can't comment on that issue. Professionals may be able to overpower the orchestra, but I still find that balance and blend suffer.		
Forgive me, but this is a silly question; of COURSE! Professionals make MUCH more sound than amateur's or younger singers. Use a smaller orchestra with volunteers or kids, have them play softer (or with mutes).		
Professional singers have larger voices, and more skills to cut through orchestra texture.		
No, the chorus is normally mixed amateur and professional. The amateurs tend to follow the lead of the ringers, especially after sectional work.		
One must always be aware of limitations of voices, size and balance of singers.		
I've only work with amateur adult singers in combined choral/orchestral settings. I probably use different images than I might with professionals.		
Yes. The younger and less experienced the singers, the more the balance problem is pronounced. So, with the younger singers (HS, for example), it's nice to program pieces with limited winds and percussion in the orchestrations. Mozart missa brevis, for example, have a really light orchestration that works well.		
There is only so much resonance one can get with amateur singers. There is only so soft an amateur orchestra can play. Amateurs also require more time in the hall to adjust to the acoustic.		
I work mainly with younger, professional or well-trained singers, but the size of my groups tend to be 50 voices or less. I try to find extra singers for the largest of works. For smaller works, I just make sure there's carpeting under the brass section.		
With amateurs, I tend to encourage resonance and phrasing. With professionals, consonants and phrasing tend to be the issue, since resonance is likely already fine.		
To a small degree. The professional singers usually have more experience singing with instrumental ensembles and perhaps are better able to adjust vocal tone and/or production. Selection of repertoire might also be a consideration, for example, having young singers sing a 19th/20th century work with orchestra (Elijah, Verdi Requiem etc) would be problematic. I think that similar balance related issues will arise regardless of type of singer, but the degree of the problem will likely vary.		
My approach with the orchestra changes with a stronger chorus on hand - - such as stronger or longer bowings, and more animated articulations (especially in the winds). I actually often find that the challenges of working with the amateur chorus and relating that to the professional orchestras I hire can result in a more satisfying result. I suppose this is because I have spent my career doing this!		
I can ask more vocally from my more advanced groups, in terms of volume.		
Yes. The more secure they are and the more we identify problem areas early in the rehearsal process the better we do. Practicing rhythmic speech separate from the music also refines and encourages the "soloists" diction model. Every singer has benefited from this approach from pro to elementary singer.		
Younger amateur singers need extra attention to vocal production issues so as not to shout.		

Professional singers need less vocal coaching and balance problems are rarer, since they have the ability to project in ways that many amateur singers do not. While good choral habits should be universal, one has to remind amateur singers of them far more frequently than professionals.
Less trained singers can't manage the change in vocal heft as easily as well-trained singers. We can talk about placement and resonance and all that and it will stick, but not with younger or more inexperienced singers. And better singers look up more, so their sound is projected out. Also, rhythmic precision makes a big difference, and better choirs are more rhythmic usually.
Use age appropriate literature, avoid heavy romantic, reduce orchestration by using piano and/or organ, use a buoyant vocal approach, reduce written dynamics.
Not really, but this CAN change related to the amount of experience a group of singers has singing with an orchestra. A conductor has to over-emphasize the drill points with an amateur choir as well as semi-professional without orchestral experience. On the other hand, even a Community Choir with older voices, savvy to the requirements of singing with an orchestra can adapt quite nicely in no time.
Professional singers will have more resonance in their voices -- this helps a lot -- but can also cause vibrato and tuning problems, so you must be careful.
The less experience, the harder it is to get them to put the consonants ahead of the 'beat,' especially since their rhythm is so much weaker than that of the average orchestra.
I work only with my Chorale, and it consists of amateur and professional singers from 22 to 81. In regard to choral/orchestral balance, of course, you have to ask a lot of volume, energy, projection and precision from the chorus at all times during the performance and these present different challenges for different singers. Older singers and their voices are definitely a problem, but we bring in vocal clinicians and I have a strong voice background, so working to reduce vibrato by increasing breath control and muscle tone is something we do consistently. Endurance is sometimes tough and I notice that the older singers often flag by the end of a 1-hour work. This is why you must constantly recruit younger singers into your chorus, and there are fewer and fewer top notch younger singers coming into adulthood, at least in Maryland. Blend is a top priority, and I find that some of the younger singers persist in using a too-straight, pop style of projection that does not blend well. So we have to teach them how to resonate more and "sing in the sleeve." With the oldest members, we have some hearing problems and sometimes they just sing too loudly and are not aware of it. So balance and blend are always paramount and different kinds of singers require different approaches. In general, I think choruses tend to oversing when they get with an orchestra, so you have to stress projection and support as opposed to oversinging. We find that, when we prepare works with orchestra, we really rehearse in a different way, paying a lot more attention to diction and breath support, and rehearsing standing a lot more, so people can get their endurance up. It's a complicated business.....!
The more advanced singers require less prodding (for volume and articulation) than the younger or more amateur singers. However, balancing more professional singers can be a bigger problem, sometimes vexing, than blending more amateur singers who tend to sing more in community, and more out of the love of singing.
More experienced singers can up their volume without distortion while less experienced singers may not be able to.
Amateur choirs need much more explicit directions and reasoning and they require LOTS of practice. Simply telling them to do it will gain you about 5% improvement. You have to work it over and over before it sinks in - and some will think you're crazy until they hear the result with the orchestra. Also, if you wait to address these issues when they're in rehearsal for the first time with the orchestra, then you've waited too long!
Younger singers are more difficult to balance because they don't necessarily know how to sing with an orchestra without over singing.

Started to explain before -- this is far too complicated as it is not only amateurs and pros, or older vs. younger I work with, but also modern vs. period instruments (and with all of the different choral ages and skills in combination) -- this needs to be approached on a case by case basis. Best advise -- hire wisely in the orchestra, or know how you might approach fixing problems before you walk in for the first combined rehearsal. I also work with student orchestras and pros. Far too much to get into as you can imagine.
My techniques do not change as much as my choice of repertoire does.
Somewhat. The orchestra (at least, the players I work with) often plays to the level of the singers.
I work only with professional voices when contracting with orchestras. My work with volunteer/student singers is limited to a cappella or piano/organ accompaniment.
A bit with younger singers, but it also changes with the experience of the orchestra too. Pro players who can play very loud are also more likely to be able to play very softly, less experienced players don't always have that capability
Yes -- professional singers need little balance correction, or efforts to change the balance are immediately effective when asked for. Amateur singers need constant reminders, and I sometimes feel like a broken record in repeating the same instructions and tips over and over again. And some techniques need more practice than others -- asking some amateurs to exaggerate consonants often leads to ugly or exaggerated vowels, because they cannot differentiate as readily between them, etc., whereas professionals are well-versed and experienced in such techniques.
Really professional singers, especially opera chorus types need very little help in being heard. The less trained the singers, the more care is needed.
Address vocal resonance changes with each age group. You may need to sing with more space with a younger group to access volume. You may need to sing with a more focused sound with adult singers to create a clean harmonic ring that will cut through the orchestral texture.
Work less on uniform vowels, resonance, and crisp diction with professionals, who tend to know this.
A modest sized group of professional singers will usually project much better over an orchestra than a large chorus of amateur voices. With professional singers, I work to get a focused sound, assuming that they bring to the table solid vocal production. With amateur voices, much of my work is encouraging them to sing on the breath and to develop good resonance (and, consequently, not to sing with a flutelike sound or to focus on "blend").
the technique is the same, but the language in presenting it is different
Depending on situation: amateurs probably have less resonance, less precise vowels, etc.
I've found that younger choirs and those less experienced need verbal explanations that are simple and clear. This group also benefits from brief reminders of historical perspective and performance practice. Professional singers just need to know what you expect from them musically
And also with different types of orchestral players. The less experienced, the more technical the conductor can be. The more experienced the performers are, the more the conductor can use abstractions such as "sing louder" or "listen for the singers' words" or "play lighter"
Younger singers present more balance problems
Only to the extent that I attempt to get amateurs and older singers to sound like professional and younger ones, mainly by means of encouraging a more forward vocal tone as I described in my previous entry. In terms of vocal tone, the final goal is the same for all types of singers.
Sure -- the most important thing is not to over-program for your singers, orchestra and space -- for a given work, the minimum number of singers needed to pull off good balance changes depending on their level. Just because a choir of a certain size and level can sing the Brahms Requiem doesn't mean it's possible for that choir to perform it with an orchestra with good balance. The best defense against balance problems is to start with the right work.
Good techniques work with any ensemble.
This actually would depend more on the orchestra. My orchestras are always professional so I put the onus on them to balance. If they were amateurs and the chorus professional, maybe more would be put on the chorus.

The more professional singers tend to be quicker and more flexible at adapting to unusual balance issues.
Many times younger voices lack the carrying power that more mature voices have. Also, most professional singers have a better more focused resonance in their voices than amateurs that would carry over an orchestra
With professional singers, simply asking for more sound or earlier consonants is often sufficient.
I guess that singers with technique are better trained to sing through the orchestral sound, though they need to be reminded sometimes to project and especially the more the singers' training, often the more reluctance there is to sing aggressive consonants.
Chorus is amateur and needs more detailed explanation. Orchestra is professional and required only brief instruction or conducting signals.
Amateur choral participants need more "coaxing" and have less ability to judge their output quantitatively when singing with orchestra. Professional singers seem better at automatically adjusting their output as they encounter strong orchestral forces.
Professional singers are much more focused than most amateur singers. Brightening the tone is helpful with the amateur singer.
Obviously, the size of the string section will vary according to the strength of the choral sound.
Again, listening is the key. You must obviously make changes when working with amateurs vs. professionals.
Somewhat. Professional singers project much better than amateurs.
Amateur vs. professionals absolutely!
children's voices require softer dynamics universally
To some degree. I find that fewer singers that are well trained can produce full sounds than non-trained singers.
You can ask for technical changes from trained singers, and a wider range of dynamics and effects, than from amateurs. Kids respond to a "challenge" to overdo more than adults.
I have to speak about diction issues with older singers rather than collegiate age, and of course professional singers are much better about diction in general, and can articulate passages much more effectively than amateur singers.
Simply put, the less trained the singers, the more difficult to get them to properly project.
In my experience, I have not had difficulty when all of the musicians are professional.
Of course pro vs. volunteer, older younger, high school vs. university, tremendous difference of balance, all up to the conductor to solve
Professional singers will need much less guidance in matters of tone and articulation and listening. Younger singers will need more help from the conductor in getting the orchestra to be a listening partner since they will be limited in the actual amount of sound they will be able to produce.
Amateur singers generally need much more help on all of the fundamental issues of balance.
It's as simple as how you tell them to adjust. "Sing louder" vs. "let the breath carry the vowel all the way to the back of the hall".
Please negate # 14. I could not make corrections in my answer or add to what I wrote. The computer wouldn't allow me to continue!
Some issues of vocal presence, resonance, etc., are immediately solved by professional singers, so whatever problems may be present in a given situation are partly solved by them. With amateur and inexperienced singers, the learning curve is longer and slower. The descriptive language between these two groups may differ but the desired end result does not.
With professionals I expect their vocal technique to be part of their singing .. i.e. resonance .. with amateur's the more the merrier.. as with younger choruses
Amateurs have greater trouble projecting occasionally
Older singers have trouble with pitch, especially in the upper registers and overuse/uncontrollable vibrato. Prefer trained younger voices with reading ability and voice training knowing how to sustain and control tone through changing registers

Although all voices need to be reminded to not push to get over the orchestra, it is especially important in works using children's voices. Works with children's voices often necessitate reminding the orchestra that when the composer said forte, he/she was perhaps only joking.
I work with a professional orchestra and an amateur chorus, so I expect the orchestra to make the most adjustments
Not too much really, but of course, when you can hire a professional chorus, the problem is much less.
to the extent that younger, less experienced singers need to have the techniques previously discussed more consistently reinforced in rehearsals.
Less experienced singers need more encouragement and instruction.
Yes, however, we are talking about a volunteer chorus in a small rural city, so the choice of competent singers is pretty limited.
Predictably, balance is less of a problem with my professional choir than with my church choir.
use smaller orchestra with younger voices
I find that amateur singers tend to change their vocal production once they get with an orchestra. The amount of sound coming at them, along with the excitement an orchestra brings, tends to cause them to sing too heavily and they tend to lose nuance and diction. I find myself having to remind them more frequently to stick to the game plan previously set forth in chorus-only rehearsals.
I conduct church choirs, community choirs, and professional choirs. All have differently trained singers, so I am the one who has to adapt!
I work for rhythmic diction and clear articulation with all my groups - school, church and community
I would be much less concerned about the balance problems if I worked with a choir of trained (professional) singers.

16. Where and how did you learn these methods for addressing choral/orchestral balance problems? (select all that apply)		
Answer Options	Response Percent	Response Count
Trial and error	86.6%	161
Observation of other conductors	75.3%	140
Instruction from a mentor	48.9%	91
Read about it in a method book	11.3%	21
Other (Please specify below.)	21.5%	40
<i>answered question</i>		186
<i>skipped question</i>		16
Other (Please specify below.)		
My own experience and watching how other conductors are or are not successful in this arena.		
College training, seminars		
I work to teach great vocal production to all of my singers, no matter how skilled they may be. More experienced singers need less coaching, but the entire ensemble needs to be unified in their approach to vowels. In terms of the orchestra, I do everything I can to get the members to create a great ensemble sound within each section and then I assist them to find the balance between the sections and the choir...I think that is one of the things the conductor is most needed for, since inside the ensemble, singers and instrumentalists don't get as clear a picture of the overall sound.		
Observation of performances too.		
LISTENING, LISTENING, LISTENING! Old albums of the Robert Shaw Chorale became my own private tutorial and much of what he did was very clear to emulate (not to "master", but to "emulate" :-)		
ACDA workshops; other choral workshops and classes.		

It's logical.
50 years of choral conducting, great teachers and professors, singing with some of the finest conductors in the world, attending ACDA conventions every year, listening to many recordings, and reading a lot of books about the voice, the chorus, and conducting. Still, experience and trial and error have probably been the best teachers.
Thinking too much! The phantasm is an indispensable part of conducting.
Going to open rehearsals with real choral/orchestra directors is among the best ways to learn. Being the "ears" as an assistant for someone, identifying problems, seeing how the conductor then expresses to the group how to fix, followed by the discussions after -- great way to learn. Few books have anything really significant to say. Also, just knowing the orchestra and its ways can really help--playing an orchestra instrument and growing up in that tradition as well as the choral world is a great thing -- it make the whole difference.
Attending and participating in festivals and workshop focusing on choral/orchestral conducting. The Oregon Bach Festival with Helmuth Rilling is a prime example.
I've prepared dozens of choral/orchestral works for conductors such as DePreist, Rilling, Shaw, Hillis, Parrot, and Sidlin, for example. So I learned from doing this, and watching them. One MUST have a good hall.
I am also a symphony conductor
logical conclusion
Experience as a singer myself
Experience, which is not necessarily the same as trial and error.
singing and playing in ensembles
As I mentioned, I had the privilege of singing under Joseph Flummerfelt who is considered by many to be the best in preparing choruses to be led by other conductors leading the major orchestras of the world. I also spent 10 years singing with The Philadelphia Singers, a 30 voice professional chorus then under the direction of the late Michael Korn. Most if not all of our concerts were with a 30 piece orchestra which put us in the position of a 1 to 1 ratio which could only be maintained by a fully professional chorus. I work on score preparation with Michael and shadowed him during rehearsals. I also spent a month at an orchestral conducting workshop at the U. of South Carolina and have dual MM in choral and orchestral conducting. On this issue, I would recommend that choral directors study orchestral conduction at some level to really get an understanding of how choruses and orchestras must work together in performance.
50 years of experience
Method and instruction books do not help at all. It must be experienced.
college/graduate courses
Years of experience. And sometimes, I just suffer.
The more personal I can make the 'association' of instrumentalist and singer in rehearsal - actually getting each to 'care for the work of the other' - brings an inspired and carefully balanced performance....one we ALL strived for!
Does not apply
Rather than trial and error I would have to say, in my situation, intuition.
Listened to and studied as much music as I could stand, attended other rehearsals (not just works involving singers), and played in orchestras under many different directors.
Working with the Minnesota Orchestra as a preparer of the chorus.
ACDA choral Journal article by former Symphony Chorus director (I think by Vance George).
Years of experience! As a young conductor I didn't really hear balance problems. I was still learning scores and I was thrilled by the sounds one could 'control'. Now, some 40 years later I can take new scores and almost predict where balance problems will occur....the "nip it in the bud" effect!
Specifically I learned a great deal from Shaw, Rilling, Hillis. I have also been fortunate to collaborate with excellent Baroque music experts such as Kenneth Slowik and Reilly Lewis. They have taught me a lot about ideas of rhetorical and textual alignment of vocal and orchestral articulation.

College
Many years of conducting and much reading of helpful books.
Listening at length in live performance/rehearsal and to recordings.
and learning by doing - which, I guess, would be 'trial and error'
Applying various techniques based upon previous experiences...trial and error.
A lifetime of working with singers and players. I have also learned from watching other conductors in action...more often what NOT to do than otherwise.
Personal experience.
Imagination, score study
experience
"any port in a storm" I will try any trick necessary to get goal

18. What type(s) of ensemble(s) do you conduct? (Select all that apply.)		
Answer Options	Response Percent	Response Count
professional/semi-professional chorus	54.8%	102
church choir	58.6%	109
community chorus	77.4%	144
collegiate chorus	52.2%	97
Other (Please specify below.)	16.7%	31
answered question		186
skipped question		16
Other (Please specify below.)		
7-9 grade treble		
I have conducted all the above in the past.		
now retired		
Ecumenical Christian Chorale		
Symphony Chorus		
High School		
Two youth choirs		
Elementary school choirs		
High school		
symphony chorus		
High School		
The Chorale is officially a community chorus, but we never sing without a fee, and we have quite a few professionals in the group, so it is more of a semi-professional chorus/very advanced community chorus.		
period instrument instrumental ensemble		
Over my career, all of the above.		
Fully professional, 32-voice choir, expanded when collaborating with orchestras.		
Opera		
high school choir		
private high school		
I have a Chamber Choir through my larger community chorus that does University level work and has many singers with music degrees. I also prepare my chorus for the NC and Raleigh Symphonies.		
very advanced children’s choir		

high school
High School
A lot of musical theater, pro and community
Symphony Orchestra, Chamber Orchestra
Children's, Youth, Gay, All of the above, 55 years of experience with all
Louisville Bach Society in our 45th season
any level/age - in festivals and special events
high school
High School Chorus
professional/semi-professional orchestra
High School

APPENDIX E
PERMISSIONS

Permission for Figure 4.5 on Page 77

Reprint permission from Choral Journal

1 message

Ron Granger <rgranger@acda.org>
To: kjturner@uncg.edu

Wed, Feb 25, 2009 at 10:21 AM

From: "Gonzo, Carroll L." <CLGONZO@stthomas.edu>
Date: February 25, 2009 9:18:01 AM CST
To: Ron Granger <rgranger@acda.org>
Subject: Re: [Choral Journal & Publications] Reprint permission from Choral Journal

Dear Kelly,

This e-mail gives you copyright permission as long as you credit the Choral Journal in writing under the figure.

Cordially,

Carroll Gonzo
Editor

From: kjturner@uncg.edu
Date: February 25, 2009 2:31:21 AM CST
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Reply-To: kjturner@uncg.edu

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Thank you,
Kelly Turner
D.M.A. Candidate
University of North Carolina at Greensboro

Permission for Figure 4.6 on Page 81

HyperPhysics - Reprint of Graph in Dissertation Request

2 messages

Kelly Turner <kjturner@uncg.edu>

Wed, Feb 25, 2009 at 3:53 AM

To: rodnave@gsu.edu

Dear Rod,

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Thank you,
Kelly Turner
D.M.A. Candidate,
University of North Carolina at Greensboro

Rod Nave <rodnave@gsu.edu>

Wed, Feb 25, 2009 at 8:43 AM

To: Kelly Turner <kjturner@uncg.edu>

Hello, Kelly,

You are certainly welcome to use the image in your dissertation. Best wishes on the completion of the dissertation.

Regards,
Rod Nave RodNave@gsu.edu
Department of Physics and Astronomy
Georgia State University
Atlanta, GA 30302-4106