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PREFACE

*R*ecently, a friend gave me a copy of a book that generated a cascade of revelations. The book was a landmark in the development of our knowledge of the human voice, Friedrich S. Brodnitz's *Keep Your Voice Healthy—A Guide to the Intelligent Use and Care of the Speaking and Singing Voice* (the book given to me was a paperback reprint of the original 1953 edition published by Harper & Brothers. This original printing was subsequently released in a second edition in 1988 published by College-Hill Press). Compared to today's weighty voice science volumes, this seminal book looks almost modest in content and depth. The chief revelation occurred when I looked at the publication date of the reprint; it was published in 1965, the year I graduated from college as a voice major.

Perusing Brodnitz brought home the fact that much of our scientific and medical knowledge about voice was still in the future as of 1965. What was known at that time had begun to filter down to the applied level in a few pioneering voice studios (one example, the work of William Vennard in California). Even today, with the advances of the last quarter of the 20th century in place, we still are not at a place in which our considerable scientific knowledge has become commonplace in a majority of voice pedagogues' approaches. Fortunately, the situation is improving rapidly with many colleges and conservatories instituting high-level vocal pedagogy and vocology courses.

THE ORIGIN OF THIS TEXTBOOK

At Drew University, by 1995, it became obvious that we needed a course in class voice because so many young singers were arriving from their high school experience without training of any sort. What was needed was a way to jump start their college-level work both in our choral ensembles and voice studios. We needed a one-semester course that would serve as an introduction to fine singing by meeting two principal goals:

- To provide a foundation of anatomic, physiologic, acoustical, and medical knowledge for the new singers. This requirement stemmed from the author's firm belief that one must know *how* something works before one can alter or repair it.

■ To carefully structure the learning of foundational vocal skills necessary for real future development of each student's technique so that it would survive past the end of the course. The goal here was to apply what we now know from voice science (as well as learning cognition) research to traditional vocal pedagogy in the class setting.

Each time this voice class came up in our course rotation, I would eagerly survey the new books that had come on the market in hope of finding one that would fit our course goals. Year after year, the search results proved frustrating because nothing new was published that would adequately satisfy our stated goals.

Most of the books written for class-voice situations seemed to consist of generous collections of public-domain songs interlaced with a smattering of basic vocal knowledge that purported to guide the students here in the principles of fine singing. This technical information, so vital to beginning a student on the journey of the building of a vocal technique, was very sparse and only of the most fundamental nature.

Other books arrived that did a fabulous job of presenting the necessary foundational knowledge (Barbara Doscher's excellent, *The Functional Unity of the Singing Voice* is a prime example) but did not go on directly to apply that knowledge to *actual songs*.

Even Richard Miller's revolutionary book, *The Structure of Singing, System and Art in Vocal Technique* (New York: Schirmer Books, 1986), ground-breaking in its presentation of scientifically verifiable knowledge and its application to real vocal technique, did not make that final step of applying its wonderful revelations to specific songs, a step that this author feels is so necessary for the beginning to intermediate singer.

So, each iteration of the course found me copying copiously from multiple sources and eventually actually writing sections of text for the class. As these many discourses accumulated, it became apparent that a book was forming. Thus, this text, like the vast majority of those before it, was born of the need for a textbook uniquely suited to the course's goals, and, once written, it was realized that such a text could serve the needs of courses in other venues.

THIS BOOK IS ADAPTABLE

This book can be used in a multitude of ways:

1. As a one- or two-semester voice class for beginners
2. As an undergraduate vocal pedagogy text

3. As a resource for those studying voice privately who need in-depth background knowledge to supplement the work of the lessons.

4. As a life-long reference book that can be used long after the singer's formal vocal study ceases.

More on how to use this text is found in the Teacher's Guide section of this Preface.

Note that this textbook is not meant as a comprehensive survey of voice science to date. The current voice science included here is just what the author deems necessary for learning the principles needed for solid technique building. A great deal more reading in widely disparate sources will be needed for an adequate survey of the state of today's knowledge.

THREE-PART STRUCTURE

To achieve our course goals and make it maximally flexible, this text is divided into three major sections.

1. The knowledge base

2. The application

3. The must-have ancillary knowledge that must be within a singer's purview.

The Teacher's Guide that follows provides more detailed information on how to tailor the book for particular class and individual needs. The author hopes that this text is pliable enough so that teachers can mold it to their specific needs and that individuals can use it as a reference well into the future. Throughout the text, we make a strong effort to purvey our scientifically verifiable knowledge about the singing voice so that it becomes a natural part of the singer's acquisition of technique.

(Note to students: Try reading the Teacher's Guides in your textbooks. They will reveal the "inside" of the pedagogical process and perhaps give you insights that will make you much more successful in your study.)

PART I—THE KNOWLEDGE BASE (CHAPTERS 1 THROUGH 7)

The more we know about our voice and how it works, the better to approach the learning of the complex shifts of vocal habits required during our study.

- We must consider the *process* of learning voice—because our voice is a major factor in our self-image, the study of voice has psychological implications that both student and teacher must consider, both before and during the pedagogical process, to avoid psychological pitfalls that can derail our efforts.

- We must learn about sound—sound is the end product of the singing process and understanding the rudiments of the acoustics of musical and linguistic sound is of enormous value during the course of study and afterward out in the singing world.

- We must learn about the body—we singers *are* the instrument. When performing, we do not hold onto and play an instrument like other musicians. And, unlike all other musicians, we cannot see most of our instrument because it is housed inside our body. We will approach anatomy and physiology, not the way medical students must in order to remember the complex names and functions of every part of the anatomy, but just enough for the student to realize that his or her body, coupled with the mind and spirit, constitute the most complex musical instrument in existence.

Once we have learned these basics, we will have established both a common science terminology as well as the necessary physiologic concepts needed to move on with acquiring our technique.

PART II—THE APPLICATION (CHAPTERS 8 THROUGH 15)

Singing may be the most complex coordinative task any of us will ever attempt. Consider all that the brain must put together during the production of a well-sung song, from breath control, to variations in support, to the finite control of the larynx, to language production, to the nuances of tone that lend meaning to the words. While this is going on, we are engaged in the production of the pitches, rhythms, tempos, moods, emotions that the composer has notated. Then, when we picture this process in concert, where stage presence, acting, and everything else that makes our appearance move the audience is entered into the equation, the totality of what we must simultaneously accomplish during the act of singing can seem almost overwhelming.

As we will see, fine singing involves learning a different way of utilizing ordinary, everyday living skills that we take for granted,

especially those concerning breathing and the production of language. Thus, learning to sing can be viewed as a gradual adjustment of thousands upon thousands of subtle motor behaviors that must be built, one at a time, little by little, over and over, until the habits that constitute fine singing are amassed into that whole that we refer to simply as the singer's technique.

Where are all the songs?

One of the quickest ways to fail in this complex process is to attempt to *do too much too soon. Therefore, only three songs are studied in this text*. These are studied in great detail in a way that breaks down the needed task modification into small, discrete units that permit true success during this basic acquisition of technique. By doing this, students can experience a *gradual* growth of skills that will lay a solid foundation for the complex of skills they will need once their study moves on to repertoire building. Too often, we rush into the repertoire acquisition stage without first making sure that we have established a technique that will permit us to sing our songs well. When approached in this manner, we do acquire a repertoire: a poorly sung repertoire.

This is the reason that I wrote this text. I felt that a text was needed that takes advantage of what we know scientifically about both the voice and learning in order to ground our students in excellent technique. If this approach is adopted, one must accept the premise that technique building is the goal of the first year of study and that repertoire requirements for traditional jury examination should be minimal. The juries must be set up in a way to test the technical prowess of the student and, once the student has achieved a certain level, repertoire acquisition can proceed at a very rapid pace while accompanied with an expansion of the student's grasp of technical matters.

Our three songs feature one each in Italian, English, and German.

PART THREE—NECESSARY ANCILLARY KNOWLEDGE (CHAPTERS 16 THROUGH 24)

It is so easy to focus on technique and learning songs that most of us forget that performing involves other knowledge and skills not covered in the usual voice studio. Matters such as current views of vocal registers in the scientific/pedagogical literature, the means of connecting those registers into a unified timbre, how

to learn vocal music, how to program vocal music into discrete groups and then into complete programs, how to cite vocal music, how to design and execute printed programs, how to dress and act on stage—all these facets are vital to our success as artists but are rarely covered in lessons, classes, or texts about singing. These subjects constitute one-third of this textbook and should be considered required reading by all students.

FINALE

My career has been suffused with the glory of the human voice. My main professional focus has been that of a conductor (both orchestra and chorus after the Shaw model). As such, I have had to work closely with an extensive number of professional soloists and choruses. For a 15-year period during my career, I also worked as a professional singer on the stages of New York. Coupled with this life "on the boards" has been a commitment to teaching voice in both private and class environments that has lasted for 30-some years. Finally, once I entered into academe, I had the time to pursue a burning interest, voice science and its application in the learning process. This last endeavor led to my first book, a look at computer-generated, real-time spectrography and its use in the pedagogy process (*Voice—Tradition and Technology*, Singular Publishing Group, 1999).

The resulting career has allowed me to view the human voice from an interesting variety of vantage points and all of them, now, become unified in this volume.

Writing this text has been an exhilarating experience, the codification of a lifetime of studying and thinking about the voice. May it help you to better understand your voice and to become the best singer you can be. Make a pact with yourself now, anytime you sing, always strive to cover yourself with a mantle of excellence!

Garyth Nair
Drew University

TEACHER'S GUIDE

ONLY THREE SONGS?

A quick perusal of this textbook may have many of you saying, "This book has much too much material for a one-semester beginning voice class," or "I have to teach the voice class for two semesters, I'll need a lot more than three songs for them to study." Both of these observations appear valid until one realizes that this book has been written with a breadth of material that should allow the teacher to choose the depth to which he or she wishes to teach in almost any pedagogical situation. Once the instructor has determined the depth of the information and skills to be covered in a given course of study, anything beyond that level in the text constitutes material that can be employed by the inquisitive student in the future as he or she finds the need for a centralized reference source.

If the course spans two semesters, more songs and perhaps more languages will be needed. In this situation, this extra material can easily be added by the instructor as long as the choices consist of relatively easy songs that will permit students to focus on technique building instead of repertoire acquisition. These added songs should be approached in the same, meticulous technique-building manner as the three songs included here.

Please avoid the temptation to include more songs in a one-semester class situation. This three-song limitation has proven, over many iterations, to be the best approach if one expects to achieve real technique building. In addition to the danger that too many songs will dilute the technique-building potential of this text's approach, too many songs will also reduce the opportunity for students to receive individual coaching in front of the class. I cannot overstate how much it helps students to see their peers wrestling with the same challenges. This communal effort, especially if one encourages the students to analyze what their peers are doing, can be an enormous group reinforcement of our vocal principles. It is another of the approaches of this book that enables it to be both effective and unique—you will find that the adjunct of students critically watching and listening to others sing can be of enormous benefit, not only during the course but for their entire singing careers.

In the future, a second volume is planned—a supplement that will continue on with more songs and add more languages. This follow-up volume will be needed for those situations where more time than one semester is allotted for a structured study. For now, the present volume will give you plenty to work with.

Teachers should consider the first two chapters of the text as a *continuation* of the book's preface. Much of the rationale concerning the pedagogical premise of this approach can be found there. Make sure your students read those chapters because the more they understand the reasons for this deliberately titrated approach, the more they will be willing to move through the material at what they might otherwise consider a glacial pace.

TAILORING THIS TEXT FOR VARIOUS CLASS SITUATIONS

General information needed for all class types

No matter what level we wish to attain by using this text, the following are considered absolutely necessary for the success of its educational philosophy.

IPA—a must-have skill for both the singer and teacher of singing

The students *must* learn IPA—the International Phonetic Alphabet. Little snippets of IPA are introduced in the early chapters. From there, its use becomes more and more intense and, if properly emphasized, IPA fluency will be ensured (on exams, the author often includes questions written in IPA that require the students to answer back in IPA). The subject of IPA is formally introduced in Chapter 8 and should ease the student into an easy learning approach before it becomes commonplace in virtually every paragraph that follows in Part II. Make sure that the students begin to master the IPA early because they will deal with it for the rest of the book, and one hopes, for the rest of their lives.

Why is the IPA necessary? After certain basic technical matters are well on their way toward mastery, the singer quickly arrives at a point where critical problems occurring at the phoneme-to-phoneme level must be dealt with or the process comes to a halt. Leaning IPA helps train the student to understand the phonetic detail necessary to build skills at this level. IPA is also a great aid in their learning of new languages because a unique symbol is used for the same language sound no matter what the language (for example, the /i/ is always pronounced as the English long e̅

no matter what language is being sung. Thus, "me" = /mi/, "si" = /si/, and "die" = /di/).

The author has seen the effects of the introduction of IPA again and again. Every time it is introduced, the language abilities of the singers improve; they learn correct pronunciation faster and more accurately.

Exercises and learning

When we train a singer, we are rehabituating their language habits into something radically different from the way they employ them in everyday speech. Many of the exercises in this text deal with the development of these new skills at the phoneme-to-phoneme level and are absolutely necessary if we are to build a solid technique in a short time.

This book has been used in six one-semester courses over 12 years and the exercises found herein have produced some extraordinary results at the end of just one semester of classes. As you use the book, you will see how all the exercises mesh into a carefully planned assault on the problem of shifting the students' habits from everyday speech to those radically different ones needed by the fine singer.

In addition, this pedagogical philosophy utilizes exercises that are deliberately titrated upward in skill level as the book progresses. This enables critical skills to be built in a logical, layered progression and thus avoids one of the greatest traps in training a singer, the difficulty of the student being overwhelmed by the expectation of the simultaneous mastery of too many skills. Always remember that one of the quickest ways to derail a student's development is to expect too much multitasking of extraordinarily difficult phonemic shifts.

Work with the spectrograph

The author's first book, *Voice—Tradition and Technology* (Singular Publishing Group, 1999), presented the case for the use of real-time spectrography as a visual adjunct to the learning of the skills necessary for the singer. Because the eye is more acute than the ear in most people, seeing a graphic of the sound being produced while it is being sung has the potential of greatly speeding up the technique-acquisition process. It gives the student an objective target to shoot for. It is perhaps even more of an advance in our pedagogical repertoire than the use of tape recorders and mirrors in the studio.

The spectrographic program that produced all the illustrations found in this book is on a CD included at the back of the

text. This program, expressly written for this text by Richard Horne is a small program that works on top of Windows (not within) and any student with a computer and an inexpensive microphone instantly has an instrument of enormous potential in the skill-acquisition process. Use it in class and make every effort to encourage its use by the students outside of class.

Dealing with technique acquisition in the class setting

Ultimately, one cannot learn to sing in a practice room alone. Although the constant private repetition of skills can lead to their habituation, they also need to be exercised in front of an audience. Especially in the case of beginning singers a beautifully sung piece in a studio becomes a disaster out on the boards. We must practice performing as well as executing our songs.

Osmosis doesn't work

During class we must consistently reinforce the fact that singers cannot learn this material by osmosis. Mere passive listening in class is doomed to failure (many will think, consciously or unconsciously, "What can be so hard? It's only singing!"). The only way students will progress is by reading the text and then *doing the exercises* both inside and outside of class to cement the concepts.

Cramming doesn't work

Likewise, the usual college student propensity for not staying current with the work and then expecting to cram at the last minute for an exam is also a prescription for disaster. Although some limited success may be obtained by last-minute cramming for exams on Parts I and III, there is simply no way for Part II to succeed unless the material is constantly experienced by the student.

Singing in front of the class is critical

Understand that the involvement of the class as performers of the exercises, both as an ensemble as well as individually in front of the class, stands at the forefront of this book's approach. Although performance as a class ensemble is helpful, calling on individuals to perform the techniques in question in front of both teacher and peers will be where the class will make the most gains. Why? Because apprehension of failure in front of their peers will cause most students to work outside of class far harder than exams or teacher expectations could ever produce. Thus, the teacher *must*

make sure that everyone in the class sings the exercises, parts of the songs, and eventually the entire songs as much as possible.

By scheduling performances by individuals the teacher can fine-tune the vocal production of each person and ensure that the skill-acquisition sequence will remain solid throughout the course. In this light, the ideal class size should be around 10 so that constant individual attention can be given. Although this text can easily be the basis for the teaching of larger classes, as the opportunity for individual participation drops, the overall standard of knowledge and skill acquisition by individuals in the class will drop accordingly.

Make them work intellectually

Continually probe your students' grasp of the material and concepts with questions geared to both the chapter they are on at the moment as well as supportive material that you have covered in prior sessions. Do not simply lecture but continually test their knowledge as *individuals*. Also, balance general questions to the class in which anyone can raise his or her hand and answer against purposely calling on individuals to answer. Let nobody hide.

Encourage them to critically analyze the work of their peers

Force individuals to listen critically and analyze what they are hearing from other singers both in and outside of class, both the good and the bad. This approach has a number of benefits, it:

- Builds class camaraderie as they gain the sense that they are all helping each other reach their goals.

- Reinforces the teacher's observations—nothing is quite so powerful as the constructive criticism and encouragement of peer-to-peer comments in the classroom. Most of the time such active participation on the part of the students will reinforce the viewpoint of both the teacher and the text.

- Teaches them to use their hearing as a way of continually updating their knowledge of singing in all its aspects. Encourage the students to create solutions to the problems they hear in others' singing.

It is only by these means—working with both the text and exercises outside of class, being forced to think during class, performing in front of the class, and continually analyzing what they hear from their peers—that they will truly grasp this text's material

and approach and be able to continue it after the end of the course into their future. Remember, this text is meant to lay a very firm foundation upon which much can be built long after the course is over. Like anything else concerning learning new habits with the human voice, repetition with KR (Knowledge of Results) is the key.

SPECIFIC RECOMMENDATION FOR VARIOUS TYPES OF COURSES

The basic voice class

The voice class for a mix of beginning and intermediate students spanning one-semester course has been the predominant use of this text during its gestation. The author has found that the following course plot has worked the best.

Part I. Psychology, anatomy and physiology, physics of vocal sound

At Drew, we have traditionally begun the course by spending most of the first class watching excerpts of videos of great singers performing on stage. After watching several singers, the class is led to see more and more detail about the singer's use of the body, the stage presence, the sound and the diction. Special emphasis is placed on pointing out the technical commonalities that internationally ranked singers share.

After that introduction the rest of Part I is handled in this way:

- Chapters 1 and 2—On Studying Singing—all material in these chapters constitutes assigned reading and must be followed by full class discussion
- Chapter 3—Sound
- Chapter 4—Singers' Posture, then
- Chapter 5—Respiration—Instinctive Breathing

Only parts of these chapters need be assigned (as much as the teacher feels is necessary based on the depth of approach that she or he intends to pursue for the rest of the course). This selected material should then be reiterated in class and reinforced with demonstrations by the teacher.

- Chapter 6—Singers' Respiration and Support—all of this material is critical and most be assigned, demonstrated, and performed in class by the students.

- Chapter 7—Resonance, Tone, and Diction

  Only parts of this chapter need be assigned. The exception is that the unit on optimizing resonance. This material should be assigned in its entirety with follow-up class discussion, demonstration, and performance.

- Chapter 8—Singing the Songs—this entire chapter must be read and discussed in class because it explains the language/tonal learning sequence that will be used throughout this central portion of the book. It also contains some of the most useful learning exercises in the book. Finally, all the icons that will be used for the remainder of the text are presented in table form and should be tabbed by the student for quick reference.

Part II. The application (Chapters 9 through 15)

The application chapters deal with production and diction norms for our three songs:

- Chapters 9, 10, and 11—Francesco Cavalli's *Sospiri di foco* (Italian)

- Chapters 12 and 13—traditional Welsh tune, *All Through the Night* (English)

- Chapters 14 and 15—Franz Schubert's *An die Music* (German)

These chapters constitute the heart of this book. At a minimum, the following activities must happen:

- Students must sound all phonemes in class to make sure they can replicate the phonemes accurately. If possible, each student should sound the phoneme in question so the teacher can modify it if necessary. As stated earlier, as the class experiences the attempts of their peers, they will get reinforcement for their own learning process.

- After the phonemic information in each language chapter is covered, have as many students perform the major exercises in front of the class as possible. While they are "on display" in front of the class, keep stressing the basics from the first chapters as well—especially breathing and posture issues.

- By the middle of the Italian unit, begin to have members of the class comment (good and bad) on the performance

of the student soloing in front of the class. This helps the performer as well as repeatedly reinforces the singing principles for the rest of the class. Remember, part of the purpose of this book is to teach beginners how to learn from experience by others in performance.

In each of the language units, phonemes are learned in a precisely determined sequence—vowels, vowels plus consovowels, all phonemes. Each type of phoneme receives detailed attention in the text.

Vowels—Chapters 9 (Italian), 12 (English), and 14 (German)

Cover the basic information for each *class of vowel* contained within the chapters. Go into the more detailed explanations only if problems develop with individual phonemes.

As the students begin to master good vowel production, having them learn the vowels of the song by utilizing the TVV exercise is crucial (see Chapter 9 for more information on the TVV). This exercise is a learning device in which only the vowel phonemes are sung—all consonants are removed. When the singers can move between classes of vowels easily and with good tone, memory of how the melody sounded with those excellent vowels will become a benchmark when consonants are added in the following chapters. For instance, if a class was studying "My Country 'Tis of Thee," they would sing the TVV as /ʌⁱ ʌi ɪ ɑ i, ʷi æ ɑ ɪɝ-i, ɑ i ʌⁱ i/.

Consovowels—Chapters 10 (Italian), 13 (English), and 15 (German)

- Note that each language has sections on consovowels (consonants with pitch) and consonants (those without pitch).

- The unit on the Italian song features separate chapters (10 and 11) for the consovowels and consonants, respectively, in order to ensure that the basics are covered and learned. The chapters for the other two languages (Chapter 13 for English and 15 for German) devote half a chapter to consovowels and the other half to consonants.

- This text takes the stance that consovowels are semivowels that should be sung with as much of the richness and openness of vowels whenever possible.

- At this point, we escalate the TVV by adding the consovowels to the vowel line already established. Thus, "My Country 'Tis of Thee" would now be sung as /mʌⁱ ʌnri ɪz

ɑʋ ði, ʷi læn ɑʋ lɪɜ˞i, ɑʋ ði ʌⁱ iŋ/ (the IPA symbology and its use will be explained in detail as the book progresses).

- If the students' work to date has been slowly and carefully executed, the vowel + consovowel line should lose little of the quality discovered and habituated in the vowel line alone.

- When this more complex combination of vowels and consovowels is consistent in tone and accuracy, we can then proceed to the addition of the consonants.

Consonants—Chapters 11 (Italian), 13 (English), and 14 (German)

- Our song phrase now becomes

  /mʌⁱ kʌntri tɪz ɑʋ ði, sʷit lænd ɑʋ lɪbɜ˞ti, ɑʋ ði ʌⁱ siŋ/

- All voice teachers know that some of the thorniest vocal technique problems occur between phonemes with pitch and those without. The reason is the propensity for the vocal instrument to collapse during consonant production.

- Thus, with the consonants added, many of the advances won to date may be somewhat compromised. When a specific join is causing a severe problem, the teacher should work on it with the student in front of the class.

Finally, after all phonemic work is taken to as high a standard as can be attained in the limited time available, each student should perform the whole song in front of the class. If the carefully titrated steps outlined in the text are religiously followed, everyone should experience quite an improvement.

Part III. Additional vocal information and ancillary skills

Part III contains chapters about singing and ancillary skills that rarely are taught in the private studio because of a lack of time. The teacher might utilize the following:

- Chapters 16 to 18—Extremes of the singer's range. This is a dealer's choice—one might use only to the general information on the singer's total voice range in Chapter 16 and skip the detailed physioacoustic explanations in 17 and 18 (leaving them for the student's future reference).

- Chapter 19—Voice types. Most students will want to peruse this material anyway, but just in case, it should be assigned.

- Chapter 20—On learning vocal music. Assign this material to be read and create some written homework to check students' grasp of the material but don't spend a lot of class time on it. However, be sure to stress its importance for the successful singer.

- Chapter 21—Programming vocal music. Make reference to this chapter so students know of its value but, in a one-semester course, there will be insufficient time to cover this topic.

- Chapter 22—Printed programs. Again, in a one-semester course, there will not be sufficient time to deal with this critical topic. Students should know that it exists in the book for their not-too-distant future.

- Chapter 23—Stagecraft I. In our Drew courses, we assign this chapter in mid-course and refer to aspects of it anytime a student is about to sing in public. Do not cover this material in class but make sure the students read it.

- Chapter 24—Stagecraft II. At Drew, we cover this material every time a student stands to sing in the class. Whenever one arrives at the end of each of the three songs and members of the class perform the song, it should be treated as a fully staged appearance. This way, by the time they arrive at the singing part of the final exam, they will be accustomed to proper stage decorum.

- In the last class, the videos of great singers shown and discussed in the first class are shown again followed by class discussion of what was seen and heard. You will be amazed by how much their knowledge of singing has grown as indicated by their new observations.

Exams for the one-semester class

Across the semester, we do the following:

- Checker-quizzes on each chapter
- Midterm exam covering the knowledge base from Chapters 1 to 7
- Checker-quizzes on language principles during the course of Part II
- Final exam

The final examination is a performance in front of the class in which each student must have all three songs ready to go. Each student must:

- Design and print a program containing all three songs to ensure that the citation principles have been learned.

- Pick a piece of paper out of a hat as he or she walks to the stage edge. The piece of paper will indicate which song he or she is to perform and, as all students have an equal chance of having to perform any of the three songs, this technique ensures that they will have reviewed how to perform each of the three languages.

- Following each student's performance, allow time for the other students to write up a report on the performer's performance (good and bad) that will be graded. This allows you to gauge how much the student has learned to apply his or her observations (i.e., enabling future learning).

Two-semester voice class

With the time allotted as compared to a one-semester course, the text material can be spread out and covered in far greater depth. This luxury of time will permit repetition of student performances in every genre from the simple phoneme-to-phoneme exercises to complete phrases from the songs.
      In addition, the teacher might:

- Add more songs in each of the three languages presented here.

- Include additional songs in French, Spanish, Russian, Czech, and Church Latin,

- Broaden the repertoire experience by drawing pieces from opera and oratorio as well as the art-song repertoire. Be sure to structure the learning of these songs in the same way as those in this text to continue the gradual technique building established in the first semester.

- Add a vocal repertory survey unit spanning the middle ages through today.

- Following the repertory survey unit and mastery of the material presented through Chapter 15, each student should create an *outline* of a complete recital accompanied by

a detailed section of that recital to show grasp of the programming, citation, and program design aspects of Chapters 20 to 22. By the end of the end of the semester, a complete program should be created and graded as part of the final examination process.

Vocal pedagogy class

Include *everything* in the book. The author considers the contents of this text to be the bare minimum that a voice teacher of the 21st century should know before teaching his or her first student.
    In addition:

- Conduct far more thorough exams on all aspects of the text. It will *all* count when they face their first student on their own.

- Have each student learn and be able to demonstrate high-level skills in both IPA and applied spectrography.

- All students must prove that they can listen critically and be able to articulate the problems and potential solutions for them.

- After mid-semester, have a member of the class teach a peer for 10 or 15 minutes in front of the class and follow that with a class discussion on both that teacher's solutions and aspects of his or her personal approach to the student (teaching dynamic).

- The final exam should consist of two parts, an exhaustive written demonstration of knowledge of singing as well as a 20-minute teaching session where the student works with a singer. This singer should ideally be new to the class so the future voice teacher must analyze and work with an unfamiliar voice.

IN CLOSING

One point must be heavily stressed—with so much material presented in this text/reference book, teachers will have to carefully choose what material a given class can cover during the allotted time in the course. The goal should not be an exhaustive survey that briefly flies by every point in this text, but rather the building of a firm foundation of basics that will permit the student to

move into private lessons ready to rapidly accelerate the acquisition of his or her singing skills (the exception to the exhaustive study would be the vocal pedagogy class). The author would rather see a student have a rock-solid grasp of the basics presented here than have this book turn into a survey course where the student leaves with a huge collection of factoids that will surely be quickly forgotten.

I leave you with some final thoughts on the sacred art of teaching from the author, Pat Conroy:

> I developed The Great Teacher Theory late in my freshman year. It was a cornerstone of the theory that great teachers had great personalities and that the greatest teachers had outrageous personalities. I did not like decorum or rectitude in a classroom; I preferred a highly oxygenated atmosphere, a climate of intemperance, rhetoric, and feverish melodrama. And I wanted my teachers to make me smart.
>
> A great teacher is my adversary, my conqueror, commissioned to chastise me. He leaves me tame and grateful for the new language he has purloined from other kings whose granaries are filled and whose libraries are famous. He tells me that teaching is the art of theft, of knowing what to steal and from whom.
>
> Bad teachers do not touch me; the great ones never leave me. They ride with me during all my days, and I pass on to others what they have imparted to me. I exchange their handy gifts with strangers on trains, and I pretend they are mine. I steal from the great teachers. And the truly, wonderful thing about them is they would applaud my theft, laugh at the thought of it, realizing they had taught me their larcenous skills well. (From Pat Conroy, *The Lords of Discipline*. Published by Houghton Mifflin, 1982. Copyright 1980 by Pat Conroy.)

Plan carefully, use the resources contained here wisely, treat your teaching every bit as a performance, and watch your students grow!

Garyth Nair

1

ON STUDYING VOICE–I

For both performers and listeners, singing is one of the most enjoyable inventions of the human spirit. The marriage of the emotional communication of words and the spiritual power of music often has an impact that is far more profound than either one can accomplish alone. Then when the immeasurable beauty of the sound of fine singing is added to that combination, one garners a feast for the human spirit. Thus, there is great demand in society for high-level singing, be it from a soloist or a group of singers performing as a chorus.

When excellent singing exists, significant quality-of-life benefits accrue for both artists and listeners. Listeners can enjoy the thrill of great musical compositions through a medium that is routinely considered as the greatest of all musical instruments, the human voice. The listener's experience may run the gamut from the simply entertaining to total emotional transformation. Likewise, singers derive benefits from the act of singing as well; they enjoy the personal fulfillment of performing great music, the physical and emotional excitement of making magnificent sound, and the satisfaction that audiences appreciate and value the artists' contribution to their lives.

If that were not enough inducement to sing well, the act of singing is thought to produce endorphins, natural "feel good" hormones that are produced in our brains and can elevate our mood (in the case of singing, specific research is sketchy on this subject as of this writing, but support for the idea can be gleaned from solid research in sports medicine). Most singers have experienced the phenomenon of being a bit down on occasion and had to summon great willpower to begin singing. Almost universally, singers find that, no matter how "down" they were when they began, as they sang they quickly felt wonderful, a reaction much like the sun coming out after a cloudy day. When we add the fact that it seems that the better we sing, the greater the "high," is there any reason not to aspire to sing well?

Finally there is an emotional self-image payback for fine singing. As we study and practice we sing better and better. As we sing better, our audience's reaction to our efforts grows accordingly. Their enthusiastic applause and verbal comments following our performances further encourage us to improve all the more. Soon, we find ourselves engaged in a self-feeding upward spiral of excellence.

The combination of these self-affirming benefits is why countless people expend enormous time, effort (and money) in their lives in pursuit of singing excellence; it is fun and enormously rewarding, pure and simple.

Typically, beginners give two reasons for why they wish to study voice; they want to

- Sound and communicate better in song

- Learn to sing in a way that their voices will not be harmed.

As we proceed in our study, you will realize these two goals can and *must* be considered as one and the same.

The fact that you are reading this book indicates that you are either ready to begin vocal study or wish to review facets of vocal technique to improve your already existing skills. As we embark on this study, we must first consider our ability to speak language and its relationship to singing. Why look at speech? At first glance, speech and song utilize the same set of language sounds (phonemes), work by the same language rules, and convey the same thoughts and imagery. However, closer study reveals that they really are two different linguistic acts when one considers the difference between an average speaker and a highly trained singer singing at the top of his or her form.

THE TWO TEMPLATES

It will be helpful to imagine our brain's "hard-wired" instructions for language as a **template** (a template is anything that serves as a pattern). Most people instinctively feel that singing is just an extension of speech to which pitches and rhythm are added. In that view, the language template should be the same for both speech and song.

If it were only that simple, this book would not be needed. In fact, when singing is executed by a highly trained singer, the physiologic techniques used in singing must take a considerably divergent path from speech. Yes, both employ the same language sounds and sequences but the demands for singing, both physically and mentally, are ultimately so different that you are urged to think of singing as a *totally different* skill.

THE SPEECH TEMPLATE

Our ability to communicate through speech is an evolutionary development that is considered basic to our survival and development as a species. We are born with the ability to develop our language capacity and to communicate at a highly sophisticated level.

As infants, we are immersed in a sea of language sounds spoken by our elders. Even though these sounds carry no meaning as words, babies find them fascinating. Soon, infants begin imitating those language sounds as "baby babble." However, what sounds like incoherent babble is actually a child learning the basic building blocks of speech. This imitation allows us to begin to "hard-wire" the speech areas of the brain with the complex motor instructions that will be needed for language. When the brain acquires enough of these linguistic building blocks, children begin to form words and soon discover that those precious few words are capable of producing highly desirable actions from the people who surround them ("mama," "food," "yes!"). With this realization of the cause-and-effect nature of linguistic communication, the child's development of language accelerates with amazing speed.

During this process of speech acquisition the child is building an extraordinarily powerful speech template, a database of neuromuscular instructions that will ultimately contain all the

instructions for the production and processing of language. As we learn to communicate by juxtaposing language sounds, our brains develop the ability to process language in the *background*, that is, unconsciously. When we wish to communicate, we do not have to consciously assemble the various sounds needed for the words, it happens "automatically." The speech template provides the raw materials for this background-processing ability. Every time we speak, these background commands are reinforced, and, by the time we are adults, our speech template is extraordinarily powerful!

THE SINGING TEMPLATE

However, singing is exponentially more complicated than speech. As stated earlier, the complexities of rhythm and pitch as well as demands for greater volume and richer tone are added to language during the process of singing. When confronted with these increased demands, it is very natural for the brain to automatically turn to its habituated *speech* skills (speech template) for the production of singing-language sounds. This automatic, subconscious, and unquestioning utilization of the speech template is one of the primary hallmarks of an untrained singer.

Considering the pervasiveness of the speech template, one of our principal tasks on the road to great singing is the development of a *separate* **singing template**. This new template must house the markedly different neuromuscular instructions that will be used during the times when we sing and must be powerful enough that the brain is not tempted to return to the speech template while singing. There are some general precepts that we must consider before we begin the construction of this template, so let us delve a little more deeply into the differences between speech and song.

We begin with the most important point of all—

> ### Well-executed Song is **NOT** Speech

We can easily quantify that statement in a voice laboratory. Let's look at a graphic comparison between speech and song generated in our lab (Figure 1–1).
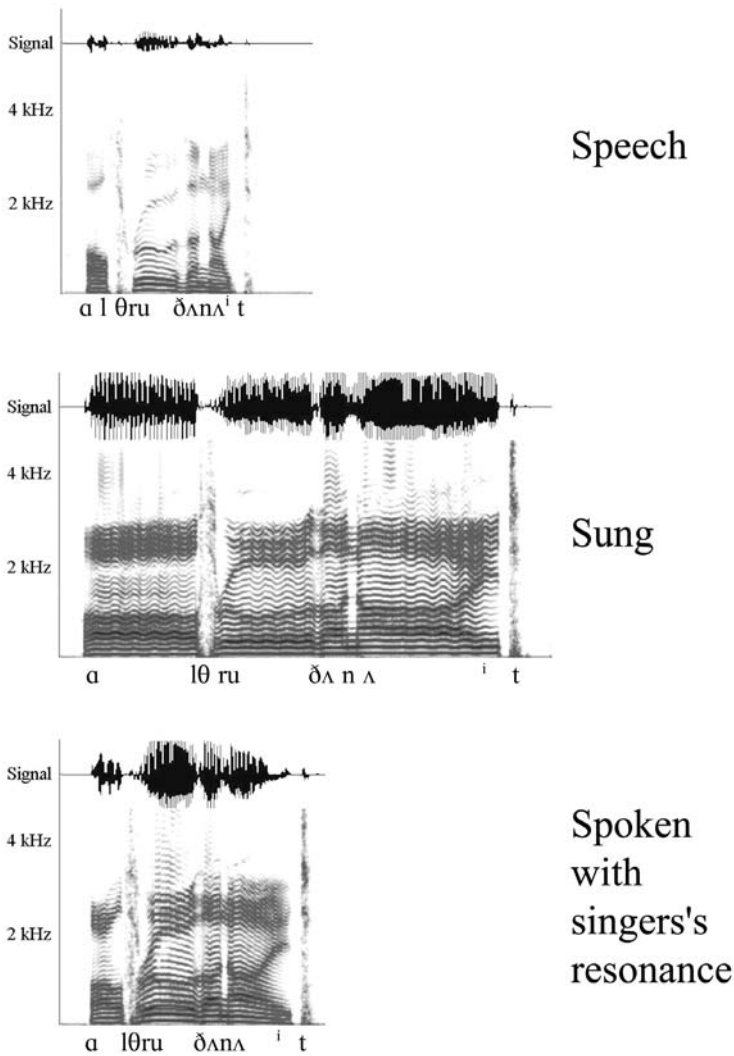
Figure 1–1. The first phrase of "All Through the Night" performed as speech *(top)*, classical singing *(middle)*, and speech utilizing the resonance of a classical technique *(bottom)*.

We can see how different the two are by studying the graphic in Figure 1–1. This is a ***spectrogram***, a computer-generated analysis of sound that is immensely useful in both research and vocal study. We will use this technology extensively throughout our study to allow our eyes to help improve the acuity of our ears, in order to bring about needed changes in our vocal habits. As we proceed, we will gradually explain the meaning of the details in

the graphics until you will be reading them like a pro. For now, simply know that:

- Time is indicated from left to right.
- Frequency is indicated from bottom to top (the further up on the screen, the higher the frequency of the sound component).
- Loudness is represented by the darkness of color of the graphic elements.

7 DIFFERENCES BETWEEN SPEAKING AND SINGING

Even without knowing how to read the graphic in Figure 1–1, the uninitiated eye can readily ascertain a considerable difference between the sung (*middle*) and the spoken (*top*) lines. Inspecting the figure, we can quickly identify seven key differences:

1. **Vowels and some consonant phonemes are sustained far longer than those in speech.**

   In song, most phonemes, (principally the vowels and occasionally some consonants) are sustained much longer than they are in speech. Even in a piece of music that attempts to follow the speech rhythms of the text, the differences can be considerable: in Figure 1–1, the first vowel of the word "all" /ɑ/ lasts 0.13 seconds when spoken and 0.84 seconds when sung. It is the rhythmic notation of the song that accounts for the difference.

   In music that does not attempt to follow the rhythms of speech, these differences can be enormous. An excellent example is the passage shown in Figure 1–2 (the words "and I will shake" from Handel's accompanied recitative "Thus Saith the Lord" [*Messiah*]): When spoken, the vowels of the word "shake" take approximately 0.17 seconds, when sung according to Handel's notation, they take *7.5* seconds for a single utterance of the word!

   The IPA for this passage is given below the standard printed text. In this transliteration, the word "shake" is shown as /ʃɛˑk/ indicating that the /e/ vowel is the one that is to be sung throughout the 16th note passage and that the turn to the final vowel of the diphthong /ˑ/ takes place at the very end before the execution

Figure 1–2. The words "and I will shake" from Handel's accompanied recitative "Thus Saith the Lord" (*Messiah*).

of the /k/ sound. There will be much more about diphthongs and superscripted IPA later in our text.

2. **All phonemes, especially vowels, are performed more richly (more resonantly) than those in speech.**

   Look at the difference in the density of the images between the spoken and sung portions of Figure 1–1. The greater density

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IPA

Note about *IPA*: the strange alphabet found between the speech and song graphics in Figure 1–1 is a phonetic representation of the words "All through the night." This phonetic representation utilizes symbols from the ***International Phonetic Alphabet***, a system in which each symbol represents a ***phoneme*** (an individual acoustic building block of language). IPA transliterations of language are quite often at odds with the actual alphabetic spellings. When broken down into individual phonemes, the text in Figure 1–1 becomes

$$/\text{ɑl} \quad \text{ðru} \quad \text{ðʌ} \quad \text{nʌˈt}/$$
All through the night

Don't worry about being able to read IPA right away . . . within a short time you will be reading and writing it fluently (anytime you need help with the meaning of the symbols, you can consult Appendix A for a complete chart of the IPA symbols used in this text).

in the sung example conveys much more information to the ear of the listener and thereby provides a richness of auditory experience that makes those sounds more interesting than speech sounds. One of the primary goals of the classically trained singer is to employ richer resonance than is common in speech. To accomplish this, our use of our ***articulators*** (movable parts of the vocal instrument, jaw, tongue, pharynx, etc.) must be significantly different from our speech norms.

3. **Individual sung phonemes are generally purer and more consistent in song than those in speech.**

During training, fine classical singers are taught to produce each phoneme in its purest, most beautiful, and communicative form. The vowel /ɑ/ (as in "law") is sung in that precise form wherever the language requires it, whereas, in speech, subtle variations in sound may occur—in singing, the initial goal is consistent phonemic purity. Also, especially in the case of vowels, this purity of the phonemes remains consistent from their initiation to their exit; (think of the primary vowel in Figure 1–2, the /e/ of the word "shake." During that entire passage the singer must not compromise the sound, nor allow any gradual metamorphosis to the next phoneme. The composer's notation that elongates the performing time for most vowels (and some of the consonants) is what makes this careful attention possible.

4. **All singing phonemes are joined with the surrounding phonemes in far more precise ways than in speech.**

All language consists of strings of phonemes. The phonemes are either vowels (V) or consonants (C). The sequential execution of two phonemes without a break is called a ***join***. Phonemic joins can exist in four different forms:

- VC—as in "top" (/tɑ p/)
- CV—as in "top" (/tɑ p/)
- VVꞌ—as in "aorta" (/eꞌɔ rtə)*
- CC—as in "task" (/tæ sк/)

    *In English, there are relatively few words with *printed* VV combinations (such as "seek" where the letters do not indicate two iterations of the /s/ (/ðɪ ɪк/) but are combined into one phoneme (/ðɪк/). Most audible shifts within VV occurrences in English are found in vowel pairings called ***diphthongs*** (double-vowel combinations such as in the word "say" (/seꞌ/) or "I" (/ʌꞌ/).

Top-ranked singers tend to execute joins with *greater speed* and *precision* than those found in speech. The result is a considerable reduction in **coarticulation** (a state in which the production of one phoneme influences the production of the phonemes on either side of it, resulting in a detrimental effect on the quality and intelligibility of the sounds). In succeeding chapters, much more will be said about reducing or eliminating coarticulation in singing production.

5. **Singing sounds are usually performed at greater volume than those of normal speech.**

Under normal circumstances, we singers have to fill large rooms and must, therefore, produce sounds at considerably more volume than those required for speech (remember that this book focuses on "acoustic singing," not artificially amplified song). In Figure 1–1, the line marked "Signal" reveals the acoustic power of the samples. The signal graphic for the sung example indicates that it has far more power (loudness) than the speech sample.

6. **Song is performed with a pitch range that far exceeds the norms of speech.**

When we speak, we vary the pitch of our delivery to both avoid monotony and to aid in conveying meaning. In conversational speech, most of us remain within a five-note range and rarely exceed an octave. In singing, where the composer is in control of the pitches we sing the written notation may take us through pitches often exceeding a two-octave range.

7. **Sung phonemes are executed with a rhythmic accuracy determined by the composer's musical notation.**

Because of the composer's notation, we routinely sustain vowel phonemes considerably longer than those in speech. Also, on occasion composers may notate an elongation of a *weak* syllable that during speech would be very brief, but in the song the notation would force it to be very much longer.

SINGING TEMPLATE VERSUS SPEECH TEMPLATE

Among those seven differences between speech and song given above, we find a common denominator—everything about song is an *escalation* over speech norms. When referring to singing, we

Lumbar spine

Because the engine that supplies the breath energy for the voice is found in the abdominal region, we must pay close attention to the spinal alignment in this area. The bottom thoracic/lumbar alignment can have a marked effect on both the suppleness of the abdominal wall musculature as well as the flexibility of the lower rib cage. The lower ribs are capable of the greatest movement and are, therefore, critical to maximizing air volume potential during inhalation.

The top of the lumbar spine forms a flexible, gradually curved hinge with the lower thoracic vertebrae from which the entire pelvic region can pivot. The area is known commonly as the "small of the back." By varying the attitude of the lumbar vertebrae, we can achieve various degrees of curvature in this area.

Because of the effect on both abdominal musculature and rib cage freedom, the degree of the pelvic tilt in this region has a great influence on the efficiency of our muscle control for breathing and thus for singing.

Pelvic tilt

The attitude of the lower part of the S-curve of the spine determines the attitude of the pelvic girdle. We can draw a plane along the lumbar spine to show the angle that we call **pelvic tilt**.

There are significant differences in the degree of lumbar curvature from individual to individual (Figure 4–9). If the lumbar curvature becomes too pronounced, several difficulties may arise that can have a direct bearing on both respiration and the delivery of energy to the voice.

- Diaphragm—this muscle is attached to the lumbar vertebrae by long fibers known as the diaphragmatic crura. If a singer displays an acute lumbar curvature, the crura can be stretched and make the diaphragm less pliant during both in- and exhalation.

- Abdominals—an overly tilted pelvis tends to stretch the muscles of the abdominal wall leaving them less pliable and thus restricting their ability to function to their fullest capacity.

- Lower back muscles—excessive pelvic tilt may also cramp the vital action of the muscles of the lower back as they work to support the spine.
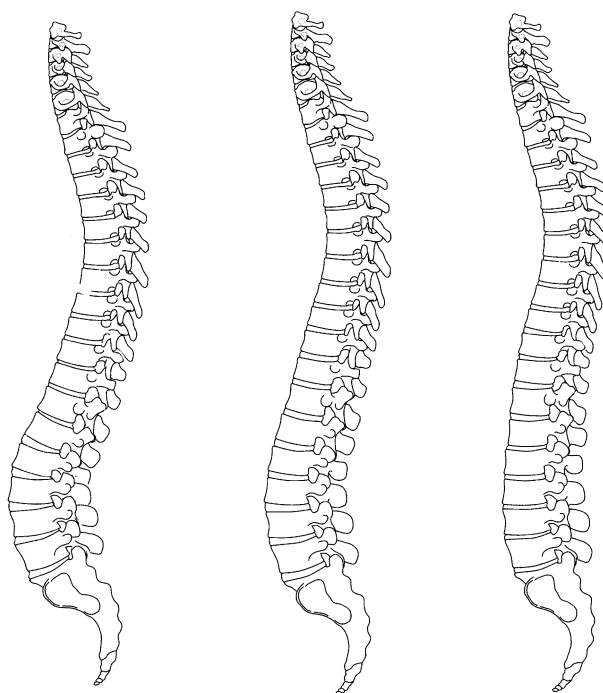
Figure 4–9. Three spinal columns: excess curvature (*left*), normal (*middle*), and with bottom of pelvis swung forward to open the "small of the back" (*right*).

Proper attitude of the lumbar spine

It is impossible to make a hard and fast rule for the optimal degree of pelvic tilt because the variations in anatomy from person to person are just too great.

Most authorities advocate employing just enough *forward* pelvic tilt (pelvis forward at the *bottom*) to get the feeling of "opening" the base of the back below the rib cage. Note that this forward tilt from the bottom reduces the curve of the lumbar region and is not the "natural" position that the body has accepted through years of the downward pull of gravity.

Once learned, this altered pelvic angle can be beneficial in both respiration and support. Additionally, attaining just the right amount of curvature also helps in maintaining the singer's sense of balance, a critical factor in the sense of vocal well-being.

Exercise 4–Q. Stand with your back against a wall, your feet slightly out from the wall. Experiment with the tilt of the pelvis and feel both its effect

> on the lumbar curvature and the entire abdominal region. While experimenting, monitor muscles of the lower back as well.

The goal in this exercise is not to flatten the lumbar area against the wall, but to achieve a broadening or opening of the lower back. When that occurs, you will feel an increase in firmness in your abdominal sheath as well as enabling an easier sternum elevation.

The following statement cannot be repeated enough: too much of a given muscle action is often as harmful as too little. Experiment with your degree of pelvic tilt; you may or may not need to adjust it. Just as there was a "sweet spot" in head elevation, there is a "sweet position" for the attitude of the pelvis. When you find it, you will experience greater power and control over the abdominal region.

Effect of high heels on pelvic tilt

We humans evolved to stand on two bare feet. For various fashion reasons, shoes often worn by both men and women feature raised heels that impart the illusion of greater height.

Wearing elevated heels shifts the center of effort in the spine, a shift that must be compensated for in the singer's overall posture. This shift can be a potential disaster in the search for optimal pelvic tilt and body balance. This postural adjustment is accomplished by adjusting the tilt of the pelvis so that the bottom of the lumbar region moves toward the back and exacerbates the lumbar curve (see Figure 4–9, left illustration).

> **Exercise 4–R.** Simulate the wearing of high heels by standing with your heels on a 2-inch thick block of wood or book with your toes on the floor.

In Exercise 4–R, do you sense the shift you must make in your balance to remain upright? Aside from the effect on both the abdominal and back musculature, this exaggerated pelvic tilt also requires an increased expenditure of energy in order to maintain balance, energy needed for the proper use of the abdominal musculature and the rest of the vocal instrument.

FEET AND LEGS—THE FOUNDATION FOR *EVERYTHING*

The way we connect our weight to the floor has a profound effect on our spinal alignment as well as our sense of well-being and balance. It also has an effect on how our audience and our colleagues regard us. A balanced singer exudes confidence and looks at his or her best.

Feet

Health of the feet

Our feet are our connection to the ground; the foundation for our whole posture begins there. Therefore, we must take great care with both the health of our feet and the way we position them while singing.

Shoes

The wrong shoes can impair the performing ability of the singer to the point where he or she cannot perform at an optimal level. If you are uncomfortable or in pain, your full attention will not be on the music! (This subject will be more thoroughly discussed in Chapter 23.)

■ Recommended heel height

To avoid postural and balance problems while singing in rehearsal or performance, most authorities recommend heels no more than 1 inch in height for *either* sex.

How can we position our feet and legs for optimal efficiency?

Once again, we must follow the example of the vast majority of contemporary internationally ranked singers as our guide. This majority stands basically in one stance. To understand why they stand that way, we realize that they consider the feet and legs together as a unit—and this stance forms a "stand" on which they place all torso, neck and cranial structures vital to the act of singing. Just as in a museum display, the stand holding up the object d'art seems ancillary to the object on display, but, upon further consideration, it plays just as vital a role in the success of the display.

Stance—positioning the feet and legs for optimum efficiency

The preferred stance for singing is one that permits the body to be in an ideal alignment for the proper use of all our anatomical structures as well as allows us a sense of well-being and balance.

Figure 4–10 shows the three most commonly observed stances employed by singers. They are the:

- Side-by-side

- Splayed (also referred to by the author as the A-frame stance)

- Equilibrium

Side-by-side   EQUILIBRIUM STANCE   Splayed
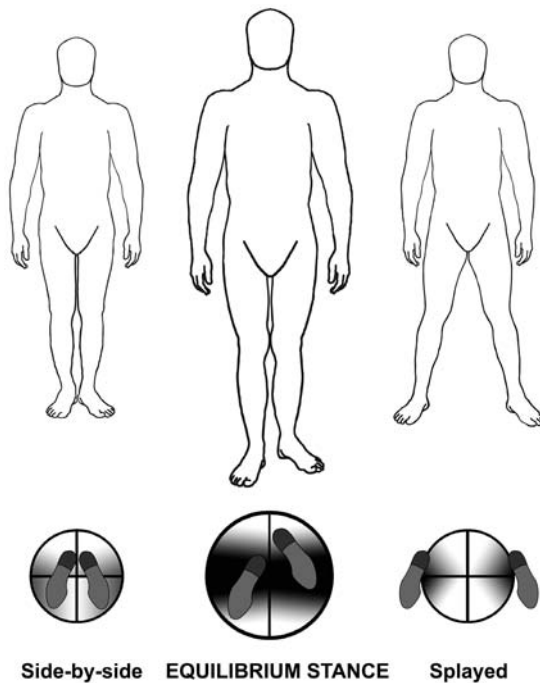
Figure 4–10. Three common singer's stances; the center one, the Equilibrium Stance, is preferred. The left figure portrays a stance in which the feet are side-by-side; the one on the right shows the same side-by-side stance with the feet considerably more splayed out to the sides (the author calls this the A-frame stance). The graphics under each stance show the relative stability in all directions resulting from the three stances. Imagine these circles are on the floor and you are standing in the center. The white spaces indicate areas of little or no stability; the black shading shows the best stability.

The circle graphics at the bottom of this illustration show the relative amount of balance attainable by these three stance strategies. The black areas indicate the directions of upper body movement where stability is the best; the white show the areas where it is the worst. The gray gradients show relative amounts of stability between the two extremes.

Stances to avoid

■ Side-by-side stance

One sees many singers standing with feet together (the stance shown on the left side of Figure 4–10). The problem with this stance (other than the fact that it does not yield the best balance) is that, for many of us, *one of our legs is longer than the other*. With the feet side-by-side, this longer leg raises the pelvis on one side and drops it on the other. One this cant is introduced, our critical abdominal musculature is compressed on the high side and stretched on the lower. This imbalance in the musculature is not conducive to good singer's respiration or support.

■ Splayed stance

Even worse, from the point of view of balance, is a commonly seen modification of the in-line stance that we call the splayed (or A-frame) stance (often observed more in men than women). This stance, shown on the right side of Figure 4–10, yields even less balance for the singer and can exacerbate the pelvic cant referred to earlier.

■ Weight-on-one-leg stance

The absolute worst stance is one often observed in young singers. It is "achieved" by shifting the weight of the body over to one leg. Figure 4–11 shows the radical skeletal shifts engendered by this stance. Imagine what this skewed skeleton is doing to all the critical muscles attached to it, to say nothing of the effect on the internal organs. If you are prone to this way of standing, correct it—now.

However, the majority of well-trained singers seem to prefer the stance shown in the middle of Figure 4–10, the Equilibrium Stance.
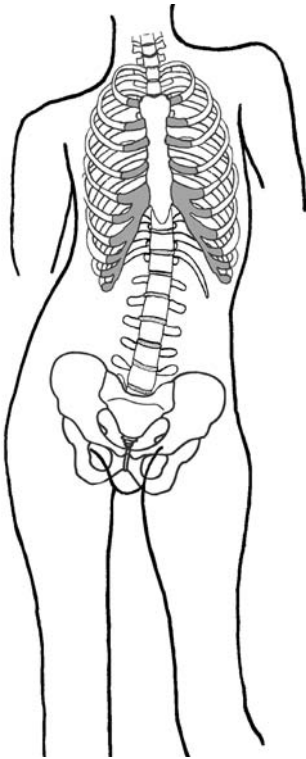
Figure 4–11. The torso of a female singer who has shifted her weight to her right leg (*left side of the diagram*). The malalignment of her skeleton tells the whole tale—imagine what it does to the delivery of energy to the voice.

The preferred stance—the "Equilibrium" Stance

Figure 4–12 presents two views of the classic singing stance that the author calls the **Equilibrium Stance**. This postural strategy is the preferred strategy employed by most people for whom balance is critical, not just musicians, but performers in dance, theater and sports as well. When executed properly, it imparts *both* a feeling of balance and centeredness, conditions absolutely necessary for the proper functioning of the body musculature *and* sense of well-being needed while performing.

The Equilibrium Stance incorporates the following elements:

- Weight of the body is *evenly distributed on both feet*.

- Feet are *slightly* apart so the legs go straight down to the floor from the hip sockets

- Feet are not side-by-side
  - One foot is slightly back from its side-by-side position
  - The other is forward of its side-by-side position (more than the other foot that is moved back).
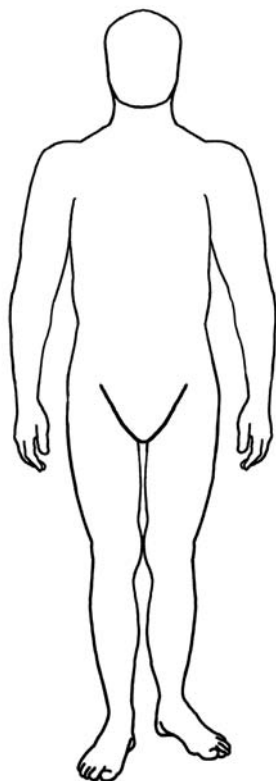
Figure 4–12. The effect of unequal leg length on the pelvic girdle. The side view on the right shows the solution to the inequality problem where the singer moves the longer leg slightly ahead of the inline stance shown in gray, (The dashed line represents the triangle referred to in the text.)

- The balance of the singer's weight should be slightly toward the balls of the feet, but not, as McKinney puts it, "to the point that you resemble the leaning tower of Pisa" (McKinney, 1982, p. 39).

Employing the Equilibrium Stance we can achieve the critically needed alignment of the pelvic-abdominal area necessary for proper breathing and support. As we move our longer leg slightly out from the in-line stance, we form a triangle whose hypotenuse has the effect of removing the extra length in the stance and allows the pelvis to level (Figure 4–12 shows this triangle as a dotted line).

As we saw back in Figure 4–10, the Equilibrium Stance enables the singer to be well balanced in all directions. This balance permits a wide range of upper body movement while still maintaining stability as shown in Figure 4–13 (the areas of stability are bound by the circle surrounding the extremes of body stance). As you can see, *the Equilibrium Stance shows excellent stability in all directions.*

Exercise 4–S. This exercise requires three people. One should stand facing the front of the subject and one should stand facing the back of the subject. The subject should stand utilizing the in-line stance. A classmate standing in front of the subject should gently shove that person in the shoulder area (position a person on the opposite side ready to catch the subject should he or she begin to fall). Then the people framing the subject should reverse roles; the one in back should execute the shove with the one in front prepared to be the "safety."
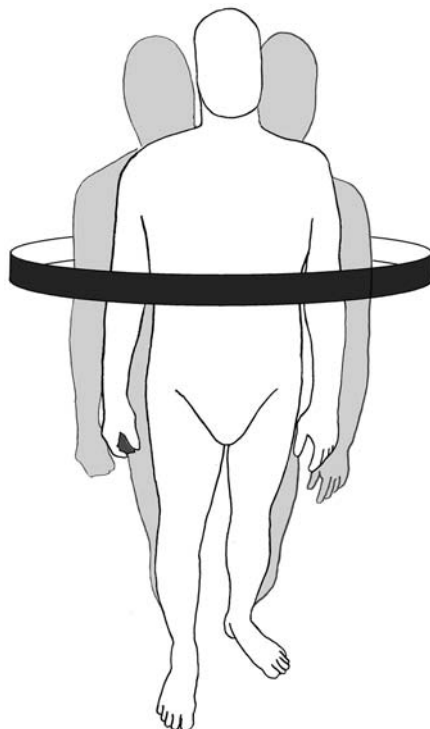
Figure 4–13. Our ability to remain centered while in the Equilibrium Stance also affords a range of body motion useful in acting on stage. The gray figures show the range of motion available without shifting the feet. Also, there is considerable movement afforded to the front and back in this stance.

> **Exercise 4–T.** Repeat Exercise 4–S, this time with the subject assuming the Equilibrium Stance.

Do you notice the difference when you employed the Equilibrium Stance?

> **Exercise 4–U.** The entire class should stand and assume the Equilibrium Stance. Thinking of your feet as a pivot, you should be able to scribe a circle with the upper body (see Figure 4–13) and remain balanced throughout the exercise.

Another benefit of the Equilibrium Stance?

Finally, singers must act to bring the music and text to life. They cannot stand there and remain motionless and convince the audience of their ability to deliver the spirit of the text – they must move (a notable exception is the Commendatore in Mozart's *Don Giovanni*. Il Commendatore *is* a statue and must not move until Mozart instructs him to come to life). Figure 4–13 shows the range of balanced body motion in the Equilibrium Stance. Add flexing of the knees and forward and back shifts of the feet and an amazing range of movement is possible while still preserving the stable body center.

Habituate the Equilibrium Stance as a vital element of the Proud Posture and note the difference in your singing.

SUMMARY

By now, some reader has probably asked a very good question, "If we stand on stage and do all this with our bodies as we sing, won't we look stiff?" The answer is, "ultimately, no." As a singer habituates this way of utilizing the body, it will gradually look and feel very natural. Ultimately, a level of comfort will be achieved that will permit a whole range of movement on stage. At this point, virtually every motion needed by today's singing actor will be possible. If one observes ranking singers carefully, most do use this postural strategy and that greatly aids in the ease and effi-

- *Exclusive* use of the abdominal musculature (including the diaphragm) for support during phonation.

In our presentation of SRS inhalation, we removed the intercostal muscles from the technique to create a piston paradigm rather than the more usual instinctive bellows/piston model. Just as we assigned the sole duty of providing negative pressure during inhalation to the diaphragm, we will now call on the muscles of the abdominal sheath to be the principal providers of the upward flow of energy that will create P_{sub} for phonation. When we do this, we create a *train of energy* that begins with the inward flexing of the abdominal sheath. That energy is transferred upward through the viscera against the diaphragm. This applies pressure on the lungs which forces air, now pressurized (P_{sub}), through the narrowed glottis and causes the vocal folds to vibrate. The vibrating vocal folds convert breath energy into the sound energy that radiates from our mouth and on through the atmosphere to our listeners.

MECHANICS OF SRS EXHALATION

The viscera, again

Just as the abdominal viscera had to move out of the way of the descending diaphragm during inhalation, contraction of the abdominal sheath will force the viscera *inward* and *upward* (Figure 6–10).

This process can be compared to a chef's use of a pastry bellows used to create decorative icing on cakes. If the bellows is squeezed from the back of the soft sac (the icing reservoir), the pressure forces the icing out through the nozzle. Varying the *amount* of pressure enables diverse effects and subtle handling of this pressure permits a chef to create exquisite designs.

Exercise 6–P. Execute a good SRS inhalation. Now exhale while making the consonant /ð/ (th as in "that"). Pay careful attention to the action of the abdominals making sure that their contraction begins at the bottom of the abdominal sheath. Be sure to maintain the elevated sternum as you experience a long, controlled exhalation.
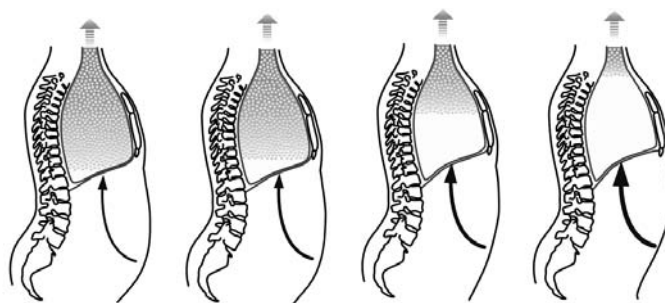
Figure 6–10. The abdominal sheath gradually applying pressure through the viscera to the diaphragm. (Illustration by Ron Nair.)

Richard Miller takes Exercise 6–P a step further in Exercise 6–Q. He adds the demand for increased control by having the singer mentally count for increasingly graduated periods of time.

INHALE	SUSPEND	EXHALE
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10

Exercise 6–Q. Richard Miller's counting exercise has three components:

1. "Inhale while mentally counting from 1 to 5 at a moderate tempo" (a metronome may be helpful to maintain the pulse. "The lips should be parted throughout the three parts of the exercise." Strive for a "complete but unforced expansion of the ribs and of the muscles of the umbilical-epigastric area and of the lumbar area."

2. "Suspend the breath without any sensation of holding it (glottis remains open, "the Van den Berg maneuver," without any muscular tension in either the vocal tract or the torso. The position of the rib cage and the abdominal

> wall should be maintained while silently counting from 1 to 5 at the original tempo."
>
> 3. "Exhale silently, maintaining as far as possible the same posture of sternum and rib cage, counting 1 to 5."

During this exercise, "there should be rhythmic continuity between the three phases of the exercise (inhalation, suspension, and exhalation). Immediately following completion of the three-part part (sic) cycle of 1 through 5, move without pause to a cycle of 1 through 6, passing throughout the three successive phases of the exercise; in this fashion, increase the numbers until 9, 10, or perhaps 12 counts have been achieved" (Miller, 1987, p. 26).

Thinking in vectors

When considering this train of phonatory energy, it is helpful to borrow a graphic device from physics to help us visualize the process. In physics, arrows of varying lengths and thickness are utilized to depict the direction and magnitude of force. The direction in which an arrow points indicates the direction of the applied force; the size of the arrow indicates the amount of force being applied. These graphic devices are referred to as **vectors**.

Not allowing the intercostals into the act

We have repeatedly cautioned against allowing the intercostal muscles to join in either the inhalation or the controlled exhalation in a singer's technique. It is easy to see, using a vector model, that certain instinctive or ill-taught behaviors can *contradict* the flow of energy during exhalation (Figure 6–11). When singers allow the rib cage to collapse, the vectors must be drawn in and *down against* the direction of the flow of energy we need to create. Compare the desirable vectors in Figure 6–11 with the undesirable ones in Figure 6–12 and the reason we must not employ a collapsing rib cage is obvious.

> **Exercise 6–R.** Perform an SRS inhalation, phonate on a comfortable pitch and actively employ the collapse of the rib cage while simultaneously attempting to use the abdominal musculature to supply energy for vocalization.
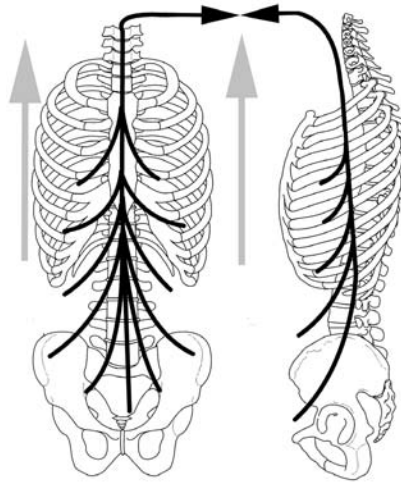
Figure 6–11. Diagram of the vectors of singing energy supply as seen from the front and side.
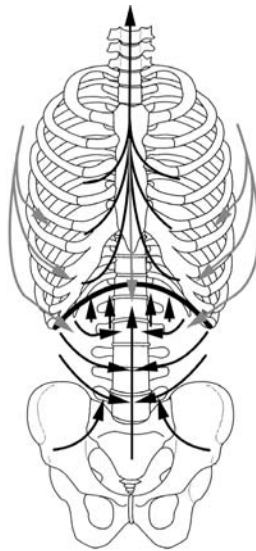
Figure 6–12. The unwanted vectors produced by a collapsing rib cage.

Exercise 6–S. Repeat Exercise 6–R but maintain the high sternum during the entire phonation. Do you feel the difference?

Bottom–up model and hourglassing

With SRS, singers must learn to *begin* the pressurization of the viscera from the *bottom* of the abdominal sheath (just above the pubic bone). Any attempt to squeeze the upper abdominal musculature first or exclusively, whether accompanied by a collapsing rib cage or not, quickly leads to a condition that we call "hourglassing." **Hourglassing** traps most of the abdominal sheath/viscera energy in the lower abdomen and causes a concomitant contraction of the rib cage musculature, certainly not a good model for the long, controlled exhalation needed for singing!

Look again at Figure 6–12. Mentally remove the gray rib cage vectors and you will have a good vector model for "hourglassing." One can easily see why such a muscular strategy is considered counterproductive.

Before we move on to learning how to sing language, we must add a final element to SRS, support.

SUPPORT

The word "support" is another one of those singer's terms that engenders great confusion among all who sing and teach singing. Most of the misconceptions about singer's support stem from a lack of knowledge concerning the anatomy and physiology of the respiratory system.

DEFINITION

Support is the *controlled* delivery of pressurized subglottal airflow to the vocal folds during singing. It is achieved by harnessing the *opposing* action of the diaphragm during the contraction of the muscles of the abdominal sheath. You may be surprised to learn that you already know how to support your voice; small amounts of support are required when we talk and much more is needed when we shout.

> **Exercise 6–T.** Place one hand on your abdominal sheath and the other on the side of your rib cage. While talking in a normal conversational tone, suddenly shout the word "hey."
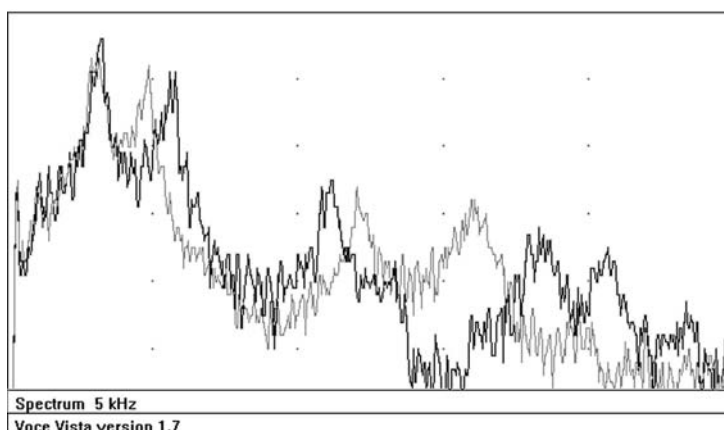
Spectrum 5 kHz
Voce Vista version 1.7

Figure 7–4. Spectrograms of a baritone and bass-baritone singing the same vowel on the same frequency. Within the patterns of the two voices, there are differences resulting from differences in the size, shape, and density of their vocal structures. The dark line is the bass-baritone.

headlight there, that enable us to identify them. Notice that this process is one of comparison and elimination, the same process we use to compare the sounds we hear.

RESONANCE AND LANGUAGE

THE VOCAL RESONATING SYSTEM

The human voice contains a semi-enclosed air space resonator composed of all the air-filled supraglottal spaces in the neck and head (top of the larynx, pharynx, nose, and mouth; see Figure 7–5). The sound from the vocal folds must travel through these spaces; therefore, it cannot avoid being altered by the acoustical properties of the vocal tract.

Some of you may ask, "How can we claim that the vocal resonator is open only at one end? When we studied vocal fold vibration, weren't we shown that the glottis was open for a part of every cycle?" If you asked that question, go to the head of the class! While the glottis *is* open for a part of each cycle, during phonation, it is usually closed *more* than it is open and the times during which it is open are too brief for the resonating air column to react. So, acoustically, the column acts like a semi-enclosed tube.
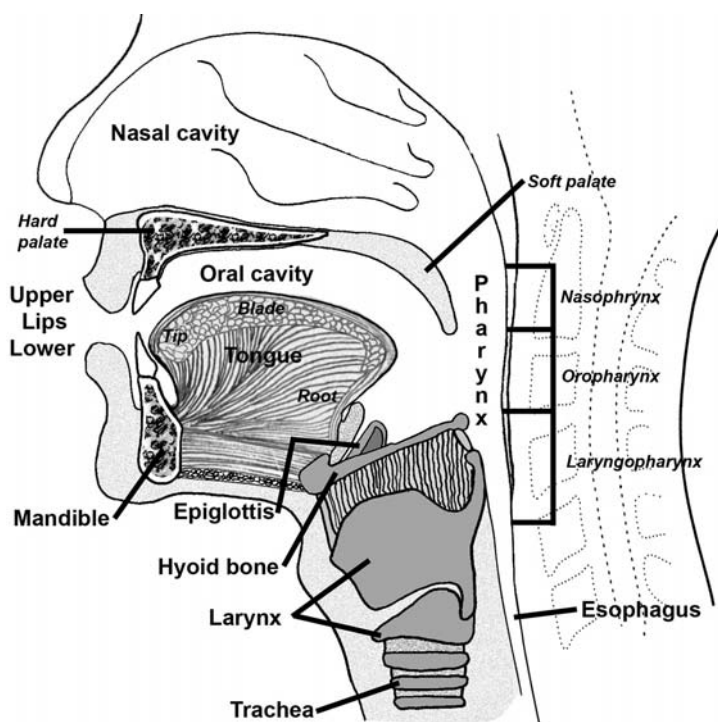
Figure 7–5. Sagittal view of the resonance spaces of the vocal system.

Because all these resonant areas are interconnected, they function *collectively* as the vocal resonator. Without our resonator, the sound emitted by our larynges would be feeble and have none of the qualities that we recognize as the human voice. Along with this unrecognizable vocal quality, we would also find ourselves virtually lacking in our ability to produce language.

OUR MALLEABLE RESONATOR

Our vocal resonator is unique in the world of musical instruments because we can reconfigure it in an astounding variety of shapes. Figure 7–6 shows just a few of the shapes it can assume. In their instructional video about the vocal tract, Joan Wall and Robert Caldwell proclaim that these shapes resemble "trumpets designed by Dr. Seuss!"

A fascinating view of the combined vocal tract resonating spaces is shown in Figure 7–7. This is a CT scan by Brad Story of the University of Arizona in which the air *spaces*, not the structures, are imaged.
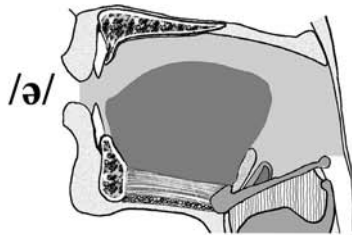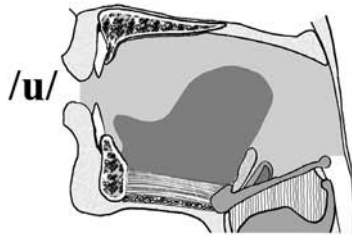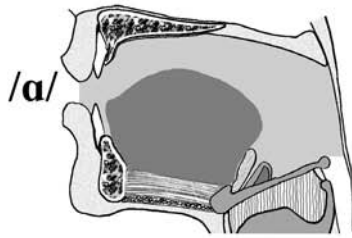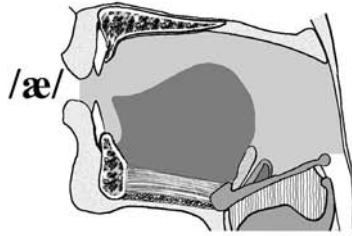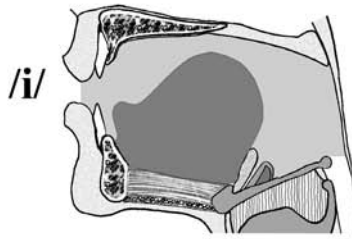
Figure 7–6. Views of various vocal resonator configurations. The phonemes produced by each shape are indicated in front of the lips.
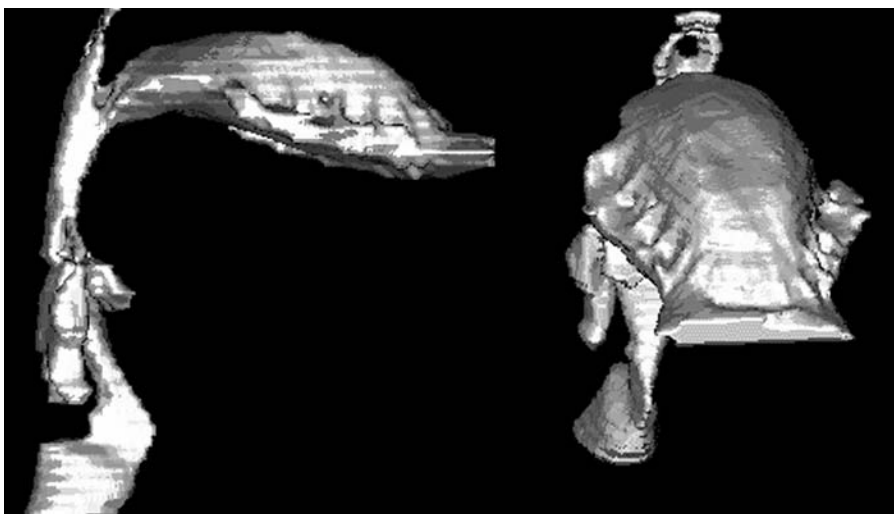
Figure 7–7. CT scan of the vocal resonation space of a male singing /ɑ/. This graphic shows the *spaces* in the vocal instrument, not the anatomic structures. (Courtesy of Brad Story, University of Arizona.)

Articulators

We reshape our vocal resonator through the use of **articulators**, those movable parts of the vocal anatomy such as the tongue and pharyngeal musculature.

Exercise 7–B. Open your mouth and gently flick a finger on your cheek, toward the back and just in front of the vertical part of your mandible (jaw bone; the vertical structure is called the *ramus* [/reˈmʊs/]). Don't make any sound with your vocal folds; as you flick your finger against your cheek, you will hear the air in your oral (mouth) and pharyngeal (throat) cavities resonate a pitch. (If you have the ability to "cluck" your tongue, you can use that noise instead of the flicking finger.)

Exercise 7–C. Base this exercise on 7–B, but this time reshape your oral cavity by forming a different vowel each time you make the sound on your cheek.

Did you hear the changes in your vocal resonance as you performed Exercises 7–B and 7–C?

The tongue—the miraculous articulator

The principal agent for the manipulation of our resonance space is the tongue. It is a remarkable collection of muscles that can be configured in an astounding variety of highly complex shapes. The literature about the voice contains many images that show the tongue from the side (the sagittal view). Thus, when we first begin to learn how the tongue shapes our various phonemes, it is natural to consider its shape only from that vantage point. Indeed, that long front to back curve is the major shaper of our oral resonance.

However, that major sagittal curve is not the only curve that we have to consider. On the other major plain, we must simultaneously regard the tongue as it appears from the front. Here, we find that it can assume side-to-side concave shapes as well. Much of this crosswise concavity is produced by ***linguadental*** (lingua = tongue, dental = teeth) contact between the back outer edges of the tongue and the molars. Many texts on speech that deal with the individuality of phonemes not only include the more common sagittal views but also include graphic representations of this linguadental contact called palatograms.

A ***palatogram*** is a graph of linguadental contact looking *up* at the upper teeth. The areas of contact between the tongue and the teeth are indicated by shaded areas (Figure 7–8 shows several vowel palatograms).

Later in this chapter, when we deal with the need to lower the mandible during singing to accomplish various critical acoustical gains, remember that, when the mandible is dropped, the tongue must learn to work harder to maintain its linguadental contact with the upper teeth for the desired phoneme to occur.

As of this writing, we do not have a complete set of contemporary three-dimensional CT scan images of the tongue of a highly trained singer producing the singing phonemes. Until that magic is accomplished, we can only put the two views, sagittal and palatograms, together in our imagination.

Other movable structures in the vocal resonator work in concert with the shifting tongue. They include the:

- **velum** [/viləm/] (roof of the mouth)
- **pharynx** [/færiŋks/] (throat)
- **lips**
- **mandible** (jaw)
- **glottis** (used for the glottal stroke and glottal stop*)

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*These will be dealt with in later chapters.

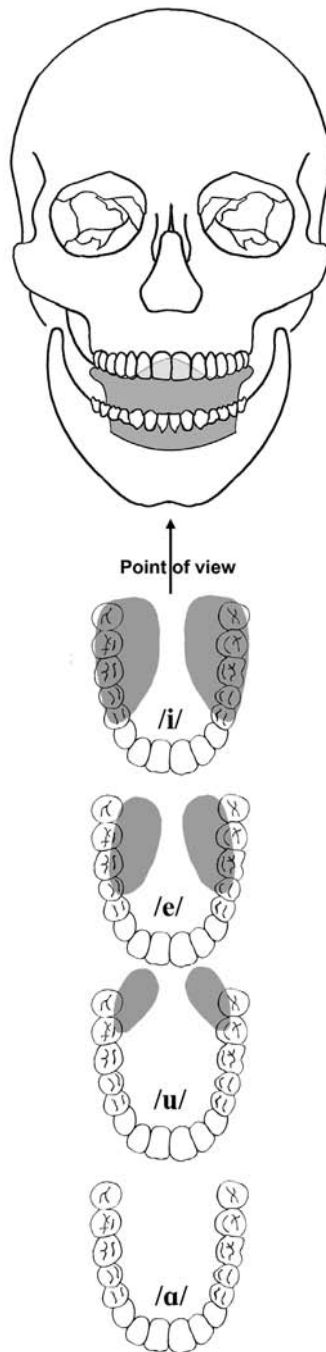**Figure 7–8.** Palatograms of several vowels. The front view of the skull at the top shows the tongue (*dark shading*) and indicates where the linguadental contact occurs for each phoneme. Note that the front of the tongue is given a lighter shade in order to show that, after the tongue stops maintaining linguadental contact, the front moves up into the area between the front teeth to complete its shape.

Although all of these structures play important roles, the tongue is the star in language production. We produce all the vowels and most of the consonants of the world's languages by setting it in very precise shapes. Study Figures 7–6 and 7–8 and imagine the complex three-dimensional curvature that the tongue assumes. Each vowel (and each consonant) has its own subtle variations in tongue shape and placement.

WHAT IS THE EFFECT OF THE SHIFTING ARTICULATORS?

As the tongue shifts position, it divides the vocal tract (oral cavity and pharynx) into two discrete but *connected* resonating areas (it is still a *single* resonator, but with two subareas). If the tongue elevates toward the palate at some point on its longitudinal axis (forming vowels such as /i/ and /ɛ/), the resonance space in the front of the mouth will be small and that behind its apex of the tongue will be large. Another class of vowels features the tongue shaping itself into a concavity as it drops back toward the posterior end of the oral cavity (producing such vowels as /o/ and /a/—look back at the CT scan of the resonance shape of /a/ shown in Figure 7–7. One can see the large area in the front of the mouth and the small area in the orophrayngeal region. This class of vowels has the larger of the two resonance areas in the front of the oral cavity.

These variable divisions of the vocal tract each create their own characteristic of resonance frequencies for the vocal tract, and they have a profound effect on the sound produced by the vocal folds as it finally reaches the room. In Exercise 7–C, you heard the differences in your vocal tract resonance as your tongue caused the two resonating areas to shift their relationship to each other.

As you made the adjustments, both the timbre and pitch of the resonance changed. This change in pitch is an indication that the resonator can favor certain frequencies depending on its acoustic parameters. This, although our supraglottal air space cannot *create* pitch, it can resonate (favor) multiple pitch areas.

FORMANTS

These resonating frequencies in the vocal tract are called ***formants***. If harmonics of the same frequencies emanating from the vocal

SINGER'S IPA TABLE

VOWELS

Front Vowels

ASCII	IPA	Kbd	English	Italian	German	French	Remarks
105	i	i	keen	si	Liebe	qui	See Chapter 8 of VTT for [j]
121	y	y	—	—	müde	une	
74	ɪ	⇑i	pin	—	bitte	—	See Chapter 8 of VTT for [j]
89	ʏ	⇑y	—	—	Glück	—	
101	e	e	chaotic	stella	Leben	été	
69	ɛ	⇑e	bet	eccetto	Bett	tête	
69+41	ɛ̃		—	—	—	infame	French nasal vowel
81	æ		sat	—	—	—	

Central Vowels

ASCII	IPA	Kbd	English	Italian	German	French	Remarks
171	ə		element	—	Segen	de	Schwa
171+105	əi		delight	—	—	—	A semi-schwa, a schwa with a slight /i/ coloration (a new IPA construct in the book).
195	∧		cup	—	—	—	—
206	ɜ		—	—	Öffnen	—	—

ASCII	IPA	Kbd	English	Italian	German	French	Remarks
Back Vowels							
117	u	u	moon	udite	Musik	genou	
85	ʊ	⇑u	put	—	Mutter	—	
111	o	o	pope	non	Tot	mot	
141	ɔ		ox	occhio	Morgen	ombrage	
141+41	õ	⇑z	—	—	—	bon	French nasal vowel
191	œ		heard	—	zwölf	heure	
191+41	œ̃		—	—	—	un	French nasal vowel
79	ø		—	—	schön	peu	
65	ɑ	⇑a	law	caro	Wagen	pas	
65+41	ɑ̃		—	—	—	sans, vent	French nasal vowel
Diphthongs							
111+117	o^u	—	no	—	—	—	
101+105	e^i	—	day	dovei	—	—	
195+105	$ʌ^i$	—	lie	—	Mai	—	
141+105	$ɔ^i$	—	boy	vuoi	Kreuz	—	
195+85	$ʌ^ʊ$	—	now	aura	Haus	—	

Most texts on speech and singing transliterate the diphthong in the word lie as /aⁱ/ or /ɑⁱ/. The author prefers /ʌⁱ/ because, when well sung, /ʌⁱ/ seems to join more easily with other phonemes, resulting in richer and better defined diphthongs. The /ʌ/ vowel has a bad reputation because it is so often performed poorly. It is worth the studio time to learn to sing this phoneme with the richness it deserves.

continues

At the beginning of our quest for great tone we will take an in-depth look at each vowel needed for our three languages and we will always begin our learning journey with the Single Vowel Vocalise Exercise (SVV).

The history of vocal pedagogy teams with an extensive collections of vowel exercises that are meant to be sung on melodies written specifically for them. These have traditionally helped singers learn good vowel production. However, why not go one step further and use the melody and rhythms of a song we wish to learn as the basis for our vocal exercises? By doing this, we can master both the musical *and* language skills in one-stroke. Hence, our SVV exercise.

Later in this chapter, we will begin learning our first song, Cavalli's *Sospiri di foco*. As you learn the following exercises, we will use parts of the melody from *Sospiri*. This will give you a head start in learning the song.

> **Exercise 9–A.** SVV—vocalize the melody of *Sospiri* on your favorite vowel. You can sing the whole melody on any one of the Italian vowels, /i, ɛ, ɑ, ɔ, u, ʊ/. Constantly review the resonance checklist to maximize the beauty of your tone on any given vowel.

> **Exercise 9–B.** SVV—repeat Exercise 9–A utilizing your least favorite vowel until you can sing it with the same competence that you achieved with your favorite.

The SVV should be employed during the beginning stages of the development of a singer's singing-template vowels for each language. After those vowels are well on the way to consistent excellence, this exercise can be dropped from the initial approach except as a method of working difficult phrases in the music.

TUTTI VOWEL VOCALISE (TVV)

As your ability to correctly perform each individual vowel increases through the use of the SVV, we will escalate the skill building with our next level exercise, the TW.

Icon: TVV

Description and purpose: In the TVV—*Tutti Vowel Vocalise* (*TVV*), we sing phrases from the song while utilizing the vowels of the text in their written sequence (*tutti* is Italian meaning "all"). Each vowel is to be sung in the location indicated by the composer's text underlay.

The following phrase from *Sospiri di foco*, will illustrate this technique (Figure 9–1).

In later chapters, as we achieve a vowel line that is beautiful, consistent, and automatic, we will add the consonant phonemes required for each language in a similarly graduated manner.

Go slowly!

As long as one practices *slowly* enough to be able to *think* about the proper production of each successive vowel in the line *prior* to executing it, rapid strides in the habituation of a fine vowel-to-vowel line will occur.

If singing the TVV with the notated melody and rhythms while concentrating on vowel production is too difficult, we can take a more graduated approach by employing a sequence of titrated variants (Figure 9–2):

- Chant the TVV as a monotone without rhythm.
- Chant the TVV as a monotone utilizing the notated rhythms of the song text.
- Sing the TVV with both the song's melody and rhythm in place.

Discipline pays off

Discipline yourself to stay at a given level until you can perform it successfully before escalating to the next. This kind of disci-

Figure 9–1. A phrase from *Sospiri di foco* illustrating the TVV exercise. Note that it employs the vowels (no consonants) where they occur in the composer's word underlay.

Figure 9–2. The graduated levels of difficulty for the TVV.

plined careful work, especially at the start of your vocal study, will pay enormous dividends in a very short time. *If you go too fast, you'll only be habituating errors!*

> **Exercise 9–C.** TVV—sing a phrase from *Sospiri* utilizing the three graduated levels given above. Do not move to the next level unto you can comfortably execute the level at which you began.

A look ahead

In the companion consonant chapters to follow, we will add the remaining phonemes with two other graduated exercises:

- **CVP**—Consovowel/Vowel Practice in which all phonemes that have pitch are sung along with the vowels. This exercise can be sung in graduated levels in the same way as the TVV.

- **The Song**—Sing *all* phonemes as they occur naturally within the song, regardless of whether they have pitch or not. Like the TVV and CVP, this exercise can also have graduated levels.

The *greatest* enemy of your acquisition of good singing technique lies in rushing the habit-building process. If your brain does not have time to concentrate on the sometimes radical shifts from speech norms, it will instantly revert to its storehouse of speech commands at the slightest hint of trouble. When this happens—not if, but *when*, you will have gained nothing for your practice time. Slow down and practice the assigned exercises only as fast as you can perform them correctly.

VOWEL CONSIDERATIONS FOR ALL LANGUAGES

While learning to sing the vowels of all languages, certain problems consistently appear. We will gradually introduce these issues at the head of the vowel chapters for each of our three languages. Collectively, these issues should be thought of as applying to *all* vowels in *all* languages, not just those in the language covered in a particular chapter.

Take the time to work through this material

There is lot of material that follows in this chapter—it will be the basis for all our work with vowels in our other two languages as well as in other every language you will ever sing. This material constitutes the heart of this book's help on vowels. Take your time and understand the principles. Constantly review this material as you work through the rest of the chapters on the three songs.

Each vowel production problem will be accompanied by a pedagogical solution. Should you find yourself falling into one of these technical traps during later study, refer back to the requisite chapter for the recommended solution.

As we begin our quest for great vowel production, we should review the optimization of resonance material that was presented toward the end of Chapter 7 (especially the points about the temporomandibular joint (TMJ) before proceeding.

CONSISTENCY OF VOWEL PRODUCTION

Icon: ⟨ Blooming

Purpose: A reminder to avoid a slow setup of a vowel's articulator set after vocalization has begun.

Part of a singer's wonderful vowel line is the ability to consistently produce optimal singing-template vowels no matter where they may be found in the linguistic environment—following any consovowel or consonant, prior to any consovowel or consonant. Furthermore, each vowel must be totally formed (all articulators precisely placed) from the instant it begins until it ceases whether or not it is joined to another phoneme.

If excellent vowels are not consistently produced, the singer's line will be continually tormented by lapses in both vowel tone and amplitude

Specifically, ***blooming*** occurs when the vocalization of a vowel begins while articulators are still being moved into position. The listener hears the acoustical results of this remaining setup as a subtle crescendo of both tone and volume—the vowel "blooms" (Figure 9–3). From the aural standpoint of the listener, blooming makes a sung line seem as if it were going in and out of focus.

During both the SVV and TVV exercises, it will be fairly easy to maintain vowel consistency and avoid blooming. Blooming usually begins to rear its head when we begin to have vowels and consonants cohabit in the language. Simply stated, the singer is not fast and/or accurate enough in moving from the consonant to the vowel. The effect of such bloomed vowels, from both the timbre and amplitude standpoints, totally destroys the semblance of line so dear to the hearts of both singers and listeners.

In the next chapters we will provide more information on blooming and how it can be avoided. As we begin this chapter on Italian vowels, we should be alert to the problem of blooming at the very start.
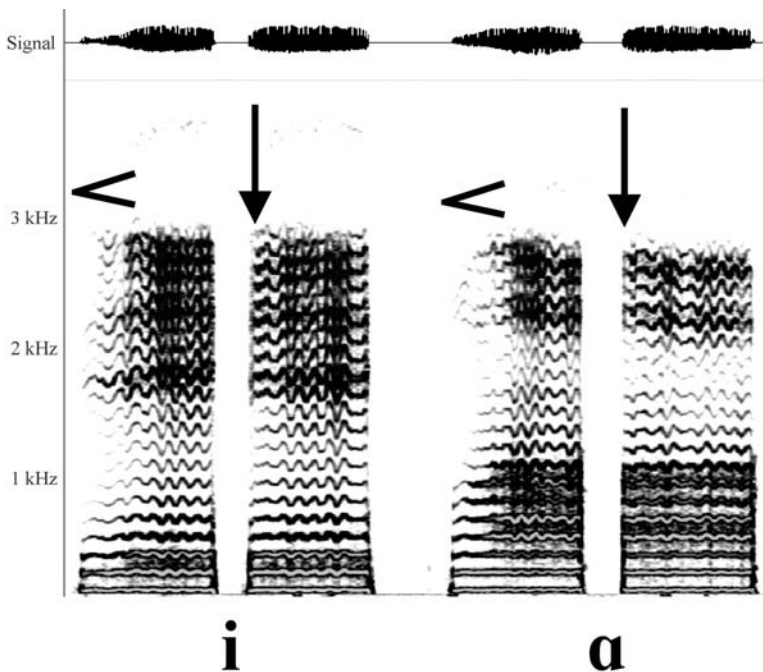

Figure 9–3. Two pairs of vowels, /i/ and /ɑ/. The left side of each pair (*crescendo sign*) shows a bloomed vowel in which the harmonic structure builds slowly. The right side shows a correctly performed onset *(arrow)*.

MOUTH APERTURE

Icon: ()

Purpose: Reminder to strive for an optimal opening of the mouth in terms of both shape and size of aperture.

So much tonal development hinges around the oral cavity and its forward opening, the mouth (Figure 9–4). As we have seen, it is not just a matter of dropping the front of the jaw to achieve a more advantageous opening, but it also involves the simultaneous relaxation of the TMJ and the concurrent need to have the tongue assume a much more active role in achieving the shape needed for each vowel (and for all consonants as well).

The enemy—the speech template

Because most speech-based vowel production features a high mandible, small **mouth aperture**, and relatively inactive tongue, even if a singer manages to begin a phrase in the mandible dropped/mouth-open set, the speech template will gradually reassert itself and the resonance gains will fade away little by little until, by the end of the phrase, the singer will be back to his or her speech norms.

Two problems arise because of this high-mandible position:

- The blade of the tongue usually occludes a major portion of the oral cavity and reduces much-needed mouth resonance.

Figure 9–4. A typical speech-template mouth aperture (*left*) contrasted with the singer's-template aperture (*right*).

CONSONANT RESONANCE (CR)

Consonant/vowel coexistence

When we were discussing the tone versus diction conundrum several chapters ago, we stated that, in terms of total time, consonants occupy less time during speech than vowels. This differential widens when we sing because it is the vowels that bear the responsibility of producing the sustained notated rhythms of the composer.

Consonants, on the other hand, are executed generally at the same speed when we sing as when we speaking. Given the quickness with which the consonants fly by, it is only natural for our brains to want to employ the speech template to supply the needed neuromuscular instructions for these phonemes. **If the consonants fall to that production level, significant problems in vowel production will quickly follow.** The result will come out sounding like:

sɔspɪɾi di fɔkɔ ke lau ɾe in fʲɑmɑte

To avoid this disparity, we must bring the production of all consovowels and consonants *up to the norms* of our newfound singing vowels by infusing them with far greater resonance than we are accustomed to in speech. We should strive to have our production sound like:

sɔspiɾi di fɔkɔ ke lauɾein fʲamate

Thus, as we study each consonant we will need to identify its precise PoA (see Figure 10–1 for examples). Once we clearly establish these PoAs, we will be able to envision the remainder of the resonance area in our instrument that can be optimized to enable consonants to ring with their own vowel-matching resonance.

We can accomplish this goal by concentrating on a concept that the author introduced in his first book (Nair, 1999), **consonant resonance (CR)**. Since that publication, many students have found this concept to be a key to achieving breakthroughs in their overall vocal technique. The term, CR, is intended to focus attention on needed shifts of articulatory behavior as the singer begins his or her search for vowel-matching consonants.

Our goal, as fine singers, will be to have our entire line of phonemes, not just the vowels, sound consistent and rich.

How can consonants have resonance?

When we sing consonants, we tend to focus only on the place where the articulators form the phoneme's signature, the PoA

that occurs generally somewhere in the **forward quarter of the oral cavity** (see Figure 10–1 for some examples).

But what of the remainder of the airway spaces from the PoA back and down to the vocal folds? In concentrating on the PoA, it is very easy to forget that a majority of the resonance spaces are available for resonance enhancement.

All consonants can have resonance

When discussing CR, it seems easy for most singers to adopt the idea that consovowels can have vowel-like resonance because phonation on pitch is involved. It is more difficult for them to imagine the noise consonants (for example, /ʃ/) as requiring resonance. But, as we shall see, that is precisely the case. As we progress in our study we will be striving to maximize CR for **all consonant phonemes**.

Why strive for CR

CR is critical for three reasons:

- CV/VC balance and diction—as we have seen, most singers produce vowels that are far richer than those in speech. Concentrating on CR attempts to achieve parity between vowels and consonants. When CR is attained, the singer will possess a powerful, intelligible, and *balanced* diction for *all* phonemes, not just the vowels (Figure 10–4).
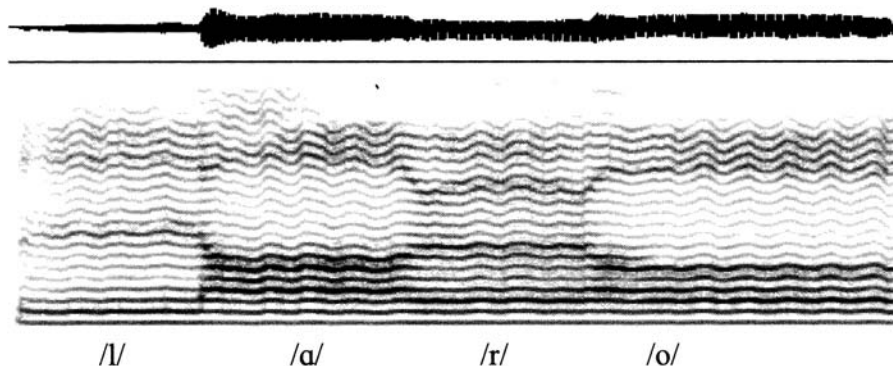

Figure 10–4. Spectrogram of a sequence of vowels and consovowels /l, ɑ, r, o/ performed by a trained singer. Notice how easily the consovowels join with the vowels in terms of their wealth of harmonic development.

- Easier CV/VC joins—once the singer has achieved an optimal level of resonance for *all* consonants, less shifting of articulatory structures is required when moving from phoneme to phoneme. Without this reduction of oscillation between singer's vowels and speaker's consonants, the much sought-after beautiful, seamless sound will be easier to execute (Figure 10–4).

- Less strain—the resulting openness in the instrument will cause a considerable reduction of strain in the singer's vocal production. With this reduction, the singer will possess a considerably better chance of enjoying long-lived, good vocal health.

It's inertia

The reason that phoneme joins are performed more easily with CR is simply a matter of *inertia*. As we produce consonants with optimal resonance, a certain *mean resonance space* can be established as we move through the vowel and consonant phonemes. The establishment of optimal CR leads, therefore, to an open vocal production where there is no loss in the clarity of diction and enormous gains in the overall richness of the singing line.

This is the solution to the classic conundrum posed in an earlier chapter, "how does one produce great tone and great diction simultaneously?" The answer is simple: ***Do not permit unnecessary collapse of the resonance space on any phoneme***. As we shall see, this requires a much more active and precise motion of the tongue than is common in speech.

We will begin our quest for such resonance by reviewing the resonance checklist presented earlier in Chapter 7. It is reprinted here for review:

Resonance checklist

- Low, relaxed, larynx to lengthen the pharyngeal resonance space;

- Relaxed, open pharynx to increase pharyngeal resonance;

- Relaxed TMJ/mandible to increase oral resonance (and aid in the lowering of the larynx);

- Raised velum to increase oral resonance;

- Optimally open mouth to permit the created sound to radiate freely to the surrounding atmosphere.

Mouth aperture and CR

The only requirement on this list that might raise a question in most singers' minds is the last on the list, the optimally open mouth. But, as we shall see, once we move past the lazy tongue habits of the speech template, the mouth can be far more open during the production of all consovowels and consonants as well. In fact, the consovowel production of great singers often is executed with mouth apertures *at or near* those of their vowels (refer back to Figure 9–7 to refresh your memory regarding proper vowel aperture).

When we achieve optimal mouth aperture on our consovowels, there is far less articulator movement between the vowels and consovowels and the resonance of the entire line improves as a result. Because most of our consovowels and consonants go by so quickly (at the speed of speech), it is only natural for the brain to want to use speech-template norms in their production. When that happens, the vowels revert to the wrong template as well. Because of this, a critical part of every singer's development is to strive for copious CR, especially the establishing of proper mouth apertures for all consovowels and consonants. Appendix B (Mandible Elevation Targets) gives targets for the mouth opening for all consovowels and consonants that should be used as a guide in the development of singing-template CR).

CR development exercises

CR development can be greatly enhanced by the use of two exercises:

- BIVYN
- Benchmark

BIVYN: Setting CR in phrase-initial CV joins

Icon: B➤

Description and purpose: BIVYN (pronounced, /bɪvən/) is an acronym for a simple but extremely effective CR-developing concept in phrase-initial CV situations—

Breathe **I**n the **V**owel **Y**ou **N**eed.

If a phrase begins with a consovowel or consonant, the singer should inhale while thinking of the open set of the *vowel that immediately follows* the consovowel or consonant. For example, if a phrase begins with the word, "come," the singer should inhale with the articulators substantially set for the first vowel, an excel-

lent /ʌ/. This not only sets the stage for a resonant vowel but also results in the initial /k/ being executed vertically as well. As a result, the resonance of the vowel to come usually permeates the initial consonant or consovowel and both constituents of the CV join will benefit.

While singing in class, if a singer executes a phrase-initial consovowel or consonant that is based in the speech template, the teacher or classmates need only say the acronym, "BIVYN," and the singer should be instantly reminded of the concept and retry it.

> **Exercise 10–A.** The teacher and class should try several phrase-initial CV joins employing the B➤ exercise (BIVYN).

Although BIVYN helps in phrase-initial CV situations, a different exercise is needed to solve word-interior VC/CV join problems. That exercise is called the Benchmark.

Benchmark exercise: Learning CR in interior joins

Years ago, the author developed an exercise that makes the process of habituating CR in word-interior VC/CV joins fast, easy, and virtually foolproof. It is called the **benchmark exercise** and nothing seems to work as well as this exercise as a means of creating and habituating CR in word-interior situations.

Icon: —‖—

Description and purpose: This exercise allows the singer to utilize good vowel resonance during consovowel (and later, consonant) production. By using this exercise, CV and VC joins become far richer and are gradually habituated into the vowel line.

A benchmark is a known standard of excellence against which other work is judged. The idea of the benchmark exercise is to use the vowel resonance surrounding the consonant or consovowel as a means of achieving CR. The exercise always starts with a resonant, well-sung vowel. Then, without stopping, the consonant is executed and is followed by an immediate return to the benchmark vowel. If the singer is successful, the two vowels will remain the same; if the resonance set collapses during the consonant or consovowel, the second occurrence of the vowel will be shallow and not match the initial, benchmark vowel.

Benchmark example

A typical location in which one would employ the benchmark exercise would be at the CV join found in the middle of the word "volate" (/la/) in the second phrase of Sospiri di foco. Problems might occur at this join if the singer utilizes a speech template /l/ with its typical, high-jaw set (see Figure 10–5).

When the jaw comes up for the speech /l/, the next vowel (/a/) will almost surely suffer because there is little CR during the production of the consovowel. Thus, the instrument cannot adjust from the shallow set of the consovowel to the vowel fast enough to form an effective vowel (see the spectrogram in Figure 10–6).
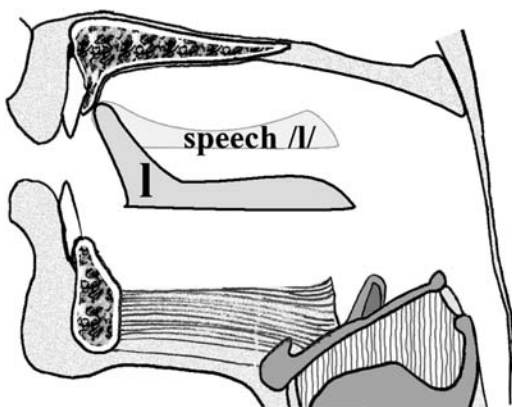

Figure 10–5. The PoA of the proper production of a singer's /l/ versus the speech /l/ (the speech version is the lightly shaded PoA).
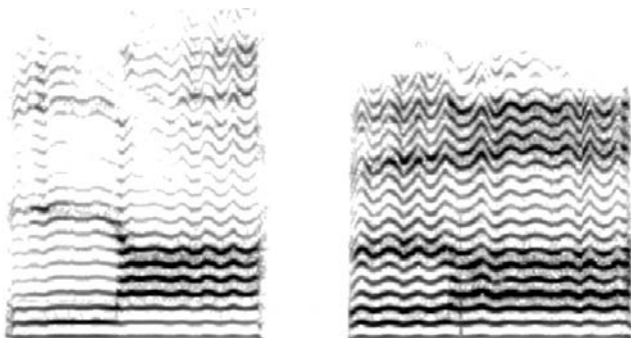

Figure 10–6. Spectrograms of two CV joins /l ɑ/ The one on the left features a high mandible /l/ characteristic of speech. The illustration on the right shows the singer's /l/ production. Notice the difference in both the tone of the /l/ and the /ɑ/ in the join.

LIQUIDS: /r AND l/

Definition

Whereas the nasal consovowels feature a complete blockage of the oral cavity, liquids are created with a *partial* lingual (tongue) blockage at the palate or upper teeth. Because this obstruction is incomplete, air and acoustic signal can still flow around the edges of the tongue and out the mouth. Because the oral occlusions in the mouth are only partial, liquids, have a more prominent high-harmonic component to their sound than the nasals.

Liquids: Specifics

l

The liquid /l/ is be sung in English as it is in Italian, tongue vertical and centered so as to maximize the oral/pharyngeal resonance behind the partial closure.

However, the other English liquid, /r/, bears *no* relationship to the Italian *r* and thus needs considerable commentary.

r

The English /r/ in general

Few points of diction spawn more contention in vocal pedagogy than what constitutes the proper production of the English phoneme, /r/.

In English, /r/ can be found anywhere in a word:

- Word initial ("read"),

- Word interior ("different"), and

- Word final ("mother").

In English, there are 11 different ways to spell the sound for /r/ (consider "l" in *colonel* as the extreme). As such, it is the *fifth* most commonly used phoneme in the English language; only /t/, /ə/, /n/, and /ɪ/ rank ahead of it (Edwards, personal conversation, 1997).

A tabulation of the occurrence of *r* in the paragraph you are *currently* reading reveals that, of the nine printed calls for the /r/ phoneme thus far, five are CV r-joins,

- pa**ra**graph—/pærəgræf/
- parag**ra**ph—/pærəgræf/
- **re**ading—/ridɪŋ/
- **pr**inted—/prɪntəd/
- occur**re**nces*—/əkɝrənsəz/

and four are VC joins,

- f**ar**—/far/
- **ar**e—/ar/
- occ**urr**ences* **—/əkɝrənsəz/
- c**urr**ently*—/kɝrəntli/

From these examples, we can see that the English *r* occurs in two types of joins (see Figure 13–3):

- CV *r*-joins where the phonemes are discrete—executed as a sequence of two individual phonemes where the tongue must change configuration between the two sounds—as in /prɪntəd/, /ridɪŋ/, /pærəgræf/.
- VC *r*-joins where the *r* is either
  - Discrete—executed as a sequence of two individual phonemes as in "are" and "far" (/ar/ /far/).
  - Merged as a single *vowel*, as in "herd" and "urge" (/hɝd/ /ɝdʒ/)

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*The/IPA transliteration of the double-r in *occurrences* and *currently* is a debatable situation and will be discussed later under the section on the stressed schwar. Some authorities would write it as /kɝəntli/—without the /r/ after the /ɝ/ consovowel.)

**In the last chapter, a new schwa subclass was proposed for the word-initial weak syllables *be* and *de*—the semi-schwa. The transliteration of the word-initial *o* of *occurrences* needs a similar construct because none of its traditional IPA solutions are totally satisfactory; the pure vowels /o/, /ʌ/, and /ɔ/ make maintenance of word accentuation difficult and one rarely encounters a pure schwa, /ə/. However, one continually hears the schwa executed with a slight *o* coloration (see the sidebar in Chapter 12 for more information on this concept).
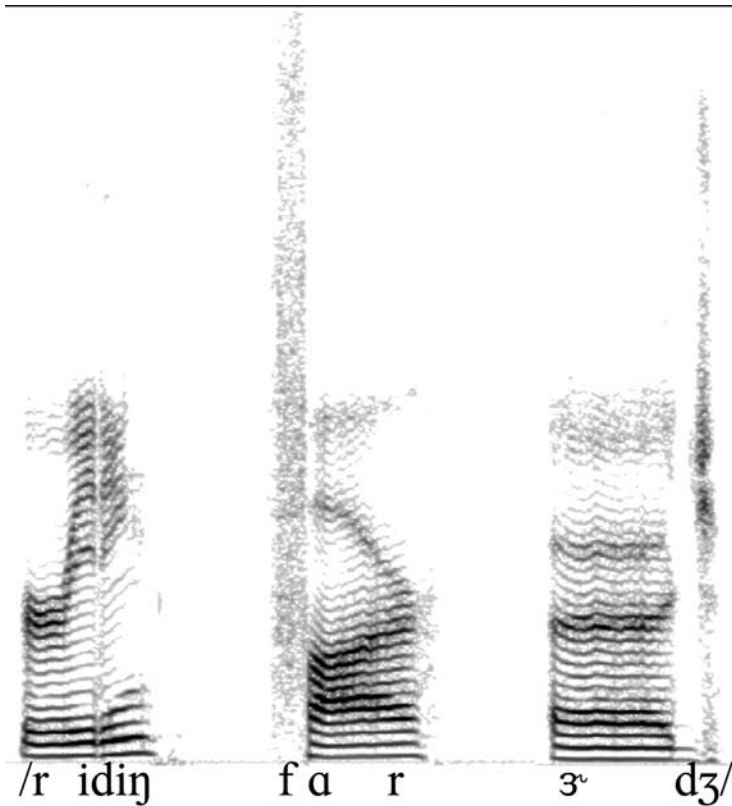
Figure 13–3. Spectrogram of /r/ utilized as a descrete phoneme in the word "reading" (*left*), "far" (*middle*), and in its vowel form in the word "urge" (*right*).

IPA Note: In strict IPA usage, the symbol /r/ is usually assigned to the rolled *r*. However, many American phoneticians have adopted the lowercase *r* for the generic vowel-like English *r*. In the system we use in our studios and in this book, we too adopt this usage and reserve the symbol /r/ for the normal English *r*. When we need to indicate the Italian rolled *r* (an entirely different physiological production), we add a wedge to the symbol, (/ř/)—a decidedly nonstandard usage of IPA but one that works beautifully to convey the physical activity of the rolled *r* to the singer.

Figure 13–4 shows a comparison between the strict IPA usage and that featured in this book.

To indicate this need for subtle coloration, the author proposed a simple IPA solution in Chapter 12.

IPA	Stands for		Singer's IPA	Stands for
r	rolled r		ř	rolled r
ɭ	retroflex		ɭ	retroflex—reserved only for the "hard" r of certain dialects
ɾ	flipped r		ɾ	flipped r
			r	common English r

Figure 13–4. The difference between the strict IPA usage for *r* and the system employed in this text in our IPA variant that we call "Singer's IPA."

The coloring vowel will be subscripted immediately following the schwa. Thus, the word occurences would be transliterated as /ɔₒkʒənsəz/.

/r/ as a discrete phoneme

When used as a discrete phoneme (where the tongue must reconfigure in the CV or VC join) the basic English /r/ sound is executed by:

- *Slightly* raising the tongue toward the palate,

- *Slightly* rounding the lips, and

- Usually maintaining some linguadental contact between the back tongue edges and the upper molars (see Figure 13–5).

We introduced the idea of the *palatogram* in Chapter 7. You will recall that this type of graphic indicates areas of possible contact between the tongue and the upper teeth (linguadental) during the execution of certain phonemes. Without this contact, the production of such phonemes will be compromised. Ascertaining whether or not such linguadental contact is required for a specific phoneme should be one of the first diagnostic steps a teacher takes when working with problem phonemes (see Edwards, 2003). Often, as a result of our attempts to drop the mandible for increased resonance, the linguadental component indicated in Edwards' palatograms may be absent in the singer's production—reestablishing that contact can solve phonemic difficulties.
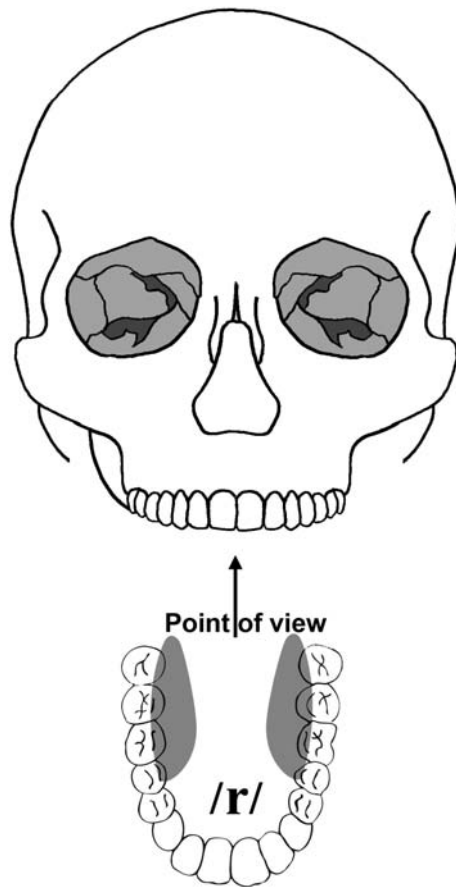
Figure 13–5. Palatogram of liguadental contact between the tongue and the upper molars during the production of the common English /r/.

/ɻ/—Retroflex or "hard" r

Many dialects in English sound the /r/ as a **retroflex** /ɻ/, a sound that singers commonly call the **hard** r.* This undesirable phoneme is produced by pulling the tongue back from the position described in the previous section on the discrete English /r/. Because the tongue is attached to the mandible structures at its posterior base (Figure 13–6), it spreads, hardens, and rises up in a mound as it is pulled back.

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*The official IPA symbol for the "hard" American r is /ɻ/. There is another IPA symbol, /ɹ/, that officially stands for the gentler vowel-like r of English that, in our Singer's IPA, we denote with /r/. Just remember that /r/ is the one we want; /ɻ/ is the one we don't.
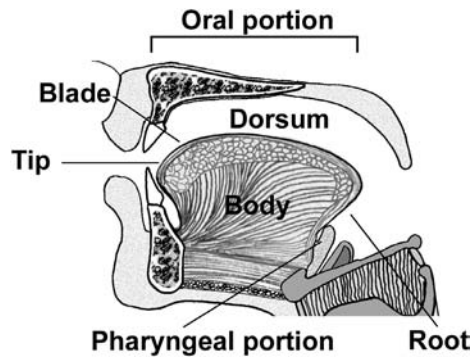
Figure 13–6. A sagittal view of the structure of the tongue showing how it is attached at its posterior base.

Exercise 13–A. Look in a ♀ and begin singing the vowel /ɑ/ with the tip of the tongue lightly resting against the back of the lower teeth. Slowly pull the tongue back and the resulting sound will turn into an /r/. As the tongue pulls farther back, this sound will evolve into an /ɹ/. Repeat this exercise several times to learn the sound and feel of these phonemes.

It does not take very much shift in backward placement until the tongue begins to harden and obstruct the oral cavity to a degree that the resulting sound has trouble fitting in a well-sung vowel line. This unwanted retroflex-r is indicated by the wonderful symbol /ɻ/, an upside down, backward *r*, complete with a rhotic "tail" at the bottom, that visually represents this sound as well as signals that we must avoid it. The acoustic difference between the discrete /r/ and its retroflex form is shown in (Figure 13–7).

The unattractive hard *r* sound can be found in both types of occurrence of the printed *r*, as a discrete phoneme and in its vowel form. Voice pedagogues have justifiably prohibited the use of the retroflex-r in well-sung English (except when the *characterization* of a role demands its dialectal use).

Unwise substitutes for the English retroflex /ɻ/ in discrete phoneme situations

As we stated earlier, the communal standard for what constitutes acceptable diction is constantly shifting in all languages. Fifty
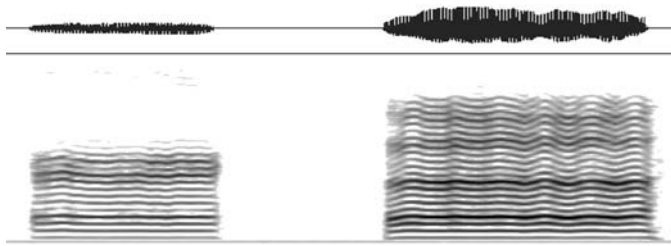
Figure 13–7. The retroflex /ɻ/ on the left and with a more desirable /r/ on the right.

years ago, in an attempt to avoid the /ɻ/ in sequential phoneme situations, many voice teachers resorted to using one of the following substitutes:

■ Flipping the r—/ɾ/

■ Rolling the r—(/ř/)

Thus, the words *reveal*, *write*, *river*, and *are* can become:

Word	To avoid	Don't use	
	retroflexive /ɻ/	flipped ɾ	rolled ř
reveal	ɻəᵢviᵘl*	ɾəᵢviᵘl	řəᵢviᵘl
write	ɻʌⁱt	ɾʌⁱt	řʌⁱt
river	ɻɪvɚ	ɾɪvɚɾ	řɪvɚř
are	aɻ	aɾ	ař

Although these substitutes avoid the /ɻ/, they do so by substituting another undesirable and unidiomatic sounding phoneme into the sound of English. We should never cure one wrong with another.

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*The subcripted /ᵢ/ next to the schwa in this word indicates a semi-schwa—a schwa that should be colored with a little /i/. See the sidebar, "A Schwa subclass?" in Chapter 12 for more information on this new usage developed by the author.

> **Exercise 13–B.** Intone each of the words listed above while performing them with the "hard" /ɻ/ and then the /ɾ/ and /ř/ substitutes. Don't they all both feel and sound wrong? Memorize the feel of their placement so, if you should accidentally execute them again, you will know it and replace them with the desirable *r* phoneme discussed below.

What, then, should we use for the discrete /r/ phoneme in order to avoid the undesirable retroflexive /ɻ/?

The proper /r/ in CV combinations

Singers who tend to use the retroflexive /ɻ/ in CV combinations in either word-initial or word-internal positions must work to *reduce the backward and upward retraction of the tongue*. Often, a singer can quickly learn a better /r/ by being told to merely "hint at the *r*"—or, as the author often says, "touch the *r* like a hot stove." Physiologically speaking, achieving the desired result can be accomplished by two shifts in behavior:

- Placing the PoA more forward in the oral cavity, and

- Speeding up the production of the phoneme within the phonemic line.

> **Exercise 13–C.** Begin by singing a good /ɛ/. While sustaining that vowel, pull the tip of the tongue back in very small increments until a good, open consovowel /r/ is achieved.

While executing Exercise 13–C singers are often amazed at how little the backward shift of the tongue must be to produce a desirable /r/.

> **Exercise 13–D.** ↱ between /ɛ/ and /r/ to learn the sound and feel of a proper /r/.

Exercise 13–E. ↱ Intone the words that we maltreated earlier by performing them with the /ɹ/, /ɾ/, and /ř/ substitutes. Now, sing them first with an undesirable retroflex /ɻ/ and then with our good singer's /r/.

Word	Use
reveal	rə̠iviᵘl
write	rʌⁱt
river	rɪvɚ
are	ɑr

Get into the habit of using this gentle, vowel-like *r*. In most circumstances, the retroflex /ɻ/ is easier to relearn and habituate in CV situations than it is in the VC ones that we discuss next.

The /r/ join as a vowel in word-interior and word-final VC combinations

Most VC r-ending joins, unlike the CV combinations encountered above, are *not* executed as two separate phonemes ("e" and "r," for example) but rather as a *single r-colored consovowel*. We have a bewildering variety of spellings for this sound:

- *er*, as in lather (72%)

- *or*, as in color (12%)

- *ar*, as in burglar (8%)

- The remaining 8% is spread among *ir, our, re, ure, ur,* and *yr*) (Edwards, 1997, p. 266)

Because this VC combination is *highly* susceptible to retroflexion, voice teachers rightly prescribe a vowel substitute. It is the *choice* of this substitute vowel that gives rise to most of the pedagogical controversy.

Unwise substitutes for "er" occurrences

Under no circumstance should either the flipped /ɾ/ or the rolled /ř/ be used in an *er* occurrence (except when necessitated by the need to replicate a dialect such as Scots).

Furthermore, a longstanding, commonly accepted sidestep for the *er* problem has been to substitute the central vowel /ʌ/ for the *er* combination. Again, this practice corrects one problem by introducing another—the well-sung, pure central vowel /ʌ/ winds

up sounding like a dialect instead of the neutral dialectless Eng-lish needed on the stage.

	Do Not Use			Preferred Usage
retroflex	/ʌ/	flipped	rolled	
bɜɹd	bʌd	bɜɾd	bɜřd	bɝd
mʌðɜɹ	mʌðʌ	mʌðɜɾ	mʌðɜř	mʌðɚ

When judged by today's communal standards of English dic-tion (that *heard* in major concert halls and not promulgated in out-of-date texts or voice studios), these traditional ways of avoid-ing the retroflex /ɹ/ problem sound stilted or old fashioned. As such, they have little or no place in singers' properly executed modern English.

Even though we dealt with the proper *er* production for both the unaccented and accented varieties in the last chapter, these combinations cause so many problems that it is wise to repeat that material here.

ɚ

The unaccented "er" vowel or schwar

In word-final or word-interior unaccented VC joins, we avoid the hard, retroflex /ɹ/ by utilizing a *vowel* phoneme called the ***schwar***.

Learning the schwar

A schwar is formed when we infuse just a *little* /r/ color into the schwa, /ə/. Most singers first achieve this sound when they are told to merely *hint* at the /r/ while sustaining a schwa. This /r/ col-orization, is called a **rhoticization** and is indicated by the IPA symbol /ɚ/—a combination of the schwa symbol and /˞/ (the "wing" of the "r").

When executed correctly, the schwar produces a sound that listeners instantly recognize as the VC r-join and, because it is a *vowel* in its own right, it easily coexists in our rich vowel line. When properly produced, this phoneme (as well as the accented syllable variety /ɝ/ to be discussed next) is so open that the author teaches it as a *vowel* (it is actually physiologically more open than some of the front vowels covered in the last chapter).

$$\boxed{\text{ɝ}}$$

The stressed schwar

When the "er" sounding VC combination occurs in an *accented* word-interior position ("earth," "occurrence," or "journey"), we can use a slightly "harder" version of the schwar achieve to distinguish it. For the word *journey*, instead of the softer /dʒɚni/, we would use the slightly more forceful /dʒɝni/. This phoneme, the IPA symbol /ɝ/, is called the **stressed schwar** (in the language of phoneticians, you may also find it referred to as the *reversed hooked epsilon*). Word-interior incidences can be spelled in a variety of ways:

- *er*, as in herd (40%)
- *ur*, as in urge (36%)
- *ir*, as in firm (13%)
- The remaining 11% involve alternative spellings such as *ear*, *or*, and *our*.

Learning the stressed schwar

When /ɝ/ is properly produced, the tongue is slightly more elevated above the neutral position than it is in the execution of the schwar. Although many voice practitioners do not like the use of negative words such as "tense," the word is well used in this case. Compared with the schwar, the tongue position for this phoneme is *slightly* more tense and retroflexed and, thus, creates a more solid contact between the edges of the tongue and the upper molars. The tip of the tongue is usually just in back of the lower front teeth.

The English double-r

The English double-r is an interesting case. We find it in such words as "occurrence" and "currently." It could be legitimately performed in one of two ways:

- As a single vowel phoneme utilizing the stressed schwar— /əₒkɝəns/ /kɝəntli/.
- As a sequential VC-CV involving the stressed schwar followed by a brief transit through /r/—/kɝrəns/ /kɝəntli/.

If the discrete *r* solution is used (in the author's experience, most singers find this easier), one should just hint at the *r* (i.e., a