

VOCAL TRAINING IN CHORUS

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PRIMUM NON NOCERE

The first is to do no harm.

MEDICAL MAXIM

I remember Dr. Barbara Doscher at the University of Colorado describing vocal pedagogy as a negative-value proposition. Above all, don't hurt the voice. In many singers a healthy voice will emerge naturally; stay out of the way and let that sound emerge. Create a vocal warm-up, especially for younger singers, that will allow this expressive, free voice to come out.

The techniques and strategies suggested below come from observing Dr. Doscher's teaching of studio voice lessons, from reading texts on vocal pedagogy (see below for a reading list), and from three decades of teaching singers in choirs of varying ages and abilities. The primary laboratory for these exercises is the University Chorale of the University of Southern Maine, a large ensemble of mixed voices, whose membership comprises experienced singers whose principal instrument is voice, singers who are dedicated amateurs and who seek to continue their love of choral singing, and students who have been instrumentalists for most of their musical life, some of whom are singing for the first time in the University Chorale.

The suggested techniques belong to the realm of Group Voice Building (as exemplified in the work of Frauke Haasemann among others). The best-designed group vocalises in no way supersede studio voice lessons. One-on-one instruction is the best way to address the unique vocal needs of individual singers. I always ask the singers in the Chorale who study voice privately to inform me if the exercises that we do in Chorale contradict the ideas of good vocal development that they have learned in private lessons; furthermore, there is always an option for experienced singers to do their own private warm-up prior to rehearsal and to sit quietly during vocal warm-up. I ask them to inform me of their concerns, so that we may both be aware of what the other is doing.

My experience with the exercises below is that they address the dictum stated above: do no harm. The sound that I hear from this vocal procedure is clear, in tune, free, and pleasing. Singers are encouraged to sing individually with sensitivity to the group sound.

WAKE UP THE BODY

First we must prepare the body to sing.

Several exercises can contribute to this readiness:

- Stand quietly. Take a "sun breath." As you inhale through the nose (to the count of 4) raise your arms, keeping shoulders comfortably relaxed. If you are able to do so, touch your hands over your head. Exhale through your mouth to the count of 4 while gradually lowering your arms. Over time increase the count to 6 and then 8. As you become comfortable with the exercise, add a 4-count hold at the top of the inhalation. (This is a wonderful "centering" exercise, which I

was at first hesitant to try with rowdy college students, and I was amazed at how quiet the room got during the exercise. Try it.)

- Gently shake your wrists. Flop your wrists in front of you. Shake your hands more vigorously as if trying to get water off them.
- Move your elbows and hands in a circular manner. Wake up the arms.
- Roll your shoulders in a circular manner up and back.
- Extend one arm in front of your body fingers pointed up. Pull gently to free the wrist. Point the fingers down. Pull gently to free the wrist. Repeat with the other arm. (Also good for conducting.)
- Clasp your hands together behind your head. Gently pull down on your head while exhaling. (CAUTION: Those with neck injuries, take care with this exercise or avoid it completely.) Lift your elbows and head while inhaling through the nose. Repeat slowly 3-4 times.
- Turn 90 degrees to the right, facing the back of your neighbor singer. Rub the shoulders of the person in front of you. Turn around and repeat the process.
- Finally, stand quietly with arms relaxed at your side. Take a full breath while bringing your arms overhead. Keep shoulders comfortably down and relaxed. As you exhale, lower your arms, keeping sternum elevated and shoulders down. Your posture is somewhere between the typical "teen slump" and the stereotypical "military rigid." The body is now awake and in a position for effective singing.

These exercises are several from the many effective exercises that singers can do to ready the body for singing. They generally work well in close quarters and are designed to bring a state of readiness to the body with special attention to relaxing muscles in the neck which attach to the laryngeal cartilages. Freedom and readiness are the issues: free the voice and ready the body.

OBSERVATIONS: I have used all of these exercises with varying degrees of success. The first time many years ago that I used back rubs, the students looked at me with disbelief and genial mocking, "What is this, a phys ed class?" Now if I forget to do back rubs, they ask for them.

You cannot use any vocal technique that you do not believe in. If you have confidence in the exercise and can convince the students that you are working in their interests to make them better singers, then keep at it. These exercises are not magic; they do not work overnight. Over time, however, they do work. When you notice a difference in their singing, tell them so and let them know that it is because of the exercises that we have been doing regularly. We are all working together for a better ensemble.

WAKE UP THE BREATH

The Process of Breathing: A singer's breath involves the coordination of muscles of the ribs together with muscles of the abdomen, a process called muscular antagonism. The muscles of inspiration—the external intercostals and diaphragm—work to create a partial vacuum in the lungs. Natural air pressure moves air into the lungs. The muscles of expiration—the internal intercostals and several muscular layers of the abdomen—pull the ribs down and in and the belly inward, which moves air out of the lungs across the vocal folds. (See also below: *appoggio*)

The Process of Phonation: The vocal folds are brought into vibration through a principle of physics called the Bernoulli Principle. (It is the same principle that gives lift to an airplane or forward motion to a sailboat.) The vocal folds are "sucked" into vibration through the partial vacuum created by the air rushing out of the lungs through the trachea. In an ideally phonated pitch, the movement of breath is met precisely by the approximation (adduction) of the vocal folds, which are brought together with the right amount of muscular energy that is neither too tense (producing a glottal plosive) nor too relaxed (producing a breathy vocal quality). Voice and breath are precisely coordinated resulting in "singing on the breath."

Exercises: Once the body is alert and energized through a physical warm-up, it is time to wake up the breath. These exercises are effective:

- Place your palms on the bottom of the rib cage, fingers crossing the abdomen and touching in front. Breathe low and deep, observing that the fingers separate as the result of an effective inhalation. Hiss, long and sustained, keeping the rib cage and sternum elevated.
- Inhale and hiss, five times staccato.
- Inhale and hiss, twice staccato and then sustained.
- Inhale and sing on a comfortable pitch in mid-voice, "Sah-sah-saaaaaaaaaaaah." (Sing twice short and then sustained.)
- Inhale and sing on a comfortable pitch in mid-voice two staccato pitches, "Sah-sah" followed by a sustained five-pitch scalar passage (5-4-3-2-1) on "Saaaaaaaaaaaaah." Repeat several times, each time a half step lower, remaining generally in mid-voice range.

Other exercises

- Hold your hand up in front of your face fingers spread. Imagine that each finger has a candle lit at the end. Blow out the candles one by one with five staccato breaths.
- Toss an imaginary ball to someone across the room. As you throw, exhale with a hiss.
- Toll an imaginary bell. As you inhale through the nose, reach up. As you exhale audibly through the mouth, pull down on the imaginary bell rope.

(These exercises are from the Ehmann/Haasemann book listed below.)

The intent of these vocalises is "vocal-ease." Breath flow needs to be uninhibited and immediately connected to the sound. "To sing is to breathe." The flow of breath may be imagined as water pouring forth freely from a garden hose. The sound on the breath is as a leaf on the stream of water, carried effortlessly and completely connected to the stream of water.

Observations about breathing

- Never plan to use all of your breath. The singer who sings to the last milliliter of breath may well have done so at the expense of introducing tension into the voice or body, not to mention a likely sacrifice of expressive singing. The "last gasp" of breath is rarely connected to easily produced sound, and it is generally unmusical.
- The issue with breathing is not who can sing the longest phrase, although it certainly is a goal of vocal pedagogy to increase the length of phrase that can be sung. The primary issue with breathing is to keep a smooth, consistent stream of sound always connected to breath.
- Young voices may be naturally breathy. Don't be overly concerned about breathiness in young singers. Listen to the sound that is produced "under" the breathiness. Vocal maturity may solve the problem.

- Avoid holding back the breath. Give the breath into the phrase. Holding back the breath to "save it" for the end of the phrase may lead to vocal tension and erratic voice-breath connection. Ironically, the more breath you give to the phrase, the more breath you have to give.

"How can you teach voice-breath connection?"

1. Technical—primarily through the use of the consonant "s"
2. Imaginative—imagine that the phrase moves like a wave across water/like an airplane gliding to a landing/like water moving through a hose
3. Musical—imagine that each successive note is connected by slight crescendo
4. Physical—Physically move your hand through imagined resistance (molasses, e.g.) as you sing; imagine the connection of pitches to be like the motion of the hand
5. Mental—THINK that the notes are super-glued one to the other; focus the breath energy through the phrase; always "give the breath" into the phrase. This helps voice-breath connection.

- Coordinate the breath with vocal onset, so that the sound is neither breathy nor tight.
 - If the sound is too breathy, try "narrowing" the vowel concept, singing a very rounded [u] for example. (Remember—point #3 above—that young voices may be naturally breathy)
 - If the vocal onset is tight, use an aspirated consonant [h] to assist vocal production. Rather than [a] sing [ha]. Gradually reduce the intensity of [h] in the sound until the [h] is only imagined, not audible.
- Maintain the body in its upright and ready posture. (See below: *appoggio*)
- Oversupport can cause as many vocal problems as undersupport.
- For posture: "Sing in the position of breathing—breathe in the position of singing."
- Take an easy, silent breath.
- Breath holding may increase lung capacity, but will not enhance breath management.
- If the vocal onset or release is jagged or erratic, move the hand in an upward sweeping motion to encourage a smooth onset or release of sound.
- If the vocal release is tight or constricted, keep the throat open after phonation; imagine that you are continuing to sing, even after you have released the sound.

The Italian concept of *appoggio* (support) is amply illuminated by Miller (pp. 23-29). Though it is roughly translated as "support," *appoggio* is much more: a dynamic balance of abdominal and thoracic muscle movement, coordinated with vocal onset (phonation), which allows cooperative (antagonistic) coordination among the muscles. Its features are

- an elevated sternum, never slumped
- ribs expanded and maintained, as much as possible, in the "expanded" position during exhalation
- shoulders, neck, and head relaxed
- torso stable in the epigastric and umbilical regions
- relaxed glottis

WAKE UP THE NOSE

Once the body is ready and energized for singing and the breath vitalized,
it is time to "wake up the nose."

The Italian maxim goes something like this: "Put some nose in the sound without the sound being in the nose." Virtually everyone agrees that, in the bel canto style, nasal singing is avoided. The converse is also true: "cut-off nasality" is to be avoided. Nasal sound has a twang that is generally out of place in classical singing. On the other hand, the sound of "cut-off nasality" is dull and monochromatic, flat (not in pitch but in resonance). In a balanced voice there is some nose in the sound, but the sound is not nasal. A good test is to sing and pinch the nostrils. If the sound doesn't change at all, there is no nasality in the sound: it has "cut-off" nasality. If the sound changes a lot, there is a nasal twang: it has too much nasality. If the sound changes slightly, then the balance is probably right. This is a tricky concept to teach. Studio voice teachers use a variety of techniques to get the right mix of nasality in the voice.

In a choral setting I have found that the best way to "wake up the nose" is through a humming vocalise. Ask the singers to bring the lips gently together as if humming [m]. Place the tip of the tongue easily behind the upper teeth as if singing [n]. Hum using this combination of [m] and [n]. Experiment in mid-range with random humming sounds, single pitches and gentle glissandos. Use the humming "puppy whine" in upper register as a means of developing nasal placement and as a technique to connect with head register.

Once singers are comfortable with humming, introduce this vocalise: 5-3-4-2-1 (sol-mi-fa-re-do) in major mode and in a comfortable mid-voice range. Hum the first four pitches and sustain the final pitch on the vowel [a]. Repeat several times a half step lower each time, but remaining in a comfortable range.

Another useful vocalise on the same pitch pattern (sol-mi-fa-re-do) or a more extended pattern (sol/mi – fa/re – mi/do – re/ti – do) is [ni-ne-na-no-nu] sung while doing gentle circular gestures with your in front of the body as if lovingly stroking a cat.

Observations about Resonance

- A resonator is a secondary vibrator, not capable of initiating pitch, but capable of altering the amplitude and timbre of the pitch for better or worse. If the voice doesn't sound good or if it is not projecting well, it may be because the resonators are not well adjusted.
- Resonance adjustment (the tuning of the cavities of the mouth and throat) is often most effectively done through vowel modification. For example, if the [ah] vowel is too bright, modify it to [aw].
- If the resonating cavities (primarily mouth and throat) are not tuned to the pitch from the vocal folds, then the vocal folds must "force" the air cavity to vibrate, rather than vibrating in sympathetic resonance with the voice. Forced resonance is inefficient for singers; sympathetic resonance is the goal.

For optimum resonance, encourage the following:

- A comfortably low larynx
- A high velum
- Balanced nasal placement
- Relaxed lips
- Relaxed tongue

For beautiful sound and optimum resonance, use the following:

- the look of pleasant surprise on your face
- the look of hopeful anticipation
- the beginning of a smile
- the appearance of inhaling a pleasant aroma, such as a rose

To do all of these exercises every day will probably require 10-15 minutes, and you may not have that much time in rehearsal. I generally use a 20-25% rule of thumb for vocal warm-up and sight-singing exercises. If your rehearsal is 50 minutes, take no less than 10 minutes for vocal and musical exercises. Find a plan that works for you and stick with it. Slight variations from day to day are good, but in general keep the routine the same; in the long run that will produce the most consistent results.

Research has demonstrated the value of singing **every** day. The vocal exercise does not have to be complex: easy humming in the shower or simple scalar passages in the car on the way to work are effective; certainly more extensive vocalizing is needed for more rigorous singing. The benefit of humming is holistic: somehow we feel more integrated, grounded.

If students resist vocal or musical exercises, tell them that we are merely "sharpening our axes." The story is told of two woodsmen, one of whom wanted to get the jump on the other by going immediately into the woods to chop trees. The other stopped first to sharpen his axe. Woodsman #1 felled his tree first, but Woodsman #2 felled many more trees by day's end.

CHARACTERISTICS OF A GOOD VOICE

- **PITCH-CENTERED.** Singers can and should sing to the center of the pitch.
- **FREE.** Good singing feels and sounds effortless; unnecessary vocal tension is released.
- **BEAUTIFUL AND RESONANT.** Exercises that encourage a comfortably low larynx, a high velum, "forward" placement, relaxed lips, and relaxed tongue will contribute to a naturally beautiful sound.
- **A PLEASING VIBRATO.** In Seashore's classic definition, "A good vibrato is a pulsation of pitch, usually accompanied with synchronous pulsation of loudness and timbre, of such extent and rate as to give pleasing flexibility, tenderness, and richness to the tone." Pitch fluctuation in a healthy vibrato is about a semitone with about six undulations per second. A vibrato that is too rapid is called tremolo; one that is too slow is a wobble. Vibrato is a result rather than a technique. When the voice is free, breath-centered, pitch-centered and resonant, vibrato emerges; it is not taught. Vibrato is a sign of a healthy voice. In Miller's view it is acceptable to call attention to unhealthy vibrato, so that a singer may correct it.

Much debate among singers, singing teachers, and choral conductors has centered on the topic of vibrato. I believe it is possible for good choral union and vibrato to peacefully coexist. (Consult recordings of The Robert Shaw Chorale or the Swedish Radio Choir with Eric Ericson conducting

as examples.) Straight-tone singing to the point of "laser-like" vocal production (as I have heard in some choirs) is unhealthy and unpleasant. Likewise, a vocal free-for-all in which singers are allowed to do anything and everything with vibrato does not yield the most satisfactory choral sound.

A NOTE ABOUT AUDITIONS: Choral conductors who have a great variety of singers interested in choral ensembles have the joy as well as the responsibility of choosing the singers that best match their concept of choral sound. For example, in a select chamber choir of 30-40 voices that sings primarily *a cappella* repertoire, I prefer the lyric soprano sound, and (if I have the choice) will seek sopranos who can sing high and soft and who can produce a sweet timbre which is still energized and musical (much like the voice of Emma Kirkby). If during the audition you can choose voices that match one another, then you can use rehearsal time to attend to musical matters rather than matter of vocal unification. The larger ensembles that sing with piano or orchestra can more easily accommodate more vibrant, ringing voices.

A NOTE ABOUT BLEND: A chorus learns to sing together to the extent that members of the chorus have developed unified concepts of pitch, vowel, diction, rhythm, articulation, dynamics, balance, and timbre. In rehearsal I encourage all singers to

- Sing precisely the same pitch.
- Sing precisely the same vowel.
- Sing exactly the same rhythm (with special attention to consonants).
- Sing a unified articulation: staccato, legato, marcato, or tenuto
- Sing a unified dynamic level.
- Be sensitive to the need to balance all voice parts.
- Sing with a unified timbre, bright or dark.

If we do these things, then I rarely find the need to say,
"Sing with straight tone." OR "Blend the sound."

SUGGESTIONS FOR GENERAL HEALTH

- Aerobic conditioning assists vocal conditioning. When you exercise, you oxygenate the capillaries throughout the body, including the larynx, and singing is enhanced. CAUTION: Consult a health-care professional before beginning a program of aerobic exercise.
- Hydration assists good singing. A water bottle is a good companion.
- Avoid dehydrating substances: antihistamines, alcohol, and caffeine.
- Eat foods that focus on the dietary pyramid: high on fibrous fruits, whole grains, and vegetables; low on "bad" carbohydrates and "bad" fat.
- Take a good multi-vitamin supplement.
- Avoid foods that produce mucous, milk products especially.
- Speak at an optimum pitch for your vocal health. The voice can be damaged if speaking pitch is too low or too throaty.
- Warm-up the voice daily. A few descending vocalises, humming and singing (perhaps in the car on the way to work) will help ready the voice for a day of teaching.
- Whispering is hard on the voice.
- Avoid clearing your throat, a very rough experience for the vocal folds.
- If you are not well, stay home and rest. Don't teach while ill or vocally impaired.
- Avoid getting a cold, an annoyance to the general population, deadly for a singer. Avoid touching your eyes and nose as these are good conduits for infection. Wash hands frequently, especially during cold season.

SOME PRINCIPLES OF VOCAL TRAINING

- Don't badger the sopranos about vowel color in high range. Because of the fixed formant principle, all vowels in women's voices tend toward [a] in upper range.
- The most difficult singing is *piano* or *pianissimo*. The next most difficult singing is *fortissimo*. Most singing, especially in developing voices, is best at *mezzo forte*.
- Ideally singers desire to coordinate the voice from top to bottom in one seamless passage. All singers have two basic registers: heavy and light, often called chest voice and head voice. Training the voice to produce this seamless passage generally requires bringing the lighter production or head voice down into the lower voice and, conversely, taking weight out of the sound as you move from heavier production, or chest voice, into the upper voice. Generally, descending vocalises work best to achieve this balance of vocal registers.
- Generally men need to be encouraged to use the falsetto range. They shy away from it because the sound is not manly.
- Generally women need to be encouraged to use the chest mechanism. They are reluctant to sing in chest voice because the sound is not sweet enough.
- Avoid the terms "break" or "lift" to describe the shift in vocal registers. Use instead "vocal passage" or *passaggio*. According to Miller, the *primo passaggio* is at the top of the natural speaking voice; the *secondo passaggio* is at the top of the "yell" register, where the voice passes to falsetto. (His text on pp.115-126 contains a very thorough chart of vocal classifications and *passaggi*.)
- The word "cover" is often used to describe the passage of the male voice into the upper range. Characteristics of cover include vowel modification (toward more closed vowel formations); a spacious pharynx, high velum, and low tongue (described above under "optimum resonance"); a lowered larynx, and greater air & air pressure. Avoid a forced lowered larynx (as in a deep yawn). The concept of "cover" almost defies description and is best explored in the hands of an experienced teacher of voice. See below (Suggestions for Rehearsal) for a description of a

technique for unifying registers in the male voice through descending falsetto exercises. This is a safer technique to use in group situations.

- These consonants are most favorable for developing vocal resonance: [m] and [n]
- These consonants are most favorable for assisting vocal onset: [h], [s] and [f]
- To sing "problem" consonants—[l] and [r]—think of [l] as a light [d], substituting, for example, "addeduia" for "alleluia." Produce [r] with the flip of the tongue or with a substituted [d], singing "vedy" in place of "very," for example.
- "Tongue trills" will bring freedom in the tongue. "Lip trills" simulate the action of the vocal folds and assist with vocal onset and vocal freedom.
- Resonance adjustment may be managed through vowel modification. I watched Barbara Doscher teach many voice lessons at the University of Colorado, and with her more advanced singers, she talked very little about changing the tone quality of the voice. However, she talked ALL THE TIME about modifying the vowel.

SUGGESTIONS FOR REHEARSAL

- Sing the phrase from end to beginning. This will build your confidence to finish the phrase without losing breath.
- Sing the piece from end to beginning to build confidence in the conclusion of the piece.
- At the first rehearsal of a piece, start with that section of the piece that you find most beautiful, most expressive, or most exciting.
- At concert time the focus must be on expression, not technique. Rehearsal builds vocal (and choral) technique. The singer in concert who focuses on technique risks boring the audience.
- In developing agility, begin with simple exercises and proceed to more complex.
- Of the many techniques that I have encountered for singing passagework (the melismas in Handel's *Messiah*, for example) the one that I like best is a lightly produced [nah]. The ideal, of course, is to sing the passages clearly and on the breath, "like pearls on a string." Amateur singers are often challenged to do so. In my experience rehearsing such passages on [nah] produces clarity without sacrificing vocal health. The [nah] must not be audible to the audience. It is the responsibility of the conductor to coach the chorus as to what is too much and what is not enough. Some singers may be encouraged to sing the passages with [nah] while others may sing the pure vowel.
- One technique for blending the male voices in a choral setting is to ask the men to sing a descending major scale beginning in falsetto. FIRST ask the women to sing a descending A Major scale, beginning on A=440. THEN ask the men to sing with the women at pitch (men in falsetto). FINALLY ask the men to sing alone. Beginning with the support of the women may encourage the inexperienced tenors and basses to experiment in a vocal range that is unfamiliar to them. Blend and pitch will be mutually supported with this exercise. At the point of vocal passage from falsetto to head voice, add an extra measure of breath, not breath pressure, to ease the transition.

- If the head voice is the underdeveloped register in males, the chest voice is in females either underdeveloped or used exclusively. For those women who use chest voice exclusively, some commit the Cardinal Choral Sin: singing tenor. Most every choral conductor who has conducted inexperienced or developing choirs has at some point asked women to assist the tenors in singing their part. That is not a crime, because much of the tenor line lies comfortably in the alto range some of the time. The crime is asking, or allowing, women to sing tenor exclusively, developing only the chest voice to the exclusion of the head voice. However, the converse is also true: Some women never use the chest voice and thus lose a powerful vocally expressive part of the voice. Chest voice is a legitimate register, and as long as the voice is not pushed high using exclusively the chest register, it is safe and effective to use this register. All women, sopranos included, should be encouraged to develop ALL of the voice: head and chest registers. The only danger is when chest voice is pushed too high in the range, generally agreed to be a pitch around f'.
- The technique of "choral roving," assigning singers to move to a different vocal line, has been used effectively to create balance in a choral ensemble. Allowing baritones to sing tenor occasionally, altos to sing tenor occasionally, and sopranos to sing alto occasionally is not only good musical training, it makes for a better choral sound, as long as the voice continues to be used in a healthy manner. I have upon rare occasion moved tenors to baritone and tenors to alto, and, even rarer, altos to soprano. I have never asked basses to sing soprano. 😊
- Conducting gesture affects the sound that you get: legato, tenuto, staccato, marcato. If you ask the choir to sing legato, determine that your gesture is not marcato.
- Train in this order:
 - Tune a single pitch.
 - Tune a brief descending scale, sol-do.
 - Tune an extended, faster scale.
 - Tune a sustained chord.
 - Tune a series of chord changes.
 - Tune a phrase.
 - Tune a song.

You can't sing a song in tune until you sing a phrase in tune. You can't sing a phrase in tune until you can sing a scale in tune. You can't sing a scale in tune until you can sing a pitch in tune. If you feel that the choir is singing with a generally healthy sound and intonation is still a problem, try simplifying the musical demands according to the suggested order above.

QUOTABLE

Technique and expression must be the supporting pillars of vocal art...Technique is of no value except as it makes communication possible...Unless the emotional experiences and sentiments of a performer can be externalized, they have no value beyond personal therapeutic ones.

Richard Miller

Vocalism for its own sake is boring.

Expressive singing is virtually impossible with faulty technique.

The vocal instrument does not need to be constructed; it is available for immediate use. Lodged in a physical machine, it receives its impetus from mental and spiritual parameters of human personality. Its adaptability in channeling communication is the foundation on which human civilizations are built.

Richard Miller in RT Sataloff *Vocal Health and Pedagogy* p. 301

Singers should not produce musical tones with a voice gaping wide in a distorted fashion or with an absurdly powerful bellowing, especially when singing at the divine mysteries; moreover they should avoid tones having a wide and ringing vibrato, since these tones do not maintain a true pitch and because their continuous wobble cannot form a balanced concord with other voices.

Franchinus Gaffurius in *Practica musicae* (1496)

The tremolo should be slight and pleasing; for if it is exaggerated and forced, it tires and annoys; its nature is such that, if used at all, it should always be used, since use converts it into habit...it facilitates the undertaking of passaggi; this movements...should not be undertake if it cannot be done with just rapidity, vigorously and vehemently.

Ludovico Zacconi in *Prattica di musica* (1592)

SUGGESTED READING

Ehmann, Wilhelm and Frauke Haasemann. *Voice Building for Choirs*. Chapel Hill, NC: Hinshaw, 1982.

THE text for group vocal techniques.

Miller, Richard. *The Structure of Singing: System and Art in Vocal Technique*. New York: Schirmer, 1986.

Excellent descriptions of vocal problems & suggested vocalises.

Doscher, Barbara. *The Functional Unity of the Singing Voice*. Metuchen, NJ: Scarecrow Press, 1988.

Excellent descriptions of vocal function.

Vennard, William. *Singing: the Mechanism and the Technic*. New York: Carl Fischer, 1967.

Excellent, though highly technical.

Alderson, Richard. *Complete Handbook of Voice Training*. West Nyack, NY: Parker, 1979.

Less technical discussion.

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