The Singing Voice: A Basic Operating Manual

or: Of Parachutes, Vibrations, and Pears

Michael Connolly

What a wonder, this singing voice we have been given! How amazing that it can reproduce pitch and text in a huge dynamic and emotional range! It is a marvel when the singing voice can affect listeners in a way that speech rarely can.

Most mysterious of all is that most of us singers produce this sound without really knowing how we are doing it! When a person has been given good ears and musical instincts, it is possible to sing without any knowledge of, or training about, the body's own musical instrument. Our singing voice is a gift of God through heredity and nature, but how we singers choose to develop it is our response to God's gift. Every singing voice can be improved, in the same way that an athlete or dancer can refine physical skills. The skill of singing is difficult to master, because of the physical abilities required, the time needed to practice, and the challenge of learning to feel something within our own body that another person is describing in words or pictures. Challenging it is, but worth the effort.

This article offers a primer on the function of the singing voice. The first part is an explanation of the parts of the human anatomy involved, so that you can begin to think about your body in a way which will improve your singing. Good singing, like good dance, requires both the body and the mind to be engaged and active.

Posture. Stand up straight! Yes, your mother was right. To sing well we need to have good posture. The body should be in balance, ready for action. The head is comfortably high and level, suspended above the neck and back. The shoulders are down and relaxed, not up and tense. The chest is held high, as if you are proud of yourself, but not in a stiff, military pose. Stand as if you are ready to move at any moment. One foot is slightly in front of the other, with the weight evenly distributed. The knees are steady but not locked. When it is necessary to sit for singing, move toward the front of the chair, with your back away from the chair's back. Slouching prevents good breathing. Sit as if you need to get up quickly. The good singer stands and sits actively. Your body must be ready!

The singing voice. There are three parts of the human singing voice: (1) the breathing mechanism, (2) the larynx, and (3) the throat and mouth.

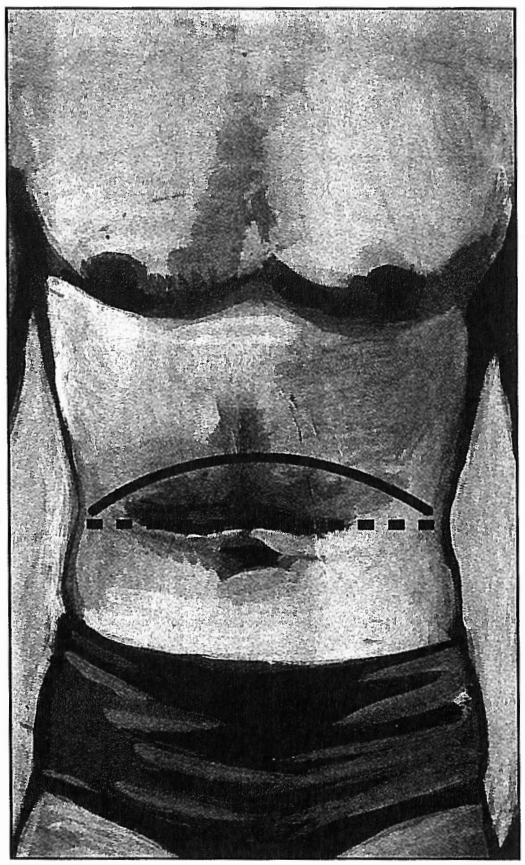

Fig. 1. An outline view of the relaxed (solid line) and contracted (dotted line) diaphragm.

The breathing mechanism. Simply put, the lungs are lazy. Yes, we breathe with them, but they do not cause us to breathe. The lungs do not expand or contract on their own. A complex group of muscles in the chest and abdomen make that happen. The most important of these is the diaphragm. We singers like to talk about the diaphragm a lot, but most of us don't really know where it is or what it does. We have always been told to "sing from the diaphragm," but what in the world does that mean?

The diaphragm is a muscle which divides the chest cavity from the abdominal cavity. It cuts the torso clear through and is found near the bottom of the ribs. When it is at rest, or relaxed, it is dome-shaped. It flattens as it contracts. This causes a vacuum in the lungs and they fill with air.

I like to think of the diaphragm looking like a parachute. Have you seen a group of children lifting one until it billows and enjoying it as it lowers to the ground again? Think of the relaxed diaphragm in the shape of that rounded parachute and the contracted one as being flat, as if the children have pulled it out tight. (See figure 1.)

During singing the chest remains comfortably high, not heaving with every breath, and the shoulders stay relaxed and down. During inhalation the abdomen will move out. All of those vital organs must go somewhere when they are displaced by the diaphragm! This all happens quickly. However, doing the reverse in slow motion is the trick of breath management for singing. Singers need to prevent the diaphragm from simply relaxing and forcing all of the air out in one whoosh. "Singing from the diaphragm" requires learning to provide a steady stream of air for the voice.

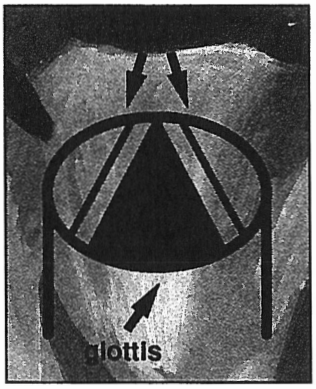

Fig. 2. A simplified view of the vocal folds and glottis as seen from above.

Breath management is the hard work of singing. It is isometric exercise. This is true for loud or soft singing. You want your face, chest, and shoulders to give the impression that singing is easy, but your lower body is working hard. Remember how a duck swims: floating gracefully, but paddling like crazy below the water.

Exercises for basic breathing. *Singers need to learn how it feels to breathe in this way. It is not the way we usually do it instinctively. To learn how the abdomen should move, lie on your back with a book just above your navel. Breathe so that the book rises and falls. Keeping the chest stable is very important! Then inhale for four slow counts and exhale for four. Keep the book moving steadily. Finally, inhale for four counts and hiss to exhale for eight. As you get better, increase the hiss to twelve and sixteen counts. If you are doing this correctly the book will lower very gradually. When the book wants to lower, resist it by* gently *pushing against it. That resistance to collapse is the essence of breath management. This same exercise can be done, without the book, while on all fours, or standing with your hands clasped behind your head. The advantage to these positions is that the chest is forced to be stable so that you can concentrate on breathing lower.*

If you have trouble getting the sense of the energy required and where you should feel that energy, try singing while holding something fairly heavy (10-15 pounds) at your belt line with your elbows at your side. You can also try the following with a partner. Hold your palms up, again with the elbows at the side. You sing, trying to hold your forearms up while your partner presses down on them. Both of these engage the diaphragm and abdominal muscles in a way that is helpful to singing.

The larynx. To produce any sound, something must vibrate, and to produce a vibration takes energy. The breathing mechanism is the voice's power supply, and the vocal folds, or cords, in the larynx are what vibrate.

Proper breath management produces a steady stream of air to the vocal folds (see figure 2). When we are about to sing, the folds draw together (figure 3), nearly closing the *glottis*, the opening between them. The air forces it open. The folds come back together and the process is repeated, causing an audible vibration. To sing the A above middle C requires the folds to open and come back together 440 times per second!

The ideal vocal attack occurs when the folds draw together at the same time the air begins to flow. The air flow actually helps to close the glottis by producing a vacuum, and then the air pressure overcomes the muscle tension of the closed vocal folds. This amazingly efficient system fails if the singer closes the glottis tightly and then bursts it open with air pressure. The result, called a *glottal attack* or *stroke*, is unattractive and actually dangerous to the voice.

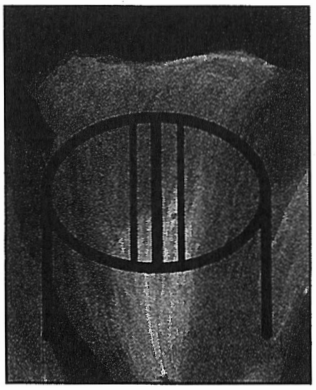

Fig. 3. The vocal folds when closed.

Exercises for a proper vocal attack. *Many people find it easy to begin the vibration of the vocal folds properly, with the air stream beginning just as the folds are nearly closed. For those who do not know this technique, try this process. Start with humming, on* m *or* n. *Then hum and open to* ah. *Then begin with* ah *alone. This helps the singer to think about singing before starting. If a glottal stroke persists, an* h can be used to begin the ah. *This forces the glottis to be open when vibration begins. However, don't get in the habit of adding an* h *to every word. Just think it.*

The throat and mouth. This is the voice's tiled shower stall. The vibration produced in the larynx is actually quite small and unattractive. The throat and mouth respond to that vibration like a shower stall does when we sing there: they amplify the sound and alter it to make it more beautiful. Vowels and consonants are formed as the throat, mouth, and tongue change shape and position.

To amplify the larynx's vibration, space is needed in the throat and back of the mouth. Singing teachers and choir directors often ask you to sing with an *open throat*. That space is what they want. The soft palate, which has the *uvula* hanging down, must rise, as it does when you yawn. The term *pear-shaped tone* is sometimes used to visualize this open space. The pear-shape in question is actually the formation of the space inside of the mouth: big in back and smaller in front, as if you had a small, whole pear in your mouth. This shape produces a full, round vocal sound.

The jaw should be relaxed, able to drop down and slightly back. The tongue is generally flat for vowels. The lips and tongue are active for consonants. Singers with lazy diction cannot be well understood. For further information on diction for cantors, see my article in the Summer 1990 *GIA Quarterly* entitled "But I Can't Understand the Cantor, or 'Say What?'"

Exercises for the mouth and throat. *It can be very difficult for singers to feel what they should be doing in their mouth and throat to produce the space required for beautiful tone. We all know where the soft palate is because we lift it when we yawn. Be attentive as you yawn. Feel the space inside. Control of this lifting can be learned. Imagine that the doctor wants to tap your uvula with a tongue depressor. Do what you can to get it away from the stick. This requires raising the soft palate.*

To relax the jaw sing, "Ya, ya, ya, ya, ya." Open the mouth comfortably and move the jaw as little as possible. Thinking ih-ah *instead of* ee-ah *will help. Gently*

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among the churches. Admitting women to positions of power through ordination is not a step forward, he says, unless we question the nature of ordination and its patriarchal framework. Men's theology could take its place alongside of feminist theology, acknowledging that neither one speaks for the whole human race, and there can begin a discovery of the beauty and worth of specifically male experience.

Lastly, Wren reminds theologians and hymn writers that, at their best, references to God as King, God, Almighty Father, and Protector (KINGAFAP) arouses wonder. The news that the divine, all-powerful King could humble himself and die for us has continuing imaginative power. God is revealed as impassioned, suffering love which triumphs, not because it wins battles with demonic powers, but because it is enduring, exuberant, and unquenchable.

What Language Shall I Borrow is at once easy to read and not easy to read. Wren's style is most engaging, his topic certainly current, his vantage point as hymnist vital to our ministry as musicians. This book can be uncomfortable to read because Wren takes aim at one-sided language, metaphor, and understanding of God and begins to stretch our belief and faith. These beginning stretches are like beginners aerobics—a shock to unused muscles straining at neglected exercise. But there is wonder ahead, as we revel

in ways less idolatrous,
more freeing,
and more true
to the Triune God
and the direction of love
in the Anointed One, Jesus. ■

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brushing your hands down the sides of the jaw will also help it drop. A relaxed jaw helps provide the space needed inside.

Singing high notes well is a challenge. First of all, check your posture and breath management. Then be sure that there is space in the back of the mouth. That makes high notes easier. Keep your head level. Tipping the head up for high notes closes much of that space. Try imitating a siren, starting quite high and smoothly moving down to a low pitch. Feel the space inside. Also try hooting like an owl or "booping" like a computer. When you can feel that space, sing a sustained oo. This will be a falsetto sound. Building strength and confidence with this technique will make it easier to sing full high notes.

Cantors who need vocal training will have to rely on the parish music director, choir director, or a private teacher. Private lessons allow a teacher to encourage your strengths and prescribe exercises for weaknesses. Group lessons are usually available from universities and community colleges. Learning to sing from a book is like learning to swim without ever getting into the water. It can give you an idea, but another person is required to give suggestions, feedback, and encouragement.

Those who teach cantors and choirs about singing technique may find these helpful:

Haasemann, Frauke, and James M. Jordan. *Group Vocal Technique*. Chapel Hill, NC: Hinshaw. Video-1989, book-1991.

McKinney, James C. *The Diagnosis and Correction of Vocal Faults*. Nashville: Broadman, 1982.

Vennard, William. *Singing: the Mechanism and the Technique*, revised edition. New York: Carl Fischer, 1967. ■

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calls us to assuage the wounds of sudden distress. Words wedded to a tune like "Shelter Me, O God" by Bob Hurd (*Gather* #276) or the Taizé "Jesus, Remember Me" (*Worship*, #423) will console the sorrowing. The death of the young always presents an added challenge. Whether it is a child, a newly born, a teen, or a person in their young twenties, the sounds of compassion might be as simply profound as Kathleen Thomerson's "I Want to Walk As a Child of the Light." When choir directors take their clue from those who mourn, the hymn choices will be most appropriate.

Rehearsal patterns vary. Some directors require a weekly practice. Others meet a half hour before the funeral, and some once or twice a month. The degrees of proficiency and voice quality, as well as time constraints, govern the preparation time. Simple arrangements of the melody with a descant, such as Ernest Sands's "Song of Farewell" (Oregon Catholic Press) work well as the procession to the place of final committal begins.

Evangelization. Final leave taking is formally ritualized through the prayers, blessings, holy water, incense, and song of the assembly. When that assembly's response is stunned silence, the supportive sounds of the Church around them offer a healing salve to their pain. The integral role and the power of the music might be giving an experience of God that some mourners may have missed for many years. The choir becomes the evangelizer.

Social dimension. Singing at funerals has not been the sole occupation of these choirs. Several sing weekend Masses once a month or on feast days (i.e. Christmas) where a choir at each eucharistic liturgy enhances the celebration of the day. One parish joined all their choirs together for the Thanksgiving Day Mass and the Easter Vigil. Besides promoting a stronger union of all the music ministers in the parish, the added challenge to learn more difficult music improved their skills in sight reading and enlarged the parish repertoire. Some funeral choirs have been known to sing at weddings!

Bonding occurs when people spend large amounts of time together in work, play, and pondering the Divine Mystery. It is nourished when proper gratitude is expressed often by the pastor and music director. Luncheons periodically throughout the year, or coffee and donuts between two funerals scheduled on the same day, model the hospitality of the giving and receiving Christian community.

> Music allows the community to express convictions and feelings that words alone may fail to convey. It has the power to console and uplift the mourners and to strengthen the unity of the assembly in faith and love (OCF, #30).

Whatever we call them, the Consolation Choir, Resurrection Singers, or the Adios Chorale, we have living proof that the funeral choir has become one of the Church's most treasured ministries.

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