VOICE TRAINING NOTES

Introduction

Following are extracts from singing lessons I have given to dozens of choirboys over several years. If you work with children's voices, but are not a singer yourself, or if you are unsure how to explain vocal techniques in a way that children will grasp, perhaps these explanations and practical exercises will be useful to you.

While many children take private lessons on musical instruments, the child who studies voice is very unusual. Yet, I have found that with instruction, many children accomplish far more as singers than as instrumentalists. By a given age, they are singing more sophisticated repertoire than they would be playing on an instrument, given equal years of study. I hope that these notes will assist others teaching singing to children.

A. St. Pierre
Toronto, Ontario

A Resonant Tone

When one vibrating object causes another to vibrate, resonance exists. Your vocal cords vibrate; but to produce a resonant tone with those vibrations, you must get the air in your head and chest cavities vibrating too. If you could extract your vocal cords and blow air through them, they'd just produce a dull, buzzing noise. If your squeeze your fingers together tightly, clasp them over your mouth and blow hard through the cracks between them, you'll hear the sound I'm talking about. The little folds of flesh between the fingers vibrate and they do actually look a little bit like vocal cords. To see what vocal cords look like, go to this web address:

http://www.kayelemetrics.com/Product%20Info/9700/9700.htm

Vocal cords are about 1lmm long and for boys, they grow to 14 or 15mm when the voice changes. At this time, they also become thicker.

The empty space in your chest is like the woofer (large speaker) in your audio system. Your mouth, nasal and sinus cavities are like the tweeter (small speaker). You need resonance in both the head and the chest to produce a good, full sound. Likewise, if you turn down the treble knob of your audio system, you get a woolly, dull sound from the woofer alone. Turning down the bass gives you a tinny, squeaky sound. A blend of woofer and tweeter sounds full and rich.

People who've had no vocal training usually don't allow passage of the vibration from the vocal cords to the head or to the bottom of the chest. (Sound doesn't just travel *up* the pipe; if you had a mouth in your chest, sound would come out there too!) In other words, untrained singers tend to sing in the same space they use for ordinary speech; the mouth and back of the mouth (the pharynx) retain the same semi-collapsed position assumed for talking. This is particularly true of north american speech which, characteristically, involves little movement of the mouth. Once you open up these spaces and fill them with sound, people are going to notice your voice.

Here now are the first steps toward a resonant sound. First, make a big, gluttonous snort. Do you feel the little flap of skin at the back of your mouth buzzing? That flap, called the velum or soft palate, is like a door that prevents food or drink from entering your nose from the back when you swallow. In singing, that little door must always be open so that sound can fill your head. Flare your nostrils and yawn. Pretend you have something very hot in your mouth. Do you feel the velum move up out of the way and the big empty space you've created at the back of your mouth?

Try singing something into that space and see what sort of sound you get. Make sure you don't allow the tongue to bulge up and take all the space you've made. If you're not sure what the tongue is up to, check in a mirror. Imagine that you are depressing your tongue with a teaspoon. In fact, you could actually try this in order to become aware of how things should feel.

I talked about flaring the nostrils. Provided it's not done to the extent of turning you into a gargoyle, a bit of flare keeps the lowest sinus cavities open, and a bright, clear sound results. The sinuses are empty pockets, on each side of the nose and forehead. The lowest pair is the largest. A slight smile, or lifting of the upper lip, will help keep these sinuses open.

There are a few other places in which you can make more resonance space. Expand the chest to the sides when you breath. Don't raise the shoulders though. I'll have more to say about this when we discuss breathing.

Close your mouth, then drop the jaw slightly. Now put your fingers on each jaw hinge and drop the jaw all the way. Do you feel the space you've made between the upper and lower molars? You should be able to fit an index finger between those upper and lower teeth at the back of the mouth.

The larynx is the structure in which your vocal cords sit. It moves down when you yawn and up when you gulp. Try to keep it down when you sing. You'll create more space in the back of the mouth and at the same time, the vocal cords will come closer together to prevent a breathy tone -- one with air leaking through.

Some singers tend to throw the head back, particularly for singing high notes. But this diminishes the space in the pharynx and creates a kink in the windpipe that reduces air pressure and can cause high notes to crack. Also the entrance to the nasal cavities is no longer directly over the vocal cords. When you sing, stand as though you are suspended from a string coming right out the centre of your head (the calyx) -- the point at which the spine would leave the skull if it kept going straight up.
Now let's sing a few notes in the middle of your range on the sound of *ng* as it is pronounced in "hunger." The back of your tongue rises and prevents the sound from entering your mouth. It can only enter the head. Sing *ng* again, but now release it and immediately sing *ah*. (No break between the *ng* and *ah*.) Try to keep the sound going in the same direction as you sing *ah* -- right through the head.

Sing a few notes toward the top of your range, say, *f* or *g* at the top of the treble staff. You have to stretch the back of the mouth to produce these high notes. Test other notes, gradually going lower and trying to maintain that stretched, wide-open feeling you had on the high notes. It's a bit like the feeling you get from a menthol cough drop. Go back to the high *f* or *g* and slide down a scale, keeping the big opening at the back of the mouth, the lifted soft palate, and the low larynx. Hold a sheet of paper about 20cm from your face. Can you feel vibrations on the paper? See how strong you can make the vibrations without blasting.

A good tone contains a lot of overtones. These are pitches that you hear blended together in your sound, or in the sound of an instrument, that are higher than the main pitch you are producing. You don't hear them separately any more than you notice red separately from blue when you see purple. (Red + Blue=Purple) You can see a graphic representation of your vocal spectrum -- the overtone content -- using a frequency analyzer and you can download one from the internet at **http://www.relisoft.com**. (Select frequency analyzer from the menu.) Using the techniques for opening up spaces in your throat, mouth, and head, try to get as many colour bands to appear on the computer screen as possible as you sing each of these words: *may, me, ma, mow, moo.*

These words contain the five open vowels, so called because the throat is wide open when we pronounce them. (Actually, "may" contains a diphthong, a sliding from one vowel to another. When you sing a diphthong, stay on the first vowel for as long as possible; then go quickly through the next vowel. Country & Western singers reverse this procedure; this is fine as long as your are singing C & W.) The vowels **a** and **e** require you to flatten or broaden the front of your mouth. But do keep a big open space at the back of the mouth for these vowels. Don't allow the larynx to rise up on **e.** Keep the throat long so you don't produce a squeaky **e.** Think of a giraffe's neck! **Ah** requires a spherical shape in the mouth. Imagine an invisible golf ball keeping that shape open. The larynx is lower for **aw**. Try singing **ah** in the same position in which you produced **aw**.

This sound give you a bit more resonance on **ah**, especially in the lower range of your voice. **O** and **oo** need vertical alignment of the mouth. Can you sing **oo** without puckering your lips? If you pucker on **oo**, you'll get more of a soft owl hoot than a resonant **oo.**

A natural byproduct of resonant singing for many singers is vibrato. This is a pulsation at a rate of about six beats per second that occurs naturally in the voice when the air pressure in the vocal apparatus has reached a specific level for the pitch in question. Vibrato is not the result of muscular movement as it is on a violin. In singing, the phenomenon is related to the ripples that form a on flag when it stands out straight from the mast. Clearly, the flag uses no muscles to produce the ripples. Experiment to see if you can produce vibrato. Keep the muscles in your neck relaxed so the voice box feels as though it's mounted on springs. I can't really explain how to do it. (For years, people tried to teach me to whistle, but to no avail. One day, however, the technique just came to me on its own.) Persist, because it is a useful tool for expressive singing.

And before closing, I'd like to say something about the word *expressive*. *Ex* means *from* or *out of* in Latin; *press* means pretty much what it does in English. So *expressive* means "squeezed out." Not merely, a catharsis of emotion, but a literal squeezing out of sound. Sound must seem to issue from the singer as if under pressure and of course you can't squeeze something unless you have some thing to squeeze or press against. So imagine you are aiming the sound at the roof of your mouth.

You might also think about water running through a funnel. It gathers and builds up pressure in the wide end of the funnel and emerges in a focused, steady stream at the narrow end. When you sing into the head, as opposed to the mouth, you are doing the same thing.

Now having told you all about resonant singing, I must conclude by saying that just as people differ on the outside, none are the same on the inside either. We all possess different acoustics. Some people have more resonant vocal tracts than others. The velum may for example be shorter on one person than another, allowing the vibrating air from the vocal cords easier passage to the head spaces. But by trying some of the techniques we've discussed here, you'll probably find that you can make significant improvements to your vocal tone.

In summary, sing in a larger space than that in which you speak. Sing within the space of a yawn and a sneeze.

Breathing and Breath Management

We breath twenty-four hours a day; so practising breathing may seem an odd undertaking. But breathing to sing and breathing to exist are two different

matters. Normally, we don't fill our lungs to capacity and we don't budget the flow of air. In singing we must do both. Imagine you've been running. Each breath you take to sing must feel like the breaths you take while running, swimming, or engaging in any other aerobic activity.

Taking a breath is the easy part. It's really just a question of developing the habit of taking a full breath, even when the music doesn't allow you much time to do it. Just because a composer hasn't written a rest in a phrase doesn't mean that you don't have time for one. Rob time from the tail of the phrase you're ending rather than arrive late for the beginning of the next. Take breaths where they would sound natural if your were reading the text. I sometimes ask students to suck in deeply each time they breath, just so they develop the habit of breathing deeply, although they musn't get in the habit of taking noisy breaths.

As you breath, allow the ribs to expand in front of you, as well as to the sides. Don't raise your shoulders or tense as you do. Try lying on the floor to do this. In this way, you can't raise your shoulders. Think of the torso as a fireplace bellows; the greatest expansion takes place at the bottom of the bellows (near the handles) and air is forced through a narrow passage at the tip. Now let the air leak out slowly between the tongue and front teeth. Keep the flow even and time yourself to see how long you can last on one breath. Thirty seconds is a good goal. The forces pushing air through your vocal tract when you sing come from four directions and all four should act together. From underneath the lungs, the diaphragm, a dome-shaped muscle separating the chest from the gut, rises slowly. From the sides, the two halves of the rib cage approach each other. From above, the chest drops. When a singer says he's run out of breath, he usually means is that he has nothing left with which to push the breath, even though there is still air in his lungs. But because the ribs never expanded, or because they were held rigid, the diaphragm was the only force pushing air. Once it had risen to its full extent, nothing was left to push the air through the vocal cords. It rose faster because it had no assistance from the ribcage, and the singer was unable to finish the phrase. You can sing well while sitting as long as you don't slouch. In this position, the diaphragm is sitting on top of the stomach and cannot drop all the way down as it can when your are standing or sitting upright.

Take a deep breath, puff out your cheeks and hum some tune through a tiny gap between the lips. Do you feel how slowly the air is moving through your voice? For actual singing, we must use a narrow gap between the vocal cords called the *glottis*, rather than inflated cheeks, to regulate the flow of air. Keeping the larynx low, as though you are yawning, helps impede the flow of air because your cords come closer together when the larynx is low.

Take another breath and see how long you can sustain a "fry." This is the buzzing noise you get when you hold the larynx low and blow gently through the cords. It feels like the onset of a very profound burp. If you keep the buzzing

even, as though imitating a chain saw idling, you'll know that the flow of air is also very even. Slow and even are the key words in breath management.

If you're having trouble getting through a long, slow passage in one breath, practise subdividing the long notes. Let's take for example the line "natum de Maria Virgine" in Mozart's famous *Ave Verum Corpus*. Practise the passage as though it were written: na-na-na-tum **de Ma ri** a Vir-vir-vir-vir-gi-ne-ne-ne-ne. (The changes in print size correspond to the crescendo and decrescendo that you should try to incorporate as you sing the phrase.) This exercise trains the mind to budget or meter the flow of air. Now practise the passage as written, *thinking* the subdivisions to yourself. If you still have trouble with this passage, make sure you're taking a big enough breath and that the ribs and chest are in motion all the time. If you tend to freeze up in these areas, try walking around slowly as you sing. This helps to unbind the muscles.
The reliable production of high notes is another reason for full, deep breaths. The higher you sing, the stiffer your vocal cords become and the more resistance they impose to the flow of air. You therefore will need lots of leverage to be able to give the air a little extra push to make it go through the vocal cords. Without that extra push, the air simply falls back, the vocal cords collapse and stop vibrating, causing the tone to crack. Just as you need to give a car a little extra gas to maintain speed going up a hill, you also need to provide greater air speed to keep your vocal cords moving as they become stiffer. Dangle a sheet of paper about 30cm from your mouth. Blow hard at the centre and try to make it parallel to the floor. Feel how much energy you must supply from the lowest ribs. Apply the same energy as you sing your high notes, but sing into the head, not straight out of the mouth. To practise increasing wind speed for high notes, slide from a mid-range note up a P5th to a high note while rolling an **R**. If the wind speed drops or fails to increase, the tongue will cease to produce the **R.** In this exercise, the tongue is not functioning as a muscle. Rather is flapping rapidly in the breeze like a sheet of paper held outside the window of a moving car.

Articulation

Every now and then, you encounter a passage of quick running notes, all on one syllable. This is called a *melisma*; the techniques used to separate or articulate the notes one from another is called *coloratura.* Some singers slide all over the map in melismas, producing a "blur" of notes. (I call this effect *Blight of the Fumble Bee.*) Other singers put little puffs of air (***h'***s) between each note. They soon run out of air and the musical effect is no more satisfactory than the blur.

A singer must use a muscle group at the top of the abdomen called the *solar plexus***.** (lit. *flexible centre*) Pant like a dog. Do you feel the solar plexus moving in and out? Try panting faster. Notice how the motion of the muscles must be smaller. Keep up the panting motion while singing any note on any vowel. Do

you hear the pulsations of the solar plexus in the tone? Try singing these patterns on one note using this panting technique. You'll have to sing rather softly; it's not physically possible to articulate rapid passages loudly. Starting at a metronome setting of 80, sing a series of long-short-short long pulse patterns (_../metronome click) on any note with any vowel**.** Gradually increase the metronome speed**.** Now practise a five-note scale, four notes to a beat. Again, start at MM=80 and work up to MM=96.
Sometimes you find two or three notes that move so quickly that you can't articulate them from the solar plexus. Here, contrary to my earlier injunction, you must produce little *h*'s, discharging the puffs of air through the hole behind your soft palate or velum, rather than through the mouth. In this way, the aspiration won't be heard. Try bleating like a goat or a sheep. Or try Woody Woodpecker's laugh. You'll feel the vocal cords bouncing off one another. Sing these notes very lightly so you don't draw much attention to them. In most music, they are just decorative notes.

Smooth, or *legato* singing, like articulated singing, requires some special techniques. In a much less refined way, your vocal cords move like a vibrating elastic band. The tighter they are stretched, the higher the pitch they produce. Both are parallel, narrow bands vibrating next to each other. If you twang the elastic at one tension or pitch and move immediately to another, you slide from one pitch to the next because you have to go through every intervening tension or pitch to arrive at the next. When singing legato, the same thing occurs on the vocal cords; but a good singer moves so quickly and quietly over the slide that it isn't really heard so much as a slur, but as smooth singing. A singer must move from one note to the next with a little flex at each arrival, as though flexing the knees slightly when landing from a jump, in order to cushion the fall. Practise especially large descending intervals, always cushioning the movement from the higher to the lower note. You must relax or decrescendo slightly before moving to the lower note in order avoid clunks or *h*'s between the pitches.

Because the vocal cords become looser or floppier the lower you sing, you must apply less wind pressure beneath them for lower notes. If you push too hard on them for any given pitch, they will wobble out of control like a swing that has been pushed too vigorously. Just as you must relax the vocal musculature before moving to a lower pitch, you must reduce the wind pressure beneath the cords *before* you descend.

If you have trouble coordinating this cushioning, clench your fist while singing the upper note; begin to relax it just before you drop to the lower note. Your vocal apparatus will follow the movement of the hand. (This is an example of a "smart" muscle training a "dumb" muscle. We will use the technique again when we talk about trills.)

Another technique you'll need to develop for legato singing is the ability to sing through consonants. Imagine slicing your finger quickly through a jet of water

from a garden hose. There is a brief articulation or interruption in the stream; nevertheless, the water keeps moving in the same direction. If, on the other hand, you stuck your entire hand in the stream, the water would spout off in all directions. Your tongue and lips form momentary indentations in the flow of air to produce consonants. To sing smoothly, you must avoid stiffening the tip of the tongue or the lips to the extent that they deflect the air. Sing *zay, zee, zah, zoh, zoo* all linked together on one pitch. Make the *z* very buzzy so that you build pressure behind the closure of the tongue and upper front teeth before opening to the vowel. You *have* to sing through, or over the tongue, in order to make the tip of the tongue vibrate for the *z*. Try the same exercise, replacing the *z* with the following consonants: *d, t, b, p, g, k.*

I have a little device I bought many years ago at a domestic electronics chain store; it measures sound levels from 50-130 dB. If I set it for the 60 dB range and place it at arm's length from a singer, he can see whether his legato is successful by whether the needle on the dial stays against the far end of the dial as he moves from one syllable to the next. If it doesn't, he needs to move through the consonants quicker. By setting the device in the 80 dB range, the singer can also see whether his crescendos and decrescendos are smooth and effective.

For legato singing, you must constantly make crescendoes and descrecendoes to give the musical line a sense of direction. Interestingly, the German word for "melody", *Weise*, also means "direction." In Dutch, the word for melody is *beweging*, which means "motion." Most musical phrases form either ascending or descending arcs. Generally, you should crescendo to the peak or trough of the arc. Don't permit diminuendoes on the ends of long intervening notes (sags) or you'll spoil the effect of the overall crescendo.

While you must not allow consonants to impede the flow of a musical line, they must still be clear and energetic. Attach a small piece of paper to your nose with some adhesive tape, allowing the paper to dangle in front of your lips. See if your consonants have enough energy to kick the paper forward each time you sing one. Energized consonants not only make text comprehensible, but add life to a performance. Although few may think of the voice as any sort of percussion instrument, the consonants are indeed the percussion section of the voice -- the drums that give rhythmic drive and intensity to a performance.

Kinesthesia

When listening to music, we like to feel, or imagine we feel something physically. We want to experience kinesthesia, the transfer of sensations from one sense -- in this instance, hearing -- to another -- touch. In triple meter, we might feel like dancing, in a duple meter, like marching. To enable the listener to feel these things, we must be sure we place stress appropriately. Stress accents need not

be dynamic (the result of a diaphragmatic contraction); in lyrical or legato singing, the accents are usually the result of stretching a consonant.

In legato singing, a listener expects to feel tension between syllables. Two student faces each other and hold hands as though shaking hands in greeting; as one sings a legato line, he leans back, slowly pulling the other towards him. As he approaches the end of the line, his colleague slowly and smoothly pulls him back upright, arriving at the full upright position just as the line ends. Tension builds as the singer falls back and gradually diminishes as he is pulled forward. Consider the literal meaning of the root of *expressive* -- to squeeze out. The vowels and consonants we sing must literally "squeeze out "of the vocal tract in order to move listeners -- to make them feel movement.

Likewise, in detached singing, listeners like to feel "bounce" in each note. They want to feel they are walking on springs rather than on snowshoes. A little vibrato or quick diminuendo on each note will impart this sensation.

Intonation

People sing out of tune for various reasons:

• Inability to hear fixed sources of pitch This is a particular problem in the high register of the voice because the pitches in this register resonate in the ears and sinuses, overpowering external pitches of reference. In this situation, a singer is "flying in the clouds" and must rely on momentary breaks in the clouds for adjustment.
• Improper technique resulting in fatigue Writers who clutch a pen or pencil soon develop messy writing because of writers' cramp. Likewise, when the voice is tired, it is difficult to control.

• Inability to coordinate the vocal apparatus This the most severe sort of pitch problem and is often misnamed "tone deafness." It has nothing at all to do with deafness -- only a lack of coordination and with coaching, can be rectified. In most cases, it never is because there is no overwhelming need to be able to sing. However, in societies in which karaoke is a social vehicle for large numbers of people, there are specialists who assist those who lack vocal coordination to overcome their impediment.

• At a much less severe level, unawareness of interval purity Because equal temperament is the norm in western music, many people are not aware of what pure, beatless, fifths, fourths, and thirds sound like.

Using two electronic tuners, I demonstrate interval purity to students using the fine tuning knob on one instrument to produce a pure interval to the static diapason of the other. I then allow the student to twist the fine tuning knob until

he is able to identify beatless intervals himself. He soon appreciates how minute the adjustment is once he is in the ballpark. He must turn the knob very slowly in order not to overshoot the point at which the beats disappear.

Next, I ask the student to sing various intervals against a diapason which I sing below or above. We practise five-note scales up and down in parallel intervals in various ranges. We begin with the octave, fourth, and fifth. Then, we try the major and minor thirds and their inversions. Repeat the exercise with dissonant intervals not so much for tuning, but for developing the ability to maintain pitch in the midst of dissonance. Soft humming is the best first step in this or any tuning exercise. A hum has low overtone content and consequently does not distract the ear from the fundamental pitch. Staccato singing gives singers just enough time between notes to evaluate what they have just heard and to prepare for the next interval.

Sing chromatic scale passages. Start with small scale fragments and work towards a full octave up and down. At first, play the exercise with the student. Then follow him on off-beats so he can check himself. Finally he should perform the exercise unaccompanied. To refine the skill even more, ask the student to sing the quarter tones within a major second. Play a note on the piano; lift the key and pause as the student sings the quarter tone above, then play the semitone above the first note and continue in this manner.

To develop discrimination between tones and semi-tones, ask the student to sing a tune he knows well in another mode. At first, have him sing major melodies in the lydian or mixolydian modes and minor tunes in dorian, or phrygian. Then he should work to be able to sing any tune in any mode.

Two Epistles to Students' Parents

<u>February 2003</u>

I have accompanied several singers at the Kiwanis Festival this month. Often the adjudicators re-inforce concepts I have presented in the voice lesson. One adjudicator told the boys that while their pronunciation was accurate, it lacked energy. This holds true for most of the boys I teach. Energized consonants not only make text comprehensible, but add life to a performance. The consonants are the percussion section of the voice -- the drums that give rhythmic drive and intensity to a performance.
Perhaps some of you have used voice transcription software such as ViaVox or Dragon. If you have, you know how clearly you must enunciate to produce an accurate rendering of your speech. One boy mentioned his first experience with such software, which he told me is included on his Microsoft Word (student or executive version). "Hello, my name is ---- -----" came out as "Hello, I am a cow." So if you have access to this software, your son should try it in order to develop a

sense of how much exaggeration of the consonants is required to provide vitality and comprehensibility to song.

The adjudicator I mentioned earlier, speaking as though she'd discovered a species long since thought extinct, waxed rhapsodic that two young men were singing a duet. Largely through Mr Douglas Jamieson's establishment of a senior school choir at RSGC, there are ex-choirboys who are continuing to sing. Anyone who has ever tried to assemble an amateur choir knows the difficulty of finding competent, or even incompetent, male singers.

March 2002

For years when I heard voice teachers and choir directors talking about "supporting" the sound, I had only a vague notion of what they meant. I believe I have it figured out now. For the vocal cords to operate at maximum efficiency (and therefore to produce the most satisfactory tone), there must be a certain volume of air supporting the vocal cords from underneath. Hydraulic systems also do not operate very much without the proper amount of fluid in them, as anyone who has applied brakes with insufficient fluid knows. An unsupported sound then, comes from a singer who has not taken a full breath, distending the diaphragm to its lowest position.