If the note you get is just *slightly* sharper than mine, you may not be completely covering the T1 hole. (It could also be that your whistle, overall, is tuned a bit higher than mine. I discuss overall tuning on pp. 11-12 and on p. 28.) To check the seal of your T1 hole, keep your finger on the hole and, using very small movements, shift and tilt your finger around, trying to feel the complete circular edge of the hole against your skin. To do this you may need to press your finger just a bit harder onto the hole. Does this give you a stronger, clearer tone and a more stable pitch?

If the sound you're getting is not a clear musical note, if it's unstable, too airy or "squeaky," then your air speed is probably too low. Try increasing it gradually and see if you can get a stable note.

If you're still having trouble getting the right sound, there may be a build-up of condensation inside the windway. Clear it out, as described in "Clearing the Windway" on p. 11.

Now listen to Audio File 5 before working with the next exercise.

## Exercise 5: Exploring the Extreme Low End of the Air Speed Range – Audio File 5

As before, finger the note B (covering T1). Completely seal the windway with your lips, take a deep breath, and, keeping your tongue away from the roof of your mouth, simply begin to blow extremely delicately at an air speed value of 1 - that is, at the slowest speed possible. Now, without interrupting the flow of your breath, gradually increase your air speed until the whistle finally gives you a stable, solid low B. Let's call this air speed value 3. Then, as you begin to run out of breath, and without allowing your tongue to touch the roof of your mouth, let your air speed fall back down to 1, and finally to zero. Try this several times.

As you gradually increase the air speed from 1 up to 3, and again as you let the air die away to zero, listen carefully to the very quiet, peculiar sounds your whistle makes. (These sounds

will vary from whistle to whistle and may not sound exactly like what you hear on Audio File 5.) If you've ever had a tea kettle with a whistling mechanism, these sounds resemble those made by the kettle just as the water is starting to heat up and produce the first bit of steam, and as it cools back down when you turn off the heat.

When we play music on the whistle, there is no musical use, in the traditional sense, for air speeds below level 3. Air moving that slowly won't allow the whistle to make a stable tone. If you've ever been on a sailboat, you've seen that barely moving wind won't fill the sail, won't allow the sail to form a concave shape and serve its function to move the boat through the water. So it is with the tin whistle. Your whistle won't function as it was designed to if your air is moving too slowly.



Now listen to Audio File 6 before working with the next exercise.

## Exercise 6: Exploring the Extreme High End of the Air Speed Range – Audio File 6

Be forewarned: this exercise is going to get loud and shrill. Some people may want to use ear plugs.

This time, finger B again, take a deep breath, and using a tongue articulation (use the consonant "t") begin to blow at air speed level 3. Right away, steadily increase your air speed. Notice that the pitch of this lowregister B gradually rises (or gets sharper), as does its intensity, as you move up through air speed levels 4, 5 and 6. When you reach a speed of about 7 the whistle's voice "breaks" and shifts up into the high register. You're still playing B, but this higher B is one octave above the low B you started with. Keep increasing the air speed. As you move up through 8, 9, and finally to 10, this high B rises in pitch and intensity until the whistle's voice breaks once again and produces a note, roughly an  $F_{\pi}^{*}$ , in the "super-high" or third register. Now, still blowing, steadily decrease your air speed while the whistle reverses the sequence, settling back down to high B, then low B, and, as your air speed falls below 3, into those fascinating and very quiet sounds of indeterminate pitch. Then, as your breath finally runs out (do not stop the flow of air with your tongue) the whistle falls silent.

If you find yourself running out of air before you complete this exercise, try going through it more quickly or inhaling more deeply.

In exercises 4, 5 and 6, I'm sure you noticed that air speed is inextricably linked with the loudness, intonation and register of the whistle's notes. With low air speeds around 3 we get quieter, low-register notes, and with high speeds (roughly 7 and above) we get louder, high-register notes.

Since there are many brands and models of tin whistles, and they come in many sizes and keys, the range of useful air speeds varies from whistle to whistle. It's a generalization to say that this range spans between 3 and 7. For any given whistle, assign range numbers that feel right to you. The main point is that the lowest and highest extremes of air speed are not musically useful in the traditional sense.