A Guide to Better Flute Intonation

By Bradley Garner

Tuning is surely one of the most challenging, vexing problems all musicians face. It's also one that seems to be receiving increasing scrutiny these days. Equal temperament is widely criticized – and not without good cause – but in spite of its inadequacies, sensitive musicians manage to coexist with it remarkably well. To paraphrase Winston Churchill, it's the worst system of temperament there is...except for all the others.

In my opinion, coexisting means using equal temperament as a starting point and being willing to depart from it as circumstances of the moment seem to require. Walter Piston said it perfectly:

> *Given the relative values of the art of music, it may well be that absolutely perfect intonation is an impossibility. But that a goal is unattainable is no excuse for not giving one's utmost in the attempt to reach it, or at least to approach it as nearly as possible. That is art.*

So what are the implications for us as flute players? First, it's important to understand that there are certain acoustical and physical laws that make it impossible to build a flute (or any other instrument, for that matter) that is in tune. Accordingly, a good player must have sufficient control to adjust the pitch up or down as needed.

This adjustment can come from accommodating the tuning tendencies of other instruments with which we are playing. It may have to do with dynamic levels; pitch rises with an increase in volume and drops as it get softer. This can be a particular problem when playing with the clarinet, which has the exact opposite tendency.

Frequently adjustments are necessary due to intonation deficiencies of the flute itself. Of particular concern is the third octave. Everything from E♭ through A♭ tends to be sharp, often very sharp. The high A and B♭ are not generally a problem in that regard, but the high B and C are both extremely sharp.

One option, of course, is just to play out of tune and wish it were better – not what any good flutists would want to do. Another is to lip down. This can be accomplished by directing the air more downward. If the degree of correction is too much however, it can impair the tone quality, which can make that option far from optimal.

A third choice in some instances is a fingering alteration. There was a time when the mere thought of doing such a thing was abhorrent to me. I must have thought flute fingerings were brought down from a mountain, inscribed on a stone tablet, and to depart from them in any way was to put one's eternal salvation in severe jeopardy.

Finally the day came when I took a more rational look at the situation and realized that, much as I love my instrument, it is just a hunk of metal with holes in it. What I really want is the best pitch and the best sound possible. If that means closing or opening a vent somewhere, so be it. I'm better off, and the listener most certainly is as well.

A Few Basics

First, manufacturers build flutes with some tuning latitude so that players can tune higher than the standard A=440 when necessary. The headjoint, therefore, should not be pushed in all the way except in extreme circumstances. I might add that I don't ever remember an occasion when I or any of my students found it necessary to do so.

At the same time, pulling out too far distorts the flute's overall scale, sometimes grossly so. A good indicator is to check the three Ds. If you don't have good octaves, especially between the top two, you can be sure the headjoint is pulled out too far. This invariably results from placing the embouchure plate too high on the lip, causing the air to go too far across the hole.

Band directors often tune young flutists by eyeing a tuner and instruct-

photo courtesy of Rutgers Summer Band and Orchestra Camp

ing them to pull out until the tuner looks right. That works, but only if they play nothing but the tuning note, and the student and director can live with a breathy, airy sound, completely lacking in focus. This is treating a symptom (the player is sharp) and ignoring the disease (the embouchure plate is too high). I've found this to be true of the great majority of young players I see.

Another factor affecting intonation is a misalignment of the headjoint. When sighting the embouchure hole from the footjoint, the hole should be in line with, or perhaps slightly to the left of, the key closest to the headjoint. It is surprising how many students are off, sometimes severely so.

I should also add a word about the end plug or cork that is in the closed end of the headjoint. Julius Baker, my teacher at The Juilliard School, taught me that if the cork is moved just a smidgen towards the crown, the lower register comes up and the upper register comes down. It also opens up the sound and makes any flute more responsive. Do not move it up more than a 32nd of an inch, however, or you will destroy the intonation and turn a prized expensive flute into a intonation nightmare.

Incorrect fingerings can cause poor intonation. It is appalling how often fingering charts, especially in beginning band method books, show high B♭ with the left-hand first finger down. This creates a flat pitch, a poor sound, and a less responsive note.

I would add that too many young players know that the pinky should not be down on the top B♭, B, or C. There are occasional exceptions, however, for the B♭ and B. If you are going rapidly from A to B♭ or B and back to A, it's perfectly acceptable to leave the pinky down.

Third Octave Fingering Alterations[1]

- For a sharp high E, remove the right-hand pinky to lower the pitch and provide increased stability.
- Add the right-hand ring finger to high F to lower the pitch.
- Substitute the right-hand middle finger for the ring finger on high F♯ to bring the pitch down.[2]
- Add the right-hand middle and ring fingers to the traditional high A♭ fingering to bring the pitch down. This incidentally is a very common practice among top players all over the world. If the high A♭ needs to be lowered still further, remove the pinky.

• Add the right-hand middle finger to high B to lower the pitch. A better fingering, though awkward in some contexts, is Th, 1 3/ 6 and both trill keys.

• High C is the most problematic of the bunch. The easiest correction, though not usually sufficient, is to finger it traditionally and add the middle finger of the right hand by closing the ring but not covering the hole (referred to as half-holing). Adding the thumb makes the response more difficult, but lowers the pitch quite a bit. A third possibility is to use the regular high-B fingering, but without the thumb. Neither the response nor the quality is ideal, but it can be a lifesaver in some situations, i.e. at the end of a fast chromatic scale that ends on C, such as in the Duttilleux Sonatine and Martin Ballade).

For those with a low-B footjoint, add the gizmo to the regular fingering and all the other altered fingerings above except the last one. It improves pitch (slightly), quality, and response.

• High E♭ and high G are both ordinarily quite sharp. Unfortunately, there are no fingering alterations for those notes that yield truly satisfactory tone. I can only make a couple of if-all-else-fails suggestions. For high E♭, remove the pinky. It results in a rather harmonic-sounding quality, but the pitch is lower. The G is even less satisfactory, but if you find yourself in octaves with the clarinet or oboe, for example, and their pitch is on the flat side, finger high F♯ without the thumb.

One last word about fingering. Most flute players know that C♯ in the staff is sharp, and they often add one or more right-hand fingers to compensate (my personal favorite is left-hand 3, right-hand 5, 6). I should hasten to add, however, that it is not always sharp, but usually so.

Many flutists, however, incorrectly assume that the C♯ above the staff is also sharp. This is not true; in fact, it is most often flat. Adding fingers will only make a bad situation worse.

Finally, there are three things that determine the pitch on the flute: 1. speed of the air (faster = higher, slower = lower), 2. angle of the air (lower air stream, lower pitch and vice-versa), and 3. the distance from the orifice to the strike edge. The shorter the distance, the lower the pitch. You can test this by simply playing a note – 3rd-space C would be a good choice – and pushing in the headjoint with the right hand.

I'll conclude by stating the obvious. In the final analysis, the only criterion for success is: does it sound good? □

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[1] *Numbers 1, 2, 3 represent left-hand fingers; 4, 5, 6 represent right-hand fingers.*

[2] *The tone quality is quite acceptable; the same is not true for the first two octaves, although finger 5 may sometimes be used as a technical expedient.*

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