Why not extend your palette with harmonics and overtones? Part 2

By Dean Stallard

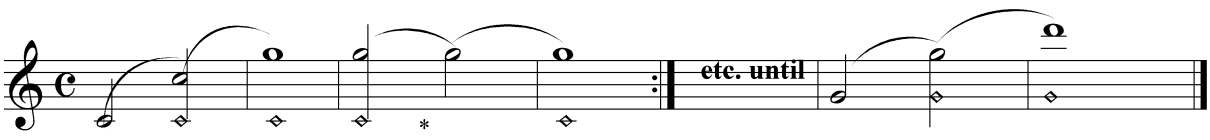
Having now spent some time working on the shift between the first two harmonics we are ready to examine the 3rd harmonic and beyond. This is where the world of possibilities really begins to open up. On the whole, only standard fingerings have been available to us on the 1st and 2nd harmonics giving us little choice but to play the flute in the usual way.
From the 3rd harmonic we can start choosing from array of alternative fingerings facilitating not only hereto difficult technical problems but giving us a choice of timbres we can use according to circumstances. Remember that string players will often experiment with playing the same note on different strings to choose a timbre they like, so there is no reason why a flutist can`t do so as well.

The 3rd harmonic warrants special attention as the standard notes based on this harmonic extend from D3 to Ab3. By paying close attention to the shifts between the first 3 harmonics you will have covered around 90% of the standard range.
It should be noted that not everybody is in agreement with the above statement, choosing instead to think of the notes Eb3 to Ab3 as being based on 4th harmonics. Indeed the relationship between the standard fingerings of these notes and those of the first harmonic cannot be denied, but my view and the view of many top players that I respect the opinion of, is that the extra fingers are added to give the notes more resonance. We can perhaps say that the fingerings for the notes Eb3 to Ab3 are based on both the 3rd and 4th harmonics but that the 3rd harmonic forms the basis for the note itself.

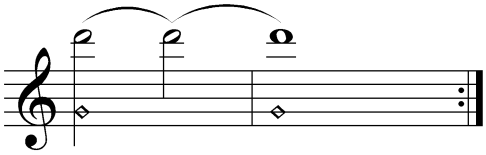
The longer the flute the easier it is to play harmonics. Therefore, even though D3 is based on the 3rd harmonic of G1 we will begin our exploration of this harmonic from C1. This brings us straight on to a useful thing to do with harmonics:

Setting your flute up.
If you accept my view about which notes are based on 3rd harmonics then one of the most common causes of 3rd register sharpness is a poorly set up flute rather than blowing too hard (although this is pretty common too). We have already discussed the effect that cork position has on the relationship between the harmonics, but as the notes of the 3rd register are all based on 3rd harmonics of the left hand , pushing your head-joint too far in will make these notes sharp. This is because pushing the head-joint in makes the holes to the left of centre progressively sharper in relation to those that are further down the flute (and of course vice versa).

The following exercise will help you to single out the 3rd harmonic and at the same time check if your flute is set up correctly. Listen carefully to the tuning between the 3rd harmonic and the standard fingering. If the standard fingerings are becoming *progressively* sharper in relation to the harmonics then you need to pull out a bit. This exercise will of course also help you to find the correct embouchure and air speed for the 3rd octave thereby tackling the second most common cause of sharpness in the 3rd register☺

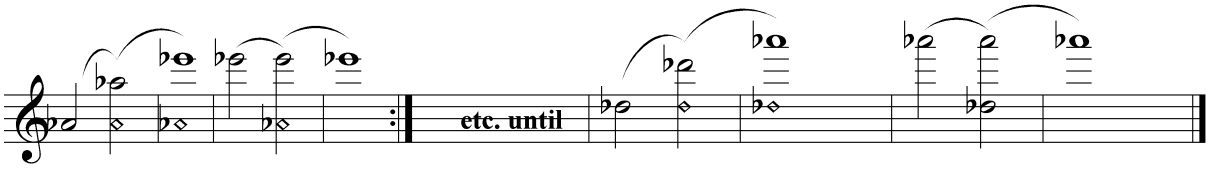


At the point marked * shift to the regular fingering and then back again. Remember to listen closely to the tuning of this note in relation to those on either side. Listen also to the difference in timbre.
Going back to what I wrote about the embouchure in Part 1, remember that to break from one harmonic to the next the air reed needs to be shortened and the air stream accelerated. The shift on the above harmonics can be made quite adequately by moving further in the direction of "u". However as we get into the 3rd register for real things will change. Try this without changing your embouchure on the shift to the regular fingering:



Notice that the regular fingering is quite sharp? Because of the extra venting (i.e. lifting your index finger) "u" just doesn`t cut it any more.

The addition of resonance keys on the notes above D3 also raise the note above the harmonic it is based on. A change in embouchure is needed. I find that the vowel "eu" (as in the French "duex") works well.
The lip opening reduces (accelerating the air), the top lip moves nearer the blowing edge (shortening the air reed) but at the same we get a deeper blowing angle, which keeps the notes in tune. Work with the following paying close attention to tuning and the change in embouchure needed to bring the regular fingering down to pitch.
(Remember that the 3rd harmonic is a little flat to our ears so you don`t need to flatten the regular note all the way to the harmonic fingering):



By now you should be realising that harmonics are very useful, nay essential for tone work, tuning and flexibility. To further explore the possibilities try this excerpt from Trevor Wye`s Tone Book;

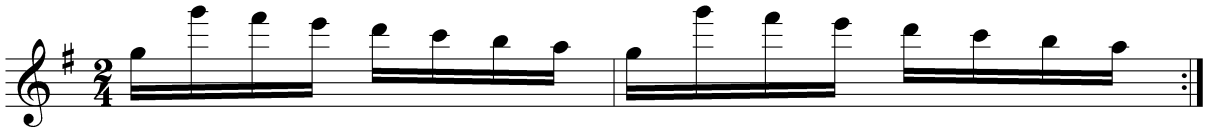
See Flutewise issue 56

From "A Trevor Wye Practice Book for Flute Volume 1 Tone"
(Published by Novello)- reproduced by kind permission

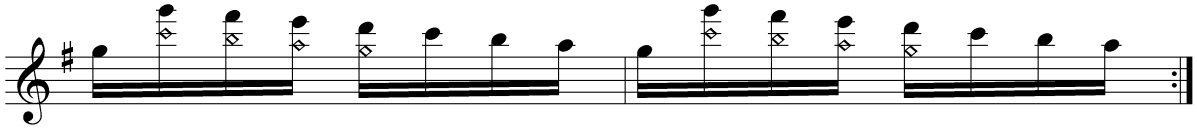
(*repeat with regular fingerings)*

Working through the rest of the above exercise (Preparations for The High Register) from "Volume 1 Tone" will give you a good idea of the combinations open to you, not to mention a strong but flexible embouchure. DON`T over do it!! Build up your strength and stamina gradually. If you have trouble getting up to the 4th harmonic and above, don`t force your embouchure, just be patient. Remember that lips are muscles which need to be built gradually.

Having looked at using harmonics for control of tone, timbre and embouchure we can take a quick look at how harmonic fingerings might help you in tricky technical situations. Play this excerpt from Offenbach`s "Can can"
as fast as you can can:



It` s only a G major scale but there are some tricky finger changes in there. Now play it again but with the following changes;



Now we` re movingaren` t we? Try applying your new skills to other technically difficult passages, but remember to pay close attention to changes in timbre and tuning. Good taste and intelligence must be your guides from now on.

Next time we`ll have a look at multiphonics and I`ll present some hard evidence for my views on the 3rd harmonic and the notes of the 3rd register.