

MCB Flutes and Headjoints



Headjoints, Environment, Technology and Design

I live and work in Kyalami, a suburb of Johannesburg in South Africa at an altitude of 5,500ft. In the African summer we may have an air density equivalent to 9,000ft. The relevance of this is that I have a natural low pressure laboratory which shows up any deficiency in flute headjoint performance. One must bear in mind that the embouchure hole on a flute is in effect a venturi which takes a stream of air, compresses it, and turns it into a standing wave which oscillates down the tube of the flute and is turned into sound. Any reduction in air density very adversely affects the performance of the instrument.

Given this advantage I build headjoints which perform well in adverse conditions and are superb at more normal altitudes.

My headjoint research has focused not only on acoustic issues, but on the underlying aerodynamic issues in respect of tube taper, tube tonehole design, embouchure hole and lip-plate design.

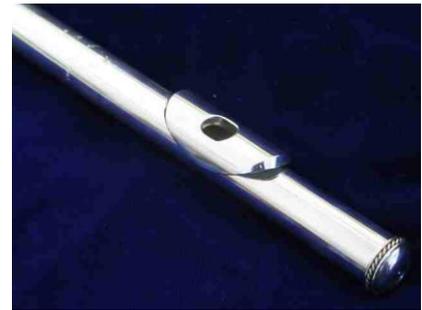
The London Pattern Headjoint

Given my training with Albert Cooper my work has been heavily influenced by him, and in this regard I build the London pattern headjoints which is similar to a late model Cooper with a major modification that the strike wall is slightly deeper than the rear wall. This creates a head that is more

homogenous throughout the three registers. This is a dark, very responsive headjoint with a very wide dynamic range.

The MCB 2007 Headjoint

The MCB head is currently creating a sensation. I was tempted to call it the volume head because it is a headjoint which is re-configured. The embouchure hole is smaller but deeper, thus retaining the volume of a larger hole. The volume is similar to a 1983 Cooper. A recent trip to the US and Canada has led to this pattern of headjoint being adopted by both David Straubinger of Straubinger Flutes and David Wimberly of David Wimberly Flutes.



Locally the head is becoming known as the 'distinction head', because it is very much easier to play as the player puts less effort into basic focus in setting the sound up due to the fact that the head's design efficiency makes it more effective, focused and easier to play. My own view is not to focus on the easiness of the head, but rather by taking care of fundamental problems in flute sound, it leaves more opportunities for musicality.

The head typically from a tonal point of view is dark and has a great deal of warmth. It was characterized by Patricia Crichton, principal of the Nova Scotia Symphony as 'a head that plays like a modern head but sounds like an old Haynes or Powell'. I view this as a great compliment. I patented the headjoint during 2008.

The head is currently available in silver. In late 2008 it will be available in seamed silver, and in 2009 in gold.

Silver Head Price: Email comradem@cynetx.com for current pricing

The MCB 2008 Headjoint

Due to be available in late 2008, again the volume principle is applied, but the embouchure hole is shallower than the MCB 2007. The corners are cut to a tighter radius so the reduced volume lost in height is regained in the corners.

The MCB 2009 Headjoint

The year 2009 has been a definitive year for headjoint development. During April I standardized the 2008 design for production, and then came up with 4'09 which was yet another evolution, and then by 5'09 which has revolutionary features.

These headjoints are my masterpieces. I believe them to be revolutionary. But what do my clients say about it? Very informed clients who are playing the heads are both Derek Fennell who worked for All Flutes in London, and as such has had considerable exposure to the best, and also Cobus du Toit who is currently studying in the US and has attended the last two National Flute Conventions and also has seen the best. What they say is as follows:

- Derek comments that the head has the most incredible centre; that it is a very efficient headjoint; plays long phrases; that the intonation is superb, and that the sound is absolutely phenomenal, and that he has never played anything like it.
- Cobus comments that it is the most musical head he has ever played; that it is a silver headjoint with the sound of gold; that the left-hand colour is better than anything he has previously tried, and the control in the third register is exceptional. He cannot decide which is best, 4'09 or 5'09. He has persuaded me to build both.
- Carina Brown has bought a head. Her comment is "*This headjoint is stunning; it plays so easily and the sound is so beautiful*". Carina is of course the principal of her own music school in the Cape.
- Daniel Kwak, a student of John Hinch in Pretoria also has one of the first four. His comment is, "*I can doubtlessly say that the flute has large dynamic range and sweet tone throughout the register almost effortlessly! Great craftsmanship!*"

So, what has happened? During April of this year I had the good fortune to be visited by Raffaele Trevisani and of course one very rarely has the opportunity to work with a player of this level, his being one of the leading international virtuoso. Interaction with a performer of this nature clarifies certain things and prompts certain directions of thought. At this stage 4'09 had already been developed, and my lip-plate development was at an advanced stage.

Raffaele had three things to say which have contributed to the design of this head. Raffaele has done some sailing and as such he understands the issues

of wind and air, and we had discussions around the aerodynamics and these influences felt in the lip-plate in a number of ways.

- The first one is the balance of air pressure passing over the lip-plate and the air pressure in the embouchure hole. The headjoint skirt ahead of the embouchure hole is wider from side to side (thus more surface area) and has a laminar flow curve to prevent flow separation. This controls the flow of air over the lip-plate, which controls the vortices which ride from the edge of the air reed. This has a huge influence on tone colour, response and articulation. What is little understood is that more air passes over the lip-plate than into the embouchure hole. Thus he has influenced the lip-plate.
- Secondly, Raffaele commented that for many top players to achieve different effects they will move the flute around on the lip. The problem here is that most lip-plates do not allow this; they trap the lower lip. So, the lip-plate is narrower from side to side and is more curved. This allows more flexibility and movement in terms of placement.
- Thirdly, Raffaele commented that the range of the given note of the flute is limited by its harmonic range. In a sense this is obvious, but to hear it so conceptually and clearly expressed is unusual. The harmonic range determines the colour, volume, dynamic range and the like. This set off a train of thought relating to how one enhances the dynamic range. From a technical point of view the headjoint is still deep. It is however narrower from side to side. This creates considerable pressure. It is wider than usual, front to back and in fact goes back to the original Boehm dimension in this regard. This creates a head with a very fast focus and high pressure. For 5'09 I found a way of modifying the strike wall which enhances the harmonics.

As a bonus the headjoint is also very easy to play, the consequence of very good aerodynamic form. The sound that these headjoints make is indescribably good.

Headjoint Improvement Program

Many factory made headjoints are often stuffy and lack clarity in response and this often the consequence of very small errors in manufacturing which an experienced headjoint maker can correct. All headjoints are assessed for necessary voicing and in the event that this is required, it will be discussed with the owner prior to such work being undertaken. The consequence is a dramatic improvement in performance at a very moderate price.



Michael Botha and David Straubinger - Mutual headjoint collaboration