

# The Goldsmith's Flute

## Ancient Japanese metalwork meets 21st century technology

by Elisabeth Hobbs and Gyula Czeloth-Csetenyi

**A**s any flute enthusiast will know, flute making has enjoyed something of a renaissance in recent decades. Today there are many fine craftspeople making flutes of exceptional quality all around the world, experimenting with scale lengths, materials, mechanisms, and other refinements as they work towards an ideal combination of factors in the search for the ultimate in sound and playability. In this highly specialised and crowded space, a real perfectionism and originality is needed for the work of a particular maker to stand apart.

Gyula Czeloth-Csetenyi believes that originality can be found in the work of Harry van Ekert and Cilia van Uffelen of Eloy Flutes in the Netherlands, whose flutes, since their launch at the BFS Convention in 2008, have enjoyed a growing reputation for beauty, sound, and ease of playing. Eloy Flutes is named after Saint Eligius (in French, Eloi), the patron saint of goldsmiths and metal workers, and Harry van Ekert and Cilia van Uffelen are both trained gold- and silversmiths (indeed, Cilia at one time worked as a jewellery designer in London).

The couple began working with flutes 20 years ago when, after completing

their apprenticeships in Schoonhoven, they went to work as assistants to Trevor James in London. "Trevor appreciated our proficiency as goldsmiths," Harry explained, "because making flutes requires exactly this kind of fine and detailed craftsmanship." Harry and Cilia worked with Trevor James for two years, before moving on to Powells in Boston where they trained for a further two years.

These days they put their expert stamp on their own instruments, producing flutes in their workshop beside their home in Someren, near Eindhoven. There, Harry makes the headjoints and bodies, while Cilia works on assembly

and finishing. "We felt that the time was right to set up our own business in 2006," says Harry. "We knew that we had to make something utterly original and unique to gain a share in a market that is already crowded with high quality products. I had been busy experimenting with a new material I called Mokumeum®, and this inspired Cilia to believe that we could produce a new flute sound – something different to the sound we have all become accustomed to. Cilia believed the new material could give the special quality that we were seeking."

Harry was introduced to the traditional Japanese metal-working technique of mokume-gane as a young goldsmith some 20 years earlier. The technique was developed in 17th century Japan where it was used for decorative fittings in sword manufacture. Soft metals and alloys, such as gold, copper and silver, were used, as these are able to form liquid phase diffusion bonds with one another without completely melting. The metal sheets were stacked and carefully heated, until the solid billet of simple strips could be forged and carved to increase the pattern's complexity. To achieve a successful lamination using the traditional process requires a highly skilled smith with a great deal of experience.

"I was amazed and intrigued by the technique," Harry explained. "It has great beauty and every piece made this way is unique." More importantly, it

led Harry to ponder what effect the complexity of this metallic laminate might have on the resonance of a flute constructed from it. Harry experimented with the process for several years, working with thin plates of silver and gold alternately stacked and then moulded under pressure and heat. “This forms atomic bonds between layers which are not the same as if we soldered them,” says Harry. “I then drill cone-shaped holes into the layered material with a special tool and flat-roll the sheets until different layers begin to appear and a distinct surface comes into being. This is what gives Mokumeum its unique appearance.”



*The seamed tubing before soldering*

After much experimentation, Eloy now use two different types of Mokumeum in their flutes: sterling silver combined with 14 carat palladium white gold, and sterling silver combined with 14 carat red gold. Harry uses a ratio of 75% silver to 25% gold content which he believes brings forth the balance that he wants to achieve between a “silver” sound and a “gold” sound. The development is ongoing, however: “I plan to experiment with mixes of different alloys,” says Harry, “as that way, I can steer the way the flute sounds in any direction. For example, I can carefully measure the amount of colour, brilliance, or darkness that I ‘add’ to the instrument. There’s such a distinct difference between the two Mokumeum

types that I am currently using that I feel there is much more research to be done in this area. I am very keen to discover the results of other metal combinations.”

Because Mokumeum produces a flat plate, the body of an Eloy flute has to be formed into a tubular shape and soldered. This method of seamed construction harks back to the methods of the great 19th century flute maker, Louis Lot, whose instruments are so esteemed today for their tone quality. Today, only a very few flute makers produce flutes with a seamed construction – the method is technically challenging and requires a great deal of practice. Harry learnt this craft from Mike Allen, another goldsmith/flutemaker who worked with Trevor James. “The exciting thing,” says Harry, “is the effect that the soldered tube has on the sound. These tubes have to be drawn again several times after soldering. When Mokumeum is used in the tube, the gold and silver exist beside each other. It is not an alloy – you can actually see both the metals, and although they are united they keep their respective densities. The combination of the soldered tube and the unique material makes our instruments resonate in a very special and unique way.”

Of course, a flute is more than just the tube it is constructed from, and Harry and Cilia have considered its other essentials just as carefully. They have made changes to the traditional mechanical design of the flute, getting rid of the pins to create a completely pinless mechanism. Harry explains, “Pins make the steel rods weaker, so we use bridge parts instead of pins. This results in a perfectly balanced, smooth key work that performs faultlessly.” Eloy have also added a small spring to the trill keys, avoiding the play in these keys which inevitably occurs after extensive use, and the foot joint levers and rollers are set up in an



*Soldering the mechanism*

ergonomic, angled configuration. Eloy uses only 14k white gold springs to ensure an evenly balanced response, and Straubinger pads, which do not absorb moisture and therefore remain completely consistent in their shape.



*Harry van Ekert in his Someren workshop*

They have also worked on the scale of their instruments and, for the moment, have settled on an old Powell scale,

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which Harry considers to be closer to the original Cooper scale than the one currently in use. “Flute players had been quite satisfied with this scale until the late 1980s,” says Harry, “and I think, with it, I have found the ideal tuning for Eloy flutes in combination with the seamed tube. I do use different calibre profiles for head-joints, but only the one scale for the bodies.” Having said that, Harry is quick to acknowledge the work that Trevor Wye has done on tone hole proportions and positions, and says that he sees opportunities for further improvement to his instruments using this research.

Most of all, Harry feels that Eloy’s unique qualities are manifested in their headjoints. “This is where it really gets complicated,” he says. “For me, versatility, good reactivity and their huge dynamic range are of vital importance, while for the flautist, the richness of their overtones, buoyancy, and the strong low register can be a revelation. In my opinion, the tube

gives the flute a lot of its character, but the kind of embouchure a player prefers is definitely a matter of personal taste.” Harry achieves the required precision by pre-cutting the embouchure hole using a CNC machine; the cutting and polishing is then completed by hand. The headjoint is rigorously tested and, if not up to Eloy standards, is cut and polished again.

Eloy currently offers two different embouchure cuts, with Harry currently working on a third. Two different tapers for the headjoint tubes are also available, giving the player a number of possible permutations in selecting the ideal headjoint. Harry says, “Mokumeum headjoints are available separately, so this gives players a relatively affordable solution to upgrading their flute to ‘Eloy standard’. Our headjoints bring their typical sound profile to the ‘donor’ flute body. Although, in theory, if the headjoint produces 80% of the overall sound quality, then the body made out of the

same material needs to provide only 20% to achieve a ‘perfect’ sound. But that doesn’t mean we can only achieve this magical 100% perfect sound if all the parts are made of the same material. Combinations of different alloys give the flautist a broader potential of sound and tone quality to choose from.”

Harry is adamant that he is not seeking an ‘Eloy sound’ and that the process of combining metals and experimenting with sound is one that both he and the player are involved in together. “The experimental pursuit of the ideal sound cannot be limited to making headjoints out of different alloys,” he says. “The head is a kind of sound generator that contributes decisively to the tone of the flute as a whole. Just as a gold headjoint on a silver body can significantly alter the whole instrument, so a Mokumeum headjoint has a similar effect on either a gold or silver body. Generally, a Mokumeum headjoint can convey the colour and brilliance of its sound to a flute made of any material.”

*A finished Mokumeum Eloy flute*

“I don’t have a ‘sound ideal’. I always respect and listen to the voice of my customers, and appreciate their problems, just like Albert Cooper did in the 1970s when he began on his renewal of flute making. A big sound is important, but you have to achieve this carefully so that other aspects of the sound are not compromised. This is where the flaws lie in the case of average quality headjoints. The real challenge for me is to satisfy all the conflicting needs and requirements and build them into a single headjoint. The key word for me is ‘balance’. I love the different colours in the flute sound over the whole dynamic range. That sound has to be ‘saturated’ across the whole range and it needs to show its virtues across all three octaves. The pursuit of this is the starting point of my experimentation with Mokumeum.”

Since the launch of Eloy flutes at the BFS Manchester convention, they have been praised and enjoyed by flautists across Europe, the US, and South-East Asia. “We’ve received very positive feedback from players such as Robert Pot, Emily Benyon, and Andrea Liebknecht. Flautists notice the lightness of touch and how easy it is to produce the sound; there is also a very positive response to the acoustic qualities of the instrument.”

The flutes have been shown at conventions around the world, however, until now Harry and Cilia have handled the European marketing themselves from their home in the Netherlands. They have relied on the availability of cheap air travel in Europe for customers to come to them, however, they are now actively seeking



European distributors in order to bring their instruments to a bigger audience. They hope that this new business strategy will allow potential purchasers to try the flute out for more than a few hours, as well as giving them the opportunity to play the instrument in different settings and to discuss it with their colleagues and teachers.

Harry, with his passion for his craft and for the unique voice of Eloy’s beautiful instruments, should have the last word: “My aim has been to find a balance between the characteristics of contemporary instruments and the finest work of the masters like Louis Lot, and to incorporate these into my own instruments. Eloy flutes are very versatile – everyone can find something they like in their voice. We make silver and gold flutes as well, but the flutes made with Mokumeum are of the most exceptional quality. Mokumeum offers something that in the end is really special – the resonance of gold, a rich sound with abundant overtones, and the lambent and sparkling sound of silver.” No doubt the queues to try out the Eloy flutes at this year’s BFS convention will be very long indeed.



*The jewel-like crowns*