Woodhead & Woodhead Double Horn

Following the unveiling of the new Woodhead & Woodhead double horn, the BHS sent **Ed Lockwood** to talk to **Heidi** and **Luke Woodhead** about their new instrument

When did you first have the idea to make your own instrument?

H. Players have been asking us about making our own instrument since we started our own business. After some thought and deliberation, we began by making a baroque horn which is where Luke first learned to make the bell and the spout from a sheet of metal. Once we'd done this, a double horn became a real possibility. Our main obstacle, though, has always been time. Whenever things were quiet with repairs, we would start talking about designs and ideas but could never get anywhere before things became busy again. So the first time we had to make any real progress was during the lockdown.

I seem to remember talking to Luke about you making a horn at the IHS Festival at Imperial College (2014)

L. We always thought we would make one eventually and I remember Roger Montgomery asking about it after a couple of years, but we were making a good living repairing and selling horns and there never seemed the time. Making a horn is much harder than fixing one so it took quite a nudge (COVID!) to make us push ourselves out of our comfort zone.

So, having made the decision, how do you even begin the task of designing a horn from the ground up? Where do you start with which wrap to go with and bore size, etc.?

H. We already had the baroque taper from Lisa Norman who is the wife of John Chick. That bell taper was her doctoral thesis and she was working alongside John at the University of Edinburgh in their Acoustics and Audio Group. They are both horn players, and Luke sent John a message asking him if he'd be interested in designing a taper that would work for a medium-bore horn. We gave him a few parameters to work within, in order that the bell stayed medium, but aside from that we gave him free rein to design a "perfect" acoustic taper.

L. As an acoustician and a horn player (he plays a Paxman 23E), I think he was really excited to have a go at coming up with the theoretically perfect taper (bell taper controls the tuning and spacing of the harmonic series to give the right tuning across the whole range). So he came up with the mathematical formula to get the taper just the way we wanted it and then we had to liaise with various companies to turn that formula into a lump of steel which was the same shape as the mathematical formula.

H. We had two goes at that!

Is this taper across the whole instrument or is it mainly the lead pipe?

H. The bell and the branch.

L. From where it comes out of the valve block to the end of the bell. All the tubing that expands from 12mm up to 300mm

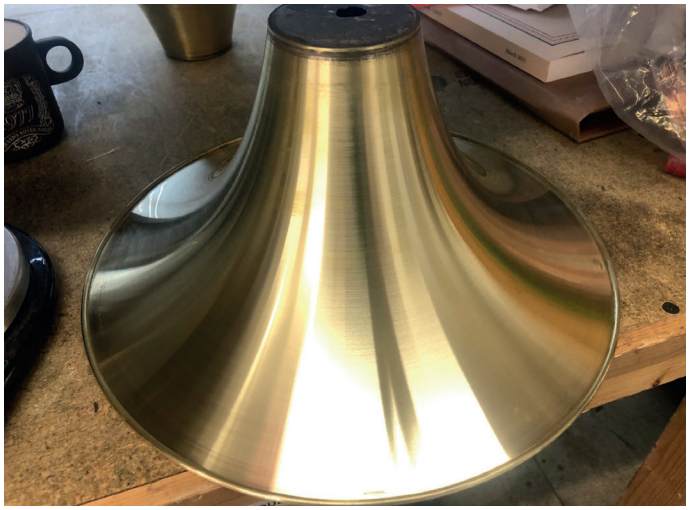
So, the design of the bell was one aspect. Developing the skills to actually make the bell exactly as designed was another. The next aspect was how to wrap up all the tubing and make it look aesthetic, and get all the measurements correct so that it played in tune. Heidi turned her mind towards that side of things.

Did you go with a number of prototypes or was it a constantly evolving one?

H. We had been talking about which direction to go in. A number of the American makers are producing horns based on the Geyer design and we wondered whether that would appeal over here. We both love playing Paxman horns, especially the model 20, so at that point we decided to follow the airflow that a Paxman uses.

L. It plays to our heritage from our days working at Paxman and felt nice to continue in that direction.

H. So once you start looking at what you can do with airflow, and fix upon that system of the air moving in the same direction through the valves, you are sort of limited as to which way you can go without making a direct copy. We gave ourselves those parameters and went from there. We had an old horn which was



no longer fit for purpose, and we used the valve block from that to produce our first prototype. We put our own bell and branch on it, our own leadpipe, and used the existing valves. We also paid close attention to ergonomics. We wanted to make a horn that was light, balanced and easy to hold.

L. We wanted to design something along the same lines as a Paxman who we hugely respect, but with our own acoustic and aesthetic design. Our horn stays true to the Paxman system of having the air moving in the same direction that the valves turn, which helps to produce really smooth slurs. This was important to us because it was part of our shared history.

Then there was the whole leadpipe taper design which is like the focus on the camera.

H. It is. You make a leadpipe on a steel mandrel and we have two of those with different tapers. One is based on John Chick's measurements and we tried that one first. We felt that it was maybe too free-blowing so we looked at other tapers from various makers and instruments.

So the leadpipe is responsible for the resistance on an instrument? Is that down to the bore or the tightness of the bend?

L. I think people overthink the tightness of the bend and it's almost entirely down to the bore. However, if you have too many sharp bends on a horn, people go in with a preconception of tightness, so we tried to avoid that. The leadpipe taper is also responsible for the feeling that the notes are really locked in, and how the instruments respond, so we wanted to get that part right. Heidi did a lot of work with graphs to make sure that the notes lock in across the whole range.

So once the leadpipe was done it was a case of putting it all together and deciding on an aesthetic look for the instrument. By and large it has little effect on the way it plays but players love beautifully engraved valve caps which Heidi hand engraves with a lime leaf motif based on the tree outside the workshop at Ampthill. So we needed to decide whether to go for a minimalist look or go for something more rococo.

Which did you go for?

L. I think it's relatively simple at the moment.

H. It's not over-decorated, the stays are similar to Alexander stays and they come from Germany, the valves are from Meinlschmidt and are also the same that Alexander use. The engraved logo is actually Woodhead & Woodhead, reflecting both of our roles in the shaping of this instrument.

L. Yes, we've gone for a top-quality valve block because they are bomb-proof and will last for 50 years plus without a problem. We also had to be realistic about how much we could do in-house.

I think one of the hardest parts about the whole process was putting ourselves out there to be judged.

Especially when you've invested so much time in the process.

L. Yes. We've been repairing instruments for 22 years so you would imagine that people would have high hopes for our instruments, but it's another matter when you hand it over to someone to try.

Have you had any buyers yet?

H. We were very lucky – just as we were nearing completion, Stephen Williams, who we have repaired for over the years, came in to buy a very smart second-hand horn. Having had a look at what was happening in the workshop that day, he went away empty-handed. A few days later we received an official order from him for the very first "Woodhead & Woodhead" as soon as we could complete it.

He has very kindly written a few words about his impressions after six months of playing it.

"For me the nicest quality of this horn is how it responds to the player. It doesn't feel like a wrestling match to impose the player's will on it. Quite the contrary, it feels like it wants to respond, to allow the player to express without hindrance. You can play delicate and subtle passages with great finesse, but the moment you want to take off into something more extrovert and boisterous this horn is instantly responsive. It inspires terrific confidence, knowing that this sublime horn will do exactly what you want." – Stephen Williams

Speaking of trying one, how does one go about doing that?

H. We've got two horns for people to try (the second and third ones built). One that can go out to people, and the other one would stay with us, so people can try it here (at the workshop) or in London.

If people love it and say "yes please", what is the waiting time like?

L. We have allowed about eight weeks to make one whilst working around our other repair jobs, but without that it would take us about two to three weeks per instrument. We have so many demands on our time and we don't want to let people down. So, the idea is that we will have two horns that people can try, and then they will put their name down on the waiting list and they should have their instrument in four to six months. We've had to be very strict with ourselves time-wise when it comes to making them. We decided that we will dedicate Monday and Friday to making horns and the rest of the week to repairs and sales. Obviously this can be difficult if there is an emergency, but we will always try and accommodate. There are lots of stages in the building process where only one of us is able to work on the horn so the other one can do repairs at that point.

H. We do know of a maker with quite a long waiting time where people sell their place in the queue to make money!

L. We don't think we'll get that kind of thing but we just want to make really good quality horns that people can afford and will love playing in anger, and for them to be visible.

We really like the fact that if somebody wants to see their horn being built, they can come in and see any part of the process.

They could see the bell as a flat sheet, or the valve caps before they are engraved, so there is no mystery about how it's made. Somebody could come in and see 200-year-old crafts being demonstrated, which is very rare in this country these days.

Any plans to produce different models? F alto, for example?

H. Not at the moment – we have to be realistic about time pressure – but we might produce an alto or maybe a single B-flat at some point.

L. When we worked at Paxmans, we never thought we'd come out with our own horn, let alone our own design of horn, and pushing the boundary of self-expectation can be uncomfortable, but also very satisfying when it goes right. We've served the horn community in this country for many years now but felt that we wanted to be remembered for more than just repairing and selling. Once you have your names on an instrument, someone can look at it in a hundred years and say, "what is that horn and who made it?" **EL**

To read more about how Stephen Williams became the first owner of a Woodhead & Woodhead horn, please go to **www.british-horn.org/category/members/articles**

Heidi Woodhead, Stephen Williams and Luke Woodhead