



View as Webpage

Hi Friend,

Last month I would normally have made the lovely drive to Blair Castle for the annual Glenfiddich. Sadly, like you perhaps, I had to watch it on the broadcast put out the



following day due to it being held behind closed doors. I enjoyed listening to it although, as I have written previously in my newsletters, the sound quality cannot be replicated accurately digitally. However, what did come across to my ears was the increased clarity from each piper's instrument. As the writer of [this article](#) noted, this is as a result of there being no audience to absorb the sound. This is something that's often overlooked by organisers of musical events and, really, the best way to enjoy and appreciate sound is by listening from an elevated position. Clearly, the ancients with their amphitheatres knew this. Click on the image above for an example of this.

The principle is similar to being in a group photograph. If you are in a group photo and you cannot see the camera lens, you simply will not be in the photo. It's the same if your ears have something in front of them – the sound is mutilated. In an amphitheatre you have direct sight and sound contact with the performers.

Since spring, there has been a lot of discussion about the virus and how the bagpipe might transmit it. Much of this is just talk and people's theories and opinions. I do not understand why

one of our national organisations has not commissioned a proper scientific study into what is the most important issue in piping at the present time although I do hear that the National Piping Centre and the University of Glasgow are looking into it. If the virus is spread by the bagpipe it is, of course, generated from our breath so moisture control systems – or whatever systems you are using from your mouth to the air coming out of the pipe – is very important.

I notice there are now a lot of products on the market, and some are attributing outrageous and completely unsubstantiated claims to these products. Some are stating that these claims are facts. They are not. There are also many copies of others' products on the market. Most of these copies are made with simply plastic tubing or components that can be bought easily online. These are then sold cheaper (sometimes at the same price) but with no commitment to you the piper.

The makers and retailers of these inferior products have not put years of research and development into them. Conversely, I have spent years trying to understand the science behind what we call moisture and then applying the most efficient engineering aspects on how best to deal with it. Many of the products I see on the market today are simply not effective – and at times cause other problems. I know this because I have made and tested all of these types of products and then gone on to produce those that do work.

The first myth or mistake is with the word 'moisture' itself. Moisture is the heat or the warmth of our breath (being around 36-37°C) that condenses to room or outside conditions/temperature. This change in temperature is what then causes condensation – which most pipers mistakenly call 'moisture'. What I learned many years ago was that I needed to be looking at heat exchangers. Therefore, we need to cool our breath down to create a cooler air (creating condensation) and, by doing so, produce a dryer air/breath.

The only way I know to cool air down is what's called the Venturi effect. By passing air through smaller holes or some sort of reflection you will cool and dry it. Getting the balance right so that it is not too restrictive, but at the same time cooling the air, is the difficulty. For those of you who have played a bottle trap, it is not the cloth that creates the condensation but the *holes in the bottle*. The cloth only absorbs the moisture once created.

[The concept can be seen quite clearly in this video of how it is being applied in homes in poor parts of, I](#)



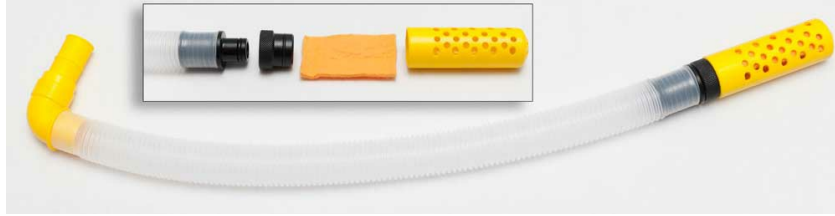
It is the same with systems that use silicone gels. It is the air passing over/through the gels that creates the condensation. The gels then absorb the moisture once created. I have used plastic and even small metal balls in my moisture system, and they work fine but create a lot of moisture that is not absorbed. Most pipers freak out when they see moisture ... *yet it is what we want* . Silicone was designed to absorb moisture and will do this in any damp environment but if the air is not going through the gels, it won't be cooling down. We need cool dry air reaching our reeds to cut down on condensation that affects so many other aspects. Any reduction in a tube or airflow will create condensation. This is why some people claim their systems do all sorts of magical things, but it is only this reduction that is really doing it. Further, coloured silicone gels are toxic and should not be used in any mouth-blown instruments.

What to look for in a good heat exchange system

First, watch out for all the false claims. The ultimate test is if your reeds stay dry – and for how long. Checking your reeds for moisture will tell how effective your system is. Some makers claim that some leading pipers use their products. Watch out for this. A lot of the top players are asked to endorse products and often are given products to *try* ... but are not actually playing them. I try to avoid asking my friends to endorse my products all the time. I prefer to let my products prove themselves. Years ago I invested a lot of money in purchasing an injection-moulding tool to make my moisture system. Recently, I spent £16,000 on a moulding tool to make the connector and cartridge for my moisture tube.

Take the tube

All pipers should be playing/using some sort of tube to the back of the bag from the blowpipe stock. This takes the hot, damp air away from the chanter reed and puts it at the back of the bag. The bag then has a chance to absorb/cool the air down before hitting the reeds.



efficient moisture control in the great highland bagpipe are:

1. **Blowpipe** – the bore width and length.
2. **A tube to the back of the bag**. The flexy tube is best. It gives more surface area, is light weight and, of course, is flexible.
3. **Some sort of reduction**. The air must pass through or against some sort of reduction to create the Venturi effect, moisture.
4. **A manufactured product** for the bagpipe. Only buy from reputable firms to ensure the enhancement of product development.
5. **A filter** to help stop the spread of the virus. Does the air pass through a filter?
6. The device used should be **lightweight** and **flexible**. It is light and easy to use when playing.

I always return to the old pipers. They encountered the exact same problems back then and seemed to manage them. How? First, they had long, narrow blowpipes. This is your first Venturi effect, cooling down the breath before it hits the bag. As a young lad in New Zealand, I remember being told about an old set of pipes that had not been played since the 1920s. When the old bag was removed there was a copper pipe from the blowpipe stock to the back of the bag with a series of small holes along the top of the pipe. It even went through the back of the bag and was fitted with a small valve to drain off moisture. New Zealand ingenuity, possibly.

There is a trend these days to have short blowpipes and for them to have the biggest diameter bore possible. Not only is this not cooling your breath, but it also allows pipers to put very quickly more air into the bag than can escape from the pipes. I believe this is one of the main causes of the huge number of unsteady blowers these days.

Humidity

The other aspect that we must deal with is humidity. By using a very small device (size of a coin) inside the bag and a small device outside the bag to receive reading you can have a complete weather station inside and outside your bag. There are also apps for phones that do the same thing. Using this all the time gives you readings on the conditions you are playing in and what is happening inside your bag all the time. I do not understand why bands would not be using this at competitions.

We cannot control the conditions outside the bag but we can control the Humidity and

Temperature *inside* our bags. My Moisture Tube is in effect a humidity reduction and heat exchange unit. Take a look at the short video on that link. From experimenting with my products over the years I can provide a few statistics:

- **A piper's breath is around 65% humidity and a temperature of 36°C.**
- **By adopting my Moisture Tube and Drone MCS inside your bag you will find a**
 - **3°C increase in temperature within 20 minutes of playing**
 - **10°C increase over one hour of playing**
 - **1% change in humidity in 20 minutes and a 10% increase in humidity over one hour**
 - **2.4 Hz change in pitch in 20 minutes.**

The Moistube Tube puts air to the back of the bag, thus giving it a bigger area to maintain further cooling. There is no moisture in the chanter stock.

Now, without using my moisture tube but with my Drone MCS fitted, there is a

- 6.5°C increase in temperature in 30 minutes
- 10% increase in humidity in 30 minutes
- 6 Hz change in pitch in 30 minutes.

Air goes straight from blowpipe stock into the front of bag and there is some moisture in the chanter stock after 30 minutes of playing.



Please take one minute of your time to watch this video that demonstrates the effectiveness of my moisture tube.

You did not receive my regular newsletter last month. This is because I got married in Arizona to the wonderful Dr Karen Hitchings.

We had a fantastic, small

ceremony on her ranch ... and,
of course, the pipes were
heard!



Lastly, I would like to thank all of you who have sent me glowing testimonials recently, both regarding my drone reeds and my moisture control systems. I continue to strive for perfection with my products and your feedback is much appreciated. Please spread the word.

As ever, please send me photos or videos you'd be willing to share at bruce@highlandreeds.com including a caption of event and date. Please also leave a product review on the appropriate produce page of my website – or leave a comment or video clip of you playing on the ['Submit your comment/playing' page](#).



Enjoy your piping.

Bruce Hitchings MBE BEM.

[Click here to view my website](#)

