



Hoarseness in recorders

I. Reasons for hoarseness

a) Generally the reason for any kind of hoarseness relies on one physical phenomena: condensation. Our air of breathe is warm and almost fully saturated with moisture. When getting in contact with cooler objects this damp-warm air condensates as moisture on the object's surface. We all know this: blowing our breathe at a cold window glass, a way stronger and longer lasting film develops in the summer times, when the glass is warmer, so the temperature variations not being to high. In the inside of the windway the same thing is happening. In principle this condensation process is not avoidable- to be precise blowing "aridly" is not possible.

Now not every recorder gets hoarse on a player, so other factors have to be taken into consideration, that progress or decrease hoarseness. So if the condensation of breathe moisture is unavoidable, we have to evaluate what we can do so it will disturb us the least. Ideally they would form a thin even layer on all sections of the windway to drain downwards without perturbation.

b) By its surface tension water however acts adhesive, meaning that it disperses into every corner, congregates around minimal disturbances on the surface and forms droplets. Thereby smallest disturbances, that would usually- in dry condition- cause no further problems in the windway, are amplified and lead to hoarseness in the recorder.

Such disturbances, where droplets congregate are often residuals in the windway, caused by insufficient maintenance of the instrument, bad oral hygiene of the player or storing in damp condition (mould formation). Hereby I would like to strongly encourage you to really follow the maintenance instructions of the manufacturer, which are generally established. You thereby safe yourself a lot of avoidable trouble and many repairers some unpleasant work. Insist on that also from your students! Look into the windways of your recorder from time to time and observe their condition.

Sometimes a player blows too tentative or weakly on a new to be played-in recorder. Through the low air velocity water droplets can congregate on even smaller disturbances in the windways and lead to hoarseness, whereas in stronger blowing pressure they would have been transported out without a problem. Especially instruments with a tight windway, having a bigger dynamic broadband, tempt to be blown too weakly.

The fact that plastic recorders tend to be more susceptible to hoarseness is due to their extremely smooth and pore-free, therefore water repellent plastic surface in the windway. Instead of forming an even film, the water keeps congregating in droplets repeatedly.

c) Wood as a natural material, "that you can never fully take life from" (Hermann Moeck) reacts very

sensitive to temperature- and humidity fluctuations. When cutting wood, no matter if with a knife, a file, mill or sandpaper, the fibres on the cutting edge always get more or less hurt (depending on the direction). If later that intersection gets wet, it might happen that fibres loosen and so to say “stand up”. Often they harden in the process and cause more disturbances, on which aggregations and water droplets can congregate. This is unavoidable even with the best manufacturing tools. Also the swelling of the block under the influence of breathe moisture can lead to hoarseness change in tones, due to a change in the orientation of the labium. The tighter the windway of a recorder the stronger this works its ways.

d) Additionally to condensing moisture with some players, especially children, it can happen that play real “, meaning that saliva is running into the recorder. Often that is because they take the beak to far into their mouths. Then the instrument is fully wetted and soaked and offers “fertile” ground for moulds.

e) A last aspect you don't really have an influence on as a player: the construction of the recorder. Depending on the geometry of the windway (length, width, conicity) or on the orientation of the used wood`s fibre, there can be instruments that tend to react more sensitive and more easily to hoarseness than others.

2. Possibilities of remedy in hoarseness

Now that we know the different causes for hoarseness, it should be clear that there is not one panacea that serves all situations. Lets look into it step by step again.

a) The condensation of breathe moisture is in fact unavoidable but reducible. By reducing the temperature difference between blown air and recorder less moisture fallout is produced. In other words, **warming up the recorder** before playing is a significant prophylaxis against hoarseness. Unfortunately although well known, this is hardly ever practised. Certainly there are circumstances where it is hardly possible but with conscience and a bit of imagination it would be a feasible way more often than generally applied (in a concert for example you can put the recorder on a cloth wrapped hot-water bag etc.). Reducing moisture itself also affects all following causes for hoarseness positively and conserves the instruments head joint.

b) We want to achieve that the moisture congregates in an even, thin film and flows off. In the first minutes of session (also when playing in a new recorder) we have to make sure that the windway is getting **evenly wet**. Therefore it makes more sense (also being more hygienic) to **blow** through the recorder **down-warding** instead of soaking the moisture back in. When soaking back in, the droplets accumulate again and again at the same locations: when blowing downwards they can flow out quickly. As soon as the windway is wet all the way down, the previous hoarseness mostly disappear by itself.

To protect the labium it is recommended to not put a finger on the cut up when blowing through, instead putting it **across** its upper edge as shown in picture 1. If than singular droplets remain on the ceiling you can put the finger again 5mm lower across and blow again. Picture 2 shows the finger positioning that can be varied as required to avoid whistling noises. If you look down the windway from above you should pay special attention that no accumulations of condensation water remains in the upper corners.

Residuals in the windway can be removed adequately by experienced players (even though with those they wont even appear that much). If you have to ask the manufacturer for that, it should be

noticed that usually this is not within **warranty** , but a caused-by-use depended service. If oil got in contact **with the block**, you can try dissolving it with anti-condensation agent or alcohol. A bit oil is nor reason for concern, if it is much you better get in touch with the manufacturer.

Concerning the air velocity you should play off an instrument with full sound (even in the breaking in time). Every recorder has their “balance of sound”, that you can find and adapt to. Too tentative playing, so to say below that balance, promotes the development of hoarseness.

c) **Change in the wood and swelling of the block** depend on the kind of wood and the single wooden pieces and can generally not be foreseen. Of course the manufacturer will try to prevent it by using well matured wood and apply accurate processing. A lot of investigation has been conducted in to the stabilization and impregnation of recorders in processes accomplishing finer surfaces and much more.

Also important for the quality and life span of a recorder is the **maintenance by its player**. Good breaking-in and avoiding rapid temperature- and humidity changes reduce the risk of such changes, as well as the wiping out of the instrument after a session (with oil stick and cloth). All these steps should be a matter of course for every player.

Unfortunately reality often looks differently.

Correcting changes of the wood should be in any case the job of the manufacturer.

d) **Wet-playing**, as mentioned can be avoided by positioning the recorder on the very front of the lip and to far inside the mouth.

e) Weaknesses caused by design failure in a recorder can hardly be changed subsequently. Surely everyone will exchange experiences within their circle of colleagues to be informed well for their decision of purchase (but consider that not every recorder matches every person!).

f) When does a **anti-condensation agent** help, as prescribed generally against hoarseness? Physically it decreases the surface tension and reduces thereby the tendency to congregate droplets. In a clean, well manufactured windway the desired, smooth film of moisture is accomplished more quickly even when insufficiently pre-warmed or with lower air velocity.

If residuals remain in the windway, wood fibres have “stood up” or the block is swollen, the anti-condensation agent can hardly do anything. Additionally applying it to often can leach out the wood surface, roughens it and hardens the stood up fibres. So don't expect wonders from the anti-condensation agent. Personally I can practically deal without it and in extreme cases a few droplets of lukewarm water do the same trick.

Hoarseness in recorders- avoidable trouble? Essentially yes, but under two conditions and with few exceptions. First we have to make ourselves aware of the ground rules for recorder maintenance again and again. Warming up, brushing our teeth in front of a mirror, wiping out the recorder after session- or just putting the finger in the right way across when blowing through the windway should never become a matter of course for us! Second there are problem cases, the manufacturer has to correct for. Nobody has to be shy sending in an instrument, but it requires a detailed description of the problem. That saves the repairer time and the player the disappointment that the instrument did not get better after repairing.

Surprisingly I haven't found a word about hoarseness in any historic literature. Apparently they uses to know how to handle it. That should be also possible for us!