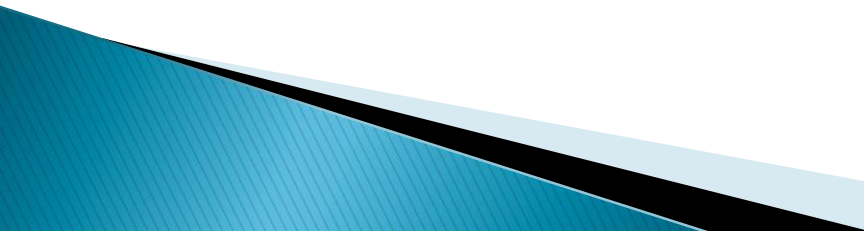


Taking the Voodoo out of Tone Production: Solving the Mysteries of Reed, Mouthpiece, Embouchure and Tongue

*The 66th Mid-West Band and
Orchestra Clinic, 2012*

*Presented by Chuck West
Virginia Commonwealth University
, U.S.A.*

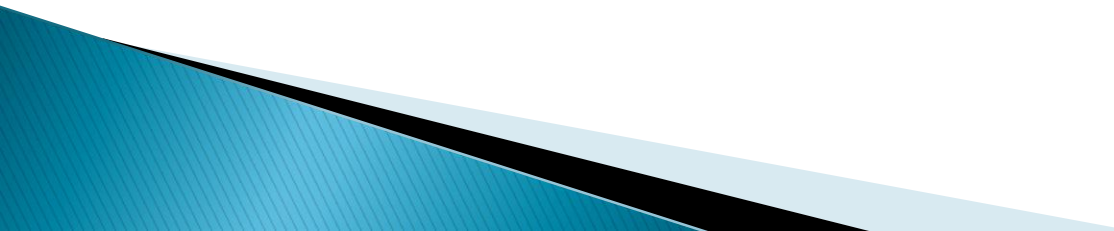
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Today's Discussion: Outline

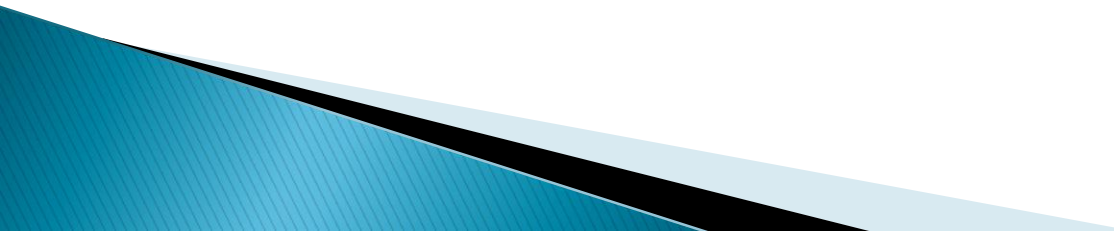
- **Understanding reeds**
 - Recognizing good and bad cane
 - Understanding and controlling warpage
 - Helpful facts about reeds
 - Simple adjustments you can teach
- **The Mouthpiece**
 - Judging an appropriate mouthpiece
- **The Embouchure**
- **The Tongue—the great shaper of tone**
 - ✓ The Shape of the Tongue
 - ✓ The “Open Throat” Trap
 - ✓ The TWO Most Important Taste Buds
 - ✓ Exercises to “train in” what we know intellectually.

Q&A



There are only TWO kinds of
problems with reeds:

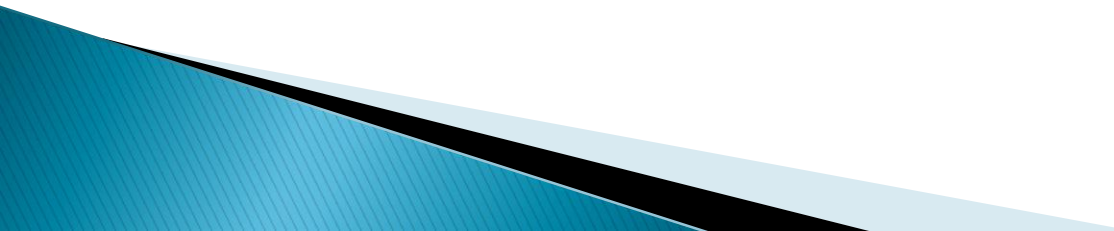
Organic
and
Mechanical



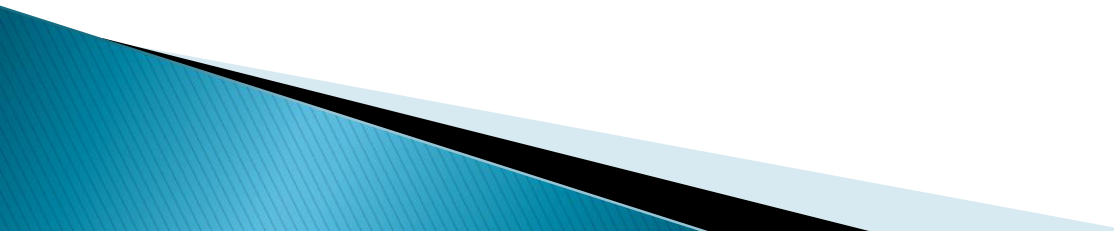
ORGANIC: Is this cane even capable of making a good reed?

Write on the back with a ball-point pen.

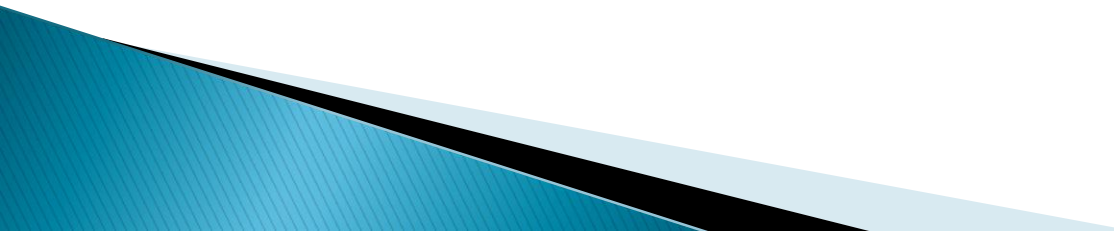
If the pen digs in easily, the reed will just be bad . . . Period.



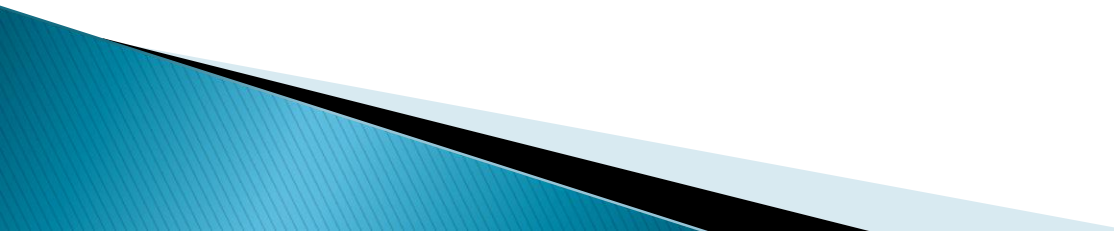
Good Cane

- The ball-point pen does not dig into the cane—it stays on the surface and makes a nice clean line.
 - (Good cane *may* also taste somewhat sweet and have a golden color.)
- 

Mechanical: Factors we can Control

- Warpage
 - Vamp Architecture
 - Balance
 - Width
 - Finish
- 

Warpage: Three Kinds, Three Causes

1. Concave or convex
 2. Inward toward mouthpiece
 3. Warpage toward water
- 

1. Concave or Convex

Lengthwise warpage.

Either causes the reed to resist bending. We perceive the reed as being “harder.”

In reality, the reed has not become “harder,” it has become more resistant.



Convex

- ▶ Convex—cause: too dry or not enough soaking

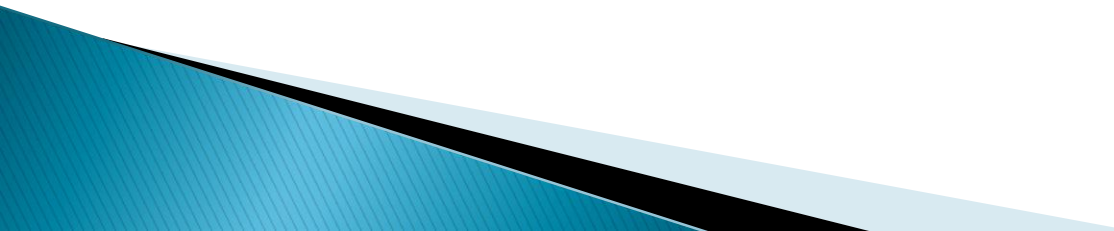
By far the most common with commercial reeds, especially in winter.

In fact, is exacerbated by pinning the reed to a non-porous surface, allowing the edges of the reed to dry first, and slowing the drying process in the center of the reed.

Concave

Concave—cause: too much
water: either too much
soaking or drying too
slowly.

*Causes the reed to “bridge” over the facing,
resisting efforts to push it inward. Much more
rare than convex warpage.*



Comparing before and after wet-dry



Before wet-dry



After wet-dry

The lesson:

Control Concave and Convex warpage by controlling the amount of water to which the reed is exposed—not by continually sanding!

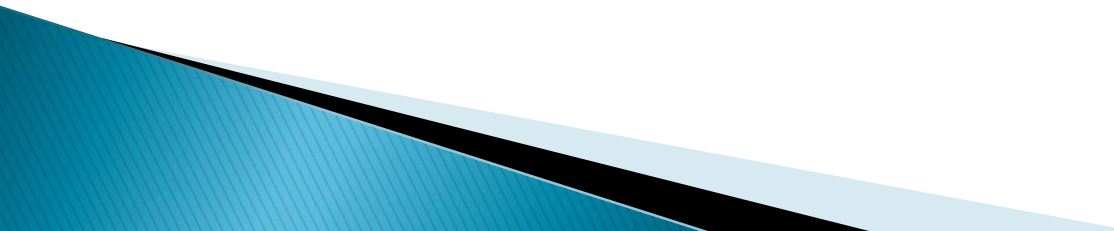
One of many practical Applications:

*Soaking a convex reed
AFTER playing will often
restore the back to
flatness.*

2. Warpage inward toward mouthpiece

When we play a new reed too much when it's new, the tip gets pushed into the mouthpiece, which decreases the tip opening.

We perceive the reed to be “softer.” In reality, the tip opening has decreased, giving us less resistance.



3. Warpage toward water

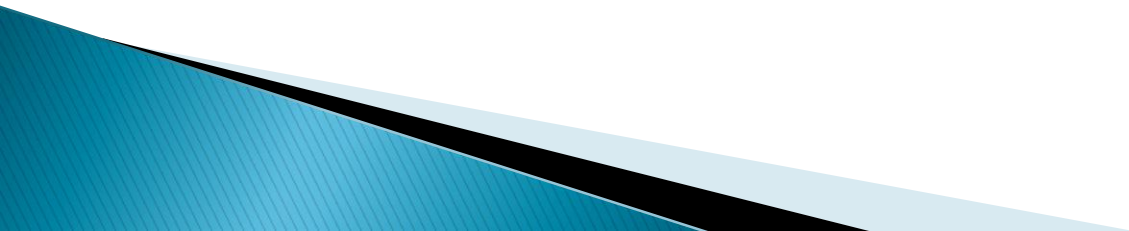
All wood warps toward moisture.

The inside of the mouthpiece is wet, the outside is dry, so the reed warps toward the water, resulting in the window of the mouthpiece making a raised imprint on the back of the reed.

The reed responds poorly.



*Prevent warpage toward water
by sealing the back of the reed.*



Vamp architecture: tip

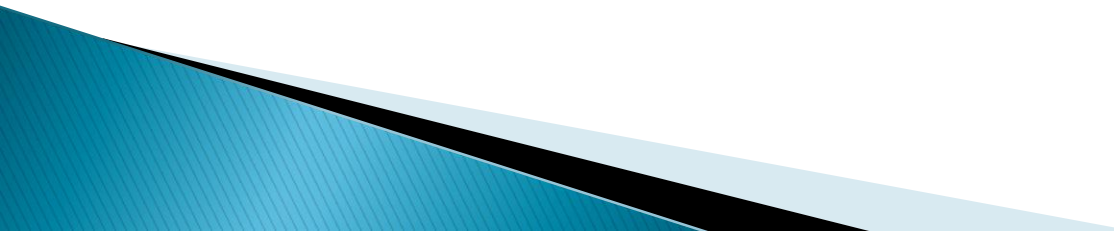
Maximum thickness in the center: .005 inch

- *Thicker gives a brighter sound and the altissimo becomes less cooperative*

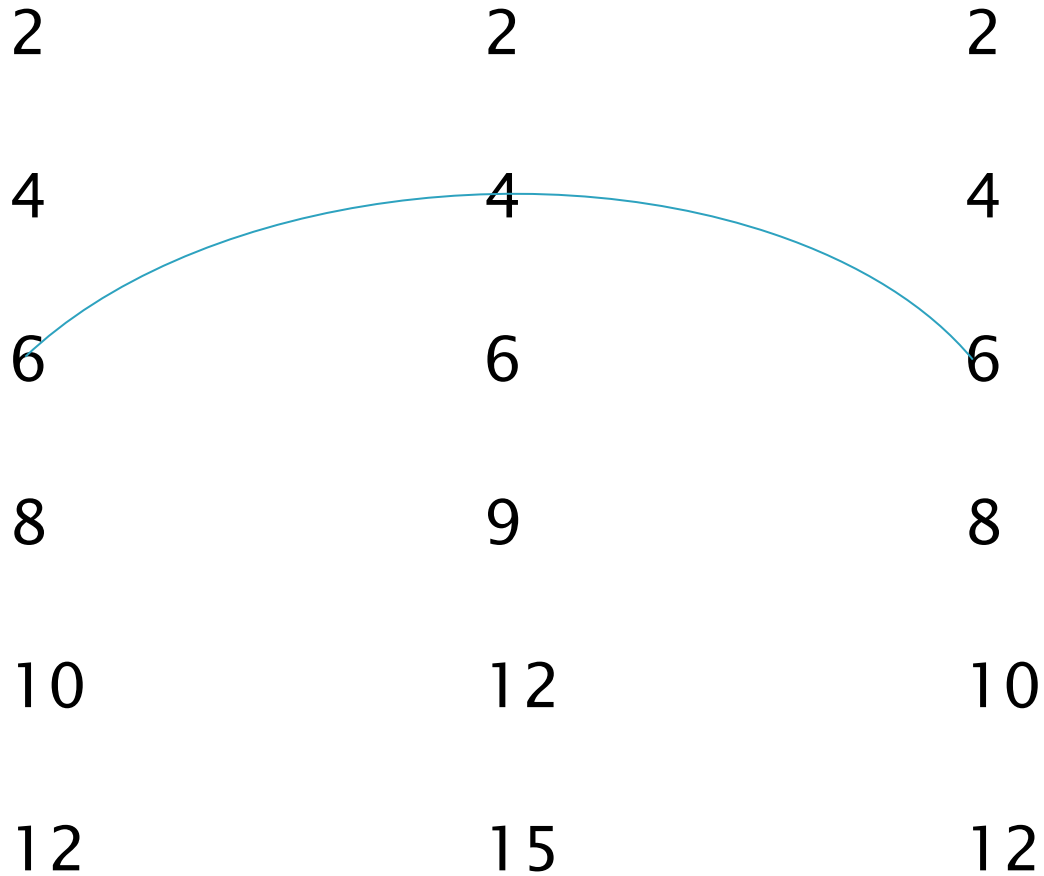
The corners are .002–.003 thicker than the center.

- *When the corners are too thin, the sound becomes dull.*

The tip differential is the result of a curved blade cutting through an even incline.

- *The “hump” begins after the sides are .008 or more.*
- 

Vamp Incline



Most useful points about the tip

Resistance does not come from the tip—*it comes from the area over the Resistance Curve of the mouthpiece back to the point where the cut begins!*

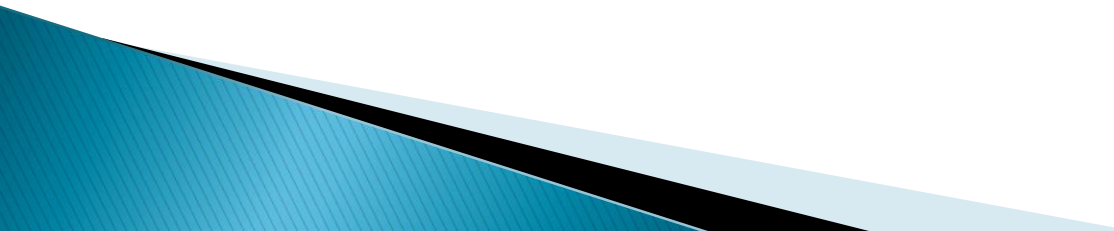
Maximum thickness in the center: .005 inch

- *Thicker gives a brighter sound and the altissimo becomes less cooperative*

It's counterintuitive, but thinning the center of the tip will darken the sound.

When we clip a reed to gain more resistance, *clipping up the incline gives us a thicker tip*. Once the resistance has been obtained, *thin the tip only, especially in the center, to regain the sound and altissimo response*.

Remember, the corners of the tip still need to be thicker than the center by .002-.003 inch.



Vamp architecture: balance

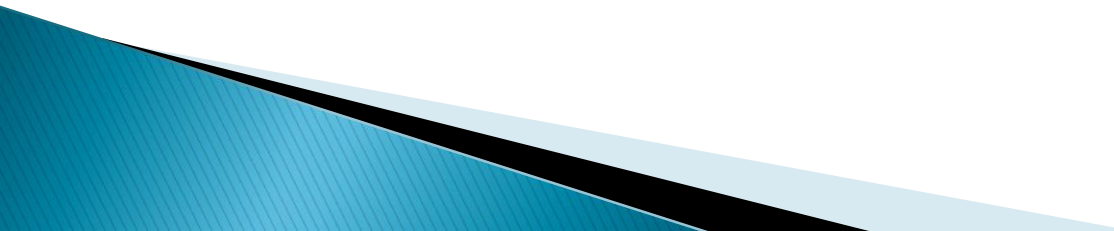
The reed works as a *mirror image of the mouthpiece facing*. If one side is more resistant than the other, you'll need to push harder on that side to get the reed to vibrate uniformly across the tip.

Remember: Resistance is unwillingness to bend.
Remove some wood from the area over and behind the resistance curve until the reed bends and stretches the same on both sides.



But don't get confused!

Removing material from the *tip* on the side of the reed which is too resistant will *not* change the way that side resists. It will only make the sound dull.

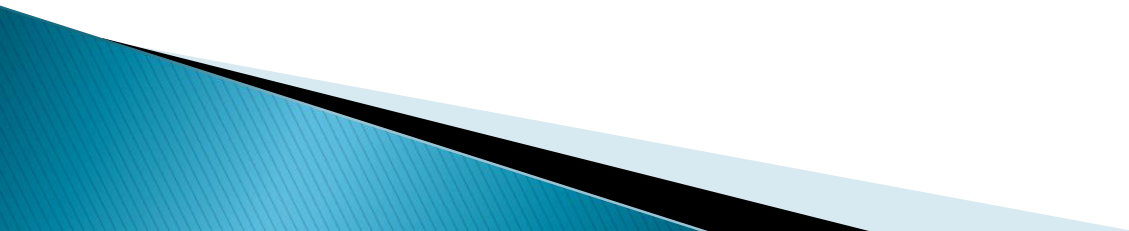


Balancing: Two Tests

1. Clarinet--Playing “open G,” rotate the clarinet slightly one way and then the other. **The side you’re pushing on when you get the biggest, most colorful sound is the *hard side*.**
2. Clarinet or Saxophone--Move the reed slightly to one side and then to the other side of the facing. If the reed works best when it is moved to the *right*, then the *left* side is too resistant, and vice versa

Balancing

When you've figured out which side of the reed is too resistant, thin the part of the reed that is not bending as easily as the other. Remove material from the area where the cane needs to either bend or stretch (from where the cut begins to about halfway to the tip).



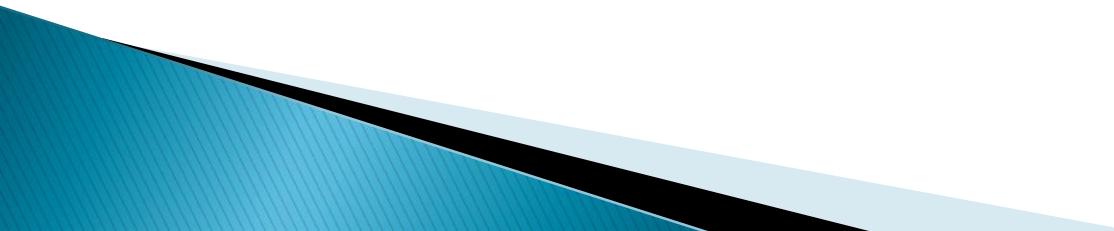
Reed Width

- ▶ A wider reed will not focus as easily as a narrower reed.
 - ▶ When a reed is too narrow, it will sound thin and bright.
 - ▶ Ideal reed widths may vary with season and altitude. Colder, drier, or higher may require a narrower reed.
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Finishing

- ▶ Final adjustments on a reed may take several days.
- ▶ Polish the vamp and the back to eliminate microscopic slivers. Do this often.

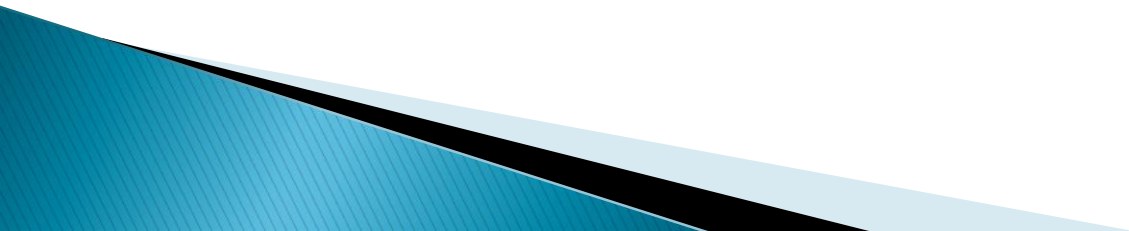
Break-in

- ▶ A reed needs to be broken in slowly over several days.
 - ▶ Never continue to play on a reed when it is either waterlogged or shows signs of warping inward toward the mouthpiece.
 - ▶ Remember to seal it when you're done.
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Reed Storage

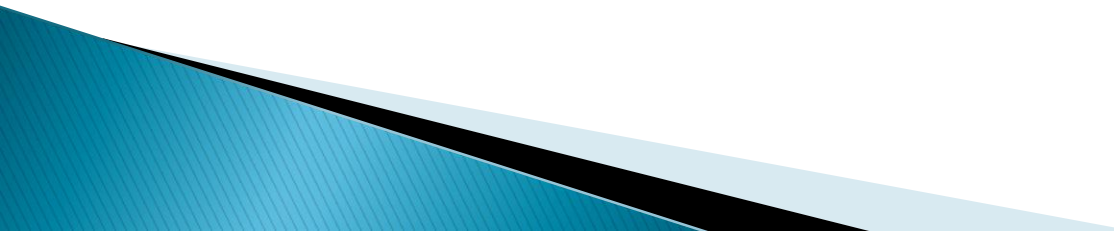
Trapping moisture between the flat side of a reed and a non-porous surface may cause convex warpage to be worse than simply leaving the reed to dry!

(Why? Because all wood warps toward water.)

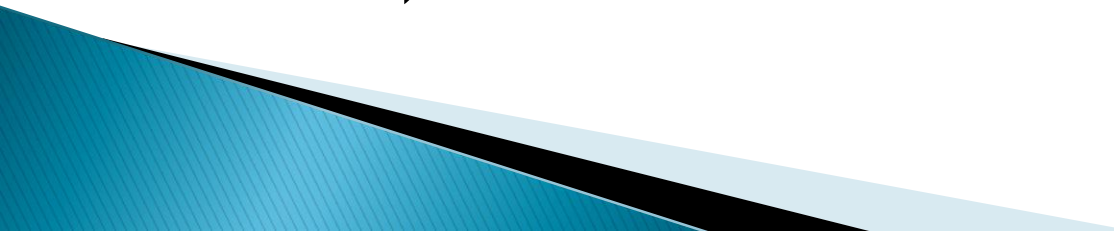


- ▶ Reeds change with:
 - Altitude
 - (higher is more resistant)
 - Humidity
 - Season
 - (colder is more resistant)

Choosing a mouthpiece

- ▶ Mouthpiece facings affect resistance, so a reed which works on one mouthpiece might now be satisfying on another.
 - ▶ **Take a tuner!** The wrong mouthpiece can make an instrument play sharper or flatter. Or it can make the throat tones or short upper register fingerings low or high to the rest of the scale.
 - ▶ Look for the desired tone quality, tuning, response and overall feel.
 - ▶ **Try mouthpieces with more than one reed.**
- 

What does a wind instrument really do?

- ▶ It limits the pitches that can be produced by eliminating unwanted options.
 - ▶ The instrument does not produce the pitch, **you have to blow the pitch (and thus the tone) into the instrument.**
 - ▶ Brass players and flutists know this. Why not clarinetists? (Because the instrument is so stable).
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1. Clarinet Embouchure

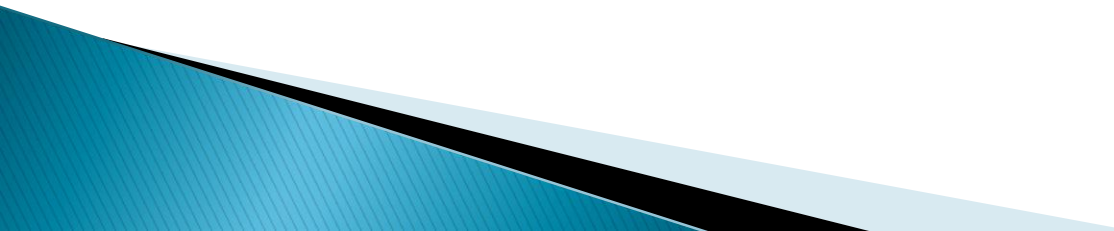
- ▶ “DIEW”—Corners to the center . . . Pull the lower lip downward, which makes the chin point
- ▶ The upper lip pushes directly downward on the top of the mouthpiece
- ▶ Embouchure does not move—it is an “Iron Mask”

The clarinetist's “ski jump” tongue

▶ Three parts of tongue:

- Back, or the “k” part of the tongue is up, like the top of a ski jump.
- Middle of the tongue has a dip or a “swail,” like the lowest point of a ski jump.
- Tip of the tongue touches the face of the reed just under the tip, approaching at a right angle, like the final portion of a ski jump. **“Only Two Taste Buds touch the reed!”**

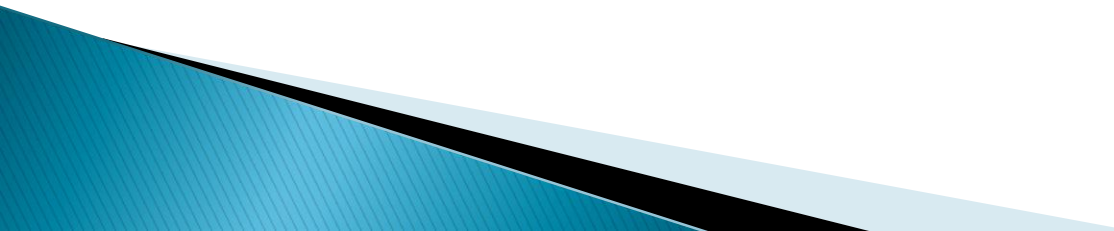
The lowest pitch of a "wolf whistle" usually demonstrates the proper position of a clarinetist's tongue.



Tonguing and Tone--inseparable

- ▶ A tonguing study is a tone study!!!!

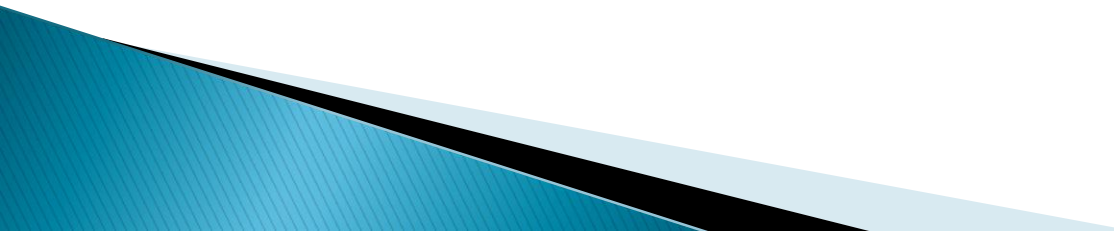
Placement of the tone is the key

- ▶ The clarinetist uses the **back part** of the tongue to place the tone **high and forward** in the mouth: “where the peanut butter sticks.”
 - ▶ *It's all about fast air speed.*
 - ▶ . . . so the vowel sound of “ee” or “eh” will produce a focused, stable sound.
- 

The “OPEN THROAT” Trap!

- ▶ Higher harmonics require faster air speed.
- ▶ Fast air takes a smaller opening—NOT a larger one!!!!!!!!!!!!
- ▶ “AHHH” equals slow air
- ▶ “EHHH” or “EEEE” equals faster air

The Tip of the Tongue

- ▶ Approaches the tip of the reed at a right angle to the face of the reed.
 - ▶ Touches VERY lightly. “Two taste buds” at the very tip
 - ▶ The goal is to articulate without letting the tone or pitch change
- 

The Middle of the Tongue

- ▶ Has a dip, or “swail” in it.
- ▶ Think of the tongue doing the “limbo” under a pencil held in the mouth
- ▶ The result is increased depth in the tone.

VERY important Habits to develop:

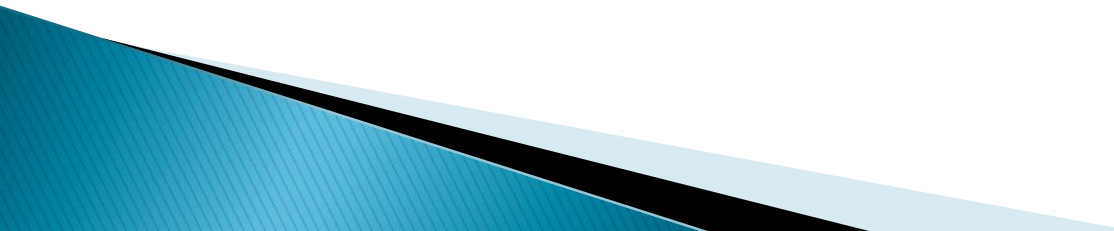
- ▶ ***SET*** the clarinet embouchure tongue and breath ***BEFORE you attack***, just as you would fasten your seat belt, adjust mirrors and quit texting before you drive. And then, blow the correct sound and pitch into the instrument!

Helpful practices:

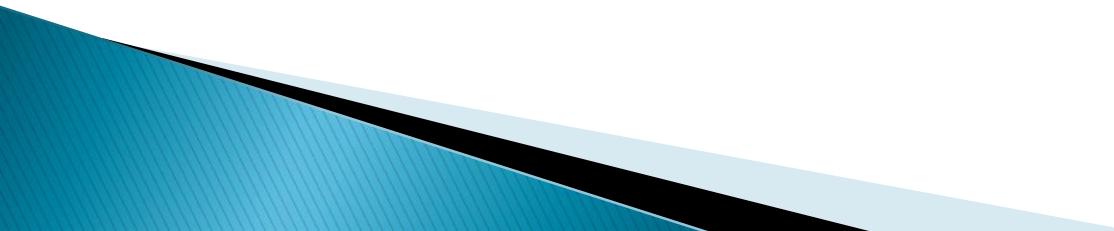
- ▶ Visual feedback (mirror—watch for stability)
 - ▶ **Tactile feedback** (make an embouchure on your finger and then feel the tip of the tongue move on an off of the fingerprint)
 - ▶ **Long tones with very light tonguing.** Listen for steady pitch and legato tonguing, with minimal interruption of the tone. (Don't let the tongue get stuck on the reed!)
 - ▶ **Squeak studies**
 - ▶ **Playing in the upper register without the register key**
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Tonguing exercise to groove in tonguing technique

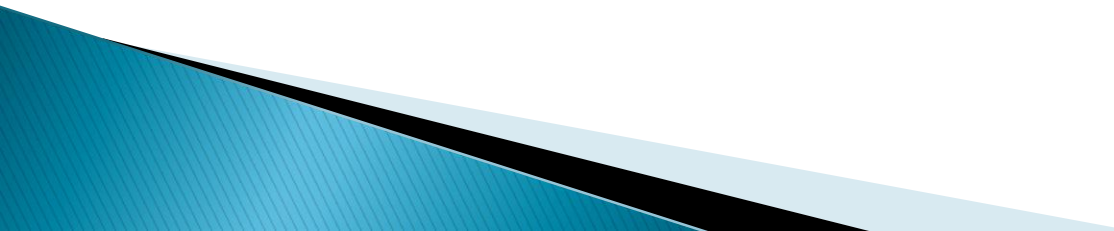
Demnitz no. 5 in B-flat major, Rose 26 Etudes no. 21, Kell no. 1, Langenus Vol 3 Chord Studies no. 11, or any other tonguing study where the tongue turns on and off. Do this 6 metronome markings below “almost impossible,” then 5, 4, 3, 2, and at that mark. If you are minimizing the distance and weight of the stroke, you will gain speed. As the top number becomes easier, start the routine a notch higher and end higher.



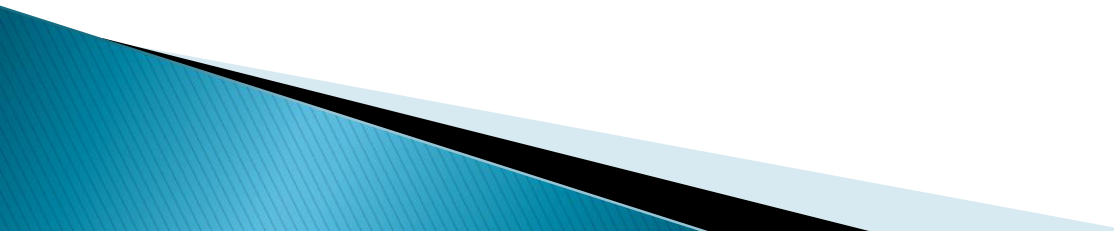
So what is a “good” clarinet sound?

- ▶ Depth
 - ▶ Focus
 - ▶ Clean
 - ▶ Colorful
 - ▶ Even, consistent
 - ▶ In tune
- 

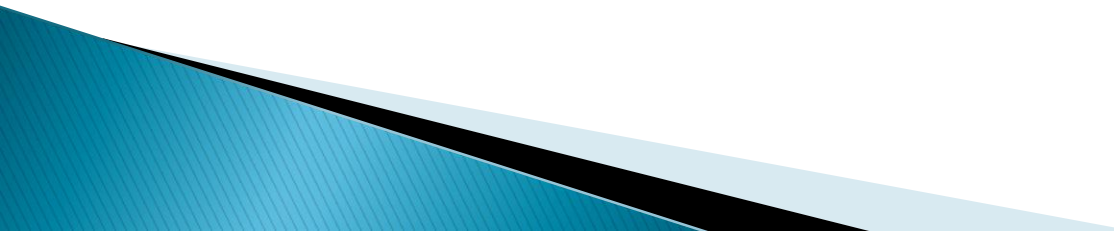
Depth

- ▶ Effective breath support,
 - ▶ upper lip pushing downward
 - ▶ the dip in the middle of the tongue
 - ▶ The reed is balanced
- 

Focus

- ▶ Embouchure seals effectively and the chin is pointed
 - ▶ Back of the tongue is “up” in a “eh” or “ee” position.
 - ▶ Tip of the tongue remains very close to the reed.
 - ▶ Tongue holds its shape or “sculpture.”
 - ▶ The reed is balanced.
 - ▶ The upper joint seals
 - ▶ The ligature is firm
 - ▶ The reed is not too wide
- 

Clean

- ▶ Back of the reed is clean
 - ▶ The reed is flat (not warped)
 - ▶ The reed is appropriately resistant.
 - ▶ The reed is balanced.
 - ▶ The reed is made of good cane.
 - ▶ A reed which sounds clean and pure up close will sound bright and thin at a distance. A good-sounding distance reed will have some “junk” in it up close.
- 

Colorful

- ▶ It's possible on the mouthpiece
- ▶ Quality of the cane
- ▶ Cut and balance of the reed
- ▶ Airstream is fast
- ▶ Tongue is shaping a colorful sound

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