

On Clarinet Mouthpieces

By Santy Runyon

(The first of a series)

Many firms are making mouthpieces... some good ones and some very poor ones. Thousands of different facings tend to confuse the player in making his selection. All of these many facings may not be right. How to select the one that will best fit one's needs is, and for the average player, a baffling problem. I hope this series of articles will be of some help.

The lay of the facing of the mouthpiece is, of course, very important. However, it is only one of several factors that contribute to the end result.

Since it is impossible to make any two things exactly alike, we find ourselves depending upon the tremendous flexibility of the human machine to make up for the slight variations in the different mouthpieces. In testing new models in our own shop, we try not to depend too much on the facing of the mouthpiece. We find that if the tone chamber is such that the lay has to be too perfect, the mouthpiece is not too practical for general playing conditions. In other words, if the mouthpiece plays regardless of what type lay we use, we are confident that we have a pretty good tone chamber in the mouthpiece.

It is one of the most difficult of tasks to describe minutely a complicated procedure and keep it both understandable and easy to read. In this first article, I will discuss the different types of facings on single reed mouthpieces, *i.e.*, long, short, and medium lengths. I shall attempt to list what each type of facing does to the sound and to the "*feel*", as far as the performer is concerned.

First, the long facing. A facing of this type favors the low notes and therefore makes the high notes harder to get. Its pitch is rather on the "wild" side, unless the performer exercises extreme control. A mouthpiece with this facing will sound "*reedy*" or "*mushy*", because a longer portion of the springy section of the reed is in motion and therefore strikes the tip rail of the mouthpiece with a harder impact. To counteract this effect, the player is forced to take a shorter bite in his attempt to clarify the timbre of his tone. In so doing, he overtaxes the muscles of his lip to the point that they become very sore. Ultimately, (thanks to the flexibility of the human machine), he might obtain excellent results. These same results, however, will come quicker and with far less effort if he uses a more moderate length of lay.

Let us now go to the other extreme, the *short* facing. The short opening, in one sense of the word, causes a shifting of responsibilities. It takes a load off the lip muscles and places more responsibility on the breath control. A very even stream of air is necessary if any control is to be expected. Players with little or no experience will find it next to impossible to keep from jumping up into the third register, because of the fact that a very short section of the reed actually vibrates. Playing a short staccato becomes a very risky business.

The main advantage of the short facing is that it makes the high notes easy to get. This is hardly worth it if you compare this with all of the bad points. I almost forgot to mention that the short lay plays louder, too. This is also not too much of an advantage, especially to saxophonists, when there are so many loud-playing mouthpieces on the market today.

Finally, we arrive at a compromise, the medium length of mouthpiece. This type is ideal for the vast majority of players; and because of its versatility, it is equally suitable and comfortable for all types of playing. It makes both high notes and low notes easy to control, and it makes a wider variety of reeds practical and usable.

So far, we have discussed only length of the curve and have said nothing about the type of curve being used. The best type is a section of perfect circle, not a combination of several different types of curves.

In the past six years, I have conducted a number of woodwind clinics in and around Beaumont, Texas. I find it not too different from the Illinois section in which I used to work. Band directors all over the country suggest the same strength reed for all their students, not taking into account the fact that different curves and tip openings require reeds of varying strength. Matching the reed to the mouthpiece is important. More about that later. (from *Woodwind World*, 1960)

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II

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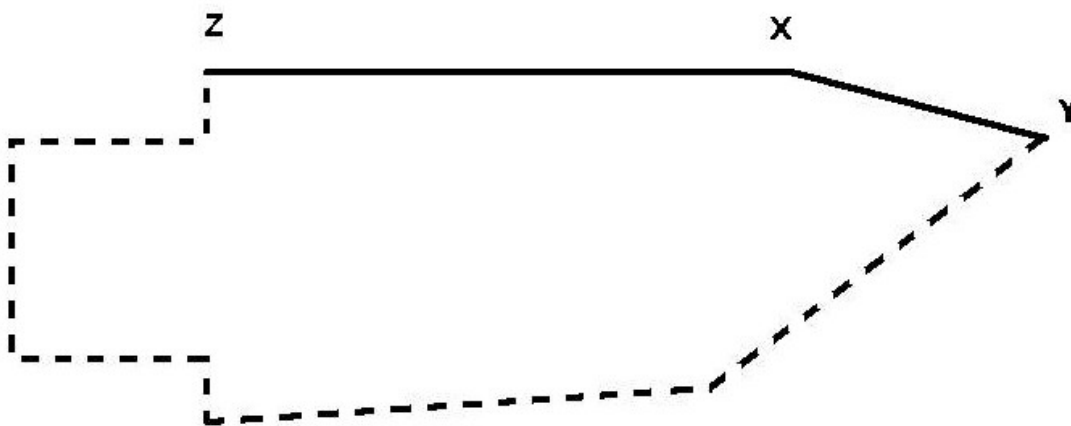
The quality and efficiency of a reed man's performance depend largely upon the type and condition of his equipment. One of the most important parts of this equipment is the mouthpiece.

Every clarinet player would like to have the ideal mouthpiece—faced particularly for him. Mouthpiece refacing experts who really know what they are doing are hard to find. They face the mouthpiece by laying a piece of fine sandpaper on a piece of flat precision ground glass and either draw or push the mouthpiece across the sandpaper. The certainly should know what they are doing.

In this article I would like to discuss the four basic types of mouthpiece curves and their effects on both the player and the sound he produces.

TYPE 1:

The mouthpiece is laid flat on a piece of sandpaper, tilted up to an approximate three-degree angle, and then pulled straight along the paper. Actually there is no curve at all, merely an angle something like this:

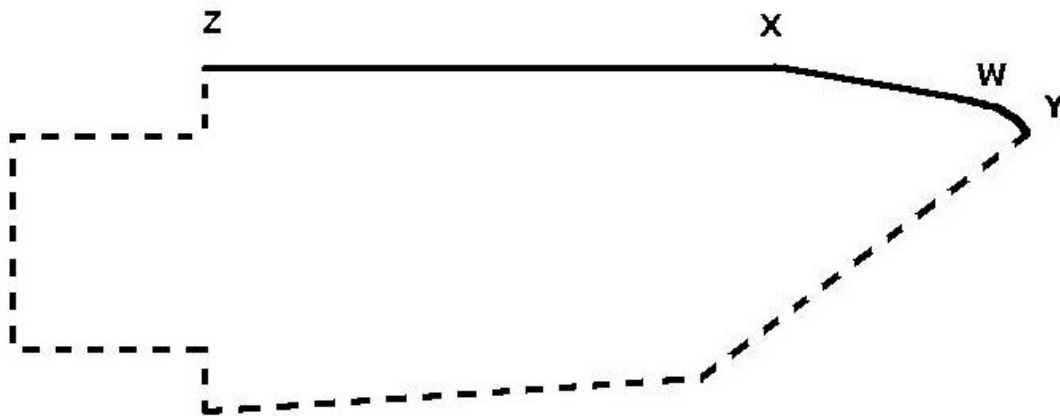


You will notice that at letter X there is an abrupt break away from flat table letter Z. In other words, the facing from letter X to letter Y is a straight line. Believe it or not, this mouthpiece plays. With the average reed, it has a

“reedy” sound, but if a long and thorough search is made, a reed might be found that will clear up the tone so that a fairly decent sound will result. On this mouthpiece, however, the player will have trouble in finding a comfortable place to put his lips. It will play fairly well with the lips just about anywhere, but there does not seem to be any specific place to get the desired results.

TYPE 2:

The mouthpiece is tilted at the start (the same as in Type 1), but out near the tip, a small arc is accomplished by swinging the butt of the mouthpiece up slightly as the tip is approached. It looks something like this:

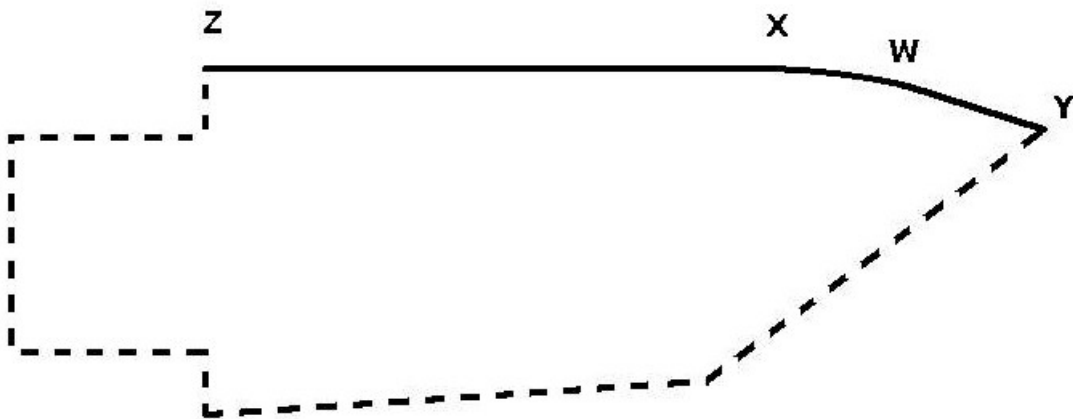


There is the same abrupt break that we observed in Type 1. Some mechanics hide this sharp angle from the naked eye by slightly blending together the two flat sections. Flat section Z is blended into flat section X-W by putting a very slight radius at X. This improves the appearance but does nothing to improve the tone quality or playability of the mouthpiece. From X to W, the reed vibrates nicely, but it has difficulty bending around the arc W-Y. In order to play pianissimo, it becomes necessary to select a reed with an extremely flexible tip. Such an unbalanced reed is very much inclined to “chirp” on staccato passages. In short, this type of curve gives a mouthpiece too much resistance, thereby making it hard to blow.

Type 3:

The mouthpiece is laid, table down, flat on the sandpaper. An arc is “lapped” on the side rails of the mouthpiece almost immediately. As the mouthpiece is pulled across the paper, the butt end is swung up by raising the heel of the hand simultaneously with the pulling motion.

With the arc already well under way, the mouthpiece is dragged in a rather flat manner towards the tip of the mouthpiece. This curve looks something like this:

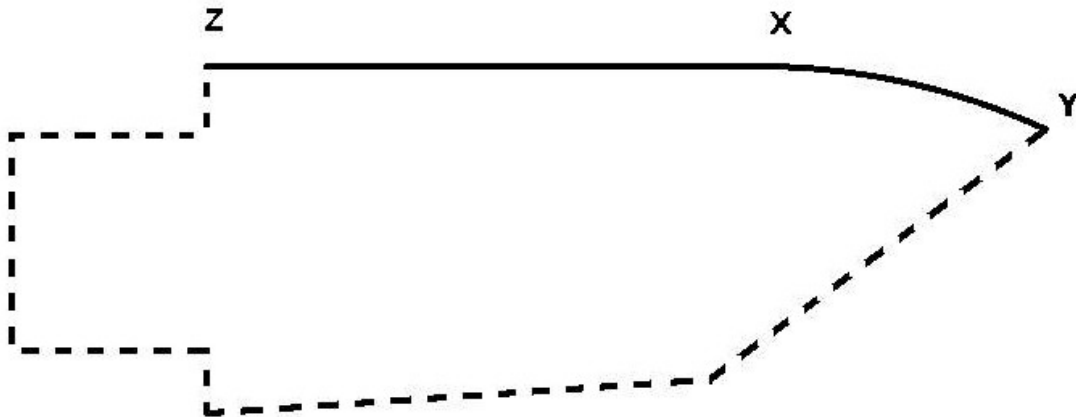


This time there is a gradual curve at X, which permits the reed to start vibrating instantly. The reed is vibrating nicely, when suddenly it hits the flat section starting some place between X and Y—at W. (This flat section, however, does not usually start as far away from the tip of the mouthpiece as I have shown it in the drawing.) To get the best results, the reed should be able to continue on around a constant curve, but as you see in Sketch 3, it is unable to do so.

Because it is trying to continue the curve and said curve has a discontinuous curving, it slaps the tip rail of the mouthpiece hard and creates an “edge”, or “buzzy” tone (something like bacon and eggs frying). Some instrumentalists, for example, some saxophonists in sax sections composed of three tenors, desire this effect. For purity of tone, however, this is not the curve to use.

Type 4:

A section of a perfect circle—an arc, in other words. Not a flat and a curve, or a curve and a flat, or any combination of compound curves. Just a plain but gradual, even curve.



This curve has the right amount of resistance. The tone starts readily. The reed vibrates in a smooth arc, forming the proper shut-off valve for the reed, thereby conserving the energy of the player and enabling him to sustain longer passages with less effort. It produces clarity of tone and evenness of scale throughout the entire range of the instrument. Type 4, when applied to sax mouthpieces, makes possible the clear, cool sound in vogue at the present time. In fact, any sound which the ear dictates is easier to achieve with this facing.

This concludes our discussion of the four basic mouthpiece curves. There are many variations of them, as you can imagine. It would be an endless task to attempt to discuss them all; it would take a lifetime to test them all.

The subject of the next article will be the baffle of the mouthpiece, a most important section of a clarinet mouthpiece. Its importance is often underestimated by refacing experts, manufacturers, and players themselves.

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III

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A woodwind mouthpiece can be adjusted in such a way as to help or hinder a player's performance. I hope this article will be of some help to inexperienced players who are attempting to improve.

In playing an instrument using a single-reed mouthpiece, the size of the cavity in the human throat and mouth have a great deal to do with the quality of tone that is produced. Many times, this accounts for one person having a better tone than another, despite the fact that both practice an equal amount and are of equal experience. For example, a person with a small cavity in the throat and mouth will produce a thin, brilliant tone, whereas one with a large cavity will produce a dark tone.

You will then surmise, after having read the following article, that the baffle, when properly designed, can help the player in correcting his tone.



Figure 1

In this issue, I would like to discuss one of the most important parts—if not the most important part—of the mouthpiece, the baffle. The baffle is that section of the mouthpiece which begins immediately inside the tip rail and extends down into the chamber approximately three eighths of an inch.

There are three types of baffles in common use: low, medium, and high. There is also another type, more extreme than those just mentioned, but is seldom used.

Type No. 1

The low baffle (concave, or hollow, and curved). (Figure 2)

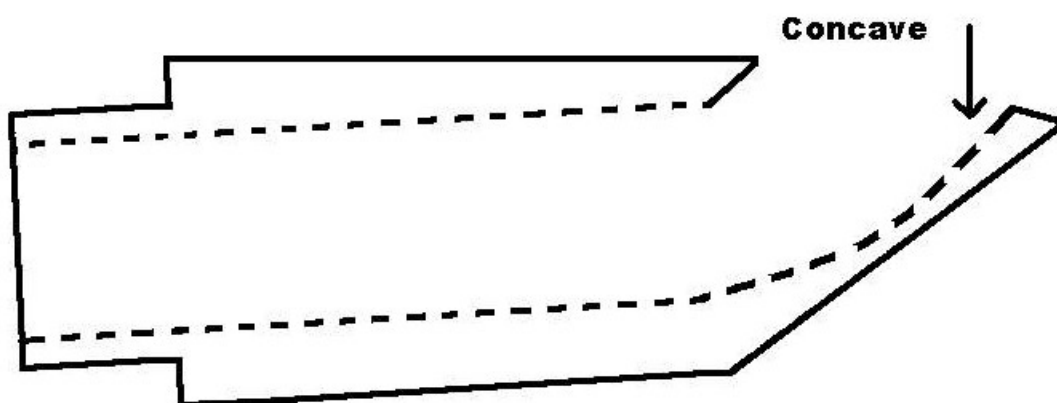


Figure 2

This type produces what is usually called a dark tone. If low enough, it actually sounds tubby or stuffy in quality. It has very little carrying power or projection, but is capable of producing a big, fat tone; however, because of its lack of projection, it sounds weak and thin at a distance. It might be ideal for those whose natural tendency is to play with too brilliant a sound, but for the majority it is too hard to blow. This type of baffle creates a backpressure, causing too much resistance and making the reed feel harder than it actually is.

A mouthpiece with this type of baffle demands a perfect reed and perfect breath control. In an attempt to create brilliance, a player using this baffle will find himself taking more of the mouthpiece into his mouth in order to allow more of the reed to vibrate. He will find his throat cavity closing in his attempt to create a brighter sound or produce more volume.

Type No. 2

The high baffle. This is the extreme opposite of Type No. 1, being convex in shape, as illustrated by the sketch. (Figure 3)

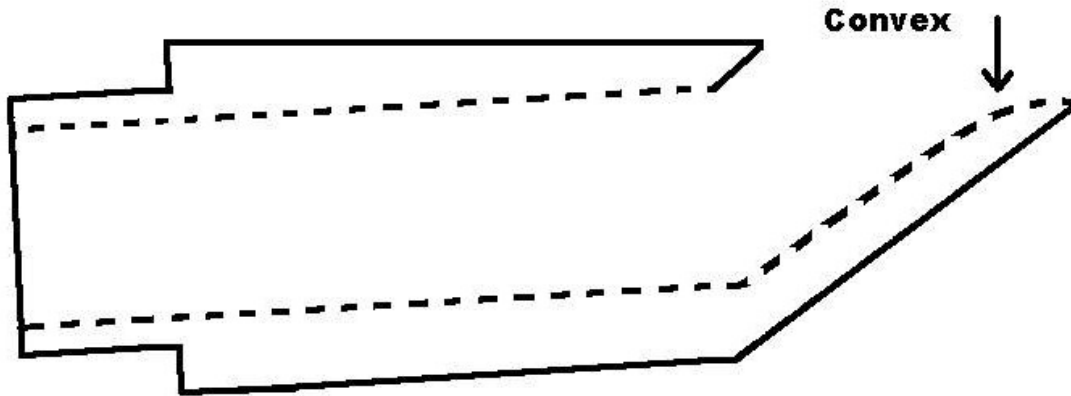


Figure 3

This baffle has a noticeable roundness approaching the tip rail of the mouthpiece. One of its outstanding characteristics is the pronounced edginess of the sound. It produces a tone which is thinner in quality, although usually louder; and though it has good projection of sound, the tone qualities are likely to be of the nasal variety.

Unless the tongue action is almost perfect and the reed is “just so,” there is a strong tendency toward squeaking. In visiting school bands throughout the country, I find this to be a common fault with many mass-produced mouthpieces. A reed with a thin tip will squeak almost every time. The tip of the reed should be thicker and the vamp, or “heart,” of the reed should be thinner to get the best results.

A high baffle seems to compress the air near the tip of the mouthpiece immediately under the reed, and in so doing, the reed springs away from the tip of the mouthpiece, making the facing seem more open. On the saxophone especially, the low notes will be difficult to emit.

Provided the rest of the design of the chamber is correct, this baffle is a great aid to the player who has difficulty in playing loud or one who has a naturally dark quality of tone.

Type No. 3

A moderation of the previous types. This baffle is neither too high nor too low, and is well suited to the majority. (Figure 1)

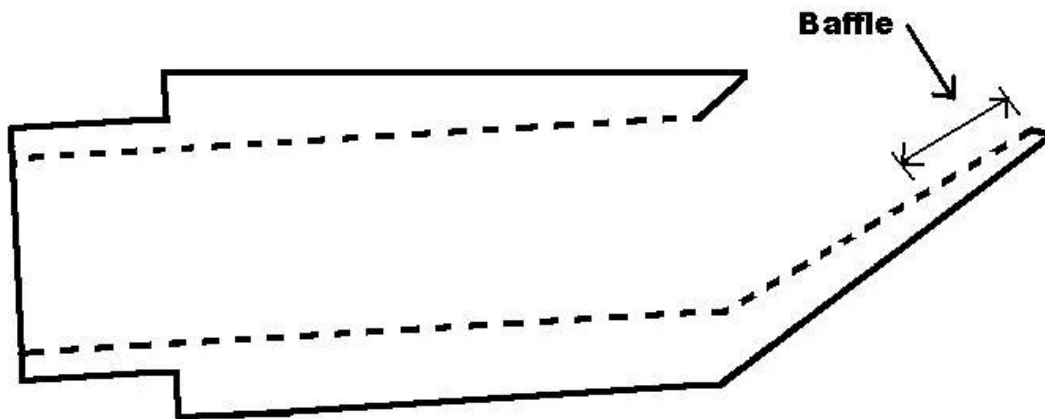


Figure 1

A very desirable feature of this moderate baffle is that it facilitates a good sound and attack through all the registers. It sounds neither too bright nor too dark, and has good projection of tone. Above all, it releases the player's concentration from many disturbing details and adjustments, and allows him more scope for good expression and proper phrasing.

It is accepted knowledge that unless one has perfect control of the instrument—and perfect control includes equipment that is right in every detail—one cannot utilize his abilities to best advantage, but must divert his attention from the musical to the mechanical.

Type No. 4

The elongated Baffle. This type of baffle is in use, but has not been universally accepted. We have coined a name for it in calling it an elongated baffle, and it is more easily described by illustration. (Figure 4)

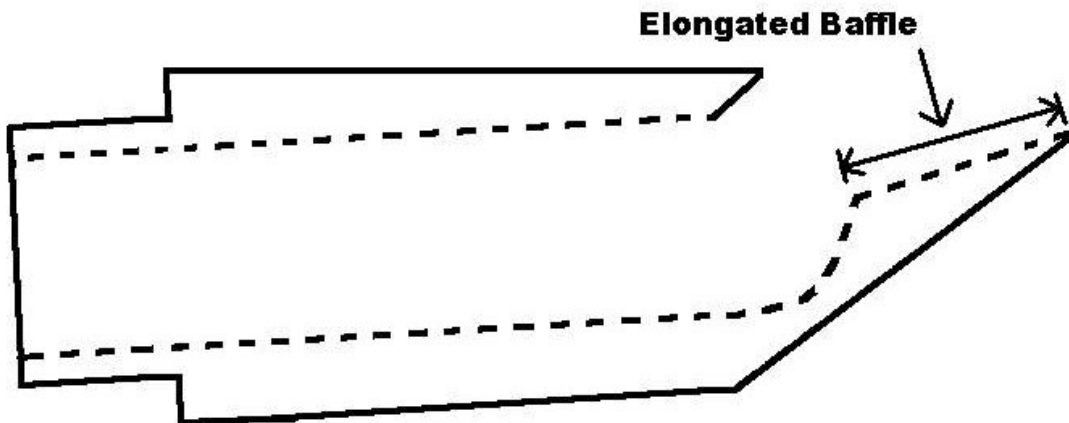


Figure 4

This baffle makes the mouthpiece play extremely loud; but unfortunately, when you gain in one department, you always sacrifice in another, and if this baffle is too extreme, the soft-playing department goes out of business.

In conclusion, I would like to thank Woodwind World for permitting me to explain a few things about mouthpieces. I hope sometime in the future to be able to continue this discussion. New materials may help all of us to improve our playing. Please be receptive to new ideas. There are wonderful new things in store for us if we will only accept them.