



Trumpet Embouchure Handbook

by Janna Pye

This trumpet embouchure handbook is designed to be used by the non-brass playing director who must teach beginning trumpet players. It will identify the basics of embouchure formation and tone production as well as offer some advanced studies for the advancing player. It is recommended that the teacher be able to demonstrate all activities in this handbook so that the student can begin getting the pitches "in their ear." This handbook represents a combination of several different opinions. Obviously it is not possible, or even advisable, to include all aspects of a given topic therefore the most predominant methods are presented.

The Mouthpiece

The mouthpiece is crucial in influencing tone quality, response, and intonation because it forms a chamber in which the air coming from the lungs is converted to energy, which forms the sound. The beginning student's mouthpiece must be chosen carefully to ensure that it helps, not hinders, the production of the first tones. It is such a shame that many young players receive no guidance about mouthpiece selection. They often wind up choosing the wrong mouthpiece and become discouraged when they cannot make a satisfactory tone. There are several elements that must be considered when selecting a mouthpiece.

There are five basic parts to a mouthpiece. These parts are:

1. Rim: Width, contour, and edge
2. Cup: Diameter, depth, and shape
3. Throat: Diameter and shape of opening
4. Backbore: Rate of taper
5. Shank: Accuracy of fit into receiver

American Band College Projects

The six articles by ABC masters candidates that appear in this issue of *Bandworld Magazine* (pages 4-5, 14-22, & 24-27) represent portions of special projects. Known as Practical Applications, these kinds of projects are designed to help the candidate improve in an area of weakness while simultaneously creating useful materials for students in that person's band program.

M. McKee, Director, ABC

All of these factors affect the mouthpiece performance. A quick overview to each of these parts follows.

Rim

Cup Diameter

This distance defines the area in which the lip will vibrate and is the primary factor in determining the size of the sound that will be produced.

Rim Width

The rim width determines the amount of cushion to the lips. A wide rim provides more cushion, but deadens resonance and inhibits flexibility. A medium-wide rim offers the best compromise between endurance, tone, and flexibility.

Rim Contour

Variations in the rim contour affect individual players in varying degrees. The most widely used rim is the balanced-contour, which is neither flat nor round.

Rim Edge

This is a component of the rim contour. This factor has been taken into account in any well-designed mouthpiece and the player only needs to be aware of it when trying different models. Rims can be altered and even substituted to ensure a good mouthpiece fit.

Cup

Cup depth and shape

This element has the greatest influence over the tone quality. Deeper cups produce a full, dark sound while shallower cups produce a lighter, brighter tone.

Throat

The diameter of the throat is the main consideration. Larger diameters darken the tone and smaller diameters brighten the tone. The higher the number, the smaller the diameter.

Backbore

The backbore influences intonation, tone, and endurance. Larger bores offer a fuller tone, but require more air speed and embouchure strength than standard models.

Shank

The shank brings the backbore into contact with the leadpipe so that a continuous taper is formed. Any flaw in this point will hamper the performance of the instrument.

If problems arise a mouthpiece maker can adjust the size of the shank by copying the mouthpiece.

Luckily, for the non-brass player, all of these elements are taken into account with a well-designed mouthpiece. The makers adjust all of the variables so that they form a fine mouthpiece. All we as teachers need to do is to guide the student to the right model. It is very helpful to have a set of guidelines to follow. The following suggestions appear in *The Complete Brass Handbook*:

General Mouthpiece Suggestions

- ◆ Choose a mouthpiece from a recognized manufacturer.
- ◆ Keep in mind that while the upper range may suffer after a change to a larger mouthpiece it will soon return.
- ◆ Test every mouthpiece individually; the same model may have slight differences.
- ◆ Study the catalog descriptions and dimensions because different mouthpiece makers do not use a consistent method of numbering.
- ◆ Try different models at various points in your development to see if they offer any improvements.
- ◆ Finally, remember that the player determines the results, not the mouthpiece. Many fine players use widely differing equipment, but they all maintain a high standard of performance.

Mouthpiece Recommendation

Although there are many different mouthpieces on the market, there are some that are considered among the best. Keep in mind that new advances are being made every day and this list could change. This is by no means a definitive listing of the only mouthpieces that work; it is simply a recommendation of the best place to start while navigating the rocky road of mouthpiece selection.

Some clarification of model identification is necessary. Bach, Dennis Wick, and Giardinelli indicate larger cup diameters with smaller numbers. Schilke is the opposite. Determine the system for other makers

from their catalog. Cup depths on Bach mouthpieces are as follows: A = deep; number without letter = medium-deep; B = medium; C = medium; D and E = shallow.

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| Beginner: | Bach 7 or 7C; Shilke 9 or 11; Dennis Wick 4 |
| Intermediate: | Bach 6, 5, or 5C; Shilke 14 or 17; Dennis Wick 3 |
| Advanced: | Bach 2, 1, X1, or 1C; Shilke 18, 20, or 20D2d; Dennis Wick 2 or 1; Giardinelli HG1 or MB1 |

Holding the Trumpet

The act of holding the trumpet is a possible contributor to a tense embouchure. A tense hand position can also exert extreme pressure on the embouchure. With this in mind a short section on hand placement has been included so that bad habits which ultimately affect the embouchure will be avoided.

We will begin with the right hand. To develop the proper right hand position, ask the students to imagine that gripping a tennis ball. This concept of gently rounded fingers forms an excellent position. If possible have an actual tennis ball for the student to hold. With the fingers gently rounded, have the student place the tips of the first three fingers on the valves. Fingers must push the valves straight down so that they will not stick or become sluggish. The thumb is placed between the second and third valve casing. The pinkie either rests on top of the pinkie hook, or just floats in the air. This placement will aid in finger dexterity as the student progresses, but in the earlier stages it most importantly keeps the student from exerting too much pressure on the embouchure. Check this hand placement several times each class until it becomes second nature. The left hand grasps the instrument by the valve casings. A secure grip is used, but it should not be tense at all. The third finger goes through the third valve slide ring. Check for excessive tension in the left hand often!

Breathing

Proper breath support is the key to producing a tone on the trumpet. The student

must grasp the idea that air is moving into, and then out of, the lungs at a fast rate. The student has most likely been breathing correctly all of his or her life, but inexperienced players often only take shallow breaths by raising their chest. It is very beneficial to do some breathing exercises without the instrument, thereby allowing the student to focus only on the proper technique. Remind students that they are trying to fill their lungs from the bottom up. Have them place a hand on their stomach and try to push it out when they inhale. Students can also position their hands on their lower back and feel the expansion. After the students understand what they are trying to do, have them do some breathing exercises.

One good exercise is to have the students breath in for eight counts, completely filling up with air, and then pushing all the air out in eight counts. Gradually decrease to four, then two, and then one. You can also have students lie on their back and breath. No one can breath incorrectly while lying down! If the student is having trouble with the concept, provide some visual images. These could include; inhale like you are yawning; inhale as though you are sighing; fill your stomach up with air; let your stomach push out ward when you breathe in.

Although these examples may not be scientifically correct, who cares, as long as they get your students breathing properly. Remember to use caution when talking about breathing, however. Too much in the way of explanation may cause more problems than they cure. The most important thing is to remind the students to sit up straight, take a full breath, and blow fast air.

Exhalation is the most critical, since it is where the most problems occur. This process must focus on moving air. A common problem is too much flexing of the abdominal muscles, which creates too much tension. This will affect the free outflow of the air. In order to move the air effectively, there must be an absence of bodily tension. Do not mistake air support for a tense stomach! Concentrate on the movement of the wind itself, rather than the muscular activity involved. Above all, remember to use fast air!

Embouchure Formation

The vibration of the embouchure generates tone. Vibration is caused not only by the air passing through, but also from pressure fluctuations inside the mouthpiece. The instrument and embouchure work together to promote vibration at a particular frequency. Therefore the embouchure

needs to be as flexible as possible, and the facial muscles must support the embouchure so that free vibration can take place. The embouchure is a very complex thing, and, rather than explaining every facet of its formation, I feel that it is more important to offer a simple approach to teaching. Too much knowledge can be dangerous when placed in front of a beginner. Many times more problems are created than remedied by the over explanation of an element of music making. This approach to teaching is presented in the *Embou-Sure* book (available through Bandworld Magazine).

Test each student to make sure that each of them can produce an unrestricted breath. Once you are sure that they can do that, have each student say the word "banana." Have them repeat the word a few times and then hear them individually, concentrating on the "b" sound. After they have all mastered that, instruct each student to form the lips in a "b" without saying "banana." What you are hoping is that each student will end up with a supple, natural embouchure. The lips should be together naturally. Each player will look different, due to different facial characteristics, but hopefully the result will be the same. Make sure that the students are not making faces. From here have each student exhale through the embouchure. You may tell them to "sigh through a banana" to get the desired effect. The important thing is to ensure that there is no restriction in the throat and the lips remain in the "b" shape as the air is expelled.

Mouthpiece Placement

Mouthpiece placement is an important consideration because difficulties often stem from incorrect placement. Keep in mind, however, that each student is different and may need a slight adjustment in the placement. If a student is getting a characteristic tone with no tension in the embouchure, but the mouthpiece is off center, it is best to leave well enough alone. Dental imperfections affect placement greatly, so it is impossible to say what will work for every student. In general, placement is as follows.

The mouthpiece rim is centered horizontally on the embouchure. As mentioned before, dental structure variations may make the student play slightly off center. Don't worry about that too much because it is the vertical placement that is more critical. On the trumpet the vertical placement is an equal amount of upper and lower lip in the mouthpiece. Try to aim for this

placement as much as possible. The embouchure should be formed before the mouthpiece is placed on the lips.

The First Tone

Producing the first tone is what the student has been waiting for this whole time. Try to get to this rather quickly after the arrival of the instruments. The teacher should have a trumpet and a mouthpiece to demonstrate each activity.

After the student has successfully formed an embouchure and can demonstrate the proper technique for breathing, it is time to make a sound. Have the student hold only the mouthpiece. The student should form an embouchure and then place the mouthpiece on the lips. Have students blow into the mouthpiece, reminding them to buzz their lips. The actual pitch of the first tone does not matter. Do not worry if it is a horrible sound, the only goal now is to get any kind of tone. After the students can produce a reasonably stable tone, have them try raising and lowering that pitch by sliding up and down. At this time you can introduce the concept of starting the pitch with a "ta" or "too" syllable. Re-emphasize that it is the air that starts the note; the tongue assists in making a clean attack. Tell the students that the tongue does not stop the air. The way to release a note on the trumpet is to stop blowing.

After the student has experienced success with these activities, it is time to produce a sound using the instrument. For the first tone with the instrument do not insist on any predetermined pitches. Have the students use the same process they used with the mouthpiece and let them play a note. After each student has produced a note you can have him or her try for a specific note. The best note to start with is first space F because it responds quickly and is the easiest note to play on trumpet. Some people prefer to begin on an open G. Use the method you are most familiar with, but if a student is having problems, do not be afraid to try a different approach.

Most students will get a reasonable tone. If problems occur they will more than likely be one of the four most common that will be discussed in the trouble shooting section. One final note on tone production: If students do not automatically wet their lips, you should have them lick their lips, as well as wet the inside of the mouthpiece. The moisture is an integral part of making a vibration.

Aural Imagery

One of the most important aspects of brass playing is "getting the sound in your ear," or aural imagery. Research on brass performance has shown that memory and imitation are powerful tools, which guide the development of the player. The teacher should try demonstrating a poor sound on the trumpet, and then a good sound. This will produce an image in the student's mind, which they can recall when they try to produce their own sound. By attempting to imitate a good sound the mental image functions like a guidance system which directs the physical aspects of sound production.

Use this technique frequently in beginning classes. Demonstrating both a poor and a good sound gives the students a clearer picture of what they are striving for. Another component of aural imagery is listening to recordings of fine players. It is the rare beginner who has had exposure to the really fine professional musicians, or any instrumental musician for that matter. A listing of some recommended artists follow.

Classical

- ◆ Maurice Andre
- ◆ Adolph Herseth
- ◆ Gerald Scharz
- ◆ Chris Gekker
- ◆ Thomas Stevens

Jazz

- ◆ Louis Armstrong
- ◆ Cootie Williams
- ◆ Fats Navarro
- ◆ Clifford Brown
- ◆ Brooker Little
- ◆ Lee Morgan
- ◆ Freddie Hubbard
- ◆ Clark Terry
- ◆ Kenny Wheeler
- ◆ Terrance Blanchard

Crossover

- ◆ Doc Severinon
- ◆ Vince Dimartino
- ◆ Wynton Marsalis
- ◆ Allen Vizzutti
- ◆ Rafael Mendez
- ◆ Arturo Sandoval

This is not a complete listing by any means, but it is a starting point. Have your students buy recordings, or buy some for the band room that you can loan out.

Trouble-Shooting

When attempting to produce a tone the beginning student will probably pro-

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off the line (besides earning the normal pass-off). However, the student will only lose the 2 extra turns he originally bet if he does not pass-off. This game allows the student to either pick the line he is on or go to another line in the book. This is a good change of pace game for the child who may be stuck on a line or who has just arrived at a difficult line.

Team Competition

The class is divided into 2 or more teams. It is suggested that the teams will be more evenly divided if the team captains choose woodwind, brass, percussion, while choosing boy, girl, boy, girl. A point system may be set up any way the teacher likes. The following system could be used: 2 points for a line that is the student's regular pass-off line. Bonus songs are assigned throughout the book which add from 5 to 15 points of value to the team's score. Scales are worth 20 points for the team. Written reports and attending concerts are worth 10 points. Extra points can be earned when the entire team "fingers" while a student is involved in a pass-off. Good posture and hand position are also rewarded. Practice notes are worth 2X each 30 minutes of practice. Points could be given to the team that is set-up and ready to go with all members in their places. (The team captain will raise his/her hand to notify the teacher that his/her team is ready.)

A must in the band room equipment is an egg timer. The timer is set to ring every 1 to 5 minutes throughout the entire class. If the egg timer goes off while a line is in progress, then the tune is worth 3X to 5X the number of team points originally assigned. If the timer goes off between teams, the next team's member will get the bonus points.

Band Squares

This game is set up like tic-tac-toe and Hollywood Squares. Nine students set up the board. They sit in three rows of three. Two students are the game players. Player One is assigned the X and Player Two is assigned the O. When the player chooses a student who can successfully play their pass-off, then the appropriate X or O will be placed on the tic/tac/toe board which is set up on the blackboard of the classroom. If a chosen student does not pass-off his/her line, then he/she will leave the Band Square set-up. The other students will rotate downward, and a new student will enter the set-up in the top left-hand corner. This is the procedure until the game is won or tied.

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duce one of five predictable results:

- ☛ Correct Result
- ☛ No tone, rushing air
- ☛ Airy tone
- ☛ Tight, thin tone
- ☛ Completely stopped

The causes and remedies are as follows:

No tone, rushing air—Lips are not together; too much pucker; dry lips and/or mouthpiece; insufficient air to make lips vibrate.

Remedy: Reform and maintain the "b" embouchure; licking lips and inside of mouthpiece; review the proper breathing technique.

Airy tone—Lips not together; too much pucker in the lips.

Remedy: Re-form and maintain the "b" embouchure.

Tight, thin tone—Tense, excessively pursed lip formation; too much pucker in the lips; tight, closed throat.

Remedy: Ensure that student is relaxed and then re-form the "b" embouchure with less exaggeration to eliminate excessive pucker.

Completely Stopped—Tense, excessively pursed lip formation; Mouthpiece pressure toward lips; closed throat.

Remedy: If you suspect a closed throat, review breathing as a means of opening the throat and relaxing the body. Review the "b" embouchure with less exaggeration. As the student plays watch carefully to be sure that excessive pressure is not the culprit. Remember that they should not use the pinkie hook.

Mouthpiece Buzzing

Buzzing the mouthpiece is an important facet of improving tone, intonation, pitch memory, and embouchure. This technique can be used with beginners as well as advanced players. The exercises in the end of the booklet can be played on mouthpiece only. It is also recommended that the player buzz long tones, and then progress to simple scalar exercises. As players advance have them try progressively harder buzzing exercises. Use your imagination!

Advanced Warm-ups

Embouchure development does not stop after the first year of playing. It is a continuous process. With this in mind, I have included a suggested warm-up rou-

line. This can be shortened as necessary and younger players may do only the easier exercises. I am not advising that a trumpet player purchase all of these books at once, choose a few and perfect the warm ups in them. In this way the warm up will not become dull, and the player will always have to use his/her brain.

The recommended books are:

- J.B Arban, Complete Method for Cornet
- Max Schlossberg, Daily Drills and Technical Studies
- Herbert L. Clarke, Technical Studies and Characteristic Studies
- E.F. Goldman, Practical Studies
- Charles Colin, Advanced Lip Flexibilities
- Walter M. Smith, Lip Flexibility
- James Stamp, Warm up and Studies
- Carmine Caruso, Musical Calisthenics
- Theo Carter, Etudes Transcendantes

Choose a few exercises from each category.

Flexibility

Colin, any exercise
Smith, any exercise
Goldman, #15-17
Schlossberg, #31, 61, 74
Clarke (Technical Studies), #3

Articulation

Schlossberg, #30, 36, 88, 92
Goldman, #1-5
Carter, #1, 16, 78
Arban, Double and triple tonguing sections

Long Tones

Caruso, #1
Arban, #1-15
Stamp, #3
Schlossberg, #1-13

Velocity

Arban, #13
Caruso, Scale studies
Clarke (Technical Studies), #1-2
Clarke (Characteristic Studies), #1
Carter, #14

Combination

Arban, #1, 5, 6
Clarke (Characteristic Studies), #21
Goldman, #19
Carter, #23

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- crowd.
33. Ships don't come in, they are brought in.
 34. Oversleeping will never make dreams come through.
 35. A mistake is at least evidence that someone tried to do something.
 36. A diamond is a piece of coal that stuck to the job.
 37. Keep your mind open, something good might enter.
 38. Failure is the line of least persistence.
 39. Ideas are funny—they won't work unless you do.
 40. When you make your mark in the world, watch out for the guys with the erasers.

The following poem written by Calvin Coolidge quite adequately sums up what band directors must do in order to create a good finished product.

Nothing in the world can take the place of persistence.

Talent will not do it.

Nothing is more common than an unsuccessful man with talent.

Genius will not do it.

Unrewarded genius is almost a proverb.

Education will not.

The world is full of educated derelicts.

Persistence and determination alone are omnipotent.

The slogan, "press on," has solved and always will solve the problems of the human race.

The American Band College Masters Degree Program for Directors

At the present time there are 125 directors enrolled in the American Band College masters degree program at Southern Oregon University (Ashland, Oregon). These candidates come from over 25 states and provinces to work with 28 of the world's finest teachers each summer. In the course of three-summertime residency (followed by extensive project-based work in conducting, adjudication analyses, etc.) masters candidates study with and perform under more than 60 of the world's best known conductors, composers, teachers and soloists. For more information, visit our web site (<http://www.jeffnet.org/bandworld>) or call ABC Director, Max McKee anytime at (800) 247-2263.