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Teaching Low Brass

Steven Maxwell

Kansas State University, smaxwell@ksu.edu

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A close-up, warm-toned photograph of brass instrument tubing, likely a tuba or euphonium, serves as the background. The image shows the intricate curves and joints of the instrument, with a soft, golden light reflecting off the polished metal surfaces. The focus is sharp on the foreground tubing, while the background is slightly blurred, creating a sense of depth.

TEACHING LOW BRASS

FOR KANSAS STATE UNIVERSITY
MUSIC 239

STEVEN MAXWELL

Teaching Low Brass

by Dr. Steven Maxwell
Associate Professor of Tuba and Euphonium
Kansas State University

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Brass History

It is important to understand the history of brass instruments as an educator for a few reasons. First, you will become the expert on all things music and particularly wind instruments. Students will come to you with questions and it is important for you to understand the history of wind instruments. Second, the history of an instrument will help you to understand the role historically for the instrument and how it functions in the modern wind ensemble today. Third, learning the history assists us with understanding the technical and physical limitations and advantages of the instrument. Finally, knowing the history of an instrument helps us to understand the literature that is available for the instrument.

Much of this chapter will be information taken from an article titled *Brass Instrument and Music in Antiquity and the Renaissance*, by David Wilkin. Direct selections will be indented and italicized.

Here is an early look at brass instruments:

Brass instruments have been around for a long time. Some of the earliest examples of brass instruments were straight trumpets made of wood, bronze, and silver, such as the salpinx found in Greece, and the Roman tuba, lituus, and buccina. Other early brass instruments were horns made of bronze or animal horns. The Scandinavian lur was one such instrument, as was the Roman, cornu. The shofar is an ancient Hebrew brass instrument made of a ram's horn, which is still used in Jewish ceremonies today.

During the Renaissance brass instruments began to develop that resemble the modern instruments in use today. Around 1400-1413 the earliest known S-shaped trumpet was developed, which was later followed by the folded trumpet and slide trumpet. It was out of the slide trumpet that the trombone developed around 1450. This new instrument, referred to as a sackbut, was a vast improvement over the awkward to play slide trumpet. Instrument designers developed a system of connected double tubes, which reduced the distance the slide needed to move between notes, and therefore improved the musician's performance technique. Improved slide design also allowed a practical tenor range instrument, which has become the most common instrument of the trombone family today.

Also, during this time, around 1500, large European courts would maintain corps of trumpeters used for heralding. These early trumpet ensembles eventually progressed to include five-part music, but there was little harmonic variety. Players tended to specialize in either the high range or low range.

The horn had yet to develop into an instrument for musical purposes yet, although curved and helical horns were commonly used for hunting.

In 1597 Italian composer Giovanni Gabrieli, then the organist at Saint Mark's Cathedral in Venice, composed the earliest known piece to call for specific brass instruments, Sonate pian'forte.ⁱ

17th Century

Brass instruments began to have more use in the 17th century however few of these instruments were used to perform solos. Many of the instruments were used in outdoor performances or as a supportive voice in church choirs.

*Trombones continued to be widely used during the 17th Century. Sackbuts were regularly employed in a variety of ensembles, such as court and municipal bands, where it was common to combine them with [shawms](#). The sackbut was also used frequently in ensembles where they were to blend with softer instruments. One of most influential situations for the trombones to be called for were in the churches, where they were frequently used to double the voices. A vocal-like style of playing developed for the trombones that was in contrast to the period's trumpet style. It can be in part attributed to the sacred associations of the trombone from this time for the lack of secular compositions written for the trombone for centuries after.*ⁱ

18th Century

In the 18th century, brass instruments could play chromatic passages through use of the high overtone series (which can be quite difficult to perform) and through the use of 'stopped' notes on horn.

In the 18th Century the horn began to develop as an instrument capable of high musical expression, rather than as a mere novelty. Around 1700-1710 a Viennese instrument maker named Michael Leichnambschneider may have been the first person to put terminal crooks on horns in order to play them in different keys. During this time horns were performed mostly in the upper portion of the overtone series and were played without the hand in the bell. Around 1750 a hornist from Dresden, Germany developed the technique of adding pitches to the overtone series of the horn through various degrees of hand stopping, which soon became standard practice for horn players.

Composers soon began taking advantage of the new technical facility developed by horn players and instrument manufacturers. Reinhard Keiser may have been the first composer to call for the horn with the orchestra in his 1705 opera Octavia. George Frederick Handel called for two horns on his 1717 composition Water Music. Franz Joseph Haydn composed his first Horn Concerto in 1762.

Composers also began writing solo works for the trombone during this time. Christoph Wagenseil, Johann Albrechtsberger, Michael Haydn, and Leopold Mozart all wrote solo pieces for alto trombone, the preferred solo trombone instrument of the time. With the sacred associations of the trombone from the previous century it was natural from composers to utilize trombones to help portray religious or supernatural effects in operas of the late 18th Century. Two of the most easily recognizable examples of this were Wolfgang Amadeus Mozart's Don Giovanni and The Magic Flute.

*In the first half of the 18th Century Baroque trumpet works reach its peak through the compositions of J.S. Bach, who wrote for trumpet virtuoso Gottfried Reiche. By 1760 the clarino style of trumpet playing began to decline in part due to changes of musical tastes and compositional styles.*ⁱ

19th Century and beyond

The period of greatest development and modernization of brass instruments took place during the 19th century. The vast majority of literature for brass instruments performed today were written in the late 19th century and throughout the 20th century.

Although there is some controversy over exactly who developed valved brass instruments, it was around 1826 when a German valve trumpet was brought to Paris where it was copied and began to gain wide acceptance. Hector Berlioz was the first known composer to use this instrument in his overture to Les francs-juges in

1826. In 1835 Halévy's *La Juive* was the first score to call for valve horns. The custom of the period began to be to score for two valved horns and two hand horns. The cornet was developed around 1828 by Jean-Louis Antoine. This new instrument quickly gained popularity for its chromatic agility. The valve trombone was developed around 1828 and gained wide use in bands, but little use in orchestras. In 1835 the first tuba, a five-valved instrument pitched in F, was invented by Berlin instrument makers Wilhelm Wieprecht and Johann Gottfried Moritz. A tenor tuba was produced by Moritz in 1838 and the euphonium was invented by Sommer of Weimar in 1843.

By around 1890 the modern form of the orchestral trumpet became common. In France, England, and the United States piston valves were used, but rotary valves were more common in Germany, Austria, and Italy. It was also around this time that the trumpet pitched in B flat became the most common.

With better designed brass instruments and improved technical abilities of brass musicians many composers began writing works that included more brass or solo works for brass instruments. Ludwig von Beethoven was the first major composer to include trombones in his symphonic works, scoring for three trombones in his 5th and 9th symphonies. This influenced other composers to add trombones to the brass section in their symphonic works. Beethoven also wrote his Horn Sonata, Op. 17 for Giovanni Punto in 1800. Carl Maria von Weber wrote his Concertino for Horn in 1806. The Concertino for Trombone was composed in 1837 by Ferdinand David. Richard Wagner and Hector Berlioz both began to champion the use of the tuba in their works.

In 1864 one of the most influential methods of brass playing was published, J.B. Arban's *Complete Conservatory Method*. Although initially written for trumpet and cornet students, this method book has been transcribed, published, and used for almost all members of the modern brass family today.

Brass music and instruments continued to develop into the 20th century. The Belgian firm of Mahillon produced a piccolo B flat trumpet around 1905, developed to assist trumpet players with Bach's 2nd Brandenburg Concerto and other works intended for clarino trumpet playing. Around 1950 American bass trombonists began experimenting with adding a second rotor valve to eventually produce the standard double trigger bass trombone.

Major composers also continued to write solo works from brass instruments. Richard Strauss composed his *Second Concerto for Horn* in 1942. In 1954 Ralph Vaughan Williams composed his *Bass Tuba Concerto*.

Brass musicians began to establish their instruments as major solo instruments as well in the 20th Century.ⁱ

The Overtone Series

It is important for a brass musician to have an understanding of the overtone series. The overtone series is the basic building block of pitches for all brass instruments. The notes of the overtone series starting on fundamental pitches are practiced regularly by all brass musicians. Before the valve was invented, use of the overtone series was the only way to produce notes in relation to one another.

A great description of the overtone series can be found at:

<https://music.tutsplus.com/tutorials/quick-tip-the-overtone-series--audio-4672>

Here are a few important things to keep in mind when using the overtone series:

The standard overtone series

The overtone series may start on any pitch, but the pattern will always be the following:

1. perfect octave 2. perfect fifth 3. perfect fourth 4. major third 5. minor third 6. minor third 7. major second



Pitch Problems

When playing the overtone series, there are naturally occurring pitch problems. These include:

- The fifth partial is always flat
- The sixth partial is always sharp
- The seventh partial is flat and unusable

General Intonation Tendencies

A brass performer must understand both the pitch tendencies of the overtone series as well as general pitch tendencies for the various instruments.

Temperature changes

Temperature can cause brass instruments to change pitch. Here are the basic ideas to remember:

1. Cold temperatures cause the instrument to play flat.
2. Warm temperatures cause the instrument to play sharp.

For a detailed description as to the physics behind this, check out:

<https://www.hornguys.com/blogs/horn-guys-blog/15338265-why-does-pitch-change-with-temperature>

Trombone

The trombone slide can be both a blessing and a curse in terms of intonation. Much like a string instrument, the player needs to use their ears to place the slide at the appropriate position to make the instrument in tune. This allows for a GREAT deal of flexibility; however, it can be difficult for a young student to master. Therefore, it is important to talk to young trombone students about pitch early in their development.

Pitch Problems with valved instruments

There are some natural pitch problems which musicians need to remember about valved instruments:

- The one and three valve combinations are generally sharp
- The one, two, and three valve combination is also generally sharp
- The one and two combinations can raise the pitch slightly

Helping the low brass with extra valves

Most low brass instruments that are considered 'intermediate' or 'advanced' will have a fourth valve. This extra valve is valuable to help the player with intonation. The fourth valve gives the player an opportunity to use an alternate fingering to stay in tune.

Most common alternate fingerings with the fourth valve:

- 4th valve in place of 1st and 3rd valve
- 2nd and 4th valve in place of valves 1,2 and 3

Embouchure

Sound is created on a brass instrument by buzzing lips together to create a pitch and then the buzz is amplified through the instrument to create a musical sound. The set-up of the mouth for buzzing is called the embouchure.

The following items are important to for a proper embouchure:

- The chin should be flat
- The mouthpiece should cover $\frac{1}{2}$ upper lip, $\frac{1}{2}$ lower lip
- The corners of the mouth should be firm
- A low amount of pressure should be used to press the mouthpiece to the lips.



Proper tuba embouchure



Proper Trombone/Euphonium embouchure

Embouchure Problems

One of the biggest jobs of a band director is to make sure young musicians do not develop bad habits. Below are common embouchure problems.

Pinched sound in all registers

Sometimes a young performer will learn to play their instrument with the tongue filling up the entire mouth or with the teeth together.

Cause: tongue in the way of proper airflow

Remedy: Focus attention on allowing air into instrument not on resistance in lip, tongue, throat, or abdominal area.

Cause: Lips too pinched

Remedy: Re-form embouchure and de-emphasize the lip pressure.

Cause: Lip too pursed. (hard "oo")

Remedy: reform embouchure and de-emphasize lip pursing.

Fuzzy sound

Cause: Aperture in embouchure too large due to excessive pressure

Remedy: Practice on mouthpiece. Hold mouthpiece lightly. Avoid pressure. Work for an efficient buzz.

Sharpness in upper register

Cause: Excess tension in embouchure and/or breath mechanism

Remedy: Practice high passages down an octave, then transfer that easy singing approach up an octave.

Difficulty with upper register

Cause: Mouthpiece too low

Remedy: Move mouthpiece up

Difficulty in lower register

Cause: Mouthpiece too high

Remedy: Move mouthpiece down

Other issues:

Puffy cheeks

One 'no-no' when it comes to playing low brass is when students use 'puffy cheeks.'

Cause: This occurs when a student loses tension in the corners of their lips and allows the cheeks to puff out while they play.



Puffy cheeks



Correct embouchure

Many students can still create a quality sound while doing this, however, the player will lose a great deal of control when starting notes if this becomes a habit. This problem also tends to get worse over time so be sure to watch young students for this bad habit.

Remedy: To correct this problem, have the student focus on forming tight corners on their embouchure. It is quite difficult to puff one's cheeks if the corners are tight!

Instruments, Mouthpieces, and Equipment

There are numerous instruments available to students. There is also a huge variety of prices. Below are listed a number of instruments and mouthpieces. The choice of an instrument is a personal choice. Some who like one brand, may not like another.

Here are some of the most established brands on the market for low brass:

Trombone

Bach
Yamaha
King
Getzen
Conn
Besson
Holton

Euphonium

Besson
Willson
Yamaha
Miraphone

Tuba

Miraphone
Willson
Meinl Weston
Rudy Meinl
Yamaha
Conn
Besson

There are also a few newer brands that are on the market. These brands are not as established but have had recent success including: **Eastman, Jupiter, BAC.**

There are also a few brands that have become popular due to their low prices. These companies have been labeled as “Chinese knockoffs” due to the fact that they are manufactured in China and are mostly using designs of other established brands. The price point is considerably lower than the established brands, however, they have not been on the market long enough to know their longevity. The most respected currently are: **MAC Brass and Wessex.**

Below is a list of standard trombonesⁱⁱ:

Holton TR602
Yamaha 354
Bach 300
King 606
Conn 22H
Getzen 351
Besson 600

Mouthpieces

It matters a great deal for brass musicians to have a quality mouthpiece. There are three areas of concern for teachers when it comes to mouthpieces: **rim, cup, and bore.**

Rim: The rim of a mouthpiece is where the player places their lips. The wider a rim, the less fatigue a player should feel. A wide rim is ideal for a young student, while a narrow rim is more ideal for an advance student as it can help with flexibility.

Cup: The cup of a mouthpiece helps to determine the sound that will be produced. The standard thought is the deeper the cup the darker or heavier the sound. The shallower the cup, the easier it is for a player to start a buzz. This usually means that a younger student will play on a shallow cup.

Bore: The bore is the shank of the mouthpiece and is based on the diameter of the opening. The basic thought is the larger the opening, the darker or broader the sound. Also, with a wider opening, more air is needed to produce a proper sound. Young students are often given a mouthpiece with a small bore since they do not have the ability to produce as much air.

Here are some suggestions for beginning mouthpieces for trombone and euphonium:

Bach 6 ½ Great mouthpiece for students. It can be used all the way through high school for many students.

Bach 12C A smaller mouthpiece that many students begin on. It is small enough that many students need to move up to a 6 ½ by high school but it can help some younger students when they first start playing.

Whatever mouthpiece is chosen, it is always the results, not the size, that matters most!

Here are some mouthpiece comparisons:

Small Bore .480 to .509

Mouthpiece: small shank

Bach 12C, Yamaha 45C2 - smaller

Bach 7C - standard

Bach 6 ½ AL, Yamaha 48 - larger

Bach 5GS, Yamaha 51C4, Bach 5G, Schilke 51, Yamaha 51 - even larger

Euphoniums

Below are standard instruments for the performance level:

Baritones

Bach 1566 (3 valve-front)

Yamaha YEP-211 (3 valve-front)

King/Conn (3 valve-front)

Euphoniums

Jupiter 486 (3 valve)

Yamaha (3 valve)

Intermediate (Junior high and up, 4 valve bell-up)

Yamaha YEP-321

Jupiter 470

Wilson 2704
VMI 3171

Advanced (all compensating)

Yamaha-642
Besson 967, 968
Wilson 2901
Miraphone

Tubas

2/4 (small) tubas (all three valve)

Besson 797
Yamaha YBB-103

3/4 (medium) tubas

Yamaha
Jupiter 378L
Conn 5J

4/4 tubas (full-sized)

Miraphone 186
Yamaha YBB-301 (rotary valves only, do not get piston)
Meinl-Weston
Jupiter 582
VMI 2103

Tuba Mouthpieces

Beginner
Bach 32

Intermediate/Advanced

Bach 18
Conn 18
Yamaha C4
Conn-Helleberg

Low Brass Literature

There are numerous resources available to young musicians. I suggest starting low brass students with books being used by the entire beginning band. These books can include, *Accent on Achievement*, *Essential Elements*, and The Belwin Elementary Band Method to name just a few. Below is a list of supplemental resources for each instrument.

Beginning Studies for All Low Brass

Bordner:	First Book of Practical Studies
Rubank:	Elementary Method
Getchell:	First Book of Practical Studies

Intermediate Studies

Bordner:	Second Book of Practical Studies
Getchell:	Second Book of Practical Studies
Remington:	Warm-up Studies
Rubank:	Intermediate Method
Voxman:	Selected Studies

Intermediate Solo Studies

Baker:	Master Solos (intermediate)
Belwin:	Master Solos (all volumes)
Pearson:	Standard of Excellence Solos (all volumes)
Rubank:	Concert and Contest Collection

High School and beyond Methods and Studies

Arban:	<i>Complete Method for Trombone and Euphonium</i>
Bordogni/Rochut:	Melodious Etude (Book1)
Rubank:	<i>Advanced Method for Trombone and Baritone</i> , Vol. I <i>Advanced Method for Trombone and Baritone</i> , Vol. II

Trombone Solos

Rubank:	Concert and Contest Collection
Bach:	Arioso
Bach:	Haste, Ye Schepers
Bakaleininkoff:	Andantino Cantabile
Barat:	Andante and Allegro
Blazevich:	Concert Pieces 1-5
Croce-Spinelli:	Solo de Concours
David:	Concertino
Desportes:	Fantasie
Dubois:	Cortege
Dubois:	Sonatine Impromptu
Galliard:	6 Sonatas

Guilmant:		Morceau Symphonque
Hasse:	Suite	
Hindemith:		Suite
Jacob:	Suite	
Marcello:		6 Sonatas
Pryor:		all solos
Rimsky-Korsakov:		Concerto
Saint Saens:		Cavatine
Telemann:		F minor Sonata
Von Kreisler:	Sonatine	

Tuba and Euphonium Solos

The International Tuba and Euphonium Association has created at Standard Repertoire list. This list is for all solo literature and soon there will be lists for chamber music as well. Every work is **graded**. Go to the following link for the list:

<http://www.iteaonline.org/members/standardlit/>

Brass Instrument Maintenance

Cleaning regularly is the primary way to make sure your brass instruments are always in working condition. There are many simple ways to keep your instruments in working order.

1. **Mouthpiece care:** Clean your mouthpiece daily with soap and water and weekly with a mouthpiece brush. This regular cleaning will help to keeping the instrument working but to also maintain a healthy and clean mouthpiece for the performer.



2. **Give brass instruments yearly baths.** The interior of brass instruments can become dirty over the course of usual use. At least once a year, instruments should be given a bath and lubricated.
 - a. Take apart the instrument
 - b. Submerge all of the parts of the instrument in lukewarm water with dish soap. Use a cleaning brush to scrub any areas that have excess grime or dirt (you can purchase a brush at any music shop, but an old tooth brush works just as well).
 - c. Rinse the soap off the instrument and dry with a towel
 - d. Relubrication the instrument (see below for lubrication recommendations)
3. **Lubrication Recommendations.** There are numerous lubrications on the market today. There are just as many opinions as to which are the best. The only wrong answer is to not lubricate the instrument!! Do be aware that some valve oils do not mix together well. If you are using a new valve oil (particularly a synthetic oil) clean your valves first, then add the new oil.

a. **Valve Oil recommendations**

- i. Hetman Piston, Lubricant 2 (for piston valves); Hetman Rotor, Lubricant 12 (for rotary valves)



- ii. Al Cass valve oil



- b. Slide oil (grease) recommendations:
 - i. Hetman Slide oil



- ii. Selmer Tuning Slide Grease



Care for a trombone slide can be found on numerous YouTube videos and online at <http://trombone.org/jfb/library/jfb-keepitclean.asp>

Slide vibrato

Slide vibrato can only be performed on trombone. This vibrato occurs as the player holds a note and moves the slide above and below the desired position. This can be successfully used for intermediate to advanced trombone player. Historically and stylistically this vibrato gets used mostly with jazz music however there have been numerous times composers have asked for this technique in classical and modern music. Some musicians will employ a combination of the slide and jaw vibrato to create an even wider vibrato for exaggerated passages.

Breath Vibrato (Diaphragm)

Breath vibrato is used by many woodwind players and is typical particularly on flute. This vibrato is created by using the lungs and diaphragmatic support to alter the speed of air and create 'puffs' of faster air creating a pulsing vibrato. A performer would say "Huh, huh, huh, huh," etc. to create such a sound. This is NOT an ideal way for a low brass performer to create vibrato. Air support often suffers greatly when using this method. Many young players will try this method and will hurt their sound due to disrupted air support. This can also be habit forming and can be difficult to stop for some students who have used the method regularly. When I hear a student use this method, I generally make them stop using vibrato altogether until I am satisfied their sound has been corrected.

There are some who believe this form of vibrato is best as it more closely resembles the vibrato used by singers. This belief is only a small minority of brass teachers however.

Fear Vibrato^v

Fear vibrato is created as it sounds, through anxiety and shaking. This is not a true vibrato however and it is important to work with students to calm themselves as they perform. This will usually subside as a performer has more opportunities to successfully perform.

When to use Vibrato

Vibrato should only be used to add to a performance and should not always be a part of a performers sound. Most brass pedagogues believe vibrato is intended to warm up the sound and add to the beauty of a performers sound. The best way to learn when to use vibrato is to listen to professional musicians. Identifying how each performer uses vibrato is invaluable to incorporating it into your own playing. There are numerous examples of professional recordings available.

In general, there are a few guidelines for using vibrato.

These are some general suggestions for using vibrato by Walter Barrett:

1. Don't use vibrato in unison passages. It only makes the section sound out of tune with each other and gives the passage a wobbly kind of sound.
2. Be able to turn it on or off, or use a different style. As with any musical effect, or technique, the performer should be in complete control of it at all times, in order to fit into the demands of the music being played.

3. In general, orchestral players use less pronounced vibrato, if at all. Vibrato can help the sound project, without playing louder, and it can help center the tone and pitch in a section, but current taste says that it should be barely noticeable. Older recordings of French orchestras have quite a bit of vibrato, but tastes are changing as orchestra styles become more uniform.
4. In a section, follow the lead's example. As always, LISTEN to the lead, and do it the way he or she does, only a little bit less! As a section player, your role is to SUPPORT, not overshadow.
5. Don't use vibrato to cover up bad intonation. Remember that vibrato is going slightly above and below the correct pitch. If you are out of tune, it can magnify the error.
6. The lower you go, the slower you go. Most players use a slower, narrower vibrato on low notes, and faster and wider on high notes. More rapid passages are often played with a faster vibrato than a slow passage.ⁱⁱ

Low Brass in the Marching Band

Trombones

Regular concert trombones are used in most marching bands. Some bands prefer to use only trombones with no F attachment due to the weight of the instrument. Larger trombones with an F attachment do however often give a wider, darker sound. You and your students must weigh the pluses and minuses of weight verses sound.

Euphonium/Baritones

Most marching ensembles do not use concert euphoniums (except in English military style marching). The most used instruments are pictured below:



Bugle Style



Curved Bell

Both of these instruments can produce great sound for your marching band. Some people love the bugle style marching baritone for its sound and ability to look similar to other instruments such as the trumpet. This is the preferred instrument in the Drum and Bugle Corps. However, it is quite heavy and smaller students may have a difficult time (sometimes an impossible time) holding the instrument up for long stretches.

The curved bell instrument on the other hand can be much easier to hold but the look and horn flash will be quite different than the other brass members of the marching band.

Sousaphones vs. Contras

The instruments most often used in the marching band in place of concert tubas are Sousaphones or contra tubas. Either of these instruments can be used in a marching ensemble to great effect! However, there are plusses and minuses to both instruments.

Sousaphone



The sousaphone has been the predominate instrument of use over the last 70 years in marching bands. The instrument was designed specifically for marching and standing to perform. A sousaphone can create good full sounds for the outdoor ensemble.

There are of course positives and negatives with this instrument:

Positives:

1. Easy to carry – Almost any size student can carry and perform with this instrument.
2. Easy to hold and keep horn angles accurate

Negatives:

1. The sound is good; however, it can be easily “spread” to create a more “blatting sound.”

Contra Marching Tuba



The contra marching tuba became the standard instrument for the Drum and Bugle Corps International. Many marching ensembles that are trying to emulate that style are using contra marching tubas.

Positives:

1. Contras have a terrific sound! They most closely model the concert tuba and can create a warm full sound.
2. These instruments most closely resemble other brass instruments (such as the trumpet and mellophone) and can help with horn flashes in the same manner. This can help with visual effects for your marching ensemble.

Negatives:

1. These instruments are HEAVY!! You are marching with a concert tuba on your shoulder. Some students in high school marching bands will find it difficult (if not impossible) to hold these instruments up for a long rehearsal or performance. It also takes great strength to keep the instrument's horn angle accurate.

Baritone vs Euphonium

(Excerpt from Dave Werden's article *Baritone or Euphonium*, www.dwerden.com)

What is the difference between baritone and euphonium? Euphoniums have a larger bore that is more conical. Baritones are smaller and more cylindrical. The complete answer involves three instruments, all in the key of B-flat:

1. *a standard euphonium*
2. *an American-style euphonium that is often called a baritone*
3. *a British-style baritone horn.*

*(Also see this blog post for audio/video examples of the 3 types of instruments:
[The Euphonium Family: Baritone, Euphonium, Double-Bell Euphonium](#))*

*When I was in high school, my parents decided to buy a new instrument for me to replace the student model I had been using. The music store showed me a top of the line King 3-valve "baritone." The salesman said it was a fine instrument, but if I was a serious player, I should spend another \$80. For the extra money I would get not a mere baritone, but a genuine ***E*U*P*H*O*N*I*U*M***. When I asked what the difference was he explained that a baritone has three valves, while a euphonium has four. He also told me that a euphonium has a different bore, and sounds nicer than a baritone. I ordered the more expensive instrument.*

*As the years passed, I learned that the only difference between those two horns was the extra valve. **Both** were American-style **euphoniums**. The salesman wasn't trying to mislead me—he was simply as confused as most people about the difference between a baritone and a euphonium. Over the years I have heard many incorrect explanations of this difference. Some are: a euphonium has four valves, a baritone three; if it's in a bass clef it's a euphonium, if it's in treble clef it's a baritone; a baritone is little euphonium; a baritone has the bell pointed forward, a euphonium points up; and (attributed to Robert King) a euphonium is a baritone played well.*

This confusion of names may contribute to the somewhat anonymous nature of my chosen instrument. In the USA, the average man on the street doesn't know what a euphonium is. This is partly due to a lack of exposure to the horn, but if he ever has seen one, it may have been referred to as a baritone, a baritone horn, a tenor tuba, or a euphonium. Also, the name baritone is sometimes confused with baritone saxophone or the baritone voice.

I have consulted over two dozen reference books to understand the distinction between these two instruments. These sources included dictionaries, encyclopedias, music dictionaries, and music texts. All agreed on the general definition of these two horns, although none offered anything as specific as measurements. They agreed on the following: a baritone has a smaller bore and bell than a euphonium, with tubing that is mostly cylindrical. Its sound is lighter and brighter. The euphonium has a larger bell and bore, and its tubing is mostly conical. It has a larger, darker, more powerful sound. Four well-known sources have characterized the distinction as follows:

<i>Source</i>	<i>Baritone</i>	<i>Euphonium</i>
<i>The New Grove Dictionary of Music and Musicians</i>	<i>narrow bore (accurate photo)</i>	<i>wide bore; warm, large tone; deep-cup mouthpiece; tenor of tuba family</i>
<i>International Cyclopedia of Music and Musicians</i>	<i>smaller bore & tone; semi-conical cup mouthpiece; 3 valves</i>	<i>larger bore & tone; semi-conical bore; deep-cup mouthpiece; 3 to 5 valves</i>
<i>New Harvard Dictionary of Music</i>	<i>smaller bore; tapered like a cornet</i>	<i>larger bore; tapered like a flugelhorn</i>
<i>New Oxford Companion to Music</i>	<i>narrower bore</i>	<i>wider bore; called baritone in USA</i>

These statements are sufficient to categorize the instruments now on the market, yet there is a noticeable confusion about euphoniums and baritones.

The Conn American-style euphonium fits very well into the range of measurements of the other traditional-style euphoniums, yet this instrument is more often called "baritone" than "euphonium." The Conn line is interesting in this regard. Their various models all share the same dimensions of tubing, bell size, and taper, but Conn has usually listed their most expensive model as "euphonium" and their cheaper models as "baritones." Other American companies have followed the same path, apparently feeling that the name "euphonium" justifies a higher cost and connotes better quality.

An almost humorous example of the confusion of definitions is found in the nearly extinct double-bell euphonium. This was an instrument with an extra valve to send the sound either to its large euphonium-size bell or to a much smaller trombone-size bell. The smaller bell gave it a bright sound, similar to a true baritone horn. To the best of my knowledge, this instrument was never called a double-bell baritone. The same instrument minus the small bell was (and is) frequently called a baritone. The inconsistency is that the double-bell version was able to approximate the sound of a baritone, while the single-bell instrument could only sound like a euphonium.

My own instruments are typical of the horns made by manufacturers from Europe and Japan. My euphonium has an upright-bell, side-valves, and a bore of .592 inches. This type of horn is seldom called a baritone. I also use an upright-bell, side-valve baritone horn. This horn has a .522 inch bore and a bell only slightly larger than that of a trombone. It possesses a much brighter sound than my euphonium. This type of horn is virtually never called a euphonium. The tubing of the euphonium is almost entirely conical. The tubing of the baritone is much more nearly cylindrical. The nature of the baritone's bore can be demonstrated by pulling out the main tuning slide and reversing it. It will still fit into the horn reversed, but such is not the case with my euphonium's tuning slide.

While most agree on the names of my particular instruments, such is not the case with the instruments in many of our public school bands in the USA. They are similar to the Conns mentioned above, and generally have a .560 bore and forward-facing bells of about 10.5 inches diameter (although many are made with upright bells as well). Even a casual examination of the tubing will show that it is almost entirely conical. I believe the breed was originally designed to let a single instrument play both euphonium and

baritone music. While the early samples of this type of "hybrid" instrument may have had a sound nearly centered between a baritone and a euphonium tone, the desire for a smoother, fuller sound has led the manufacturers to gradually change the instrument's characteristics. The modern version have a sound very close to that of the European and Japanese euphoniums. They sound slightly brighter, but not nearly as bright as a true baritone horn. Also, compared to my own horns, their .560 bore is somewhat closer to the .592 euphonium than to the .522 baritone bore.



British euphonium
www.dwerden.com



British baritone
www.dwerden.com



American euphonium
www.dwerden.com

Appendix I – Trombone/Euphonium Etudes

Etudes

*Numbers above indicate Trombone
 *Numbers below indicate Euphonium

1) 

2) 

3) 

4) 

5) 

6) 


7) 

8) 

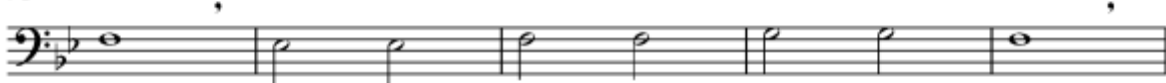
54







9) 

71



76



10) 

85



89

America

11) 

96

Trombone



1

12) Easter Song

13) Playing with Alternates

14) Chromatic Scale

15) Three Blind Mice (Round)

Appendix II – Tuba Etudes

Etudes

*Numbers below indicate Tuba fingerings

1) 

2) 

3) 

4) 

5) 

6) 

[illegible]

8)

54

2

9)

10) 

88 America

11) 

Easter Song

12)

Playing with Alternates

13)

Chromatic Scale

14)

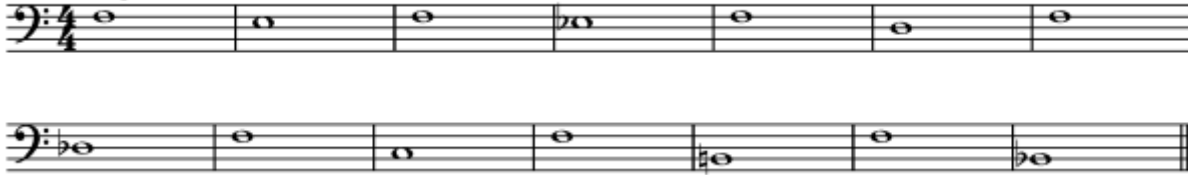
Three Blind Mice (Round)

15)

Appendix III – Warm-ups

Trombone/Euphonium

Long Tones



Long Slurs



Long Slurs Cont.



Short Slurs



Short Slurs Cont.



Tonguing



Appendix IV – Trombone Slide Positions/Euphonium Fingerings

Trombone Slide Positions

Exercise 1 (Measures 1-8):

- Measure 1: C2 (6)
- Measure 2: D2 (5)
- Measure 3: E2 (4)
- Measure 4: F2 (3)
- Measure 5: G2 (2)
- Measure 6: A2 (1)
- Measure 7: B2 (7)
- Measure 8: C3 (6)

Exercise 2 (Measures 9-16):

- Measure 9: D2 (5)
- Measure 10: E2 (4)
- Measure 11: F2 (3)
- Measure 12: G2 (2)
- Measure 13: A2 (1)
- Measure 14: B2 (5)
- Measure 15: C3 (4)
- Measure 16: D3 (3)

Exercise 3 (Measures 17-24):

- Measure 17: E2 (2)
- Measure 18: F2 (1)
- Measure 19: G2 (4)
- Measure 20: A2 (3)
- Measure 21: B2 (2)
- Measure 22: C3 (1)
- Measure 23: D3 (3)
- Measure 24: E3 (2)
- Measure 25: F3 (1)

Euphonium Fingerings

Exercise 1 (Measures 1-8):

- Measure 1: C2 (13, 4)
- Measure 2: D2 (23)
- Measure 3: E2 (12)
- Measure 4: F2 (1)
- Measure 5: G2 (2)
- Measure 6: A2 (0)
- Measure 7: B2 (123, 24)
- Measure 8: C3 (123, 24)

Exercise 2 (Measures 9-16):

- Measure 9: D2 (13)
- Measure 10: E2 (23)
- Measure 11: F2 (12)
- Measure 12: G2 (1)
- Measure 13: A2 (2)
- Measure 14: B2 (0)
- Measure 15: C3 (23)
- Measure 16: D3 (12, 1)

Exercise 3 (Measures 17-24):

- Measure 17: E2 (2)
- Measure 18: F2 (0)
- Measure 19: G2 (12)
- Measure 20: A2 (1)
- Measure 21: B2 (2)
- Measure 22: C3 (0)
- Measure 23: D3 (1)
- Measure 24: E3 (2)
- Measure 25: F3 (0)

Appendix V - Tuba Fingerings

Tuba Fingerings

The image displays four staves of musical notation for Tuba Fingerings, written in bass clef with a key signature of one sharp (F#) and a time signature of 4/4. The notation includes various note values (half notes, quarter notes, eighth notes, and sixteenth notes) and rests. Fingerings are indicated by numbers 0, 1, 2, 3, 4, 12, 13, 23, and 24 placed below the notes. The staves are numbered 8, 16, 21, and 24 at the beginning of each line.

Staff 8: Notes include F#4 (fingering 13), G4 (fingering 23), A4 (fingering 12), B4 (fingering 1), C5 (fingering 2), D5 (fingering 0), E5 (fingering 123), and F#5 (fingering 24).

Staff 16: Notes include F#4 (fingering 13), G4 (fingering 4), A4 (fingering 23), B4 (fingering 12), C5 (fingering 1), D5 (fingering 2), E5 (fingering 0), F#5 (fingering 23), and G5 (fingering 12).

Staff 21: Notes include F#4 (fingering 1), G4 (fingering 2), A4 (fingering 0), B4 (fingering 12), and C5 (fingering 1).

Staff 24: Notes include F#4 (fingering 2), G4 (fingering 0), A4 (fingering 1), B4 (fingering 2), and C5 (fingering 0).

Appendix VI – Major Scales

4

7

10

13

16

19

22

25

28 To Tbn.

31 To Tbn.

The image displays eleven staves of musical notation for major scales in bass clef. Each staff is numbered from 4 to 31. The scales are written in various keys, indicated by the number of sharps or flats in the key signature. The notation includes eighth and sixteenth notes for the ascending and descending scales, and a whole note for the final chord. The scales are: 4 (D major), 7 (E major), 10 (F# major), 13 (G major), 16 (A major), 19 (B major), 22 (C major), 25 (D major), 28 (E major), and 31 (F# major). The last two staves (28 and 31) are marked 'To Tbn.'.

Tuba

Long Tones

Long Slurs

Long Slurs Cont.

Short Slurs

30 Short Slurs Cont.

Tounging

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About the Author

Dr. Steven Maxwell is Associate Professor of Tuba and Euphonium at Kansas State University. In addition, he teaches low brass techniques and the History of Rock and Roll. Dr. Maxwell is also the tubist with the K-State Faculty Brass Quintet and the director of the K-State Tuba Euphonium Ensemble. He is an active clinician, adjudicator, and soloist throughout the United States and Europe. Dr. Maxwell has been active internationally performing at prestigious conferences including the International Tuba and Euphonium Conferences, the International Trombone Festival, and the U. S. Army Band Tube-Euphonium Workshop. He has also performed at numerous regional conferences over the years including the Great Plains, South Central, Rocky Mountain, and Southwest Regional Tuba and Euphonium Conferences.

He has held the position of principal tuba with the Chautauqua Festival Orchestra, Central Iowa Symphony, and has been a member of the Fountain City Brass Band. He also has been bass trombonist with the Kansas City Puccini Festival Orchestra. Dr. Maxwell is an associate editor for the International Tuba and Euphonium Association (ITEA) Journal. He is a member ITEA, Phi Mu Alpha Sinfonia, and is an honorary member of Kappa Kappa Psi and Tau Beta Sigma.

Maxwell is a champion of new music for low brass and has commissioned over fifty works for low brass solo and chamber ensembles. He has featured six of those new works in his first solo album entitled “*Pretty Please?*” which was released in 2018.

Dr. Maxwell is proud to be a Miraphone Performing Artist.