

The Tuba

Historical Sketch

- Tubas and their relatives were the latest instruments in the brass family to develop. Early technologies did not allow for a practical lower voice in the brass family, although there were several instruments that attempted to fill this role. Bass and (rarely) contrabass sackbuts/trombones existed, but the contrabass especially was quite rare and unwieldy, and the bass had neither the range nor the timbre to provide a solid foundation for the brass section in the way that the tuba later would.
- The serpent, a low-pitched, keyed relative of the cornett, had been in use since the late sixteenth century. Although made of wood, this instrument had a cup-shaped mouthpiece, and was played in the same manner as brass instruments of today. It was quite effective in doubling voices in church services, but could not produce a substantial volume level. During the late eighteenth century metal serpents were made, with keys in addition to or replacing finger holes. Other models were made in the shape, more or less, of bassoons. These found some limited use in military bands, but the serpent was never truly adequate to provide a bass voice for the orchestral brass section.
- During the late 1810s another keyed brass instrument, the ophicleide, was invented. Made of brass, this instrument very loosely resembles a metal bassoon, with saxophone-like keys. Most had anywhere from 9 to 12 keys. It was the preferred bass brass instrument of Berlioz for a time, and was used by Mendelssohn, Wagner, and others. As a keyed instrument, however, it lacked the capacity for projection enjoyed by the tuba, which these composers and their contemporaries quickly adopted after its invention.
- The valve, invented by Heinrich Stölzel and Friedrich Blühmel in the mid-1810s, made the development of the tuba possible. Keyed instruments never produced sufficient volume to balance the band and orchestra, and making a functional bass brass instrument before the invention of the valve would have been difficult, if not impossible.
- Prussian bandmaster Wilhelm Wieprecht and instrument maker J.G. Moritz are generally credited with the invention of the bass tuba (probably in F), which was patented in 1835. It was fitted with five *Berliner Pumpen*, a type of piston valve of Wieprecht's invention. These valves were an improvement over earlier pistons, but were soon supplanted by the Périnet valves used today. Blühmel created the first rotary valve in the 1820's, and makers in Prague and Vienna quickly refined the design. Soon tubas (and all the other brasses) were available with piston or rotary valves, as is the case today.
- The earliest tubas were likely mediocre at best, but Berlioz, among others, immediately took a liking to the instrument. A standard shape and valve arrangement for these instruments did not develop initially, but eventually a design resembling that of the "saxhorn" family (named for their inventor, Adolph Sax) with three, four, five, or six valves became most common. Marching versions of the instrument such as the helicon and later Sousaphone developed toward the end of the nineteenth century.
- The invention of the tuba filled a definite void in band and orchestral instrumentation, and it should be no surprise that one or more of these instruments quickly became a standard part of these ensembles. Tubas and Sousaphones played a vital role in early jazz, as well, since early recording technologies did not record string basses as easily as the louder and more direct sound of the tuba. As recording technology developed, the bass role in jazz ensembles was largely given to the string bass.
- Today's tubas have anywhere from three to six valves, and use piston or rotary valves (or a combination of the two). The function of the first four valves has become standardized, but fifth and six valves, when employed, have different functions depending upon the particular instrument used. As a rule, tubas are available in the keys of BBb and CC (contrabass), and Eb and F (bass). The instrument used depends on the player's preference and the ensemble – Eb and F usually for small ensembles, BBb and CC for large ones.
- Tuba solos, except for novelty pieces such as Andrea Catozzi's *Beelzebub*, were rare for most of the twentieth century, but the composition of the one-movement Concerto and Concerto Allegro by Alexei Lebedev in 1947 and 1949, respectively, the Tuba Concerto by Ralph Vaughan Williams in 1954, the Sonata by Paul Hindemith in 1955, and other works sparked a new (and continuing) interest in the tuba as a solo instrument.
- Chamber ensembles of tuba and euphonium players are also now quite common, especially on college and university campuses. These ensembles present challenging music to players whose parts in large ensembles tend to be rather boring, thus further developing their musicianship and at the same time increasing the visibility of the tuba family through performing opportunities of all types.

Instruments

- Contrabass tuba in BBb or CC. These largest tubas are the standard bass instruments in bands and orchestras, with BBb instruments being most common in school bands. CC tubas are generally preferred by American professionals.
- Bass tuba in Eb or F. Bass tubas are preferred for small chamber ensembles and for solo playing. F tubas are more common in America, though the Eb is perhaps a more versatile instrument.

- Cimbasso, usually in F, though sometimes in CC or BBb. This instrument is essentially a contrabass valve trombone. The “slide” section extends downward and rests on the floor, however, and the large mouthpiece combined with the valve system makes it best suited to being played by a tubist. The term cimbasso has long been misunderstood – it was applied to a number of instruments during the 19th century, but gradually came to refer to the contrabass trombone preferred by Verdi and his contemporaries in Italian opera instead of the tuba. The modern version of this instrument is an attempt to, in sound if not in physical appearance, obtain an authentic bass voice for the brass section in these works.
- Sousaphone. A larger version of the earlier helicon, the earliest Sousaphones were bell up, but later models were made bell front (the bell up is still an option on some models – and Sousa always preferred this type). These instruments are usually in BBb, using the same fingerings as the BBb concert tubas. Eb Sousaphones were once available but these are, to my knowledge, no longer made.

Choosing Students for the Tuba

- It IS possible to start on the tuba, though some teachers do not recommend it. As long as a small enough instrument and mouthpiece are used students can start very successfully on tuba, and you may have better luck getting good tubists by starting students on the instrument, rather than transferring second-rate trumpeters or trombonists later on. That said, a student that plays another instrument and becomes ill-suited to it as he or she develops—for example, a trumpeter whose lips “fill out” too much for the trumpet as he or she grows older—may become a good tuba player with sufficient practice.
- Facial structure. Potential tubists usually have somewhat large lips, though not always. That said, a very large-lipped individual will probably have more success with the tuba than other brass instruments. The mouth must be wide enough that it is not entirely swallowed by the mouthpiece. Extreme overbites or underbites can be a problem on brass instruments but can in some cases even be beneficial for woodwind players. A student with a lisp may have difficulty articulating properly on any wind instrument, but more so with the brasses.
- Physical stature. It’s hard to tell with young students, although if a student is REALLY small at age 10-12 he or she might never grow in to the instrument. It’s a good idea to have a parent meeting before choosing instruments for many reasons, but one of these is to see if certain students are likely to be able to eventually manage a large tuba.
- When allowing students to try instruments, have them try to create a buzz first of all. No really special embouchure formations – just buzz the lips, and then do it in the mouthpiece. If a student favors the high register, try trombone, horn, or trumpet. If he or she can’t buzz at all, strings, percussion, or woodwinds may be better.
- After letting them buzz the mouthpiece, you can let them play the instrument while you hold it and manipulate the valves.
- Again, if they get a reasonably good sound on the mouthpiece and/or instrument, and they LIKE the tuba, they’ll probably be ok (with practice, of course).
- Start more tubists than you think you will need, and always encourage them to “stick with it” and excel. The low brasses have a high dropout rate, unfortunately, and you will need to anticipate this and try to counteract it, if possible.

Pedagogical Concepts

- Instrumentation. Again, it is perfectly reasonable for beginners to start on tuba, provided that they are able to handle the size of the instrument. BBb tubas are perfectly fine for school band programs, although advanced players who wish to purchase an instrument for themselves should be encouraged to try both BBb and CC tubas to find the instrument that is best for them. Purchase of Eb or F tubas is usually best left until college. Four-valve instruments are HIGHLY desirable, and should be employed as early as possible.
- If students do wish to purchase their own instruments, they need to personally try as many tubas as possible. Inconsistencies in tubas abound, even from the same maker, and several of the same model might need to be tried before a suitable instrument is found (Yamahas are usually an exception to this). Woodwind and Brasswind in Indiana, Dillon Music in New Jersey, Baltimore Brass in Maryland, and Custom Music in Michigan all keep a reasonably large selection of tubas on hand, and you MIGHT be able to get them to ship them out to let you try them (although this will incur substantial cost).
- Rotary valves versus piston valves. For school instruments, buy pistons – they have fewer moving parts to mess up, and are much easier to properly lubricate. In short, they last better in conditions of questionable care. For individual purchases, players shouldn’t choose an instrument based solely upon the type of valves – there are much more significant factors that go into making a good instrument!
- Tuba parts are ALWAYS written in concert pitch, except in a few rare instances (such as British brass band music). This means that whether the player plays a BBb, CC, Eb, or F tuba, the part will be the same. Transposition is simply not an issue for tubists—each player is responsible for learning and mastering the fingerings for the instrument he or she is playing. If you have a player that chooses to purchase a CC tuba, for example, you will not have to find different “CC tuba” parts for him!
- Mouthpieces. Students that use school-owned instruments should still own their own mouthpieces, as they will be more likely to care for their own belongings, and will be able to get the best individual mouthpiece for each student.
- A daily warm-up routine of some sort is a must for all brass players, as these not only prepare the player for the day’s playing, but also reinforce the fundamental aspects of playing and even help prevent injuries from overexertion.
- Make sure players learn at least a short chromatic scale as early as possible. This will help to avoid a great many difficulties later on, as students will be familiar with a fuller spectrum of notes and fingerings.

- Intonation can be especially problematic on these larger instruments, and players should be aware that the 1-3 or 1-2-3 valve combinations are VERY sharp, and need to be compensated for, either by using the fourth valve instead of these combinations, or by “lipping” the pitch in order to correct intonation.
- Teach players to take a deep, low breath, and make sure they are blowing as efficiently as possible. Often students will try to do more work with the embouchure than with the air and tongue, producing a thin, strident sound. Have students use the air to manipulate the embouchure, rather than putting a great deal of direct pressure on the lips. This will help maintain a better tone quality and also gives students more playing stamina. This concept is EXTREMELY important for tubists!
- Also, do NOT press the mouthpiece into the face. Use no more pressure than is necessary to create a proper seal between the lips and mouthpiece – to do otherwise is physically taxing and can cause long-term damage. As stated above, let the AIR do most of the work.
- Tonguing should be simple – just say “toh” (or “taw,” or other manipulations). For multiple-tonguing use “tu-ku” for double tonguing and “tu-tu-ku” or “tu-ku-tu” for triple tonguing.
- Scales and arpeggios should be learned, memorized, and practiced EVERY day.
- As with all instruments, individual practice is a MUST, and obtaining a private teacher is HIGHLY desirable. This may be most important for tuba players, as they will need to be exposed to challenging material in order to offset the rather boring parts they most often receive in music for young bands. Retention of good players becomes a problem if students are bored into quitting band. As a teacher, do your best to choose at least some pieces that include challenging and/or enjoyable parts for tubists.
- Straight mutes are available for tuba, but are very expensive and rarely used. The odds of needing one of these in high school literature are slim.

Assembly, Lubrication

- Assembling the tuba is simple – place the mouthpiece in the receiver and twist. Do NOT hit the mouthpiece.
- Lubrication. Any standard valve oil is acceptable for piston valve instruments. Pull the piston out slightly, place a few drops of oil, and replace. Rotary valves should have thicker rotor oil placed on the spindle under the valve cap and under the stop screw, and on all moving parts. Remove the valve slides and squirt some regular valve oil down into the valves for even faster action (excess will have to be emptied). Do NOT allow students to remove rotary valves. You can do this to clean them if you so desire – instructions for the process can be found on various Internet sites. If in doubt, leave this to repairmen. Tuning slides require just a small amount of tuning slide grease to keep them moving.

Suggested Method Books for Individual Practice

- Arban, J.B./Jacobs, Young: *Complete Method*
- Blazhevich, V./King: *70 Studies for BBb Tuba*
- Bordogni, M./Jacobs: *Legato Etudes for Tuba*
- Concone, G./Jacobs: *The Complete Solfeggi: Legato Etudes for Tuba*
- Getchell, R./Hovey.: *Practical Studies for Tuba*, vols. 1 and 2
- Gower, W. and Voxman, H.: *Rubank Advanced Method for Tuba*, vols. 1 and 2
- Hovey, H.: *Rubank Elementary Method for Eb or BBb Bass*
- Snedecor, P.: *Low Etudes for Tuba*
- Tyrell, H.W.: *40 Advanced Studies for BBb Bass*

Suggested Reading

Bevan, Clifford. *The Tuba Family*. Second Edition. Winchester, UK: Piccolo Press, 2000.

Bird, Gary. *Program Notes for the Solo Tuba*. Bloomington, IN: Indiana University Press, 1994.

Farkas, Philip. *The Art of Brass Playing*. Rochester, New York: Wind Music, Inc., 1962.

Fasman, Mark J. *Brass Bibliography*. Bloomington, Indiana: Indiana University Press, 1990.

Frederiksen, Brian. *Arnold Jacobs: Song and Wind*. Gurnee, Illinois: WindSong Press Limited, 1996.

Griffiths, John R. *Low Brass Guide*. Roswell, Georgia: E. Williams Publishing Company, 1991.

Little, Donald C. *Practical Hints on Playing the Tuba*. Miami: Warner Brothers Publications, 1984 (formerly published by Belwin-Mills).

Morris, R. Winston and Daniel Perantoni, eds. *Guide to the Tuba Repertoire: The New Tuba Source Book*.
Bloomington, Indiana: Indiana University Press, 2007.

Phillips, Harvey and William Winkle. *The Art of Tuba and Euphonium*. Seacaucus, New Jersey:
Summy-Birchard, Inc., 1992.

Sloan, Gerald. *Orchestral Recordings for Low Brass*. Troy, Michigan: Encore Music Publishers,
1996.

Suggested Instruments

*It is best to check catalogues and with professional players before purchasing tubas. Tuba models, numbers, etc. seem to be in constant flux – there is MUCH less standardization in the tuba world than with other brass instruments.

**I am only listing BB-Flat instruments, because those are the only ones you will purchase for your schools. The same brands that offer good BB tubas also, in most cases, offer good CC and other tubas, for those students interested in such.

***Sizes. This is subjective – there is no standard. Technically, a 4/4-sized tuba is a “normal” size (like we use). 3/4 would be appropriate for smaller players, 5/4 or 6/4 are simply not necessary for your purposes.

- Beginner, Intermediate
 - Yamaha YBB-105 (3 valves, but small 3/4 size and accessible to young players)
 - Yamaha YBB-321 (Ok, intermediate 4-valve instrument for older students)
- Professional (4- or 5-valve)
 - Besson BE994 *Compensating
 - B&S Perantucci PT-1, PT-2PF
 - Cerveny ABB 681, CBB 6864MR
 - Hirsbrunner HB-4 *5-valve
 - Holton TU331BB
 - King 2341 **GREAT horn, and reasonably priced. HIGHLY recommended for high schools.**
 - Meinl-Weston 18, 25, 195
 - Miraphone 186, 187, 191, 289, 1291 *some available in 5-valve models
 - Willson 3100 *5-valve
 - Yamaha YBB-621, YBB-641, YBB-631 *Compensating
- Sousaphones
 - Conn 20K
 - Yamaha YSH-411
- Convertibles
 - Yamaha YBB105MWC (3/4)
 - Yamaha YBB201MWC (4/4)

Suggested Mouthpieces

*As with instruments, a variety of tuba mouthpieces are available from different makers, with availability and model numbers always changing. The suggestions below should be viewed only as a starting point.

- Conn Helleberg, Helleberg 7B*
- Schilke, Helleberg, 66, 67, 69C4*
- Bach 18, 22, 24AW*, 25*
- Josef Klier T3B, T3C*, T4B, T4C*, T5B, T5C*
- Miraphone TU23 (C4)

*Any of these marked with an asterisk will make acceptable beginner mouthpieces. Try not to go too big – the Conn Helleberg may not be the best starter piece, though it is a good basic mouthpiece for high school players.

Prominent Players (worth listening to)

- **Arnold Jacobs (deceased)**
- Alan Baer
- Roger Bobo
- Sam Pilafian
- Pat Sheridan
- Chuck Dallenbach
- Gene Pokorny

- Oystein Baadsvik
- John Fletcher (deceased)
- John Stevens
- R. Winston Morris

**Arnold Jacobs, former Principal Tubist of the Chicago Symphony Orchestra, is perhaps the most highly regarded brass pedagogue—for any brass instrument—of the twentieth century. His research into breathing and physiology in relation to playing revolutionized the playing and teaching of the tuba and all brass instruments, and even led woodwind players, singers, and medical doctors to seek his advice and counsel. If you only remember the name of one prominent brass player and teacher, that name should be Arnold Jacobs.

Online Resources

- International Tuba-Euphonium Association. <http://www.iteaonline.org>
- Sean Chisham's TubeNet BBS. <http://www.chisham.com>
- TubaNews. <http://www.tubanews.com>
- WindSong Press (lots of Arnold Jacobs stuff). <http://www.windsongpress.com>