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# *Chapter* **1**

## **HISTORY OF THE TUBA AND RELATED INSTRUMENTS**

According to eminent musicologist Curt Sachs, all wind instruments are correctly classified as aerophones. Simply stated, an aerophone is a tube or pipe (either open or closed) enclosing a column of air and acting as a sound resonator. All brass instruments, including the tuba family, are lip-vibrated aerophones. This term thus identifies those musical instruments that produce sound when players project air through their lips, causing them to vibrate into a cup-shaped mouthpiece that channels the vibrating air stream into the pipe or tube. In combination, the length of tube, tension of the lips, and speed and direction of the air stream determine the pitch produced.

It is interesting to note that instruments of the brass family are not classified together because they are fabricated from a common metal or alloy but because they all produce sounds by vibrating lips into a cup-shaped mouthpiece. This factor establishes brass instruments as the most “physical” of wind instruments.

All brass instruments are designated as having a cylindrical or a conical bore. Cylindrical instruments maintain consistent bore size throughout the major portion of their length with a slight taper in the leadpipe section and a major taper in the bell section as it flares to form the bell. Cylindrical instruments have a characteristic brilliant tone quality (this group includes trumpets and trombones). Conical bore instruments have a gradual taper for the major portion of their length, including the leadpipe and bell sections, and have cylindrical tubing through the valve section (including attached tubing and crooks for ease in tuning each valve). Some conical instruments, both historic and modern, maintain a degree of conical taper through the

## Chapter 7

# TAKING CARE OF YOUR INSTRUMENT

It is wise to follow the manufacturer's instructions for "breaking in" a new instrument. In most cases the exclusive use of quality valve oil is recommended; others recommend oil and water. In any case it is important to keep the valves, valve casing, slides, and the entire instrument clean—inside and out.

It is extremely important to keep the mouthpiece clean. Do this by removing all particles of dirt with a mouthpiece brush and clean, running water. Avoid leaving the mouthpiece in the instrument after playing. In case of a stuck mouthpiece, *never* use pliers or force in any way, but use a mouthpiece puller (available at your local repair shop or in your teacher's studio). Mouthpiece shank dents and bit or extension dents should always be removed by a qualified repairman.

The inside tubing of brass instruments should be cleaned regularly by flushing warm water through it. Never use hot water to clean any brass instrument. A "snake" brush (length of coil with brush on each end) is most helpful. Be careful not to dent the tubing. Dents will weaken the walls of the tubing, affect the tuning of the instrument, and look bad. Also, the removal of dents will further weaken walls of the tubing. A qualified instrument maker or repairman should remove all dents.

When cleaning a piston valve instrument, work the valves up and down while a stream of warm water is flushed through the instrument. When the instrument is thoroughly clean, water emitted from the tubing should run clear. Dirty valves and valve casings are the most common cause of sluggish valve action. Valves may be cleaned with mild soap and water, but all soap film must be rinsed away.

Do not use soaps containing abrasives: They are likely to scratch and damage the valves. If soap is to be used, use only castile soap such as Ivory. For the valve casings, use a cleaning rod and clean cheesecloth (or linen). Be extremely careful that the metal rod does