

Summary of the Percussion Section's Strengths

- (1) Variety of color.
- (2) Extremely wide dynamic range.
- (3) Ability to achieve a wide number of contrasting textures.

Arranging the Instruments on the Score:

- Percussion section goes underneath the brass.
- Use "high/low" method:
 - Triangle
 - Castenets
 - Cymbals
 - Snare Drum
 - Tom-toms
 - Bass Drum
 - Keyboard Instruments

Beaters/Mallets

See Figure 14.2, pg. 269 of Kennan.

Acoustical Considerations (not necessarily just for percussion)

- An instrument that has one dimension unique from the rest is most likely to project.
- The timbre of an instrument may be influenced by where the instrument is struck and what resonators are part of or near the instrument.
- Tone quality may be affected by:
 - 1) The relative strengths of the modes* (the different ways a vibrating medium vibrates). A defined pitch is produced when the modes are all members of a harmonic series. A noisy effect is produced when the modes are in 2 or more different harmonic series. Prominent high modes produce a brighter sound. Prominent low modes produce a darker/deeper sound.
 - 2) The shape and material of the vibrating body. Harder material produces a brighter sound.
 - 3) How loudly the instrument is played. Louder tones are brighter than softer ones.
 - 4) Where the instrument is struck. The middle is darker than the edge.
 - 5) The size of the striking surface. Larger instruments produce lower pitches.
- Timbre is not constant but changes during decay.
- The instrument's sustain will be longer if:
 - 1) It is relatively large.
 - 2) One of its dimensions is different from the others.
 - 3) There are no resonators.
 - 4) It is struck at a point that emphasizes its fundamental.
 - 5) The striking area of the striking implement is large and soft.
- A striking implement with a smaller or harder striking surface will produce a more articulated attack than one with a larger or softer one.
- An instrument sounds most strongly in the direction in which its largest surfaces face.

*A vibrating medium actually vibrates in many ways at the same time. These different ways, called "modes," have different rates of vibration, or pitches, and different strengths. It is generally thought that if the loudest pitches produced by these modes are members of a harmonic series, a single pitch will predominate. If any pitch is not in the same harmonic series as the others, it is said to be "inharmonic," and will project a dissonant or "noisy" effect. Clarity of pitch, then, depends upon how well the modes of vibration correspond to a harmonic series.