

MUSIC THEORY.aargh@

The Overtone Series-4 (Session 19) “Overtones: What do they mean for me?”

By Dr. Ona Pinsonneault

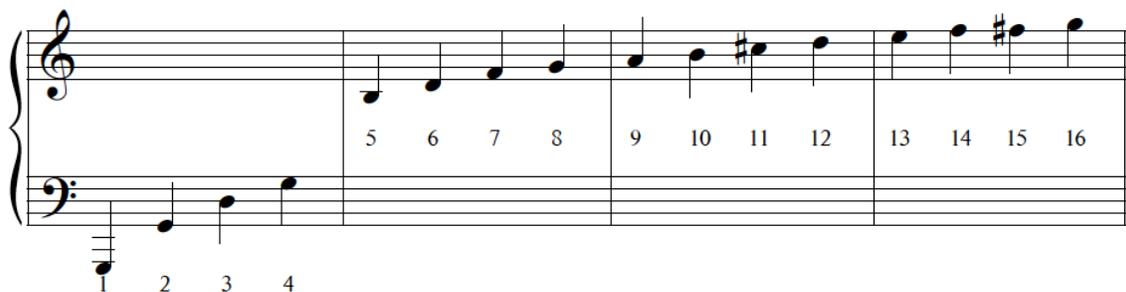
We can thank the overtone series for these things.

1. Scoring chords as Don Allured suggests (see session 17 of this column). In spacing of notes of chords notes are further apart in the lower octaves and closer together in higher octaves. This applies to centuries of music written for all ensembles.

2. Sympathetic ringing as Deborah Gill suggests in “The Acoustics of Campaniforms” (see Session 18 of this column). She says that bells, if given the chance, will vibrate even if the clapper does not generate the tone. The tone produced will be very soft, but nevertheless, is audible and is combining itself with other sound waves of tones already generated. (We sometimes talk about a “full rich tone,” overtones are part of what makes up this sound.)

3. On the web there are many articles on the manufacturing of handbells. Different manufactures desire to stress different sounds in their make of handbells. Commonly the most audible overtone is a pitch of the overtone series is the 12th however there are makers of handbells who wish to stress other overtones as the most audible ones. If you are interested in this topic simply look at topics like “manufacturing of handbells” or “tuning of handbells”. (Of course there are other factors involved in the unique sound of the handbell: material, shape, type of clapper, etc., but most important is the overtone.)

4. Inversion of intervals (as we saw in Sessions 12-15). When a Perfect Fifth (partials 2 and 3 of the overtone series, see below) is inverted it becomes a Perfect Fourth (partials 3 and 4 of the overtone series). In a Perfect Fifth the lower note is considered the “root of the interval” because it is a duplication of the fundamental (partial 1) of the overtone series. When this interval is inverted the upper note is the “root of the interval” because it is the duplication of the fundamental of the overtone series. The Perfect Fifth, therefore, is more stable than the Perfect Fourth. The Perfect Fourth is less stable and desires to “resolve”, or move to a more stable sound commonly the Third. In the Major Third (partials 4 to 5 of the overtone series) the lower note is the “root of the interval” because it is the duplication of the fundamental in the overtone series. This is the beginning of “harmonic structure” and “harmonic progression”, a topic that may be the leading one in next year’s columns!



Until next time,

Dr. P

Ona.pinsonneault@normandale.edu

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