MTO 22.4 Examples: Rehding, Instruments of Music Theory

(Note: audio, video, and other interactive examples are only available online)

http://www.mtosmt.org/issues/mto.16.22.4/mto.16.22.4.rehding.php
Figure 1. Mythical acoustic experiments on a variety of instruments, from Franchinus Gaffurius, *Theorica musiceae* (1492, Bk. 1, Ch. 8)
Figure 2. Examples of tetrachords in Vicentino’s three genera, from L’antica musica, 3.45. Other configurations are possible.
**Figure 3.** Vicentino divides each whole tone into five microtones

![Diagram showing the division of a whole tone into five microtones.]

**Figure 4.** Vicentino celebrates his accomplishments with a medal. The recto shows his profile, the verso shows his two instruments, the archicembalo and the arciorganò. The medal marks him as the “inventor of the perfect division of music.” (From Morton & Eden, Auction Catalog 59, November 13–14, 2012.)
Figure 5. A popular introduction to the mechanism of the siren, from *Harper’s New Monthly Magazine* (1872).
Figure 6. The ratio 3:2 corresponds to the interval of the fifth. Opelt’s multiphonic siren shows how the compound rhythms, translated into spatial sequences of dots, as shown on the right, produce two (or more) sounds. (The circular diagram included in Figure 7 shows this pattern in its second ring from the center.)
Figure 7. Even chords can be captured as compound rhythms. The ratio 4:5:6:8, first marked by arrows along the harmonic series, then translated into a sequence of holes, corresponding to the compound rhythm of our complex ratio, and finally projected onto a schematized siren disc.
Figure 8. Henry Cowell’s friend Joseph Schillinger behind the rhythmicon (1932). Photo now held at Stanford University.
Figure 9a. The opening of Henry Cowell’s *Quartet Romantic* (1915) codifies a major harmony in four voices in the pulsating rhythms of each part.
Figure 9b. In his own analysis of *Quartet Romantic*, Cowell decodes the rhythmic structure of his music into higher-order harmonies.