Giuseffo Zarlini (1517–1590) was a singer and organist and famously studied with the Flemish composer Adrian Willaert. His first treatise, published in 1558, was *Istitutioni harmoniche* and, amongst other theories, renumbered the order of modes, placing the Ionian mode (modern major scale) first. He also wrote guidelines for the techniques of invertible counterpoint: the first type of this involved inverting the additional voices only (not the melody), and transposing the melody down a fifth. The second type involved inverting both the voices and melody.

Pythagoras is credited with having discovered the physical relationship, expressible as ratios, between mass and sound. He is also credited with having invented the monochord, essentially a stretched gut string on a soundboard with moveable bridges, for testing harmonic properties and their rapport with numerical ratios. Zarlini proposed, in his *Istitutioni harmoniche*, dividing the monochord into 6 parts, instead of the usual 4. Thus, for the first time, one was able to generate every consonant interval. He then extrapolated that there must be 6 species of voices (unisone, equisone, consone, emelle, dissone, and ecmele), as well as 6 consonances (diapason, diapente, diatessoran, ditino, semiditino, and unisono). He also then derives 6 types of harmony, or modes (doria, frigia, mistalidia, o lochrense, colia, and ionia).

Zarlino's work influenced music theory until Bach's time and beyond. In Bach's Clavier-Übung, the 1st volume contains 6 partitas, which is just one of many mathematical references in Bach's music to the theoretical thought handed down by Zarlini. J.P. Kirnberger, who was a student of Bach, explains scales, intervals, etc., according to Zarlini's principles in his Die kunst des reinen satzes in musik (1771–79). Even J.P. Rameau, in his *Traité de l'harmonie* (1772), bases concepts upon the monochord.

Orlando de Lassus (1532–1594) was a Netherlandish composer of the late Renaissance. He is today considered one of the chief representatives of the mature polyphonic style of the Franco-Flemish school. He was made Maestro di cappella in Laterano in 1553 (aged only 23!), then progressed to the court of the Duke of Bavaria in 1556. He is known for his masses, madrigals, chansons and motets (his first book of them being published in 1556).

TRISTIS ANIMA MEA

Gallus Dressler (1533–1589) was a German composer and music theorist. He is best known for his theoretical writings, especially his *Praecepta musicae poeticae* (1563), which contains some of the earliest detailed description of the compositional process of the Renaissance motet. Dressler's explication of *musica poetica* can be summarized in two principles: the application of the rhetorical principles of exordium, medio, and finis∧ to the structure of a motet, and the application of the grammatical principle of a "clausula" (sentence) to smaller musical units demarcated by cadences. He postulated the idea of three kinds of cadences.

- Principal – the notes build on 4th and 5th
- Secondary – inserted in the middle part of the song

∧ Simply, the beginning, end and finish!