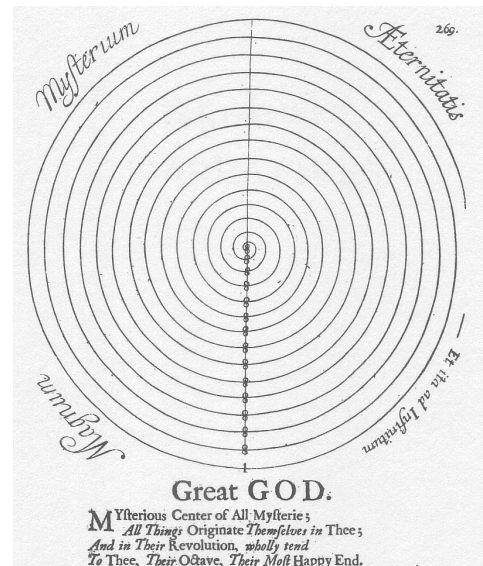
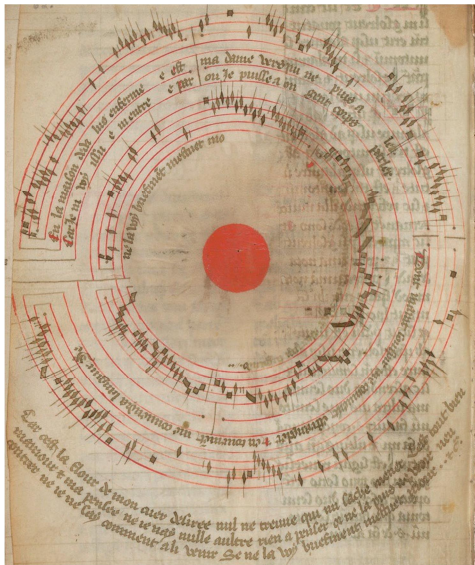


Musical Spirals

With Contributions by Susan Forscher Weiss, Penelope Gouk, Michael Dodds, Daniel Muzzolini



1.

From Archimedes' obsession with screws, to Botticelli's spiralling illustrations in Dante's *Commedia*, to Leonardo's sketches showing vertical flight, to say nothing of its presence in nature, artists, writers and musicians have long been occupied with spirals. In music, theorists from ancient times contemplated the harmony of the spheres and the intervals by including spheroid images in their treatises, while composers from the medieval era through to the present have inscribed music notation in labyrinthian shapes or have created spiralling movements in their compositions.

Susan Forscher Weiss (Johns Hopkins, SG Musical Diagrams)

2.

The Cambridge musician Thomas Mace (c.1613-c.1706) is known today for his book *Musick's Monument* (1676), which is chiefly valued for its description of seventeenth-century musical practice including guides to the lute and viol. At the end of the book, however, is what Mace described as music's contemplative part where three 'mysteries' are presented, the third of which is in the form of a spiral diagram. In this paper I will introduce what Mace says himself about this spiral and what it represents before contextualising both the image itself and his accompanying words. I will argue that they are underpinned by Mace's essentially musical understanding of Platonism. This philosophy was favoured not only by a small group of mid-seventeenth-century scholars whom we now identify as the Cambridge Platonists but also by the physician Robert Fludd whose striking visualisations of the Platonic cosmos were created a generation earlier.

Penelope Gouk is an Honorary Research Fellow in History at the University of Manchester. Her research chiefly focuses on early modern scientific, philosophical and medical explanations for music's effects, and also on the use of musical models to conceptualise ineffable truths and the hidden powers of nature.

3.

A unique representation of the mediated octave species in spiral form is found in Maternus Beringer's *Musicae: das ist der freyen lieblichen Singkunst* (Nürnberg, 1610). In its graphic arrangement, Beringer's "cochlea modorum" (spiral of the modes) draws attention to the divisibility of any given octave species harmonically (authentically) or arithmetically (plagally). Beringer's spiral diagram presents fourteen authentic and plagal modes with finals from C through B, notated with a single large ligature. This means of representation is ambivalent: while he represents the octave species in the tenor register, embedded within the registrally specific gamut, the circularity of his diagram emphasizes the periodicity of the diatonic octave, suggestive of emergent, keyboard-inflected concepts of tonal space.

Michael Dodds (UNCSA, SG Musical Diagrams)

4.

Octave similarity is often considered a musical universal: Two notes that are one or more octaves apart seem to have something in common that other pairs of notes do not. When performed simultaneously, they sometimes merge into a single sound, and we are accustomed to refer to them by the same letters of the alphabet. There are several terms used for the recurring octaves - pitch classes, chroma or tonality - and the circle provides a useful geometric metaphor for this perceptual phenomenon. While it seems natural to arrange the spectral colours of light on a circular line, despite or precisely because they do not recur in different octaves, corresponding sounds in different octaves have different frequencies, so while they are the same chroma, they differ in the linear pitch dimension. By combining an infinite radial pitch dimension with a finite circular chroma dimension, concentric circles and spirals offer themselves as two-dimensional pitch models. On our tour we will look at drawings from Theinred of Dover to Roger Shepard.

Daniel Muzzolini (ZHdK, SG Musical Diagrams)

