On Boethius’ *De Institutione Musica*

In his *De Institutione Musica (DIM)*, Boethius describes the nature of music as it is inherently about relationship. One of the four sciences that make up what Boethius calls the *quadrivium*, music is innate to the universe and humanity; therefore, music is necessary for true learning and comprehension of the universe. In order to comprehend music, both physical sense and reason are necessary, and according to Boethius, mathematics is key to understanding music in terms of reason. He references Pythagoras throughout this treatise on music theory, who insists that number is the means by which music must be understood—music is about quantity, ratios, and proportions as they describe the consonances that make up music, the movements of the universe, and the connection of body and soul.

In Book I of *DIM*, Boethius explains the importance of music as it is inherent to the workings of the universe before going into the more technical theoretical and mathematical sections of his treatise, which serve to describe in detail the concepts that Boethius says are necessary for understanding the consonances of music and the human soul. He first insists that music is part of every endeavour of human life—it is necessary for academics, but also expresses emotion and directs morality. Here, Boethius also introduces the idea that simple ratios in music are most perfect and relate most clearly to the ideal music of the spheres. He says that when music loses its simplicity it loses its integrity. Whereas simple and pure music denotes morality in society, society and the human soul may become corrupt by listening to impure music. Boethius also suggests that human disposition is modelled after musical concepts, saying that people relate to sounds that reflect their own nature. He explains that music shapes and affects the mind and that the order of the soul and body are connected by the same ratios by which sets of pitches are united. Boethius concludes the first chapter of Book I saying, “From all these
accounts, it appears beyond doubt that music is so naturally united with us that we cannot be free from it even if we so desired. For this reason, the power of intellect ought to be summoned, so that this art, innate through nature, may also be mastered, comprehended through knowledge” (Boethius 8).

One final thing Boethius makes clear before beginning the mathematical portion of his treatise is the different kinds of music that exist. He calls these categories of music *musica mundana*, or the music of the universe produced by the motion of the heavenly spheres, *musica humana*, human music, or the consonances which unite the parts of the soul, and *musica instrumentalis*, instrumental music, which is produced by tension, breath, or percussion, and which Boethius spends the majority of the rest of the text describing through mathematical principles.

All of the mathematics, diagrams and technical explanations which follow throughout the next four books of *DIM* find their basis in the discovery of the principles of consonance by Pythagoras. The story goes that Pythagoras was walking by a blacksmith shop and he heard different pitches of hammers. He first thought that these pitches differed according to the strength of those using the hammers; however, on further investigation, he discovered that the weights of the hammers themselves produced different pitches, and it was the ratios of these pitches and weights that described consonance.

The weights of the hammers are described by the ratio 12:9:8:6, which describes all of the musical consonances, which Boethius calls *symphoniae*. The ratio 12:6 describes the duple (2:1), or diapason, 12:9 the epitrita (4:3) or diatessaron, 9:6 the diapente (3:2), and 9:8 the sesquioctave. These ratios represent consonance in music, and their simplicity represents the purest form of celestial music, which human musicians approximate in their earthly music.
From these basic ratios, Boethius also devises systems that describe the modes as well as the positions and pitches of strings in instruments, from nete (the lowest note) to hypate (the highest note). Boethius then relates these pitches to the celestial spheres, calling Saturn the hypate, and the moon the nete. In this system, the Earth is immobile, and therefore, silent.

Throughout the rest of DIM, Boethius gives further examples of these concepts through mathematical equations and diagrams, but throughout it all, he continues to stress the need for music to be simple and pure, reflecting moral perfection and the coherence of the universe. Boethius explains that inequality proceeds from equality, and therefore must return to equality: unity is the origin of plurality, and equality is the origin of ratio. Music and consonance longs for unity and simplicity in order that it may return to the purity of the spheres from which it originated and models. In like manner, the human soul and reason longs for this clarity and purity that it too may approach the celestial harmony of the spheres.

Works Cited
