MUSICA UNIVERSALIS OR MUSIC OF THE SPHERES

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The allusive phrase, “the music of the spheres,” has intrigued generation after generation. In this response from the Rosicrucian Forum, the meaning of the phrase is considered in Pythagorean and Rosicrucian terms.

Musica Universalis or Music of the Spheres is an ancient philosophical concept that regards proportions in the movements of celestial bodies - the sun, moon, and planets - as a form of musica - the medieval Latin name for music. This music is not audible, but simply a mathematical concept.

The Greek philosopher Pythagoras is frequently credited with originating the concept, which stemmed from his semi-mystical, semi-mathematical philosophy and its associated system of numerology of Pythagoreanism

At the time, the sun, moon, and planets were thought to revolve around Earth in their proper spheres. The spheres were thought to be related by the whole-number ratios of pure musical intervals, creating musical harmony.

There is a legend that Pythagoras could hear the 'music of the spheres' enabling him to discover that consonant musical intervals can be expressed in simple ratios of small integers. The tones correlated with the great celestial movements of the day. Pythagoras' concepts were transferred by Plato and others into models about the structure of the universe.

Pythagoras told the Egyptian priests that Thoth gave him the ability to hear the music of the spheres. He believed that only Egyptians of the 'right' bloodline, passing successful initiations, could enter the temples and learn the mysteries set in place by the gods at the beginning of time. To learn more he had to win their confidence and needed to appear as a royal soul, begat of the gods and above the sins of man.

Johannes Kepler used the concept of the music of the spheres in his *Harmonice Mundi Harmony of the Worlds* in 1619. Kepler was convinced "that the geometrical things have provided the Creator with the model for decorating the whole world." In Harmony, he attempted to explain the proportions of the natural world - particularly the astronomical and astrological aspects - in terms of music.

The central set of "harmonies" was the musica universalis or "music of the spheres," which had been studied by Pythagoras, Ptolemy and many others before Kepler; in fact, soon after publishing Harmonices Mundi, Kepler was embroiled in a priority dispute with Robert Fludd, who had recently published his own harmonic theory. According to Johannes Kepler, the connection between geometry (and sacred geometry), cosmology, astrology, harmonics, and music is through the music of the spheres.

In Johannes Kepler's celestial physics the spheres were regarded as the purely geometrical spatial regions containing each planetary orbit rather than physical bodies as rotating orbs as in preceding Aristotelian celestial physics. The eccentricity of each planet's elliptical orbit and its major and minor axes thereby defined the lengths of the radii of the inner and outer limits of its celestial sphere and thus its thickness. The intermediate causal role of these annular geometrical spheres in Kepler's Platonist geometrical cosmology is to determine the sizes and orderings of the five Platonic polyhedra within which the spheres were supposedly spatially embedded.
In Kepler's celestial mechanics the previous ultimate causal role of the spheres became a non-ultimate intermediate role as the ultimate causal focus shifted on the one hand to the Platonic regular polyhedra within which Kepler held they were

embedded and which thus ultimately defined the dimensions and eccentricities of planetary orbits, and on the other hand to the rotating sun as the central inner driver of planetary motion, itself rotated by its own motor soul. However, an immobile stellar sphere was a lasting remnant of physical celestial spheres in Kepler's cosmology.

But solid physical spheres still featured in both Galileo's and Newton's early celestial mechanics, with Galileo initially considering the planets to be rolling around the upper surfaces of fixed perfectly smooth spheres driven by their own impetus and gravity, and with Newton calculating the centrifugal pressure that would be exerted by the Moon on the lower concave surface of the lunar orb in his 1660s analysis of lunar gravity. Thus for a long time Galileo fiercely resisted the Tychonic theory that comets are superlunary because it destroyed his initial spherist celestial mechanics by knocking away the counter-gravitational supporting surfaces of the rolling planets, and he was unable to explain circular orbits as closed curve projectiles driven by a centrifugal impetus and centripetal gravity.

'Music of the stars' now louder BBC - February 19, 2011
The Kepler space telescope measures the sizes and ages of stars five times better than any other means - when it "listens" to the sounds they make - called "astroseismology". The technique measures minuscule variations in a star's brightness that occur as soundwaves bounce within it. Using resonances, we can literally build up a picture of what the inside of a star looks like

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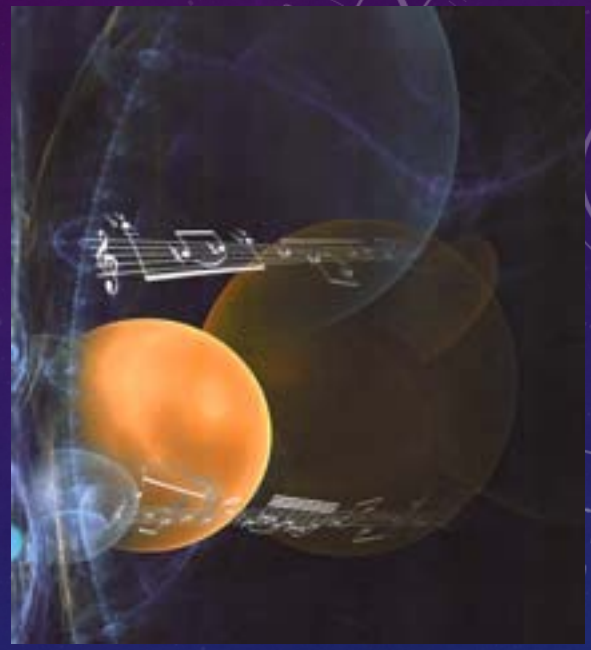
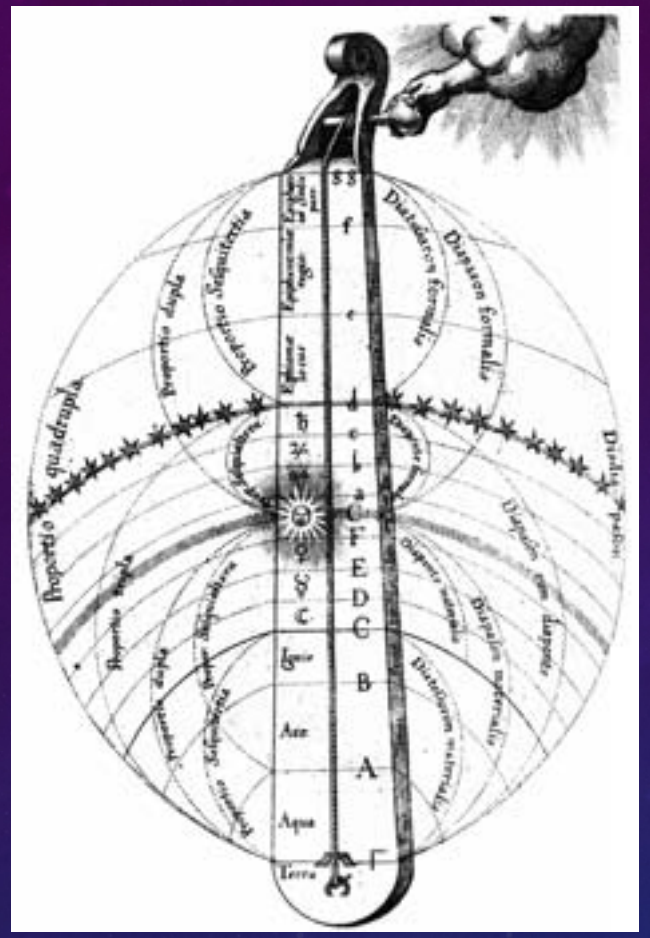


Much in past centuries has been written in the poetical and mystical sense with respect to the phrase “the music of the spheres.” From the scientific point of view it has been scoffed at. However, the very phrase had its origin in scientific speculation by one whom many historians regard as the “father of science.”

The phrase is attributed to Pythagoras and is related to his discovery that intervals of the scale had a simple numerical relationship.

In the realm of philosophy, Pythagoras, born on the little island of Samos in the Aegean in the sixth century BCE, is an enigmatic figure. Any intelligent student of the life and work of Pythagoras, at least that account which descends to us today, will proclaim him a most illumined individual. He combined within one person the attributes of a mystic, philosopher, and scientist. Rosicrucians are particularly proud to affirm that he was initiated in the mystery schools of Egypt from whence the Rosicrucian Order sprang. As an initiate and *master*, Pythagoras continued the doctrines which he had learned in Egypt in the great initiatory school which he established at Crotona. The Rosicrucian teachings today are rooted in doctrines which he expounded, even though they have been elaborated upon by the great minds of the Order since that time. His mystical doctrines concerning the nature of the soul and its relation to the body are an integral part of the mystical and occult teachings generally expounded today.

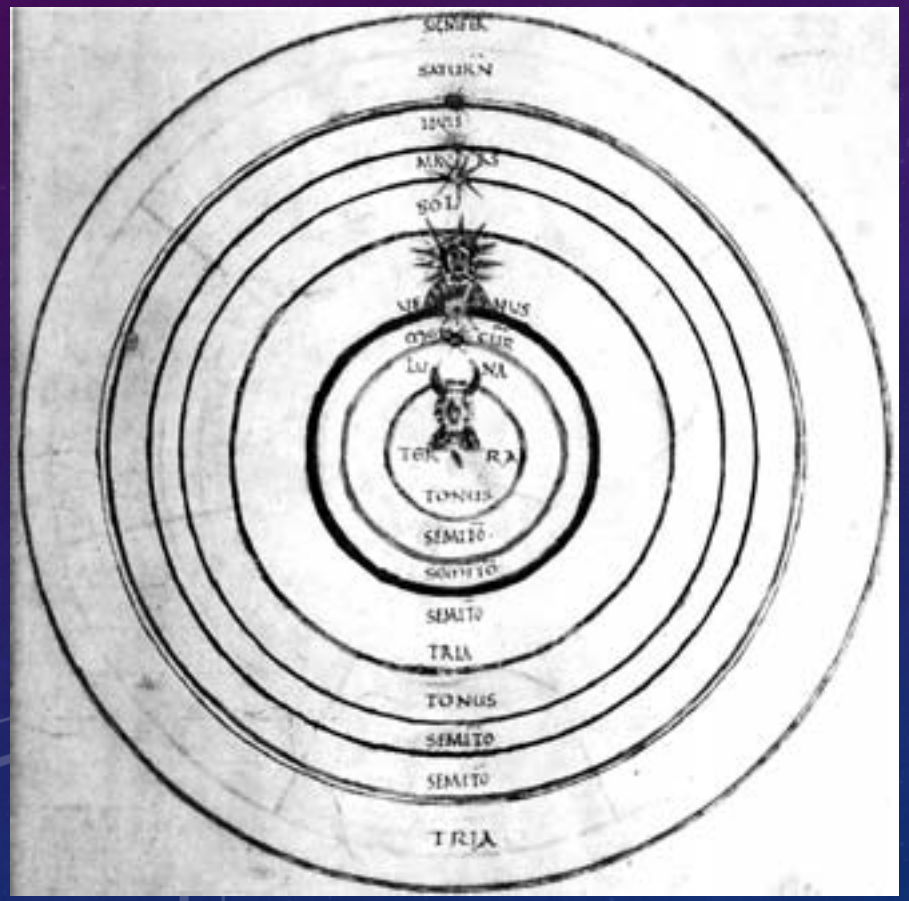


Pythagoras is credited with discovering the mathematical relationship between the various notes in the musical scale. He is said to have measured the lengths of a vibrating string and found that the rate doubled for each octave. It may be that this phenomenon was disclosed to him by the learned Memphite priests of Egypt where he had sojourned and where he was initiated into the mysteries. Nevertheless, this knowledge greatly impressed him. He conceived that “things are numbers”—in other words, that each reality, each particular which we discern is vibratory in nature and has its special number or rate of vibrations.

Consequently, if one knows the vibratory rate of the essence or energy of a particular, one will then be able to control its form of expression— just as modern physics is endeavoring to do now. Further, each reality or thing would have a mathematical relationship or place in the great universal scale. Just as there is a harmony between notes in a musical scale, Pythagoras contended that all have their numerical or harmonious relationship in the Cosmos.

Here, then, was the first postulation of a universe having an orderly arrangement which made possible an inquiry from an empirical or scientific point of view. Pythagoras had introduced a theory which in part, insofar as the phenomenon of sound is concerned, was demonstrable. It was a logical premise, therefore, to advance from that into the realm of other natural phenomena

He advocated the idea that if high and low pitches can be brought together in a perfect attunement, it was natural to suppose that all objects can be similarly treated. The theory of opposites or contraries, such as hot and cold, hard and soft, as the primary cause of change in the forms of things, was an idea prevalent in Pythagoras's time. To him harmony meant a balance or blending of these contraries. For a stable reality or universe there would have to be a blending of opposites in proportions which could be numerically expressed. To Pythagoras, number was "the key to the universe." If we learn the number and proportion of all reality, we know the secret of the universe. Centuries later, another Rosicrucian, known as John Dalton, who was also eminent in science, introduced a similar idea of fixed proportions of the elements in chemistry. Pythagoras applied his concept to the relative distances of the sun, moon, and stars.



He believed that there was a harmony of relationship between them that could be expressed numerically. It was a theory that was also expounded in much more recent times, but somewhat differently. Pythagoras taught that if the sun, moon, and stars really have vibratory rates corresponding to specific octaves in the universal scale, then each must give off vibrations, just as the strings of the lyre give off sounds. In other words, if planets are vibratory, they must propagate waves which can be discerned, just as when one plucks the strings of a musical instrument. At this junction of his philosophy, Pythagoras was misunderstood by many, or at least misinterpreted. He did not mean that this music of the spheres, this harmony of the planetary bodies in motion, can be audible in the physical sense, just as we hear the voice of another. To his credit, we may say that he meant that if we do not hear this music of the spheres, it is because we are not attuned to their vibratory rate—this "hearing" was not to be conceived in the physical or objective