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Plato and the Justice That Is Harmony

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Plato's *Republic* presents his reflections on the concept of justice; but if one expected an Aristotelian-type definition elegantly completed by means of its genus and difference, one would be disappointed. This disappointment has at least one good reason: Plato is not trying to describe anything that actually exists in our mundane existence; Platonic justice does not exist, in the sense that it is an ideal and does not exist in any empirical, everyday sense. His metaphysics requires a distinction between the realms of Being and Becoming. "Being" includes all perfections, the unchanging, the abstract, clear, distinct, and universal; "Becoming" refers to everything physical, everything that changes, or that comes and goes. An ideal, justice is something to be wished for, a possibility that engages and lures us on in the hope of improving our personal and collective lives. If an ideal could or would actually, generally, and fully come into existence, it would have become a fact and cease to be an ideal. If justice had existed when Plato penned this masterpiece, he would have pointed to its instantiation and urged his fellow Athenians to imitate that glorious place. Instead, he envisioned an ideal place that he called *Kallipolis* (beautiful city). [1]

In Plato's view, human souls once existed in this realm of Being, or the world of Forms, before they were joined to bodies. Being cast down into the physical realm, souls suffered loss of insight into what they had once known. Still, some traces of the insights of their pre-birth existence remained. Accordingly, human souls, now embodied, do retain some little memory of what they once knew, of ideals such as justice. Ideals present humans with goals that can motivate and draw them forward to something better: perfect justice, perfect peace, perfect love. The list goes on, and human dreams can be irresistible. In addition, an ideal, as envisioned at least, can serve in assessing progress and the steps along the way. The ideal, as we envision it, tells how well we are doing; it serves us well even if we are destined never to achieve it perfectly. Whatever level of justice Athens may have reached when Plato began his Republic, he clearly thought it worthwhile, even necessary, to hope and plan that Athens, though better than most city-states, could achieve a still-higher level of justice. [2]

His plan is clear early in the Republic, a plan that highlights music as a transformative feature of public life. Joined with gymnastics, music had long served Athens as the context, grounding, and means of achieving a just state or the ideal called *justice* (dikaiosune). Plato embraced Athens' program,

identified in the term *paideia*, offering the concept of harmony as his way of exploring the ideal of justice, though a justice he re-defines and elevates.

It is reasonable to assume that the definition of justice offered in the Republic by Thrasymachus represents the widespread view in Athens, given his reputation among the Sophists. "This, then, is what I say justice is, the same for all cities, the advantage of the established rule. Since the established rule is surely stronger, anyone who reasons correctly will conclude that the just is the same everywhere, namely, the advantage of the stronger." (Rep. I 339a) Clearly, Socrates/ Plato disagrees. Justice should be to everyone's interest, not merely to the interest of rulers, especially when they are mistaken; it must not be a description of power and governance but the envisioning and prescription of an ideal. [3]

Because justice is an ideal, it is difficult to see, much less define; harmony is Plato's approach to handling this difficulty (Rep.IV 443 c-e). He pressed this concept into service in order to delineate further the idea of a polis that, while it may never actually exist in the fullness of harmony, ought to be sought or at least dreamed of, an ideal polis especially worth dreaming about in difficult times. Failing the actual achievement of such a polis, this ideal might serve as a standard against which any progress could be plotted. His goal is prescriptive.

My purpose is to identify to what extent harmony is illustrative of Plato's view of justice.

The Liddell and Scott Greek-English Lexicon defines *harmony* in ways that will probably surprise a twenty-first century reader, because the permutations of meanings offered there do not all convey what he may expect, viz. a sensibly-pleasing combination of musical notes or maybe a peaceful coexistence with others. Rather, harmony is a feminine noun that may mean "a means of joining and fastening"; it is a "joint," a "suture," a "framework"; it is a "covenant," and "order." But our contemporary reader, if he perseveres in reading the definitions, does find help further down in this long definition. There is a connection between the concepts of harmony and music, but, as we discover, harmony does not refer to sensible pleasure.

The Greek story of *harmony* seems to begin with Heraclitus: it is a method of stringing. "Men do not know how what is at variance agrees with itself. It is an attunement of opposite tensions, like that of the bow and the lyre. In the Symposium, Plato has Eryximachus approving of Heraclitus: "Heraclitus probably meant that an expert musician creates a harmony by resolving the prior discord between high

and low notes." (187a) And Heraclitus again: "Opposition unites. From what draws apart results the most beautiful harmony. All things take place by strife." [4]

Strife may come from diversity, and Socrates' first definition/description of justice accounts for, even embraces, diversity: *Moreover, we've heard many people say and have often said ourselves that justice is doing one's own work and not meddling with what isn't one's own. (Rep.IV 433a)*

This is a recognition of diversity, that necessary diversity which human society, cities especially, need, even at the expense of an overall messiness in life. Uniformity cannot be expected and shouldn't be. So, while this first sort-of definition is not exact, it provides insight into his concept of justice. Perhaps justice, if it is to exist at all, must do so amidst the very startling diversity of Athenian life. What justice-cum-diversity needs, then, is a "joint," a "suture," or a "fastening"; it needs harmony.

Plato looks to music to examine harmony and, thus, justice.

Music was one element in *mousike*, i.e. the joining of any of the arts that are governed by the Muses with music performance, and it was the lyre that mattered. Together with the aulos, a two-reed pipe, the study of the lyre was a standard requirement in traditional Greek education. Origins of the lyre lie in ancient Mesopotamia, but it made its early entrance into Greek *mousike* in the Homeric Hymns (circa 7th century B.C.E.). According to this text, Hermes created the first lyre, using entrails from cows that he stole from his half-brother Apollo, together with a tortoise shell to organize the entrails-become-strings. The divine thief is found out and pacifies the angry Apollo with the gift of this very first lyre and a performance of his own composition. Apollo is delighted:

"Slayer of oxen, trickster, busy one, comrade of the feast, this song of yours is worth fifty cows, and I believe that presently we shall settle our quarrel peacefully. But come now, tell me this, resourceful son of Maia: [440] has this marvelous thing been with you from your birth, or did some god or mortal man give it you —a noble gift —and teach you heavenly song? For wonderful is this new-uttered sound I hear, the like of which I vow that no man [445] nor god dwelling on Olympus ever yet has known but you, O thievish son of Maia." [5]

Henceforward, iconography pictures Apollo holding a lyre, which is then associated with the lives of the gods and enters Greek education and society fully.

One cannot be surprised, then, that Plato, in references to music and harmony, refers to the lyre; the very term *harmony* is defined in terms of the lyre. Seven-stringed lyres were often preferred, because,

being able to see seven celestial bodies, Greeks saw the number seven as enjoying cosmic order and divine favor. With the right hand, the performer plucked or strummed the strings on the side close to him with a plectrum; in playing with his left hand on the other side of the strings, he could "stop" a string to raise or lower the pitch of that string, thus extending the range of the instrument. Vase paintings often show a performer seated, but he could attach the lyre to himself with a strap for security, especially in processions.

While pitches that are accessible to human hearing are far more extensive than can be provided for on a lyre's strings, whether there are seven strings or more, the task was to provide strings with differently pitched sounds, along with identifiable intervals between these pitches. Each element is chosen carefully, music being an interplay of sound and silence, pitches and intervals. The pattern of pitches and intervals was created by the performer's taste, by his choice of melody, or by conventional patterns in existence at the time. The term *harmony* (*harmonia*; plural, *harmoniai*) refers to the tuning pattern that a lyre's performer gave to his instrument.

When there were seven strings, the highest one, closest to the performer, was named *hypate* and had the lowest pitch. The other strings in line were *parhypate, lichanos* or *hypermese*, *mese*, *trite* or *paramese*, *paraneate*, and *neate*, the highest in pitch. When lyres had eight strings, *trite* and *paramese* were distinct, each group of four then being designated as a *tetrachord*. The instrument was tuned by starting from a given string, which was called "origin" or "leader"; the other strings were then tuned at varied intervals to the "origin" or "leader." Beginning with *mese*, the performer turns the peg until its string achieves a pitch that he anticipates will serve his needs for this performance. *Hypate* is tuned at a fourth above *mese*, the number referring to the interval between *mese* and *hypate* as the performer perceives the interval. *Neate* is next, at a fifth below *mese*. The rest of the strings are tuned, one after another, in an alternating sequence of fifths and fourths. Every tuning is thus established according to these two numbered sequences. [6]

The performer was free to establish his own tuning pattern but he might also adopt any of the tuning patterns that were popular and standardized by the fourth century B.C.E. Plato had his preferences, viz. the Dorian and the Phrygian. "Just leave me the mode that would suitably imitate the tone and rhythm of a courageous person who is active in battle or doing other violent deeds…Leave me another mode, that of someone engaged in a peaceful, unforced, voluntary action, persuading someone or asking a favor of a god in prayer…" (Rep.III. 399a-b).

Organicism

Plato's world view, an obvious backdrop to his reflections on justice and harmony, can best be described as a kind of organicism. Accordingly, just to comprehend his theory of justice, we must see every individual, indeed every reality, human or non-human, as deriving its identity and value from its place and functioning within the cosmos, now to be understood in an organismic way. The universe is a single living thing, having reason in its soul, and soul in its body, its model and exemplar being one of the Forms, referred to as the Living Thing/Creature. (Tim 30b) This Living Thing has priority over the parts; were the parts to have priority over the whole, i.e. the Living Thing, unity would be difficult to establish. The universe is the product of Reason and Necessity. Necessity is disorderly but open to the persuasions of Reason to some extent. "Rather, let us lay it down that the universe resembles more closely than anything else that Living Thing of which all other living things are parts, both individually and by kinds. For that Living Thing comprehends within itself all intelligible livings things, just as our world is made up of us and all the other visible creatures." (Tim 30 c-d) This Living Thing, being an eternal and perfect Form, is the model and source of all intelligent creatures living in this derivative and imperfect world.

The figure of the Demiurge (craftsman) serves as a mythic personification of Reason in its ongoing, though not always successful, efforts to persuade Necessity to allow order into the realm of Becoming. "Now everything that comes to be must of necessity come to be by the agency of some cause, for it is impossible for anything to come to be without a cause. So the Craftsman looks at what is always changeless and, using a thing of that kind as his model, reproduces its form and character…" (Tim.28b) The Craftsman built the physical world by joining fire, water, air, and earth; the world's soul, from a mixture of the Same, the Different, and of Being. (35a-b) The *Timaeus* delineates this living world, its coming-into-existence and, in particular, its complete rationality established by means of mathematical relationships as well as the rational ordering of all of its components. "….from such constituents, four in number, the body of the universe was brought into being, coming into concord by means of proportion…" (32c). The soul too: "And in the centre he set a soul and caused it to extend throughout the whole and further wrapped its body round with soul on the outside; and so he established one world alone, round and revolving in a circle, solitary but able by reason of its excellence to bear itself company…" (34a-b). [7]

Human souls, which are copies of the form of the Living Thing, have the benefit of, and need for, education, for the bodies joined to these souls have weakened their rationality. Book III of the *Republic* makes it clear that the education provided in the city is the major, if not the sole agent in the right education of its citizens. Education is not an individual's decision or design; Plato is not telling us of a libertarian self-determination in education. Plato's view is the negation of an individualism, wherein persons are free to self-determine their goals and lives. Rather, the diminishing of human souls caused by their joining to physical bodies means that their decisions may not be wise and virtuous. He would say that persons are free, but free to achieve their best goals as revealed by the educational system; they are 'components' within an organic 'system'. Not everyone, though, will benefit from this city-wide education; it is possible that ignorant and malicious persons may be found in the city, and this ignorance and malice are a result of not cooperating fully or even adequately with the education provided by the city's rulers. What is called the "noble lie" tends to soften the blow, viz. that the city does have citizens who do not cooperate with the education officially provided: persons are born with different metals in their souls: gold, silver, bronze, or iron. Different metals predispose one to different levels of cooperation.

This noble lie raises the question of free will, a topic and question that remains debatable among Plato scholars. Did Plato have a concept of free will? Probably not: because he would not have needed the escape hatch of the noble lie. We cannot fault persons of ignorance or malice, because they do not determine the type of metal in their souls. [8]The very picture that he draws of the human soul does not seem, I believe, to introduce a free will. The "highest" part of the soul, the deliberative, is the intellectualist element; it is supported, its considerations carried out by the middle part, the spirited part; the "lowest" part is the appetitive, the realm of passion and desire. Our actions are dictated either by the intellectualist or the appetitive parts. T.H.Irwin has outlined this question of the origin of the free will and suggests that "…we must recognize the will as a third element in rational choice besides mere belief and mere desire." (1992) This third element is not obviously present.

Plato's organicism envisions a world view different from one of free will, liberty, and self-determination, i.e. where the "part" has priority over the "whole." His is a world view certain to generate a view of justice different from modern and contemporary expectations. [9] His comments on harmony help his readers to "see" justice as he envisioned it.

HARMONY

Harmony on the lyre is a rational planning by a performer, and Plato holds that rationality should be the dominant feature of human life in the polis. The establishing of harmony in a performance is accomplished by an orderliness of pitches and intervals. It is not the sensible pleasure that the music may offer that matters; Plato consistently refuses to assign any importance to the physical and sensible. What matters is the rationality, the established order that defines excellence. There is a sequence to the tuning; *mese* is first, then *hypate* and *neate*. Then, continuing on to incorporate all other strings, the performer integrates them into accepted patterns, beginning with the fundamental intervals, viz. the octave, fourths and fifths. So too the rationality of a person in Kallipolis is the preeminent feature of his existence, a preeminence explained in *Timaeus*. The Demiurge, having created the rational souls of mortal beings, delegates to the celestial gods the crafting of the remainder of the being of mortal human beings: "…that part (i.e. the immortal, rational soul), having sown it as seed and made a beginning, I will hand over to you (i.e. the lesser, celestial gods). For the rest, do you, weaving mortal to immortal, make living beings; bring them to birth, feed them, and cause them to grow…" (Tim.41a-d). Rationality must pervade the city. Persons are not equal, differing as they do in levels of rationality according to the "metals" in their souls and committed to tasks for which they are suited. Each, as Plato says, minds his own business, implying that each person is suited for one task only; the choice of one's work should not be left to non-rational chance or whimsy. Athens, both real and ideal, is a large city and needs many tasks and professions to flourish, and human souls, in need of enlightenment through education in the polis, are ill-prepared to decide such important matters for themselves.

Such rationality is mathematical. Plato had something of a Pythagorean impulse, though not a Pythagorean, such that he calls for the ordering of music by means of mathematical relationships. An important statement of the high status of the mathematical is found in his delineation of all reality in the fourfold Divided Line passage (Rep. VI. 509d-511e). The Forms occupy the topmost place, and below these is the mathematical realm: "…students of geometry, calculation, and the like hypothesize the odd and the even… (and) although they use visible figures …their thought isn't directed to them but to those other things that they are like." The Forms and numbers constitute the realm of Being. Physical objects

lie below the mathematical, with images and shadows being the lowest on the Line. The latter are the realm of Becoming. The objects of mathematics are not physical, even though representations of them may be constructed or drawn; and humans can apprehend numbers themselves. The five areas, arithmetic, plane geometry, solid geometry, astronomy, and harmonics, are "…compulsory for warriors because of their orderly ranks and for philosophers because they have to learn to rise up out of becoming and grasp being, if they are ever to become rational…" (Rep. VII 525b-c). To "grasp Being" is to have achieved insight into the Forms, and mathematics leads to such insight. In short, if Athens is ever to become Kallipolis, mathematical knowledge must permeate and prevail. While later music uses tones and half-tones either completely or predominantly, lyres could also be tuned to smaller intervals such as one-third and quarter tones; and to rationalize all such intervals, quantification was sought.

Quantification was admittedly challenging, and Plato remarks that "…the sciences of astronomy and harmonics are closely akin." (Rep. VII 530c-d) Socrates hopes to learn about harmonics---for he protests ignorance thereof---from those who do astronomy. One should not be interested in the sounds of the notes but should "…seek out the numbers that are to be found in these audible consonances…" (Rep. VII 531c). In dealing with harmony, the numbers are important, the sounds less so. Once the performer had tuned the string called the "leader," *mese,* he tuned the others in relation to *mese*, in patterns of intervals of fourths and fifths as the performer heard them. *Hypate* was second to be tuned, at a fourth above *mese* (closest to the performer); *neate* was third to be tuned, at a fifth below *mese* (farthest from the performer). These three were fixed; any and all other strings were movable or adjustable, though keeping to the pattern of fourths and fifths. Andrew Barker thus explains the terms *fourth* and *fifth*: *fourth* "…referred originally to the group of strings which lie under a lyre-player's fingers in what we might call the 'starting position', poised over the four lowest strings on the instrument." The fourth was called *syllaba*, which means 'grasp'. The fifth was called *di' oxeian*, which means 'through the high-pitched strings', "…those that complete the span from the fourth string to the top of the octave." (2007, 264)

JUSTICE

It is to be expected that contemporary theories of justice will differ from that of Plato, his view of mankind, the goal of human existence, and his metaphysics standing in opposition to much of Western philosophy. Nonetheless, only those who can claim that their society has achieved for its citizens all that can be achieved can afford to ignore his demanding notion of justice. It is desirable, then, that two topics in his philosophy that undergird and define his notion of justice be considered: his view of the person and, then, the society that is best for him.

The human person, he wrote, is an immortal soul that is joined to a physical body that limits the potential of that soul and can frustrate the achieving of its goal. Human souls have a pre-birth existence in a perfect, non-physical world; but, at some point, every human soul is cast down into a body, at which time the soul loses most of what it once knew and is burdened by ignorance. And ignorance is a phase of evil. The soul is three-dimensional: reason is uppermost, spirit and appetite lying 'below' reason and meant to serve its interests harmoniously. The preeminence of reason defines the uniquely-human purpose, viz. to embrace and develop one's rationality and thus the goodness or virtue that is concomitant with rationality. Such striving was not necessary in man's pre-birth existence, but his physicality in a physical cosmos means that he must now work to understand and embrace ideals that he once knew. Doing this is the necessary and sufficient condition for returning to that perfect, non-physical world, when the soul is finally liberated from the body.

Ideals are many; justice is the ideal toward which all human societies and all individuals within those societies ought to strive. If Athens is to become Kallipolis, or at least honestly strive to become so, it must provide all the opportunities, goods, and services that humans need; and this is particularly true of an excellent educational system. All free citizens, women as well as men, are to be educated in this necessarily rigorous system. Its rigor allows the three classes of citizens to be identified: the upper class, the guardians, are those who have the highest achievement; below them are the auxiliaries or warriors; lowest in rank are the workers or artisans. Each individual belongs to one of these classes and is presumably content there because his rank is congruent with his rationality and virtue.

Individuality is implied in Plato's description of justice (Rep.IV 433b); Kallipolis would need a broad range of talents and accomplishments, and each person should be committed to his very own tasks.

Diversity in the city's work is most desirable, and it is assured if and when each citizen embraces his uniqueness. Doing so is rational and virtuous, rational in that it would be irrational to reject one's identity, virtuous in that goodness is concomitant with what is rational. The irrational is never good.

The diversity of the city connects Plato's reader to the concept of harmony. A musical composition is constituted of many pitched sounds; and as the fourth century B.C.E. expanded the number of strings on their lyres, the number and range of pitched sounds increased. Earliest lyres in Mesopotamia had as few as three strings, and Greek lyres expanded to as many as twelve. Both the need for, and desirability of, large numbers of citizens in the city and a great range of pitched sounds in music are obvious. Still, the organization of diversity is accounted for. A Greek lyrist had the option to construct his own tuning pattern (*harmonia*), but traditionally- accepted patterns shaped along ethnic and regional lines were popular and expanded in number over time. The three social classes were 'fixed'; also 'fixed' were *mene, hypate,* and *neate*. In Plato's reading of human nature, it was inconceivable that a citizen would not choose to be and to work in anything other than where his talents directed, in the life's path which the city's educational program indicated he should follow.

Just as the three fixed notes in an octave set up patterns into which individual notes would fall, the three social classes harmonized the diversity that Kallipolis required for meeting all its needs. Individual decisions would not be left to individuals, not left to chance or whimsy. [10]That an individual may be multi-talented was not considered. Plato saw the decline of music in Athens as the result of excessive individualism and democracy. Over time, the rules of good music were flouted and ignored in Athens, and pleasure alone became a criterion of judging music. What followed was a disregard of all authority.[11] Not all Athenian music is good music; similarly, Athens is not always just.

Justice is a cosmic goal, standing for the level of rationality and virtue that should be achieved in, and by, the human world, imperfections and physicality notwithstanding. There is a 'fallen' character to humans, and so the quest for justice is difficult. Harmony, at least, helps to clarify justice and makes it, possibly, more alluring.

NOTES

[1] Even the title of Republic (Politeia) suggests a deliberate ambiguity in Plato's vision of an ideal society. The multi-dimensional *politeia* means citizenship, body of citizens, government, administration, course of policy, tenure of public office, constitution, and form of government.

[2] Having survived defeat both in the Peloponnesian War (431-404) and in the Corinthian War (397-387), Athens managed to rebuild in large measure her hegemony in her domination of the Second Athenian League (378-355). Plato, as with any war-weary Athenian, must nevertheless have been sufficiently optimistic to write about a glorious ideal such as justice. The best historical source here is Xenophon's Anabasis.

[3] Little is known of Thrasymachus, though history remembers him as orator, diplomat, and Sophist. We can learn a great deal of his philosophical style from his encounter with Socrates in Republic (I 336b-354c). An analysis of this encounter is admirably provided by Rachel Barney in "The Sophistic Movement," in M.L. Gill and Pierre Pellegrin. A Companion to Ancient Philosophy, 77-97. Oxford: Blackwell, 2006.

[4] *Heraclitus.* Translation Arthur Freeman and John Burnet. Diels-Kranz 22B51 and 22B8. Retrieved from heraclitusfragments.com

[5] The Homeric Hymns and Homerica with an English Translation. Translation by Hugh G. Evelyn-White. *Homeric Hymns*, Hymn 4, *To Hermes*. Cambridge, Ma. Harvard University Press; London, William Heinemann Ltd. 1914. Retrieved from www. perseus, tufts.edu

[6] Contemporary researchers in musicology provide a wealth of information about the ancient and classical lyre. Examples include these: Barker (2007), Hagel (2010), Lynch (2020), Mathiesen (1999) and Wallace (2015).

[7] Plato identifies the ratios which determine the intervals of fourth and fifth in Timaeus 36a-b.

[8] One has to wonder how material items like metals can enter a human soul, which is not physical. Others will have to solve that puzzle.

[9] Plato's affection for Athens may seem at odds with his criticism of democracy; possibly the trial and execution of Socrates was one reason. In Laws he writes that democracy has been taken to extreme lengths (693d). He envisions Kallipolis as an aristocracy: "…if an outstanding man emerges among the rulers, it's called a kingship; if more than one, it's called an aristocracy." (Republic 445d6) His rigorous educational system will surely produce "more than one" citizen with guardian credentials.

[10] Everyone in Kallipolis must "…work all his life at a single trade for which he has a natural aptitude and keep away from all the others, so as not to miss the right moment to practice his own work well." (Rep. II 374b6-c2)

[11] This is clear in Laws III, 693d, 700e, and 701c.

Bibliography

Anderson, Warren D. (1966) *Ethos and Education in Greek Music: The Evidence of Poetry and Philosophy.* Cambridge, Ma: Harvard University Press.

Barker, Andrew. (2007) *The Science of Harmonics in Classical Greece.* Cambridge: Cambridge University Press.

Broadie, Sarah. (2011) *Nature and Divinity in Plato's Timaeus.* Cambridge: Cambridge University Press.

Cornford, Francis and Plato. *Plato's Cosmology, The Timaeus of Plato Translated with a Running Commentary.* Mansfield Centre, Ct: Martino Publishing, 2014.

Hagel, Stefan. (2010) *Ancient Greek Music: A New Technical History.* Cambridge: Cambridge University Press.

Irwin, T.H. (1992) Who Discovered the Will? *Philosophical Perspectives.* Vol. 6, Ethics, 453-473.

Keyt, David. (2011) Plato on Justice. In *Socratic, Platonic, and Aristotelian Studies. Essays in Honor of Gerasimos Santos.* New York: Philosophical Studies Series.

Kraut, Richard. (1997) The Defense of Justice in Plato's Republic. *Plato's Republic, Critical Essays*. Ed. Richard Kraut. Lanham, MD: Rowman and Littlefield.

Lynch, Tosca. (2020) Tuning the Lyre, Tuning the Soul, Harmonia, Justice and the Kosmos of The Soul in Plato's Republic and Timaeus. *Greek and Roman Musical Studies*, Vol.8, 111- 155.

Mathiesen, Thomas. (1999) *Apollo's Lyre: Greek Music and Music Theory in Antiquity and the Middle Ages.* Lincoln, NE: University of Nebraska Press.

Pears, Colin David. (2013) Congruency and Evil in Plato's Timaeus. *Review of Metaphysics,* Vol.69, No.1, 93 – 113.

Pelosi, Francesco. (2010) *Plato on Music, Soul and Body*. Trans. Sophie Henderson. Cambridge: Cambridge University Press.

Plato. *Complete Works.* Edited, with Introduction and Notes, by John M. Cooper. Indianapolis: Hackett Publishing Company. 1997.

Raffa, Massimo. (2008) Review of The Science of Harmonics in Ancient Greece. *Aestimatio,* Vol.5. Institute for Research in Classical Philosophy and Science, 55 – 65.

Sachs, Curt. (1943) *The Rise of Music in the Ancient World, East and West.* New York: W.W.Norton & Company.

Snyder, Jane McIntosh. (1984) The Harmonics of Bow and Lyre in Heraclitus. *Phronesis,* Vol. 29, No.1, 91 – 9

Thaler, Naly. (2005) Plato on the Philosophical Benefits of Musical Education. *Phronesis,* Vol.60, No.4, 410 – 435.

West, M.L. (1992) *Ancient Greek Music.* Oxford: Clarendon Press,

Zeyl, Donald and Sattler, Barbara. (2017) Plato's Timaeus. Retrieved from https://plato.stanford.edu.